



Traffic Memorandum

CONSTITUTION STORAGE DEVELOPMENT

El Paso County, Colorado

PREPARED FOR:
Johnson Development Associates, Inc.
100 Dunbar Street, Suite 400
Spartanburg, SC 29306

PREPARED BY:
Brian Horan, PE
Max Rusch, PE

DATE:
June 16, 2023

*PCD Filing No.: PPR-2224,
P-225*

Constitution Storage PCD No. P-225

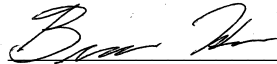
Traffic Impact Study (Memorandum)

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Traffic Impact Studies

Traffic Engineer's Statement

The attached traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.



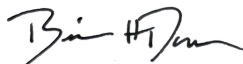
Brian Horan P.E. #53042

6-16-23

Date

Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.



Brian Duncan, Development Manager
Self-Storage Division
Johnson Development Associates, Inc.
101 N. Pacific Coast Hwy, Suite 308 El Segundo, CA 90245

6/20/23

Date



Traffic Impact Study (Memorandum):

Constitution Storage PCD No. P-225, PPR-2224



INTRODUCTION

This memorandum provides the results of a traffic analysis performed in support of an approximately 3.72-acre lot located in El Paso County, Colorado. Generally, the site is located south of Constitution Avenue, east of Peterson Road, and west of Canada Drive. The site is further identified as El Paso County parcel number 5405218002 and is currently vacant. The site location is shown on Figure 1.

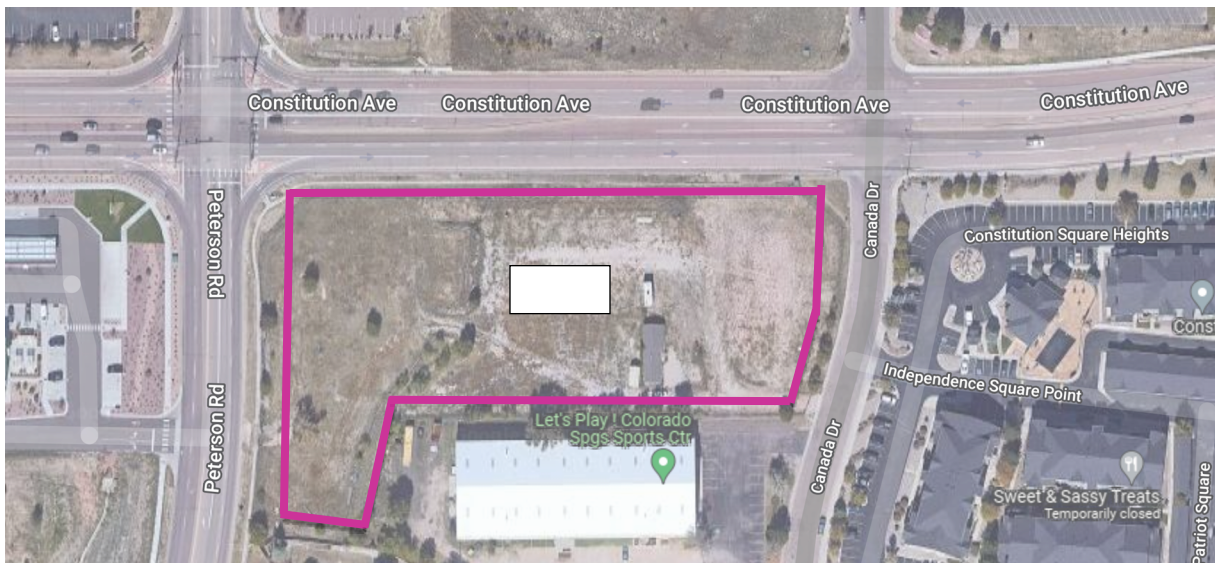


Figure 1 – Site Location

The Applicant, Johnson Development Associates, proposes to develop the site with a 109,033 square foot self-storage (mini warehouse) use with 944 storage units. A full-sized copy of the site plan is provided as Attachment I. The following memorandum has been prepared for the County of El Paso as requested. The purpose is to determine the traffic forecasted by the proposed project and potential impacts to the surrounding roadways. A narrative for the study area for adjacent roadways, intersection and accesses is provided in the existing conditions section below.



EXISTING CONDITIONS

As shown on the site plan provided as Attachment 1, the site is proposed to be accessed via one full movement access along Canada Drive. Peterson Road and Constitution Avenue provide regional access to the property. No roadway improvements were identified in the area.

