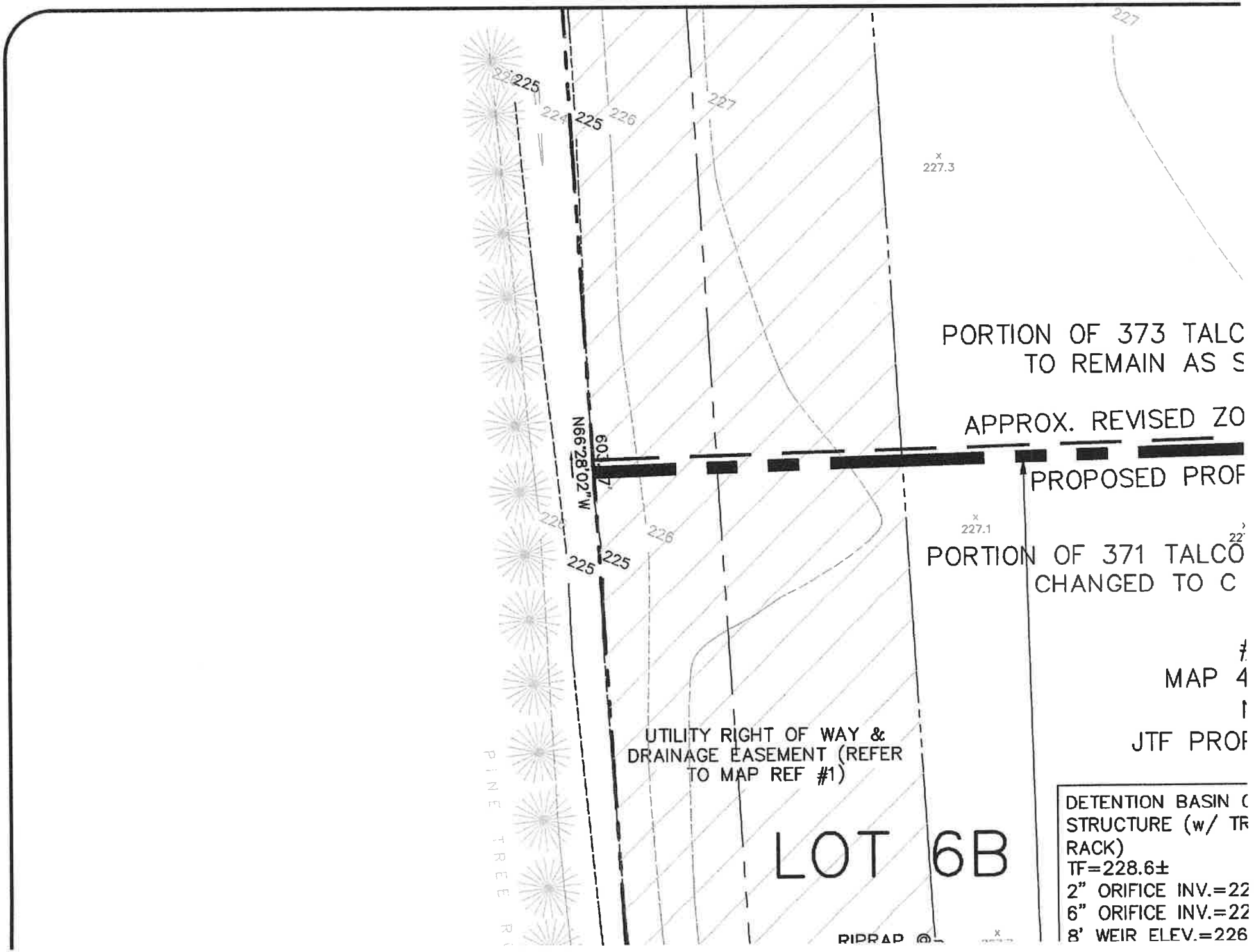

225
224
225
226
227
227.3
PORTION OF 373 TALC
TO REMAIN AS S
APPROX. REVISED ZO
N66°28'02"W
603.7'
PROPOSED PROF
227.1
226
225
225
PORTION OF 371 TALCO
CHANGED TO C
MAP 4
JTF PROF
UTILITY RIGHT OF WAY &
DRAINAGE EASEMENT (REFER
TO MAP REF #1)
LOT 6B
DETENTION BASIN
STRUCTURE (w/ TR
RACK)
TF=228.6±
2" ORIFICE INV.=22
6" ORIFICE INV.=22
8' WEIR ELEV.=226
RIPRAP @
PINE TREE

ITETripGen Web-based App

Graph Look Up

Query Fitted

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
948

LAND USE GROUP:
(900-999) Services

LAND USE:
948 - Automated Car Wash

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (X):
Car Wash Tunnels

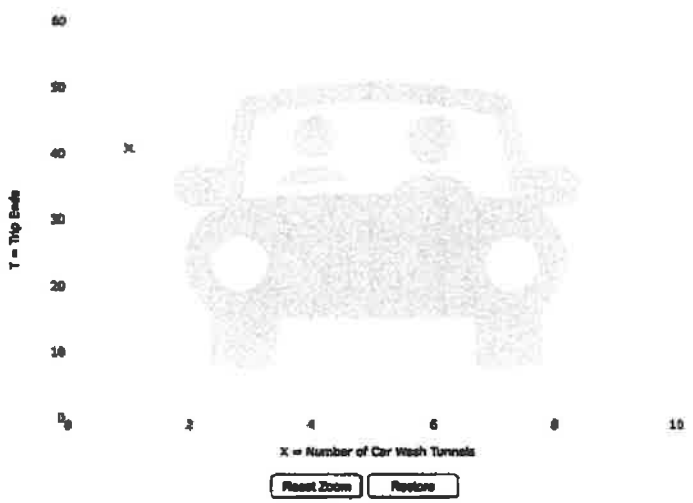
TIME PERIOD:
Saturday, Peak Hour of Generator

TRIP TYPE:
Vehicle

ENTER X VALUE TO CALCULATE TRIPS:
2 Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Automated Car Wash (948) Click for Description and Data Plots

Independent Variable:
Car Wash Tunnels

Time Period:
Saturday
Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
1

Avg. Num. of Car Wash Tunnels:
1

Average Rate:
41.00

Range of Rates:
41.00 - 41.00

Standard Deviation:

Fitted Curve Equation:
Not Given

R^2:

Directional Distribution:
49% entering, 51% exiting

Calculated Trip Ends:
Average Rate: 82 (Total), 39 (Entry), 44 (Exit)

ITETripGen Web-based App

Help Scott Hosteth Sign out

Graph Look Up

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
941

LAND USE GROUP:
(900-999) Services

LAND USE :
941 - Quick Lubrication Vehicle Shop

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (IV):
1000 Sq. Ft. GFA

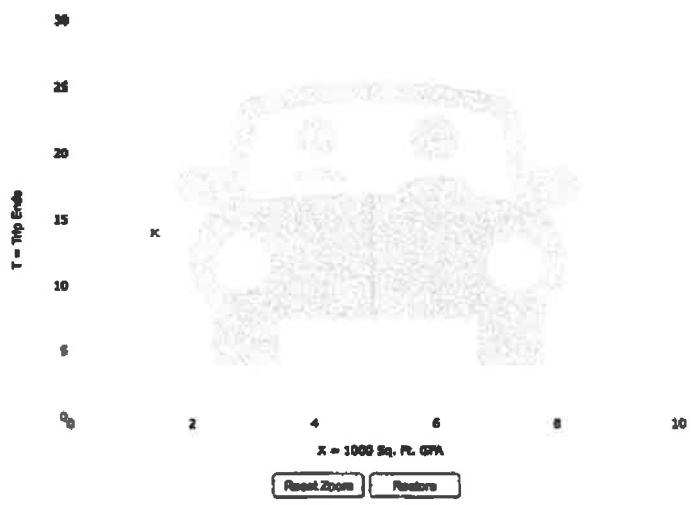
TIME PERIOD:
Weekday, AM Peak Hour of Generator

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
3.84 Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Quick Lubrication Vehicle Shop (941) Click for Description and Data Plots

Independent Variable:
1000 Sq. Ft. GFA

Time Period:
Weekday
AM Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
1

Avg. 1000 Sq. Ft. GFA:
1

Average Rate:
10.14

Range of Rates:
10.14 - 10.14

Standard Deviation:

Fitted Curve Equation:
Not Given

R^2:

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 39 (Total), 19 (Entry), 20 (Exit)

ITETripGen Web-based App

Graph Look Up

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
941

LAND USE GROUP:
(900-999) Services

LAND USE:
941 - Quick Lubrication Vehicle Shop

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

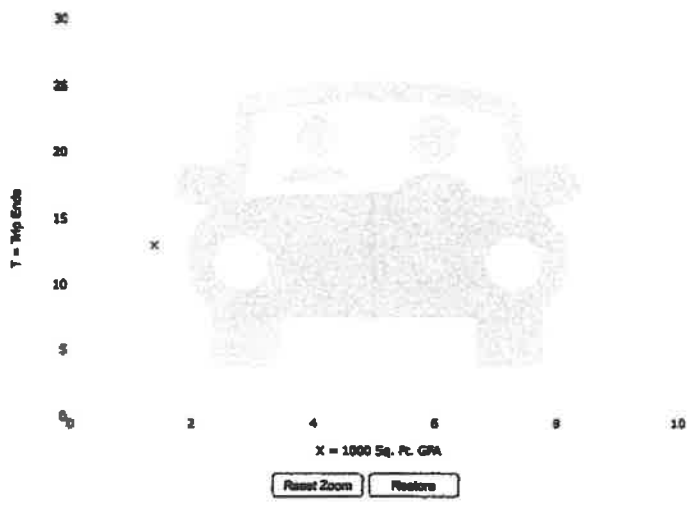
INDEPENDENT VARIABLE (IV):
1000 Sq. Ft. GFA

TIME PERIOD:
Weekday, PM Peak Hour of Generator

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
3.84 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

Caution – Small Sample Size

DATA STATISTICS

Land Use:
Quick Lubrication Vehicle Shop (941) Click for Description and Data Plots

