



LSC TRANSPORTATION CONSULTANTS, INC.
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March 14, 2019

Kyle Campbell, P.E.
Division Manager
Classic Consulting Engineers & Surveyors
619 N. Cascade Ave., Suite 200
Colorado Springs, CO 80903

RE: Hannah Ridge at Feathergrass
Filings 5, 6, and 7
El Paso County, CO
Traffic Technical Memorandum
LSC #194190

Dear Kyle:

In response to your request, LSC Transportation Consultants, Inc. has prepared this transportation memorandum for Filings 5, 6, and 7 of the Hannah Ridge at Feathergrass development located north and south of Constitution Avenue and west of Marksheffel Road in El Paso County, Colorado. A traffic impact study for this development was completed by LSC dated October 23, 2007. This report was updated September 7, 2017 as part of the final platting of Filings 3 and 4. This memorandum presents an updated traffic signal warrant analysis for the intersection of Hannah Ridge Drive and Constitution Avenue.

LAND USE AND ACCESS

The Hannah Ridge at Feathergrass development is planned to contain a mix of residential and commercial uses.

The Hannah Ridge at Feathergrass development is planned to contain 344 lots for single-family homes. The 2017 study assumed the site would be developed with 355 lots for single-family homes. Since completion of the 2007 and 2017 reports 175 lots have been platted as part of Filing Nos. 1 through 4. At the time traffic counts were conducted 108 homes had been constructed within these filings.

The currently proposed Filing Nos. 5, 6, and 7 are planned to contain a total of 169 lots for single-family homes. The proposed final platting for Filings 1 through 7 is attached.

In the short-term future the area located west of Hannah Ridge Drive between Constitution Avenue and Hunter Jumper Drive is planned to be designed and developed with multifamily residential uses. The 2007 and 2017 traffic impact studies assumed this area would be developed with about 205 multifamily dwelling units.

The parcels on the northwest, northeast, and southeast corners of the intersection of Akers/Constitution are planned to be developed for commercial uses. These parcels are planned to be designed and developed as demand dictates. As the timing is unknown for the development of these parcels the future commercial land uses were not included in the traffic signal warrant analysis of Hannah Ridge Drive and Constitution Avenue.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The area roadways in the site's vicinity are described below.

- **Constitution Avenue** is a Principal Arterial adjacent to the site extending from Paseo Road east to US Highway (US) 24. In the vicinity of the site, Constitution Avenue has two through lanes in each direction plus continuous right-turn lanes and left-turn lanes. The posted speed limit on Constitution Avenue adjacent to the site is 50 miles per hour (mph). Constitution Avenue is shown as a future six-lane street on the County *Major Transportation Corridor Plan* (MTCP).
- **Hannah Ridge Drive** is a Collector that extends north from just south of Palmer Park Boulevard to just north of Constitution Avenue. The Constitution Avenue/Hannah Ridge Drive intersection is planned to be signalized in the future.
- **Akers Drive** is a Non-Residential Collector extending between Constitution Avenue and North Carefree Circle west of Marksheffel Road. The posted speed limit on Akers Drive is 35 mph. The Constitution Avenue/Akers Drive intersection is planned to be signalized in the future.

TRIP GENERATION

Estimates of the traffic volumes expected to be generated by the proposed land were made using the nationally published trip generation rates found in *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE). Table 1 shows the trip generation estimates for the Hannah Ridge at Feathergrass development. The trip generation estimate includes vehicle-trips estimated to be generated by the development of the currently vacant lots in Filing Nos. 1 through 4.

Filing No. 5 of the Hannah Ridge at Feathergrass development is expected to generate about 519 new vehicle-trips on the average weekday, with about half entering and half exiting the site

during a 24-hour period. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 10 vehicles would enter and 31 vehicles would exit the site. During the afternoon peak hour of the adjacent street traffic, which generally occurs for one hour between 4:15 and 6:15 p.m., about 34 vehicles would enter and 20 vehicles would exit the site.

Filing No. 6 of the Hannah Ridge at Feathergrass development is expected to generate about 312 new vehicle-trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour about 6 vehicles would enter and 18 vehicles would exit the site. During the afternoon peak hour of the adjacent street traffic about 21 vehicles would enter and 12 vehicles would exit the site.

Filing No. 7 of the Hannah Ridge at Feathergrass development is expected to generate about 765 new vehicle-trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. During the morning peak hour about 15 vehicles would enter and 45 vehicles would exit the site. During the afternoon peak hour of the adjacent street traffic about 51 vehicles would enter and 30 vehicles would exit the site.

DIRECTIONAL DISTRIBUTION AND TRIP ASSIGNMENT

Table 2 shows the trip generation assignment of the additional average weekday traffic volumes projected to be generated by buildout of the remaining lots in Filing Nos. 1 to 4 and buildout of the proposed lots within Filing Nos. 5 to 7. These volumes are based on the directional distribution estimate shown in Table 2 and the trip generation estimate shown in Table 1.