Constitution Avenue is constructed as a four-lane roadway divided by a raised median and auxiliary turn lanes provided at intersections. It is classified as an arterial by El Paso County and provides east-west connectivity throughout the region with a posted speed limit of 45 mph in the vicinity of the subject site. The intersection of Constitution Avenue/Peterson Road operates under signalized control and the intersection of Constitution Avenue/Canada Drive operates under unsignalized control.

Peterson Road is constructed as a four-lane roadway divided by a two way left turn (TWLT) lane. It is classified as a minor arterial by El Paso County and provides north-south connectivity throughout the region with a posted speed limit of 35 mph in the vicinity of the subject site. The intersection of Peterson Road/Constitution Avenue operates under signalized control.

Canada Drive is constructed as an undivided two-lane roadway. It is classified as a local roadway by El Paso County and primarily provides north-south access to a number of residential units in the region with a posted speed limit of 25 mph in the vicinity of the subject site. The intersection of Canada Drive/Constitution Avenue operates under unsignalized control. ADTs and peak hour traffic along this roadway are consistent with the roadway section and operates with additional capacity available.

The Major Transportation Corridor Plan (MTCP) was reviewed to determine if any roadway improvements were anticipated in the immediate study area. No such improvements were identified. Additionally, at the time of this writing, no improvements from area development were identified that would impact the proposed development.

Streetlight was used to generate turning movement counts at the intersection of Peterson Rd & Constitution Ave. Streetlight is a program that collects location records from smartphones as well as connected cars and trucks and can use this data to produce turning movement counts. The Streetlight turning movements were then balanced with ADT counts on the MS2 website, taken in 2021. Figure 2 shows the existing volumes at the intersection of Peterson Rd & Constitution Ave.