Independent Variable:
1000 Sq. Ft. GFA

Time Period:
Weekday
PM Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
1

Avg. 1000 Sq. Ft. GFA:
1

Average Rate:
0.42

Range of Rates:
0.42 - 0.42

Standard Deviation:

Fitted Curve Equation:
Not Given

R^2:

Directional Distribution:
48% entering, 52% exiting

Calculated Trip Ends:
Average Rate: 36 (Total), 18 (Entry), 20 (Exit)

ITETripGen Web-based App

Help Scott Hoskin Sign out

Graph Look Up

ITETripGen Web-based App

Query Print

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
941

LAND USE GROUP:
(800-899) Services

LAND USE:
941 - Quick Lubrication Vehicle Shop

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (X):
1000 Sq. Ft. GFA

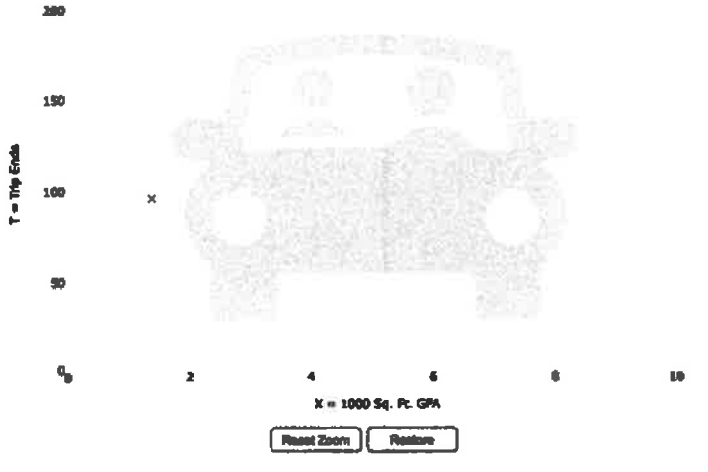
TIME PERIOD:
Weekday

TRIP TYPE:
Vehicle

ENTER X VALUE TO CALCULATE TRIPS:
3.84 Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Quick Lubrication Vehicle Shop (941) Click for Description and Data Plots

Independent Variable:
1000 Sq. Ft. GFA

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
1

Avg. 1000 Sq. Ft. GFA:
1

Average Rate:
69.57

Range of Rates:
69.57 - 69.57

Standard Deviation:
—

Fitted Curve Equation:
Not Given

R^2:
—

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 267 (Total), 133 (Entry), 134 (Exit)

ITETripGen Web-based App

Graph Look Up

Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
941

LAND USE GROUP:
(800-899) Services

LAND USE :
941 - Quick Lubrication Vehicle Shop

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (IV):
Servicing Positions

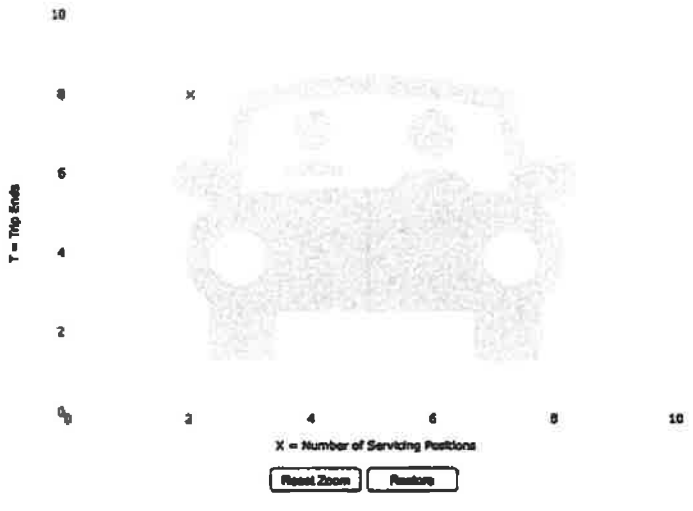
TIME PERIOD:
Weekday, AM Peak Hour of Generator

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
3 Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Quick Lubrication Vehicle Shop (941) Click for Description and Data Plot

Independent Variable:
Servicing Positions

Time Period:
Weekday
AM Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
1

Avg. Num. of Servicing Positions:
3

Average Rate:
4.00

Range of Rates:
4.00 - 4.00

Standard Deviation:

Fitted Curve Equation:
Not Given

R^2:

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 12 (Total), 6 (Entry), 6 (Exit)

ITETripGen Web-based App

Help Scott Hudson Sign out

Graph Look Up

Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
941

LAND USE GROUP:
(800-899) Services

LAND USE
941 - Quick Lubrication Vehicle Shop

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

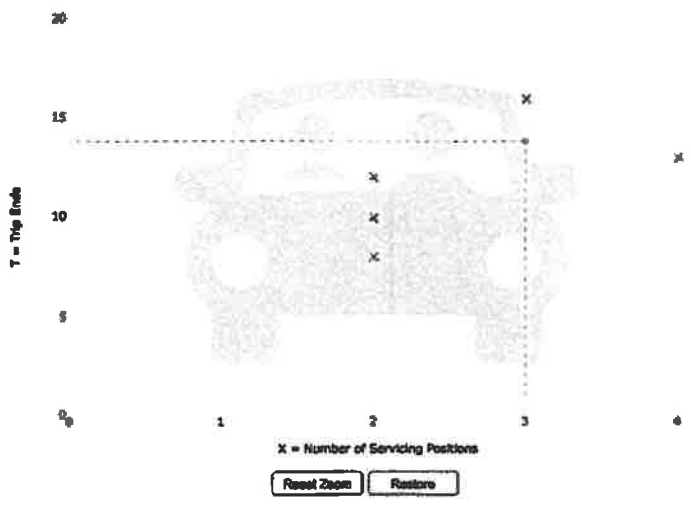
INDEPENDENT VARIABLE (IV):
Servicing Positions

TIME PERIOD:
Weekday, PM Peak Hour of Generator

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
3 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Quick Lubrication Vehicle Shop (941) Click for Description and Data Plots

Independent Variable:
Servicing Positions

Time Period:
Weekday
PM Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
6

Avg. Num. of Servicing Positions:
3

Average Rate:
4.80

Range of Rates:
3.25 - 6.00

Standard Deviation:
1.07

Fitted Curve Equation:
Not Given

R^2:

Directional Distribution:
55% entering, 45% exiting

Calculated Trip Ends:
Average Rate: 14 (Total), 8 (Entry), 6 (Exit)

ITETripGen Web-based App

Help Scott Hosteth Sign out

Graph Look Up

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
941

LAND USE GROUP:
(900-999) Services

LAND USE :
941 - Quick Lubrication Vehicle Shop

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (IV):
Servicing Positions

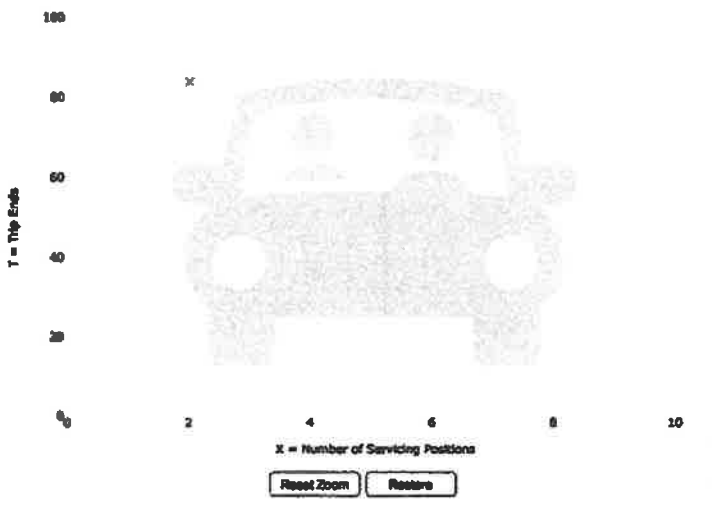
TIME PERIOD:
Saturday

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
3
Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Quick Lubrication Vehicle Shop (941) Click for Description and Data Plots

Independent Variable:
Servicing Positions

Time Period:
Saturday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
1

Avg. Num. of Servicing Positions:
3

Average Rate:
42.00

Range of Rates:
42.00 - 42.00

Standard Deviation:

Fitted Curve Equation:
Not Given

R^2:

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 126 (Total), 63 (Enter), 63 (Exit)

ITETripGen Web-based App

Help Scott Hosheth Sign out

Graph Look Up

Query Plot

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
841

LAND USE GROUP:
(800-899) Services

LAND USE:
841 - Quick Lubrication Vehicle Shop

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (IV):
Servicing Positions

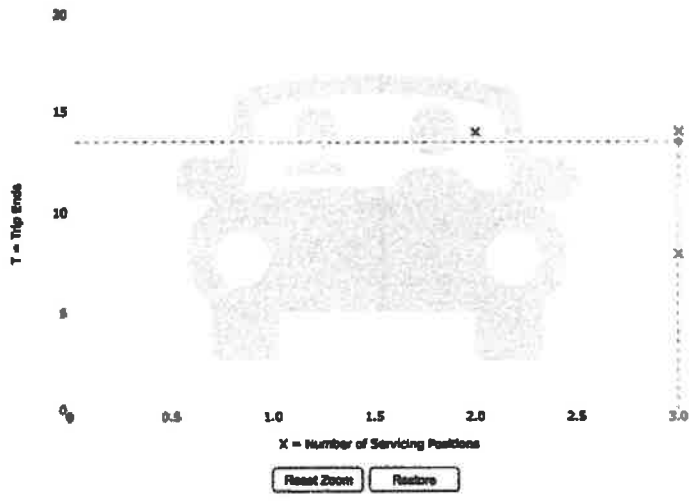
TIME PERIOD:
Saturday, Peak Hour of Generator

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
3 Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Quick Lubrication Vehicle Shop (841) Click for Description and Data Plots

Independent Variable:
Servicing Positions

Time Period:
Saturday
Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
3

Avg. Num. of Servicing Positions:
3

Average Rate:
4.80

Range of Rates:
2.67 - 7.03

Standard Deviation:
2.08

Fitted Curve Equation:
Not Given

R^2:

Directional Distribution:
47% entering, 53% exiting

Calculated Trip Ends:
Average Rate: 14 (Total), 6 (Entry), 8 (Exit)

ITETripGen Web-based App

Help Brent Hallam Sign out

Graph Look Up

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
841

LAND USE GROUP:
(800-899) Services

LAND USE:
841 - Quick Lubrication Vehicle Shop

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

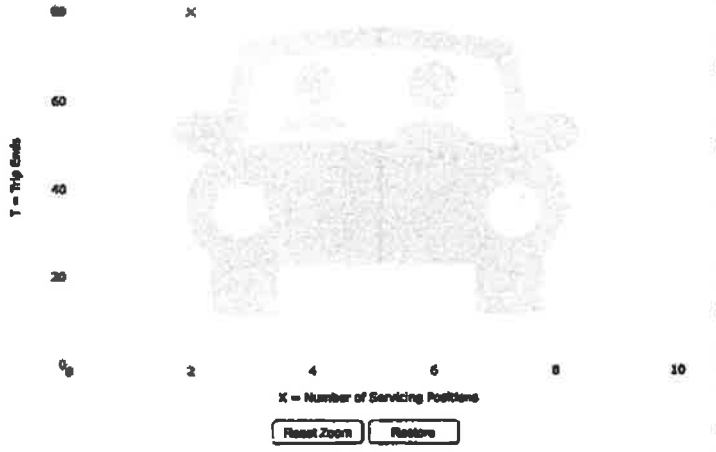
INDEPENDENT VARIABLE (IV):
Servicing Positions

TIME PERIOD:
Weekday

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
3 Calculate

Data Plot and Equation — *Caution – Small Sample Size*



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Quick Lubrication Vehicle Shop (841) Click for Description and Data Plots

Independent Variable:
Servicing Positions

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
1

Avg. Num. of Servicing Positions:
2

Average Rate:
40.00

Range of Rates:
40.00 - 40.00

Standard Deviation:

Fitted Curve Equation:
Not Given

R^2:

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 120 (Total), 60 (Entry), 60 (Exit)

ITE TripGen Web-based App

Help Scott Hasbrouck Sign out

Graph Look Up

Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
947

LAND USE GROUP:
(900-999) Services

LAND USE:
947 - Self-Service Car Wash

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (X):
Wash Stalls

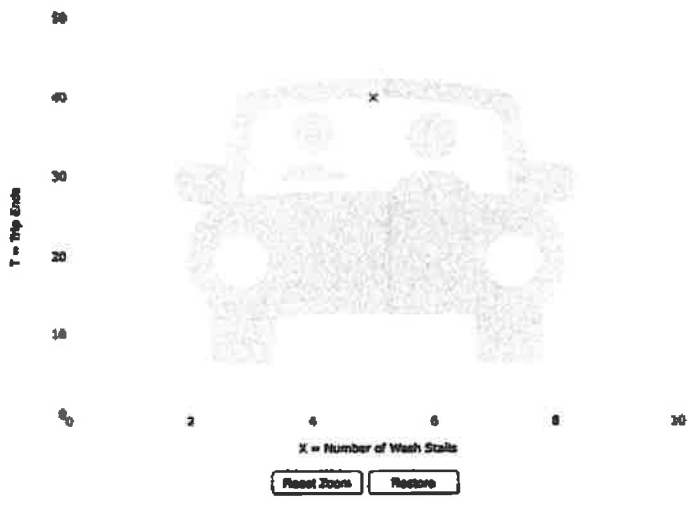
TIME PERIOD:
Weekday, AM Peak Hour of Generator

TRIP TYPE:
Vehicle

ENTER X VALUE TO CALCULATE TRIPS:
8 Calculate

Data Plot and Equation

Caution – *Small Sample Size*



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Self-Service Car Wash (947) Click for Description and Data Plots

Independent Variable:
Wash Stalls

Time Period:
Weekday
AM Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
1

Avg. Num. of Wash Stalls:
8

Average Rate:
6.00

Range of Rates:
6.00 - 6.00

Standard Deviation:

Fitted Curve Equation:
Not Given

R^2:

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 64 (Total), 32 (Entry), 32 (Exit)

ITETripGen Web-based App

Help Scott Hosheh Sign out

Graph Look Up

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
947

LAND USE GROUP:
(900-999) Services

LAND USE :
947 - Self-Service Car Wash

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (IV):
Wash Stalls

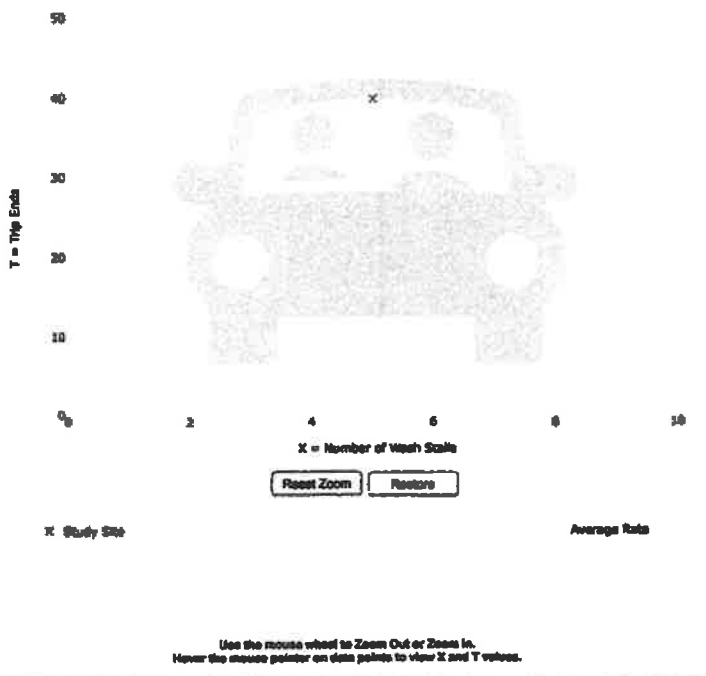
TIME PERIOD:
Weekday, PM Peak Hour of Generator

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
8 Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Self-Service Car Wash (947) Click for Description and Data Plots

Independent Variable:
Wash Stalls

Time Period:
Weekday
PM Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
1

Avg. Num. of Wash Stalls:
8

Average Rate:
8.00

Range of Rates:
8.00 - 8.00

Standard Deviation:
—

Fitted Curve Equation:
Not Given

R^2:
—

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 64 (Total), 32 (Entry), 32 (Exit)

ITETripGen Web-based App

Help Scott Hosken Sign out

Graph Look Up

Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
947

LAND USE GROUP:
(800-899) Services

LAND USE :
947 - Self-Service Car Wash

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (IV):
Wash Stalls

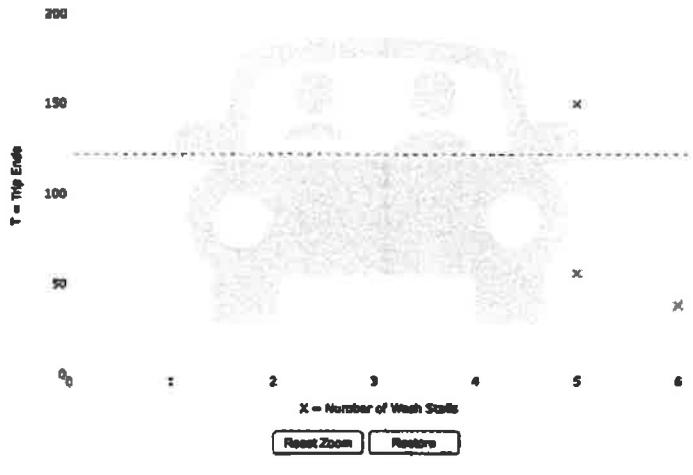
TIME PERIOD:
Saturday, Peak Hour of Generator

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
8 Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Self-Service Car Wash (947) Click for Description and Data Plots

Independent Variable:
Wash Stalls

Time Period:
Saturday
Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
3

Avg. Num. of Wash Stalls:
8

Average Rate:
15.26

Range of Rates:
6.33 - 30.00

Standard Deviation:
12.43

Fitted Curve Equation:
Not Given

R^2:

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 122 (Total), 61 (Entry), 61 (Exit)

ITETripGen Web-based App

Help Scott Hesketh Sign out

Graph Look Up

Data Plot and Equation

Caution – Small Sample Size

DATA STATISTICS

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
947

LAND USE GROUP:
(900-999) Services

LAND USE:
947 - Self-Service Car Wash

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (IV):
Wash Stalls

TIME PERIOD:
Saturday

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
8 Calculate

T = Trip Ends

X = Number of Wash Stalls

Reset Zoom Restore

X Study Site Average Rate

Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

Land Use:
Self-Service Car Wash (947) Click for Description and Data Plots

Independent Variable:
Wash Stalls

Time Period:
Saturday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
1

Avg. Num. of Wash Stalls:
5

Average Rate:
132.80

Range of Rates:
132.80 - 132.80

Standard Deviation:
—

Fitted Curve Equation:
Not Given

R^2:
—

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 1062 (Total), 531 (Enter), 531 (Exit)

ITETripGen Web-based App

Help Scott Hoelsch Sign out

Graph Look Up

Query Plot

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
947

LAND USE GROUP:
(900-999) Services

LAND USE :
947 - Self-Service Car Wash

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (X):
Wash Stalls

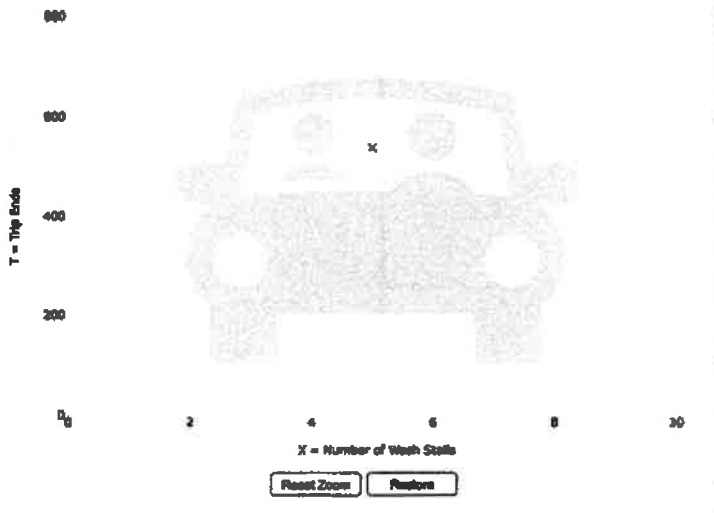
TIME PERIOD:
Weekday

TRIP TYPE:
Vehicle

ENTER X VALUE TO CALCULATE TRIPS:
8 Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Self-Service Car Wash (947) Click for Description and Data Plots