Table 3 shows the projected additional vehicle-trips at the intersection of Hannah Ridge Drive and Constitution Avenue for each of the eight hours included in the traffic signal warrant analysis discussed below. These volumes are based on the additional average weekday traffic volumes shown in Table 2 and hourly distribution of entering and exiting vehicle-trips by land use data provided by the Institute of Transportation Engineers in August 2018.

TRAFFIC SIGNAL WARRANT ANALYSIS

The intersection of Constitution Avenue and Hannah Ridge Drive was analyzed to determine if a traffic signal warrant based on either vehicular volume or crash history would be met in the short term.

Vehicular Volume Traffic Signal Warrants

The combination of major street approach volumes (includes the sum of eastbound and westbound approach volumes) and minor street volumes (northbound and southbound approaches analyzed separately) at the subject intersection were analyzed to determine if the combination currently exceeds or would exceed the threshold criteria for Eight-Hour and/or Four-Hour Vehicular Volume Traffic Signal Warrants in the *2009 Manual on Uniform Traffic*

Control Devices (MUTCD). The existing traffic volumes shown are based on manual turning movement counts conducted by LSC in February 2019. The traffic counts are attached. The minor approach was analyzed as a single-lane approach and only the left-turn traffic volumes were included in the analysis as the existing and projected northbound and southbound through volumes at this intersection are very low. Table 4 shows the warrant evaluation based on the existing condition, the projected traffic condition following buildout of the Hannah Ridge at Feathergrass Filing Nos. 1 through 7 and the projected traffic condition following buildout of the multifamily parcel.

As shown on Table 4 the traffic volumes for only one of the eight hours analyzed currently meet the threshold for an Eight-Hour Vehicular Volume Traffic Signal Warrant. No additional hours are projected to meet the threshold with the addition of traffic generated by Filing Nos. 1 through 7 nor with the addition of traffic projected to be generated by the multifamily parcel.

Based on the existing traffic counts none of the eight hours analyzed are projected to meet the threshold for a Four-Hour Vehicular Volume Traffic Signal Warrant. No additional hours are projected to meet the threshold with the addition of traffic generated by Filing Nos. 1 through 7 nor with the addition of traffic projected to be generated by the multifamily parcel.

Warrant 7 Analysis (Crash Experience)

The following is from the MUTCD:

Support:

01 The Crash Experience signal warrant conditions are intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

Standard:

02 The need for a traffic control signal shall be considered if an engineering study finds that all of the following criteria are met:

A. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and

B. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; and

C. For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1 (see Section 4C.02), or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major-street and the higher-volume minor-street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the

higher volume shall not be required to be on the same approach during each of the 8 hours. If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 56 percent columns in Table 4C-1 may be used in place of the 80 percent columns.

The Colorado State Patrol (CSP) provided LSC with crash data for the intersection of Hannah Ridge Drive and Constitution Avenue from 2016 through March 2019. CSP reported one crash in 2017 involving a northbound left-turning vehicle on Hannah Ridge Drive and a westbound vehicle on Constitution Avenue, one crash in 2018 involving two eastbound vehicles on Constitution Avenue and one crash in 2019 involving a northbound left-turning vehicle on Hannah Ridge Drive and a westbound vehicle on Constitution Avenue. The 2017 and 2019 crashes would clearly be considered susceptible to correction by a traffic control signal. The 2018 crash would likely not be considered susceptible to correction by a traffic control signal as it was coded non-intersection related. Based on a crash history of one crash per year the item B is not met. Even if the crash history had met the criteria for item B, as shown on Table 4, item C is not projected to be met in the short term.

CONCLUSIONS

A traffic signal warrant is not projected to be met at the intersection of Hannah Ridge Drive and Constitution Avenue in the short-term future.

* * * * *

Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Jeffrey C. Hodsdon, P.E., PTOE
Principal

JCH:KDF:bjwb

Enclosures: Table 1-4
Hannah Ridge at Feathergrass Final Platting
Traffic Count Reports