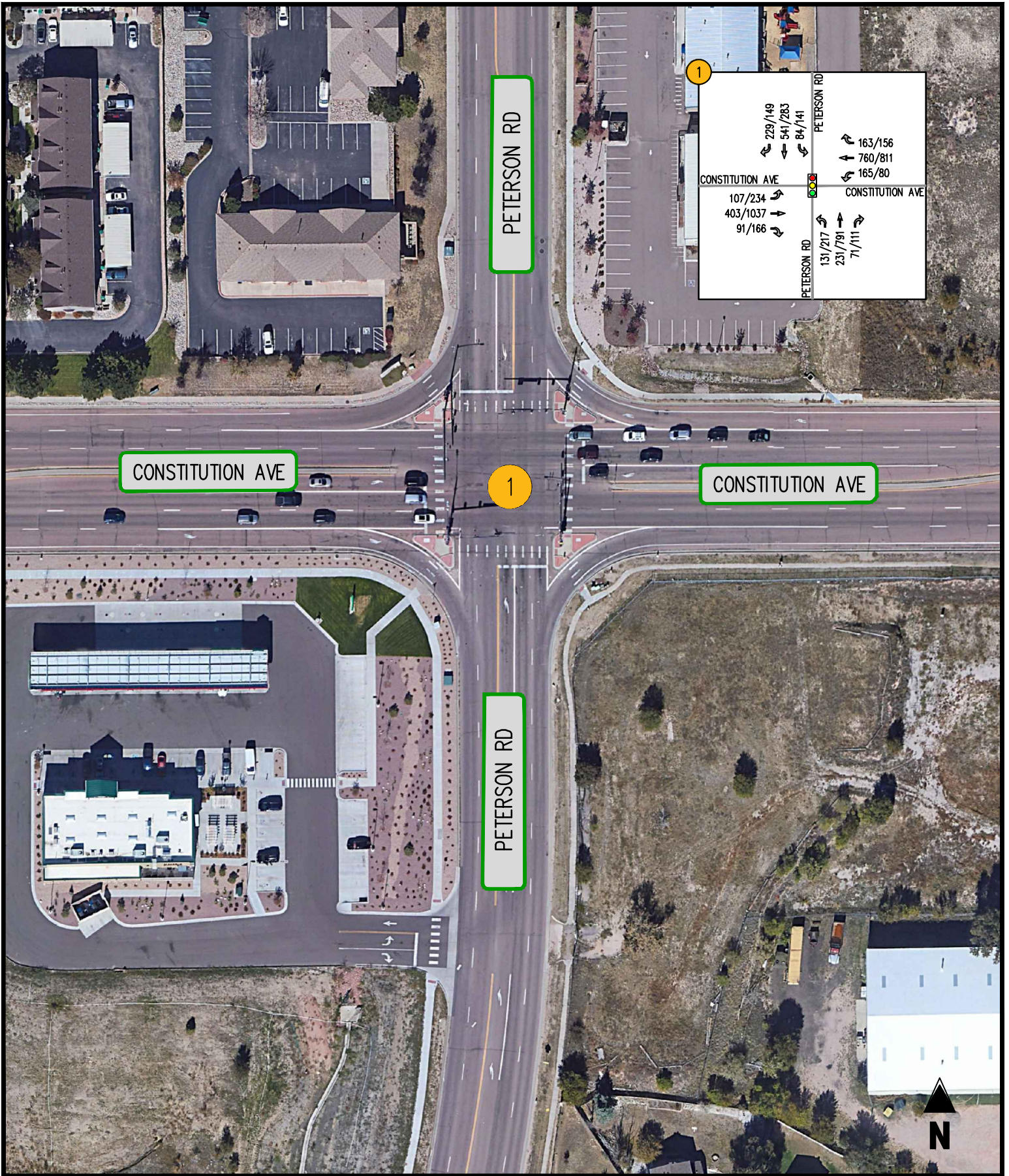





FIGURE 2
Existing Volumes

0000/0000 (AM PEAK HOUR/PM PEAK HOUR)

- ← MOVEMENT
-  SIGNALIZED INTERSECTION
-  STOP SIGN
-  YIELD SIGN



TRIP GENERATION

Trip generation forecasts for the site were based on rates/equations published in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition and industry standard methodologies. The trip generation of the proposed development are provided in Table 1 below. The use is expected to generate 11 AM peak hour, 16 PM peak hour, and 170 average daily trips upon completion.

The site trips would be all oriented to Constitution Avenue. As required by the County, an assessment of 20 year projections for this area would suggest minimal increase. Limited development or redevelopment options exist in the area that would increase traffic at the proposed entrances. It is anticipated that short and long range forecasts at the entrance would remain relatively consistent with existing conditions. A site trip figure has been provided as Figure 3.

As mentioned above, the Applicant is proposing one full movement access to the site via Canada Drive. Currently, Constitution Avenue has auxiliary lanes in both the east and westbound directions at the Canada Drive intersection. Based on the trip generation contained herein, the proposed development would not significantly impact the surrounding corridor.

ANALYSIS

As shown in Attachment I, the project proposes a full movement access along Canada Drive. As shown in Table 1, the site would generate very few peak hour trips. Assuming some distribution of trips to the entrance, the access and surrounding intersections would experience fewer than 10 peak hour turning movements at any location.

The signal of Peterson Rd & Constitution Ave was modeled in Synchro using the volumes from Figure 2. The Synchro reports have been attached to this memo. As reported by Synchro no existing capacity or queueing issues were identified at the signalized intersection. The proposed trip generation would have no impact on the results of the capacity and queueing analysis.

SAFETY

As requested by the County, accident data in the area was pulled as provided by the State. As shown in Figure 4 below, no accidents were reported in this area for the last 10 years. Due to the extremely low generation of trips the proposed use represents it is not anticipated to have an impact on safety to this area.