Independent Variable:
Wash Stalls

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
1

Avg. Num. of Wash Stalls:
6

Average Rate:
108.00

Range of Rates:
108.00 - 108.00

Standard Deviation:

Fitted Curve Equation:
Not Given

R^2:

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 864 (Total), 432 (Entry), 432 (Exit)

SYNCHRO Capacity Analysis Worksheets

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	10	0	527	1328	0
Future Volume (Veh/h)	11	10	0	527	1328	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	11	0	573	1443	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1730	722	1443			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1730	722	1443			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	97	100			
cM capacity (veh/h)	79	369	466			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	12	11	286	286	722	722
Volume Left	12	0	0	0	0	0
Volume Right	0	11	0	0	0	0
cSH	79	369	1700	1700	1700	1700
Volume to Capacity	0.15	0.03	0.17	0.17	0.42	0.42
Queue Length 95th (ft)	13	2	0	0	0	0
Control Delay (s)	58.3	15.0	0.0	0.0	0.0	0.0
Lane LOS	F	C				
Approach Delay (s)	37.6		0.0		0.0	
Approach LOS	E					

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	6	26	522	1312	26
Future Volume (Veh/h)	5	6	26	522	1312	26
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	7	28	567	1426	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1780	727	1454			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1780	727	1454			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	98	94			
cM capacity (veh/h)	69	366	461			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	12	28	284	284	951	503
Volume Left	5	28	0	0	0	0
Volume Right	7	0	0	0	0	28
cSH	131	461	1700	1700	1700	1700
Volume to Capacity	0.09	0.06	0.17	0.17	0.56	0.30
Queue Length 95th (ft)	7	5	0	0	0	0
Control Delay (s)	35.2	13.3	0.0	0.0	0.0	0.0
Lane LOS	E	B				
Approach Delay (s)	35.2	0.6			0.0	
Approach LOS	E					

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	33	0	1179	880	0
Future Volume (Veh/h)	38	33	0	1179	880	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	36	0	1282	957	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1598	478	957			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1598	478	957			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	58	93	100			
cM capacity (veh/h)	97	533	714			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	41	36	641	641	478	478
Volume Left	41	0	0	0	0	0
Volume Right	0	36	0	0	0	0
cSH	97	533	1700	1700	1700	1700
Volume to Capacity	0.42	0.07	0.38	0.38	0.28	0.28
Queue Length 95th (ft)	44	5	0	0	0	0
Control Delay (s)	66.8	12.2	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	41.3		0.0		0.0	
Approach LOS	E					

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	22	55	1162	858	55
Future Volume (Veh/h)	17	22	55	1162	858	55
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	24	60	1263	933	60
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1714	496	993			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1714	496	993			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	76	95	91			
cM capacity (veh/h)	74	519	692			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	42	60	632	632	622	371
Volume Left	18	60	0	0	0	0
Volume Right	24	0	0	0	0	60
cSH	145	692	1700	1700	1700	1700
Volume to Capacity	0.29	0.09	0.37	0.37	0.37	0.22
Queue Length 95th (ft)	28	7	0	0	0	0
Control Delay (s)	39.6	10.7	0.0	0.0	0.0	0.0
Lane LOS	E	B				
Approach Delay (s)	39.6	0.5			0.0	
Approach LOS	E					

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	21	50	1002	1036	50
Future Volume (Veh/h)	16	21	50	1002	1036	50
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	23	54	1089	1126	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1806	590	1180			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1806	590	1180			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	73	95	91			
cM capacity (veh/h)	64	451	588			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	40	54	544	544	751	429
Volume Left	17	54	0	0	0	0
Volume Right	23	0	0	0	0	54
cSH	126	588	1700	1700	1700	1700
Volume to Capacity	0.32	0.09	0.32	0.32	0.44	0.25
Queue Length 95th (ft)	31	8	0	0	0	0
Control Delay (s)	46.2	11.7	0.0	0.0	0.0	0.0
Lane LOS	E	B				
Approach Delay (s)	46.2	0.6			0.0	
Approach LOS	E					

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	32	0	1018	1054	0
Future Volume (Veh/h)	36	32	0	1018	1054	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	35	0	1107	1146	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1700	573	1146			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1700	573	1146			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	53	92	100			
cM capacity (veh/h)	83	463	605			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	39	35	554	554	573	573
Volume Left	39	0	0	0	0	0
Volume Right	0	35	0	0	0	0
cSH	83	463	1700	1700	1700	1700
Volume to Capacity	0.47	0.08	0.33	0.33	0.34	0.34
Queue Length 95th (ft)	49	6	0	0	0	0
Control Delay (s)	82.0	13.4	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	49.5		0.0		0.0	
Approach LOS	E					

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	10	0	537	1328	0
Future Volume (Veh/h)	11	10	0	537	1328	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	11	0	584	1443	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1735	722	1443			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1735	722	1443			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	97	100			
cM capacity (veh/h)	79	369	466			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	12	11	292	292	722	722
Volume Left	12	0	0	0	0	0
Volume Right	0	11	0	0	0	0
cSH	79	369	1700	1700	1700	1700
Volume to Capacity	0.15	0.03	0.17	0.17	0.42	0.42
Queue Length 95th (ft)	13	2	0	0	0	0
Control Delay (s)	58.9	15.0	0.0	0.0	0.0	0.0
Lane LOS	F	C				
Approach Delay (s)	37.9		0.0		0.0	
Approach LOS	E					

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	16	36	522	1312	36
Future Volume (Veh/h)	15	16	36	522	1312	36
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	17	39	567	1426	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1807	732	1465			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1807	732	1465			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	75	95	91			
cM capacity (veh/h)	64	363	457			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	33	39	284	284	951	514
Volume Left	16	39	0	0	0	0
Volume Right	17	0	0	0	0	39
cSH	112	457	1700	1700	1700	1700
Volume to Capacity	0.30	0.09	0.17	0.17	0.56	0.30
Queue Length 95th (ft)	28	7	0	0	0	0
Control Delay (s)	50.2	13.6	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	50.2	0.9			0.0	
Approach LOS	F					

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

COMBINED TRAFFIC VOLUMES
P.M.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	33	0	1189	888	0
Future Volume (Veh/h)	38	33	0	1189	888	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	36	0	1292	965	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1611	482	965			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1611	482	965			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	57	93	100			
cM capacity (veh/h)	95	530	709			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	41	36	646	646	482	482
Volume Left	41	0	0	0	0	0
Volume Right	0	36	0	0	0	0
cSH	95	530	1700	1700	1700	1700
Volume to Capacity	0.43	0.07	0.38	0.38	0.28	0.28
Queue Length 95th (ft)	45	5	0	0	0	0
Control Delay (s)	68.8	12.3	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	42.4		0.0		0.0	
Approach LOS	E					

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	42.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	32	63	1162	858	63
Future Volume (Veh/h)	27	32	63	1162	858	63
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	35	68	1263	933	68
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1734	500	1001			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1734	500	1001			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	59	93	90			
cM capacity (veh/h)	71	516	687			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	64	68	632	632	622	379
Volume Left	29	68	0	0	0	0
Volume Right	35	0	0	0	0	68
cSH	134	687	1700	1700	1700	1700
Volume to Capacity	0.48	0.10	0.37	0.37	0.37	0.22
Queue Length 95th (ft)	55	8	0	0	0	0
Control Delay (s)	54.1	10.8	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	54.1	0.6			0.0	
Approach LOS	F					

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		

COMBINED TRAFFIC VOLUMES
SATURDAY

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	32	0	1028	1064	0
Future Volume (Veh/h)	36	32	0	1028	1064	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	35	0	1117	1157	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1716	578	1157			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1716	578	1157			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	52	92	100			
cM capacity (veh/h)	81	459	600			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	39	35	558	558	578	578
Volume Left	39	0	0	0	0	0
Volume Right	0	35	0	0	0	0
cSH	81	459	1700	1700	1700	1700
Volume to Capacity	0.48	0.08	0.33	0.33	0.34	0.34
Queue Length 95th (ft)	50	6	0	0	0	0
Control Delay (s)	85.2	13.5	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	51.3		0.0		0.0	
Approach LOS	F					

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	31	60	1002	1036	60
Future Volume (Veh/h)	26	31	60	1002	1036	60
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	34	65	1089	1126	65
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1833	596	1191			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1833	596	1191			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	53	92	89			
cM capacity (veh/h)	60	447	582			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	62	65	544	544	751	440
Volume Left	28	65	0	0	0	0
Volume Right	34	0	0	0	0	65
cSH	114	582	1700	1700	1700	1700
Volume to Capacity	0.54	0.11	0.32	0.32	0.44	0.26
Queue Length 95th (ft)	64	9	0	0	0	0
Control Delay (s)	68.8	12.0	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	68.8	0.7			0.0	
Approach LOS	F					

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Hesketh

Civil & Traffic Engineers • Surveyors • Planners • Landscape Architects

F. A. Hesketh
& Associates, Inc.

May 9, 2022

Mr. Alan Borghesi
Borghesi Building & Engineering
2155 East Main Street
Torrington, CT 06790

Re: Proposed Valvoline Oil and Lube Center
371-373 Talcottville Road (Route 83)
Vernon, CT
Our File: 22055

Dear Mr. Borghesi:

Pursuant to your request and authorization our office has prepared this letter to outline the trip generation potential of a proposed 3,844 s.f. Valvoline Instant Oil Change facility as part of the existing car wash facility at that location. The site location is presented in Figure 1.