**Table 1
Trip Generation Estimate
Hannah Ridge at Feathergrass Filing Nos. 5, 6, and 7**

Filing	Land Use Code	Land Use Description	Trip Generation Units		Trip Generation Rates ⁽¹⁾					Total Trips Generated				
			Existing	Future	Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour	
						In	Out	In	Out		In	Out		
Existing Filings														
1	210	Single-Family Detached Housing	45 DU ⁽²⁾	0 DU	9.44	0.19	0.56	0.62	0.37	0	0	0	0	0
2	210	Single-Family Detached Housing	38 DU	1 DU	9.44	0.19	0.56	0.62	0.37	9	0	1	1	0
3	210	Single-Family Detached Housing	25 DU	14 DU	9.44	0.19	0.56	0.62	0.37	132	3	8	9	5
4	210	Single-Family Detached Housing	0 DU	52 DU	9.44	0.19	0.56	0.62	0.37	491	10	29	32	19
		Total Filings 1-4	108 DU	67 DU						632	13	38	42	24
Currently Proposed Filings														
5	210	Single-Family Detached Housing	0 DU	55 DU	9.44	0.19	0.56	0.62	0.37	519	10	31	34	20
6	210	Single-Family Detached Housing	0 DU	33 DU	9.44	0.19	0.56	0.62	0.37	312	6	18	21	12
7	210	Single-Family Detached Housing	0 DU	81 DU	9.44	0.19	0.56	0.62	0.37	765	15	45	51	30
		Total Filings 5-7	0 DU	169 DU						1,596	31	94	106	62
		Total Filings 1-7	108 DU	236 DU						2,228	44	132	148	86
Short-Term Future Land Uses														
- - -	220	Multifamily Housing (Low-Rise)	0 DU	205 DU	7.32	0.11	0.35	0.35	0.21	1,501	22	73	72	42
		Total Short-Term								3,729	66	205	220	128

Notes:

(1) Source: "Trip Generation, 10th Edition, 2017" by the Institute of Transportation Engineers (ITE)

(2) DU = dwelling unit

Source: LSC Transportation Consultants, Inc.

**Table 2
Trip Assignment
Hannah Ridge at Feathergrass Filing Nos. 5, 6, and 7**

		DISTRIBUTION AND ASSIGNMENT																		
		IN									OUT									
		West 45%			South 5%		North 15%		East 35%			West 45%			South 5%		North 25%		East 25%	
Filing	Average Weekday Traffic ⁽¹⁾	Shawnee	Hannah Ridge	Akers	Hannah Ridge	Akers	Shawnee	Hannah Ridge	Akers	Shawnee	Hannah Ridge	Akers	Shawnee	Hannah Ridge	Akers	Hannah Ridge	Akers	Hannah Ridge	Akers	
Approved and Currently Proposed Filings																				
1	%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	VPD ⁽²⁾	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	%	0%	100%	0%	100%	100%	0%	100%	0%	100%	0%	0%	100%	0%	100%	100%	100%	100%	0%	
	VPD	9	0	2	0	1	0	2	0	2	0	0	2	0	0	1	1	0	0	
3	%	100%	0%	0%	100%	100%	0%	75%	25%	100%	0%	0%	100%	0%	100%	100%	75%	25%		
	VPD	132	30	0	3	10	0	17	6	30	0	0	3	17	12	4				
4	%	100%	0%	0%	100%	100%	75%	0%	25%	100%	0%	0%	100%	100%	75%	25%				
	VPD	491	110	0	12	37	64	0	21	110	0	0	12	61	46	15				
5	%	0%	25%	75%	100%	100%	0%	0%	100%	0%	0%	100%	100%	100%	100%	0%	100%			
	VPD	519	0	29	88	13	39	0	0	91	0	117	13	65	0	65				
6	%	25%	0%	75%	100%	100%	0%	0%	100%	25%	0%	75%	100%	100%	0%	100%				
	VPD	312	18	0	53	8	23	0	0	55	18	0	53	8	39	0	39			
7	%	100%	0%	0%	100%	100%	75%	0%	25%	100%	0%	0%	100%	100%	50%	50%				
	VPD	765	172	0	19	57	100	0	33	172	0	0	19	96	48	48				
		2,228	330	31	141	55	167	164	19	206	330	2	170	55	279	107	171			
Short-Term Future Land Uses																				
Multifamily	%	80%	20%	0%	100%	100%	35%	65%	0%	80%	20%	0%	100%	100%	100%	0%				
	VPD ⁽¹⁾	1,501	270	68	0	38	113	92	171	0	270	68	0	38	188	188	0			

Notes:

(1) See Table 1 for trip generation estimate calculations

(2) VPD = vehicles per day

Source: LSC Transportation Consultants, Inc.