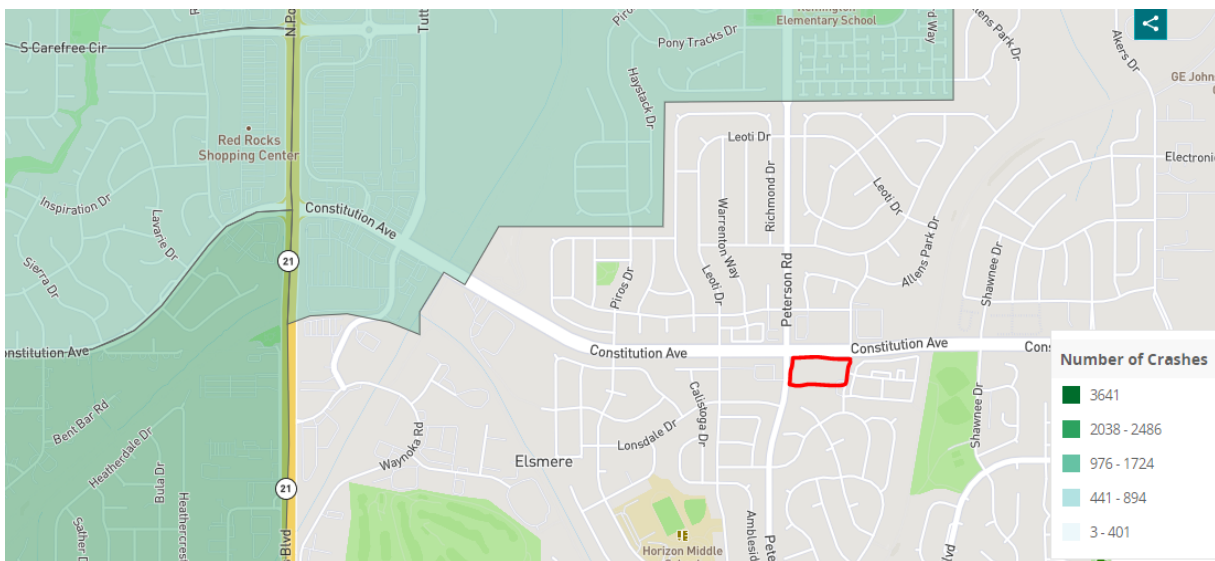


Figure 4 – Police Accident Data Map 2016-2022

Table 1

JDA - Constitution Storage

Site Trip Generation

Land Use	Land Use Code	Amount	Units	AM Peak Hour			PM Peak Hour			Average Daily Trips
				In	Out	Total	In	Out	Total	
<i>Proposed</i> ⁽¹⁾ Mini-Warehouse	151	944	UNITS	6	5	11	8	8	16	170

Note(s):

(1) Trip generation based on the Institute of Transportation Engineers' Trip Generation Manual, 11th Edition

CONCLUSIONS

1. The subject site is a standalone project in the County of El Paso, Colorado.
2. The proposed project is forecasted to generate 11 new AM trips, 16 new PM trips, and 170 new daily trips on average.
3. Auxiliary lanes current exists in both the east and westbound directions on Constitution Avenue at Canada Drive.
4. Based on the trip generation contained herein, the proposed mini warehouse use development would not significantly impact the surrounding roadways. Short and long range forecasts for the access locations would remain generally consistent with existing conditions.
5. No improvements are required or recommended above and beyond what is required on site for the construction of the use.
6. No safety concerns are anticipated with the approval of the access locations as shown.
7. Road Impact Fees will be due by the Applicant at the last land use approval consistent with the use and Impact Fee schedule.

We trust that the information contained herein satisfy the request of the County of El Paso, Colorado. If you have any questions or need further information, please contact Brian Horan at BrianHoran@GallowayUS.com or 303-770-8884.

Attachment I
Site Plan
Synchro Reports

























Existing AM
Peterson Rd & Constitution Ave



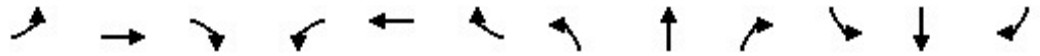
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	116	438	99	179	826	177	142	251	77	91	588	249
v/c Ratio	0.29	0.35	0.15	0.31	0.63	0.25	0.55	0.29	0.16	0.23	0.74	0.58
Control Delay	16.0	29.6	2.2	15.7	33.6	4.6	33.4	36.9	0.9	25.8	49.3	29.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	29.6	2.2	15.7	33.6	4.6	33.4	36.9	0.9	25.8	49.3	29.4
Queue Length 50th (ft)	41	130	0	66	273	0	74	82	0	46	224	103
Queue Length 95th (ft)	80	175	17	118	342	46	113	115	2	77	271	179
Internal Link Dist (ft)		691			661			589			420	
Turn Bay Length (ft)	250			250			230		50	160		50
Base Capacity (vph)	404	1253	648	576	1312	698	277	897	502	503	958	500
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.35	0.15	0.31	0.63	0.25	0.51	0.28	0.15	0.18	0.61	0.50