The current site consists of a car wash with two automated tunnels and eight self service bays. Access to the site is provided by two unsignalized driveways to Route 83. The southerly driveway is a full service driveway and the northerly driveway is a one way exit only driveway. Both driveway approaches operate under stop sign control. The existing car wash facility will remain in its current condition. The Oil Change facility access is proposed off of the southerly car wash entrance drive.

The Connecticut DOT maintains a traffic volume count program on all state highways and some local roadways. Included within the DOT database is a count on Route 83, south of Dart Hill Road. These counts were conducted in 2020 and in 2017. The 2020 count was conducted during the pandemic, and the observed traffic volumes were lower than the 2017 counts, therefore, to be conservative, we used the 2017 count data for

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analysis, as shown in Table 1. Since traffic volumes have declined due to the pandemic, a growth rate has not been applied.

In order to determine the trip generation potential of the proposed development, the Institute of Transportation Engineers (ITE) *Trip Generation* Report was consulted. *Trip Generation* presents trip generation estimates for many land uses based on counts conducted at existing facilities throughout the country. Included within the ITE database are the following land uses; Land Use Code (LUC): 947 – Self Serve Car Wash; LUC 948 – Automated Car Wash; and LUC 941: Quick Lubrication Vehicle Shop. The *Trip Generation* Report presents data based on building size, tunnels, and service bays.

According to the ITE report the existing car wash facility has a trip generation potential of 103 trips during the morning peak hour, a total of 219 trips, during the afternoon peak hour and a total of 204 trips during the Saturday peak hour. The proposed development with the quick lube center has a trip generation potential of 142 trips during the morning peak hour, 255 trips during the afternoon peak hour and 243 trips during the Saturday peak hour. Therefore, the proposed site will result in an increase of 39 trips during the morning and Saturday peak hour, and 36 trips during the afternoon peak hour. The site generated traffic is summarized in Table 2.

The site generated traffic was distributed to the local roadway network with a 50/50 directional distribution along Route 83. This distribution was used for the existing car wash as well as the proposed oil change facility. Capacity analyses were conducted for the background and the combined traffic volume conditions. The analysis was completed using a computer program known as SYNCHRO. The level of service results are presented in Table 3.

North Site Drive - This is an existing unsignalized driveway with Route 83 oriented in the north/south direction. The site driveway approaches from the west. Route 83

provides two southbound lanes and three northbound lanes, with one lane reserved for left turns into the residential driveway located immediately north of the site. The site driveway provides a two lane approach and operates under stop sign control. For purposes of this analysis we have analyzed the intersection with two lanes on each of the Route 83 approaches. The results indicate that the Route 83 approaches operate at a LOS A during peak hours under the background and combined traffic volume conditions. The site driveway approach operates with a LOS F for left turns and a LOS C for right turns during the morning peak hour and a LOS B during the afternoon and Saturday peak hours. These levels of service are the same under the background and combined traffic volume conditions.

As indicated above, there is a traffic signal located within 100 feet (north) of this intersection. The signal will result in queues in the northbound Route 83 lanes that will restrict exiting left turns. The queues are frequent, but of short duration, and should not significantly impact operations at the driveway.

North Site Drive - This is an existing unsignalized driveway with Route 83 oriented in the north/south direction. The site driveway approaches from the west. Route 83 provides two southbound lanes and three northbound lanes, with one lane reserved for left turns into the residential driveway located immediately north of the site. The left turn lane is utilized by vehicles entering the site driveway. The site driveway provides a single approach and operates under stop sign control. The results indicate that the Route 83 northbound approach operates at a LOS B for left turns and a LOS A for through vehicles. The southbound Route 83 approach operates at a LOS A during peak hours. These LOS are experienced under the background and combined traffic volume conditions. The site driveway approach operates with a LOS E during peak hours under the background traffic volumes. With the introduction of the site generated traffic the approach will operate at a LOS F during peak hours.

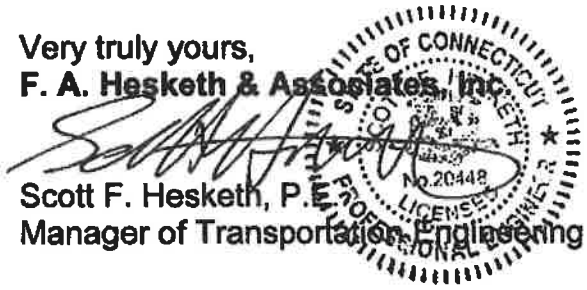
The LOS F calculated for the site driveways is not unusual for unsignalized driveways on Route 83 within the Town of Vernon. Although the LOS is F, average delays are not excessive and the volume to capacity ratios are a maximum of 56%.

Observations at the existing site driveways indicate that available intersection sight distances are in excess of 700 feet in each direction. The available sight distances meet the current ConnDOT requirement for an approach speed of 50 miles per hour. Route 83 in this area is posted at 40 miles per hour.

Based on the current traffic volumes on Route 83, the existing and proposed trip generation potential of the development, and the calculated levels of service as outlined above, it is my professional opinion that the traffic associated with the proposed Oil Change facility will not have a significant impact on the local roadway network. The site driveways to the site are existing to remain. They are properly designed to accommodate the anticipated driveway volumes and they are properly located with respect to available intersection sight distances.

We appreciate the opportunity to provide this analysis to you. We will be available to offer testimony in support of your application before local planning agencies upon your request. If you require additional information regarding this application, please do not hesitate to contact our office.

Very truly yours,
F. A. Hesketh & Associates, Inc.



Scott F. Hesketh, P.E.
Manager of Transportation Engineering

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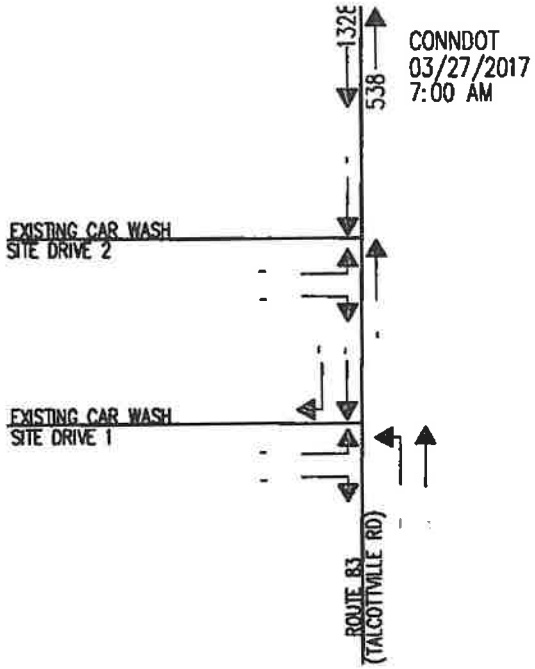
https://www.google.com/maps/@41.8336521,-72.4930994,15z

FIGURE 1

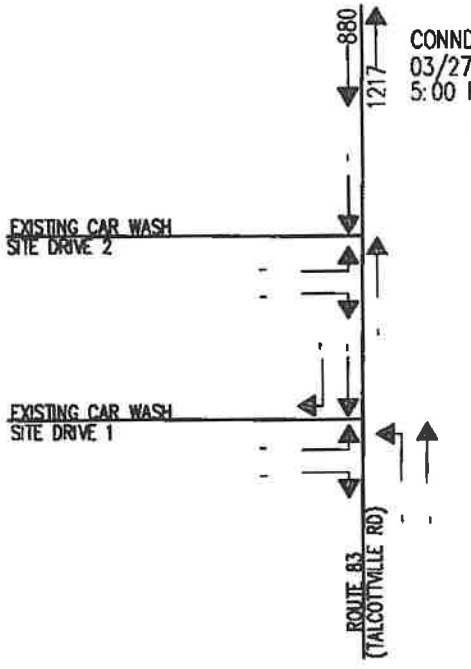
TABLE 1
ConnDOT TRAFFIC VOLUMES
Route 83 south of Dart Hill Road
STATION NO. 45

	27-Mar-17 Monday			28-Mar-17 Tuesday		
	NB	SB	Total	NB	SB	Total
12:00				91	43	134
1:00				40	35	75
2:00				20	28	48
3:00				27	45	72
4:00				72	102	174
5:00	81	310	391			
6:00	317	815	1132			
7:00	**538**	**1328**	**1866**			
8:00	454	1166	1620			
9:00	569	840	1409			
10:00	601	699	1300			
11:00	648	737	1385			
12:00	681	800	1481			
1:00	701	805	1506			
2:00	769	895	1664			
3:00	904	901	1805			
4:00	1103	935	2038			
5:00	**1217**	**880**	**2097**			
6:00	930	744	1674			
7:00	581	528	1109			
8:00	447	344	791			
9:00	335	189	524			
10:00	206	133	339			
11:00	109	93	202			
	11191	13142	24333	250	253	503

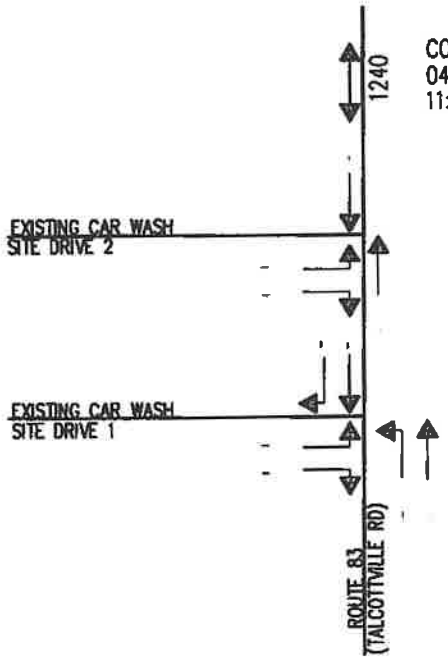
2017 ADT = 24,300 for station 45 in Vernon



A.M. PEAK HOUR



P.M. PEAK HOUR



SATURDAY PEAK HOUR

FIGURE 2

04-06-2022

OBSERVED TRAFFIC VOLUMES
A.M., P.M. & SATURDAY
PEAK HOURS
PROPOSED VALVOLINE
371 & 373 TALCOTTVILLE ROAD
VERNON, CONNECTICUT

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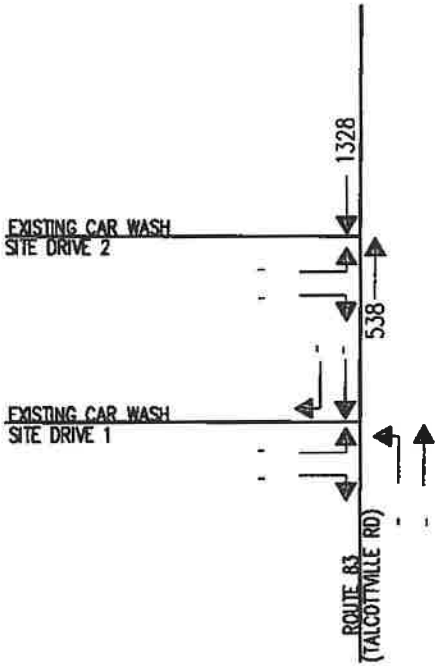
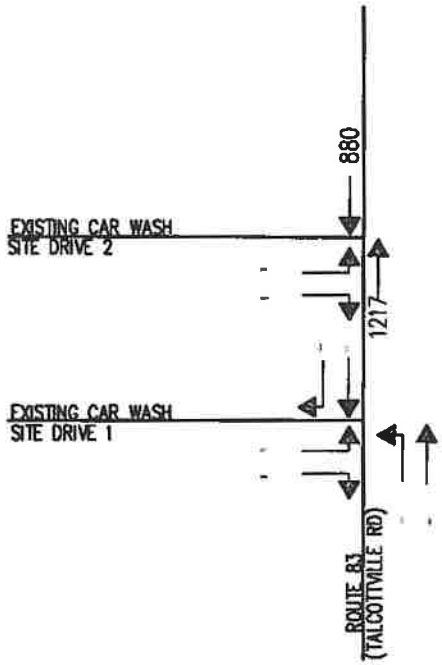
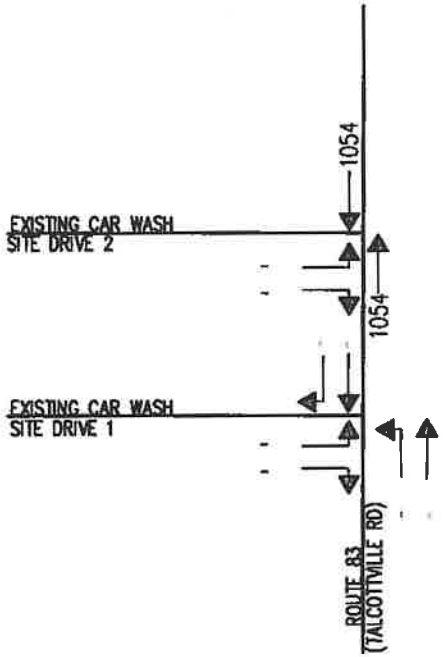


A.M. PEAK HOUR



P.M. PEAK HOUR



SATURDAY PEAK HOUR

CONNDOT CONDUCTED A SATURDAY COUNT IN APRIL 2020. IT WAS CONDUCTED DURING COVID, THEREFORE THE DIFFERENCE IN THE 2017 ADT AND THE 2020 ADT WAS FOUND (APPROX. 70%) AND THE 2020 SATURDAY VOLUMES WERE INCREASED BY THAT PERCENTAGE.

FIGURE 3

EXISTING TRAFFIC VOLUMES
A.M., P.M. & SATURDAY
PEAK HOURS
PROPOSED VALVOLINE
371 & 373 TALCOTTVILLE ROAD
VERNON, CONNECTICUT

04-06-2022

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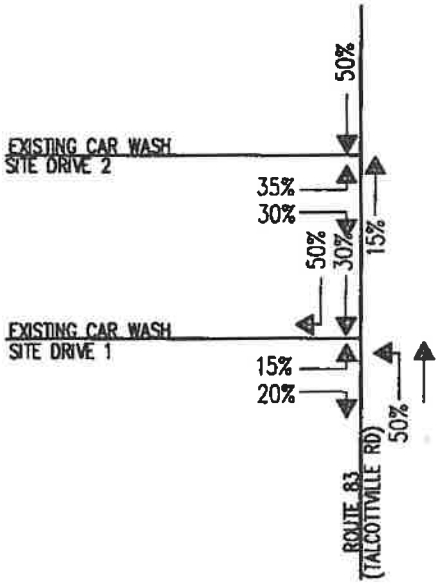
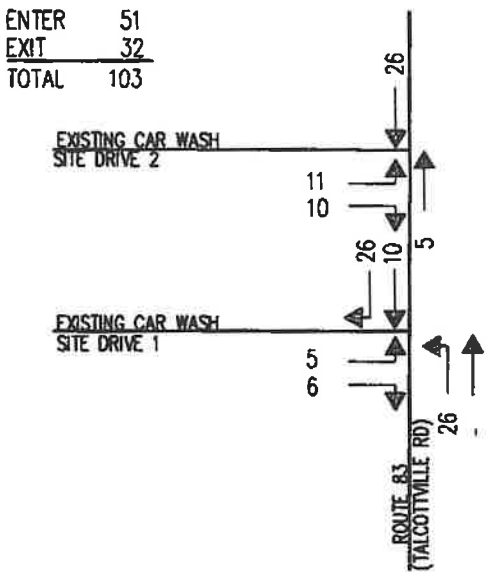
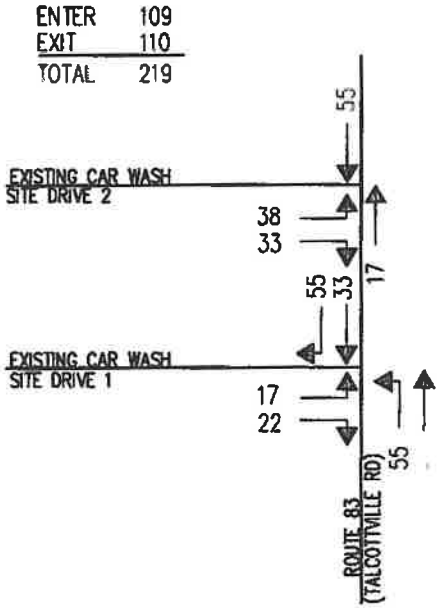


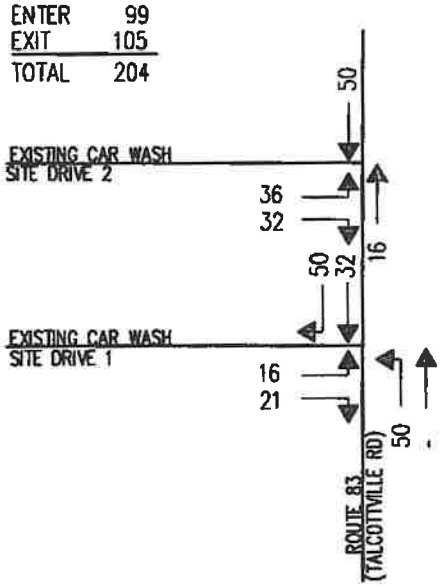
DIRECTIONAL DISTRIBUTION
ALL PEAK HOURS



A.M. PEAK HOUR



P.M. PEAK HOUR



SATURDAY PEAK HOUR

FIGURE 4

04-06-2022

DIRECTIONAL DISTRIBUTION OF
EXISTING SITE TRAFFIC &
SITE GENERATED TRAFFIC VOLUMES
PROPOSED VALVOLINE
371 & 373 TALCOTTVILLE ROAD
VERNON, CONNECTICUT

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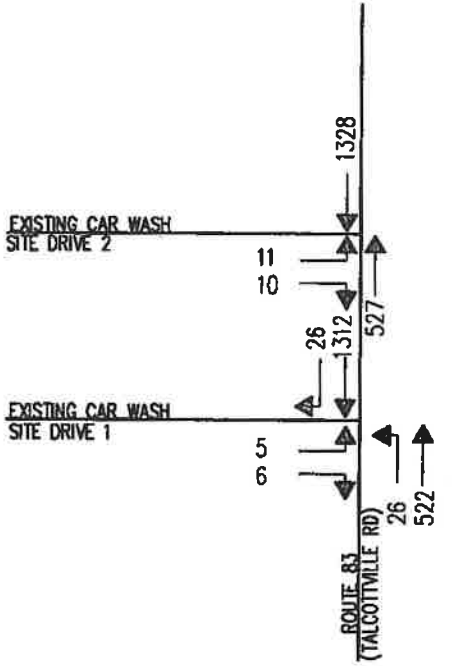
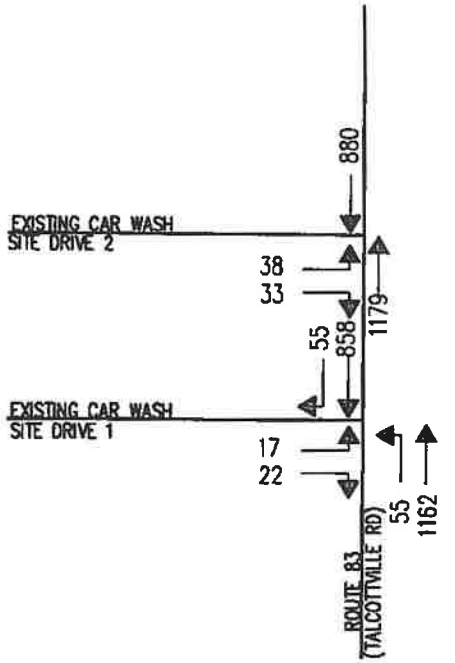
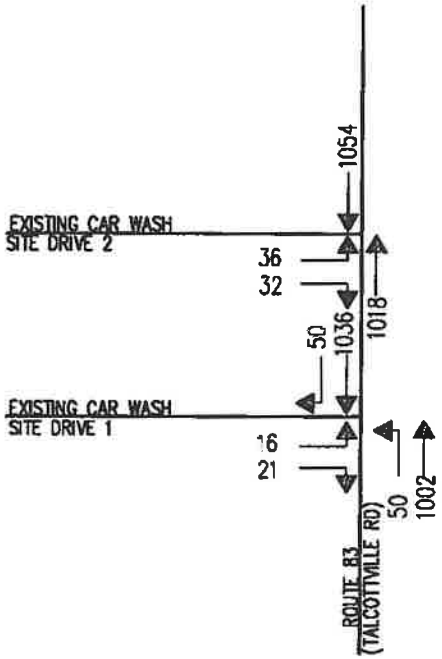


A.M. PEAK HOUR



P.M. PEAK HOUR



SATURDAY PEAK HOUR

THE BACKGROUND TRAFFIC VOLUMES ARE PROVIDED BY COMBINING THE EXISTING TRAFFIC VOLUMES FROM FIGURE 3 WITH THE EXISTING SITE GENERATED TRAFFIC VOLUMES FROM FIGURE 4. A REVIEW OF THE MOST RECENT CONNDOT COUNTS SHOWS THAT TRAFFIC VOLUMES HAVE DECREASED FROM 2008 TO 2017. IN ORDER TO BE CONSERVATIVE, WE DID NOT APPLY A GROWTH RATE TO THE EXISTING TRAFFIC VOLUMES.