Intersection Summary

Existing AM
Peterson Rd & Constitution Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	403	91	165	760	163	131	231	71	84	541	229
Future Volume (veh/h)	107	403	91	165	760	163	131	231	71	84	541	229
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	438	0	179	826	0	142	251	0	91	588	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	1630		624	1689		235	795		344	710	
Arrive On Green	0.10	0.46	0.00	0.11	0.48	0.00	0.08	0.22	0.00	0.06	0.20	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	116	438	0	179	826	0	142	251	0	91	588	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.7	9.1	0.0	5.7	19.1	0.0	7.5	7.1	0.0	4.8	19.0	0.0
Cycle Q Clear(g_c), s	3.7	9.1	0.0	5.7	19.1	0.0	7.5	7.1	0.0	4.8	19.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	441	1630		624	1689		235	795		344	710	
V/C Ratio(X)	0.26	0.27		0.29	0.49		0.60	0.32		0.26	0.83	
Avail Cap(c_a), veh/h	441	1630		624	1689		294	814		521	962	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.2	20.1	0.0	12.7	21.5	0.0	35.5	38.9	0.0	35.2	46.0	0.0
Incr Delay (d2), s/veh	1.5	0.4	0.0	1.2	1.0	0.0	2.5	0.2	0.0	0.4	4.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.7	0.0	2.3	7.7	0.0	3.4	3.1	0.0	2.1	8.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	20.5	0.0	13.9	22.5	0.0	38.0	39.1	0.0	35.6	50.6	0.0
LnGrp LOS	B	C		B	C		D	D		D	D	
Approach Vol, veh/h		554	A		1005	A		393	A		679	A
Approach Delay, s/veh		19.5			21.0			38.7			48.5	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.1	31.4	18.0	59.5	14.0	28.5	16.0	61.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	18.5	27.5	13.5	42.5	13.5	32.5	11.5	44.5				
Max Q Clear Time (g_c+I1), s	6.8	9.1	7.7	11.1	9.5	21.0	5.7	21.1				
Green Ext Time (p_c), s	0.1	1.4	0.2	2.8	0.1	2.9	0.1	5.5				
Intersection Summary												
HCM 6th Ctrl Delay			30.4									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Existing PM
Peterson Rd & Constitution Ave



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	254	1127	180	87	882	170	236	860	121	153	308	162
v/c Ratio	0.73	0.76	0.24	0.44	0.74	0.26	0.55	0.87	0.22	0.71	0.36	0.31
Control Delay	35.5	33.8	4.5	23.8	39.9	4.8	29.8	52.2	5.1	44.7	38.8	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.5	33.8	4.5	23.8	39.9	4.8	29.8	52.2	5.1	44.7	38.8	5.8
Queue Length 50th (ft)	118	384	4	34	316	0	122	330	0	75	104	0
Queue Length 95th (ft)	#242	470	47	62	394	44	186	412	36	#152	146	44
Internal Link Dist (ft)		691			661			589			420	
Turn Bay Length (ft)	250			250			230		50	160		50
Base Capacity (vph)	350	1483	763	198	1188	649	441	1017	552	219	880	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.76	0.24	0.44	0.74	0.26	0.54	0.85	0.22	0.70	0.35	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Existing PM
Peterson Rd & Constitution Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	1037	166	80	811	156	217	791	111	141	283	149
Future Volume (veh/h)	234	1037	166	80	811	156	217	791	111	141	283	149
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	254	1127	0	87	882	0	236	860	0	153	308	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	401	1586		251	1290		438	955		227	834	
Arrive On Green	0.14	0.45	0.00	0.05	0.36	0.00	0.11	0.27	0.00	0.08	0.23	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	254	1127	0	87	882	0	236	860	0	153	308	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	9.6	30.9	0.0	3.6	25.2	0.0	11.7	28.0	0.0	7.7	8.7	0.0
Cycle Q Clear(g_c), s	9.6	30.9	0.0	3.6	25.2	0.0	11.7	28.0	0.0	7.7	8.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	401	1586		251	1290		438	955		227	834	
V/C Ratio(X)	0.63	0.71		0.35	0.68		0.54	0.90		0.68	0.37	
Avail Cap(c_a), veh/h	401	1586		251	1290		464	1022		242	880	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.5	26.9	0.0	23.6	32.4	0.0	28.6	42.3	0.0	33.8	38.5	0.0
Incr Delay (d2), s/veh	7.4	2.7	0.0	3.8	3.0	0.0	1.1	10.4	0.0	6.7	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	12.9	0.0	1.7	10.9	0.0	5.1	13.4	0.0	3.7	3.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.9	29.7	0.0	27.4	35.3	0.0	29.7	52.7	0.0	40.5	38.8	0.0
LnGrp LOS	C	C		C	D		C	D		D	D	
Approach Vol, veh/h		1381	A		969	A		1096	A		461	A
Approach Delay, s/veh		29.5			34.6			47.8			39.3	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.2	36.8	11.0	58.1	18.3	32.7	21.0	48.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.7	34.5	6.5	50.3	15.5	29.7	16.5	40.3				
Max Q Clear Time (g_c+I1), s	9.7	30.0	5.6	32.9	13.7	10.7	11.6	27.2				
Green Ext Time (p_c), s	0.0	2.2	0.0	7.1	0.1	1.8	0.3	4.6				
Intersection Summary												
HCM 6th Ctrl Delay			37.1									
HCM 6th LOS			D									
Notes												
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												