FIGURE 5

04-06-2022

BACKGROUND TRAFFIC VOLUMES
A.M., P.M. & SATURDAY
PEAK HOURS
PROPOSED VALVOLINE
371 & 373 TALCOTTVILLE ROAD
VERNON, CONNECTICUT

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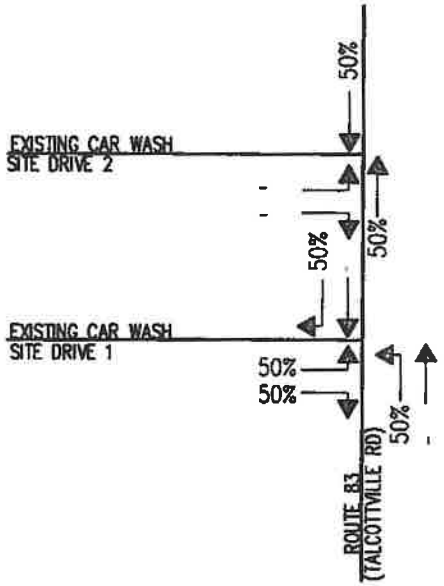
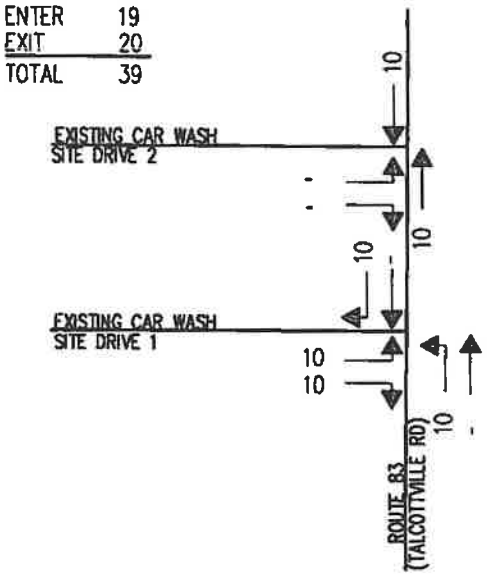
Table 2
Trip Generation Summary
Proposed Car Wash & Quick Lubrication Vehicle Shop
371-373 Talcottville Road Vernon, CT

Land Use	Size	Weekday ADT	A.M. Peak Hour Enter	A.M. Peak Hour Exit	A.M. Peak Hour Total	P.M. Peak Hour Enter	P.M. Peak Hour Exit	P.M. Peak Hour Total	Saturday ADT	SAT. Peak Hour Enter	SAT. Peak Hour Exit	SAT. Peak Hour Total
Existing												
Automated Car Wash*	2 Tunnels	-	19	20	39	77	78	155	-	38	44	82
Self-Service Car Wash	8 Wash Stalls	864	32	12	64	32	32	64	1062	61	61	122
	Combined	-	51	32	103	109	110	219	-	99	105	204
Proposed												
Quick Lubrication Vehicle Shop	**3,844 s.f.	267	19	20	39	16	20	36	-	19	20	39
	3 Servicing Positions	120	6	6	12	8	6	14	126	6	8	14
	#Total	-	70	52	142	125	130	255	-	118	125	243

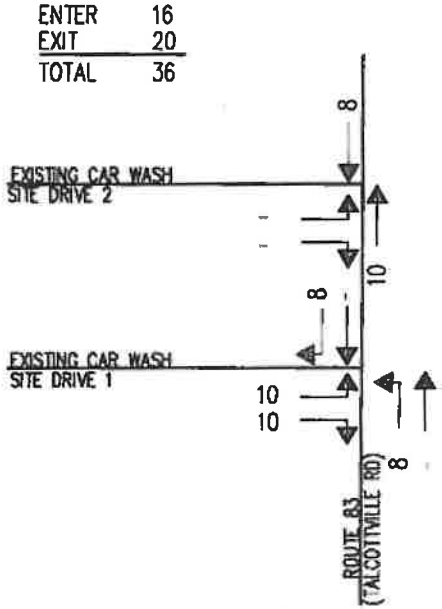
*Morning Trips for the Automated Car Wash not available therefor 25% of the Afternoon trips were used for the Morning.
**Saturday trips for the Quick Lubrication Vehicle Shop not available therefor the morning trips were used.
#Existing car wash plus oil change center.



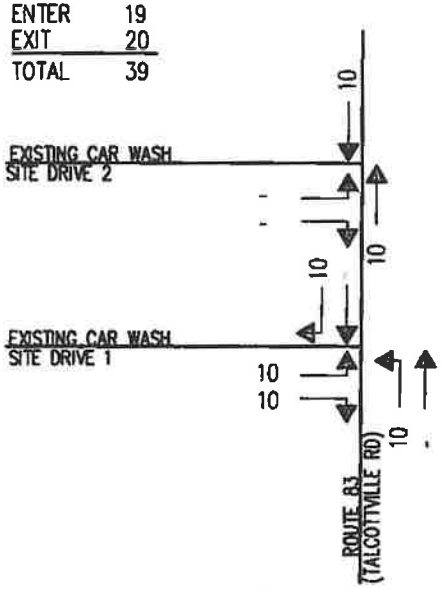
DIRECTIONAL DISTRIBUTION
ALL PEAK HOURS



A.M. PEAK HOUR



P.M. PEAK HOUR



SATURDAY PEAK HOUR

FIGURE 6

04-06-2022

DIRECTIONAL DISTRIBUTION OF
PROPOSED SITE TRAFFIC &
SITE GENERATED TRAFFIC VOLUMES
PROPOSED VALVOLINE
371 & 373 TALCOTTVILLE ROAD
VERNON, CONNECTICUT

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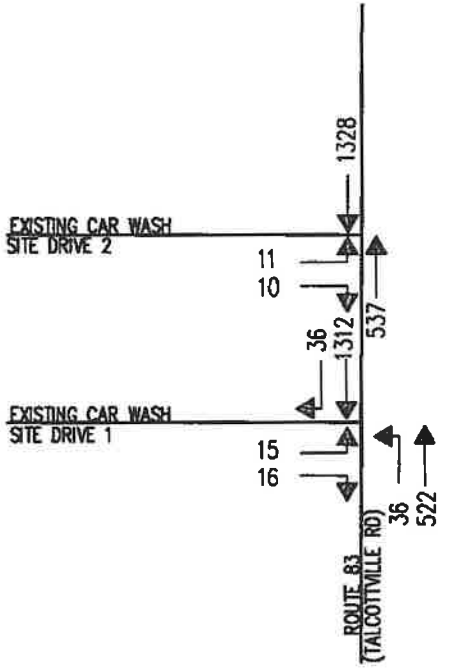
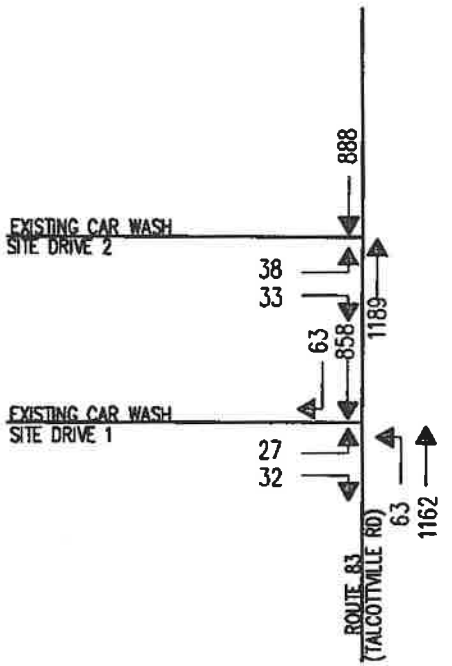
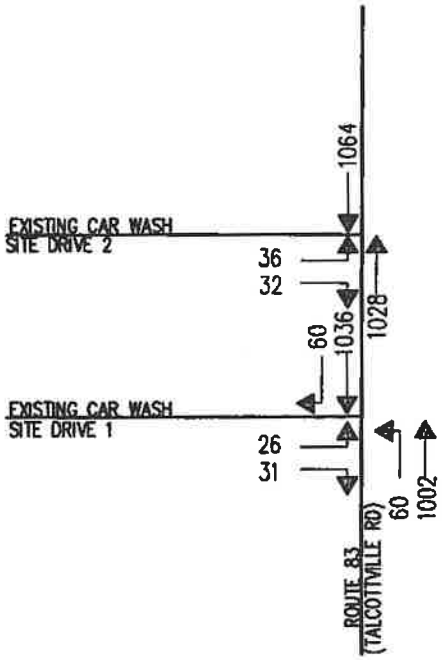


A.M. PEAK HOUR



P.M. PEAK HOUR



SATURDAY PEAK HOUR

THE COMBINED TRAFFIC VOLUMES ARE PROVIDED BY COMBINING THE BACKGROUND TRAFFIC VOLUMES FROM FIGURE 5 WITH THE SITE GENERATED TRAFFIC VOLUMES FROM FIGURE 6.

FIGURE 7

COMBINED TRAFFIC VOLUMES
A.M., P.M. & SATURDAY
PEAK HOURS
PROPOSED VALVOLINE
371 & 373 TALCOTTVILLE ROAD
VERNON, CONNECTICUT

04-06-2022

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Table 3
Level of Service Summary
Valvoline
371 & 373 Talcolttville Road Vernon, CT

		A.M. Peak Hour								P.M. Peak Hour								Saturday Peak Hour							
		Background Traffic				Combined Traffic				Background Traffic				Combined Traffic				Background Traffic				Combined Traffic			
Time Period		LOS	delay	v/c	Queue	LOS	delay	v/c	Queue	LOS	delay	v/c	Queue	LOS	delay	v/c	Queue	LOS	delay	v/c	Queue	LOS	delay	v/c	Queue
Route 83 & Site Drive 1																									
EB		E	35.2	0.09	7	F	50.2	0.30	28	E	39.6	0.29	28	F	54.1	0.48	55	E	46.2	0.32	31	F	68.8	0.54	64
NB		B	13.3	0.06	5	B	13.6	0.09	7	B	10.7	0.09	7	B	10.8	0.10	8	B	11.7	0.09	8	B	12.0	0.11	9
		A	0.0	0.17	0	A	0.0	0.17	0	A	0.0	0.37	0	A	0.0	0.37	0	A	0.0	0.32	0	A	0.0	0.32	0
SB		A	0.0	0.56	0	A	0.0	0.56	0	A	0.0	0.37	0	A	0.0	0.37	0	A	0.0	0.44	0	A	0.0	0.44	0
Route 83 & Site Drive 2																									
EB	Left	F	58.3	0.15	13	F	58.9	0.15	13	F	66.8	0.42	44	F	68.8	0.43	45	F	82.0	0.47	49	F	85.2	0.48	50
	Right	C	15.0	0.03	2	C	15.0	0.03	2	B	12.2	0.07	5	B	12.3	0.07	5	B	13.4	0.08	6	B	13.5	0.08	6
NB		A	0.0	0.17	0	A	0.0	0.17	0	A	0.0	0.38	0	A	0.0	0.38	0	A	0.0	0.33	0	A	0.0	0.33	0
SB		A	0.0	0.42	0	A	0.0	0.42	0	A	0.0	0.28	0	A	0.0	0.28	0	A	0.0	0.34	0	A	0.0	0.34	0

APPENDIX

ConnDOT Count Data

Status: OK [North] [Combined] [South]

VERN-045 - North

Route 83 - 13.48 mi South of Dart Hill Road

Town.....Vernon
Station.....45
Location..... 41.85013,-72.483926
2015-Principal Arterial - Other 3...2015-Urban
Start Report.....27-Mar-2017 05:00AM
End Report.....28-Mar-2017 05:00AM
Axle Correction Factor.....None

24-Hour Count.....11441 * G4(0.98) = 11212.2
UnRounded AADT.....11212.2 / 1 = 11212.2
OK 2020 Fri 03-Apr 14300
OK 2017 Mon 27-Mar -this report-.....24300
OK 2014 Wed 23-Jul 24400
OK 2008 Wed 21-May 29400

	27-Mar Mon	28-Mar Tue
12:00am		91
01:00am		40
02:00am		20
03:00am		27
04:00am		72
05:00am	81	
06:00am	317	
07:00am	538	
08:00am	454	
09:00am	569	
10:00am	601	
11:00am	648	
12:00pm	681	
01:00pm	701	
02:00pm	769	
03:00pm	904	
04:00pm	1103	
05:00pm	1217	
06:00pm	930	
07:00pm	581	
08:00pm	447	
09:00pm	335	
10:00pm	206	
11:00pm	109	
Totals	11191	250

Status: OK [North] [Combined] [South]

VERN-045 - South

Route 83 - 13.48 mi South of Dart Hill Road

Town.....Vernon
Station.....45
Location..... 41.85013,-72.483926
2015-Principal Arterial - Other 3...2015-Urban
Start Report.....27-Mar-2017 05:00AM
End Report.....28-Mar-2017 05:00AM
Axle Correction Factor.....None

24-Hour Count.....13395 * G4(0.98) = 13127.1
UnRounded AADT.....13127.1 / 1 = 13127.1
OK 2020 Fri 03-Apr 14300
OK 2017 Mon 27-Mar -this report-.....24300
OK 2014 Wed 23-Jul 24400
OK 2008 Wed 21-May 29400

	27-Mar Mon	28-Mar Tue
12:00am		43
01:00am		35
02:00am		28
03:00am		45
04:00am		102
05:00am	310	
06:00am	815	
07:00am	1328	
08:00am	1166	
09:00am	840	
10:00am	699	
11:00am	737	
12:00pm	800	
01:00pm	805	
02:00pm	895	
03:00pm	901	
04:00pm	935	
05:00pm	880	
06:00pm	744	
07:00pm	528	
08:00pm	344	
09:00pm	189	
10:00pm	133	
11:00pm	93	
Totals	13142	253

Status: OK [North] [Combined] [South]

VERN-045 - Combined - n/s

Route 83 - 13.48 mi South of Dart Hill Road

Town.....Vernon
Station.....45
Location..... 41.85013,-72.483926
2015-Principal Arterial - Other 3...2015-Urban
Start Report.....27-Mar-2017 05:00AM
End Report.....28-Mar-2017 05:00AM
Axle Correction Factor.....None

24-Hour Count.....24836 * G4(0.98) = 24339.3
UnRounded AADT.....24339.3 / 1 = 24339.3
OK 2020 Fri 03-Apr 14300
OK 2017 Mon 27-Mar -this report-.....24300
OK 2014 Wed 23-Jul 24400
OK 2008 Wed 21-May 29400

	27-Mar Mon	28-Mar Tue
12:00am		134
01:00am		75
02:00am		48
03:00am		72
04:00am		174
05:00am	391	
06:00am	1132	
07:00am	1866	
08:00am	1620	
09:00am	1409	
10:00am	1300	
11:00am	1385	
12:00pm	1481	
01:00pm	1506	
02:00pm	1664	
03:00pm	1805	
04:00pm	2038	
05:00pm	2097	
06:00pm	1674	
07:00pm	1109	
08:00pm	791	
09:00pm	524	
10:00pm	339	
11:00pm	202	
Totals	24333	503

Status: OK Class Speed

VERN-045 - Combined - n/s

Route 83 - 13.48 mi South of Dart Hill Road

Collected during COVID-19 epoch

Town.....Vernon
Station.....45
Location..... 41.85013,-72.483926
Posted Speed Limit.....40 MPH
2015-Principal Arterial - Other 3...2015-Urban
Start Report.....03-Apr-2020 12:00PM
End Report.....07-Apr-2020 01:00PM

24-Hour Count.....14854 * G4(0.90) = 13368.6
Day 1.....+13994 * G4(1.03) = 27782.4
Day 2.....+11553 * G4(1.26) = 42339.2
Day 3.....+15164 * G4(0.98) = 57199.9
UnRounded AADT.....57199.9 / 4 = 14300.0
OK 2020 Fri 03-Apr -this report-.....14300
OK 2017 Mon 27-Mar 24300
OK 2014 Wed 23-Jul 24400
OK 2008 Wed 21-May 29400

	03-Apr Fri	04-Apr Sat	05-Apr Sun	06-Apr Mon	07-Apr Tue
12:00am		100	93	59	87
01:00am		44	67	38	34
02:00am		34	29	46	32
03:00am		55	31	32	40
04:00am		62	39	106	114
05:00am		117	86	262	272
06:00am		293	187	598	640
07:00am		425	295	759	765
08:00am		596	452	776	824
09:00am		824	626	841	850
10:00am		982	788	925	930
11:00am	x	1240	894	1083	988
12:00pm	1192	1217	1118	1186	1172
01:00pm	1150	1218	1086	1163	x
02:00pm	1281	1250	1080	1202	
03:00pm	1350	1205	1103	1355	
04:00pm	1291	1012	896	1239	
05:00pm	1192	942	841	1084	
06:00pm	937	776	589	843	
07:00pm	625	596	429	573	
08:00pm	428	410	317	407	
09:00pm	248	241	213	245	
10:00pm	231	213	185	202	
11:00pm	157	142	109	140	
Totals	10082	13994	11553	15164	6748

ITE Trip Generation Data

ITETripGen Web-based App

Help Scott Hosterm Sign out

Graph Look Up

ITETripGen Web-based App

County Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
948

LAND USE GROUP:
(900-999) Services

LAND USE :
948 - Automated Car Wash

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (X):
Car Wash Tunnels

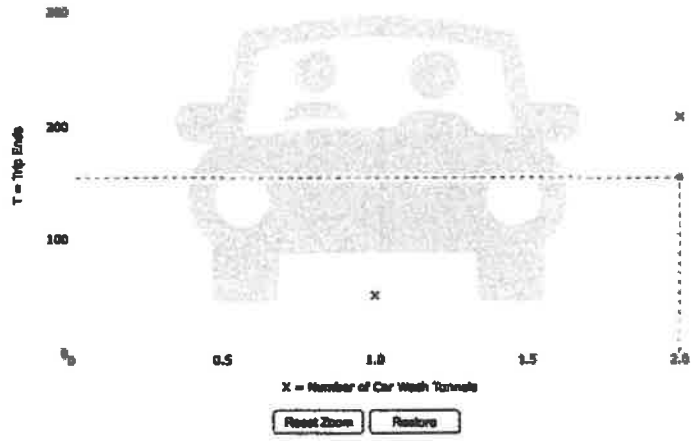
TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER X VALUE TO CALCULATE TRIPS:
2 Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Automated Car Wash (948) Click for Description and Data Plots

Independent Variable:
Car Wash Tunnels

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
3

Avg. Num. of Car Wash Tunnels:
1

Average Rate:
77.89

Range of Rates:
60.00 - 104.00

Standard Deviation:
33.07

Fitted Curve Equation:
Not Given

R^2:

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 155 (Total), 77 (Entry), 78 (Exit)