Table 3
Hourly Distribution of Traffic Average Weekday Traffic Volumes
Hannah Ridge at Feathergrass Filing Nos. 5, 6, and 7

Time	Percent of Average Weekday ⁽¹⁾		Traffic Volumes Hannah Ridge/Constitution									
	IN	OUT	IN					OUT				
			EB LT	EB TH	NB TH	WB TH	WB RT	EB TH	WB TH	SB LT	SB LT	SB RT
Approved and Currently Proposed Filings												
Average Weekday ⁽²⁾ (vehicles per day)			31	141	55	164	19	0	170	107	55	2
Hourly Distribution (vehicles per hour)												
7-8 AM	3.2%	10.2%	1	5	2	5	1	0	17	11	6	0
8-9 AM	3.7%	8.6%	1	5	2	6	1	0	15	9	5	0
12-1 PM	5.5%	5.6%	2	8	3	9	1	0	10	6	3	0
1-2 PM	6.0%	5.9%	2	8	3	10	1	0	10	6	3	0
2-3 PM	7.0%	6.2%	2	10	4	11	1	0	11	7	3	0
3-4 PM	8.5%	6.0%	3	12	5	14	2	0	10	6	3	0
4-5 PM	10.5%	7.5%	3	15	6	17	2	0	13	8	4	0
5-6 PM	10.3%	7.4%	3	15	6	17	2	0	13	8	4	0
Short-Term Future Land Uses												
Average Weekday ⁽²⁾ (vehicles per day)			68	0	38	92	171	0	0	188	38	68
Hourly Distribution (vehicles per hour)												
7-8 AM	2.6%	12.9%	2	0	1	2	4	0	0	24	5	9
8-9 AM	4.0%	9.1%	3	0	2	4	7	0	0	17	3	6
12-1 PM	5.6%	5.4%	4	0	2	5	10	0	0	10	2	4
1-2 PM	4.8%	4.9%	3	0	2	4	8	0	0	9	2	3
2-3 PM	5.9%	6.0%	4	0	2	5	10	0	0	11	2	4
3-4 PM	8.3%	5.2%	6	0	3	8	14	0	0	10	2	4
4-5 PM	10.0%	5.1%	7	0	4	9	17	0	0	10	2	3
5-6 PM	11.4%	6.7%	8	0	4	10	19	0	0	13	3	5

Notes:

(1) Source: Institute of Transportation Engineers, August 2018

(2) See Table 2

Source: LSC Transportation Consultants, Inc.

Table 4
Hannah Ridge at Feathergrass Filing No. 5, 6, and 7
Traffic Signal Warrant Analysis of Hannah Ridge Drive/Constitution Avenue

Hour	Traffic Volumes											Warrant 1, Eight Hour Vehicular Volume Evaluation ⁽³⁾								Warrant 2, Four Hour Vehicular Volume Evaluation ⁽⁴⁾			Warrant 7, Crash Experience													
	Approved and Currently Proposed Uses						Short-Term Future Uses					Warrant Thresholds				Warrant Threshold Met?				Warrant Threshold Minimum	Warrant Threshold Met?			Warrant Volume Thresholds				Warrant Threshold Met?								
	Existing ⁽¹⁾			Fil Nos. 1-7			Existing + Approved + Currently Proposed		Multi-Family		Short-Term Future			Condition A (70%)		Condition B (70%)		Existing			Existing + Approved + Currently Proposed		Short-Term Future		Existing	Existing + Approved + Currently Proposed	Short-Term Future	Condition A (56%)		Condition B (56%)		Existing		Existing + Approved + Currently Proposed		Short-Term Future
	Major ⁽²⁾	NB LT	SB LT	Major	SB LT	Major	SB LT	Major	SB LT	Major	SB LT	Major	Minor	Major	Minor	A	B	A	B	A	B	Warrant Threshold Minimum	Existing	Existing + Approved + Currently Proposed				Short-Term Future	Major	Minor	Major	Minor	A	B	A	B
6:30 AM	1354	55	11	29	11	1383	22	8	24	1391	46	420	105	630	53	No	Yes	No	Yes	No	Yes	60	No	No	No	336	84	504	42	No	Yes	No	Yes	No	Yes	
7:30 AM	1302	43	3	28	9	1330	12	14	17	1344	29	420	105	630	53	No	No	No	No	No	No	60	No	No	No	336	84	504	42	No	Yes	No	Yes	No	Yes	
11:30 AM	1022	30	4	30	6	1052	10	19	10	1071	20	420	105	630	53	No	No	No	No	No	No	60	No	No	No	336	84	504	42	No	No	No	No	No	No	
12:30 PM	964	26	4	31	6	995	10	15	9	1010	19	420	105	630	53	No	No	No	No	No	No	62	No	No	No	336	84	504	42	No	No	No	No	No	No	
1:30 PM	1031	25	7	35	7	1066	14	19	11	1085	25	420	105	630	53	No	No	No	No	No	No	60	No	No	No	336	84	504	42	No	No	No	No	No	No	
2:30 PM	1389	41	1	41	6	1430	7	28	10	1458	17	420	105	630	53	No	No	No	No	No	No	60	No	No	No	336	84	504	42	No	No	No	No	No	No	
3:45 PM	1606	26	5	50	8	1656	13	33	10	1689	23	420	105	630	53	No	No	No	No	No	No	60	No	No	No	336	84	504	42	No	No	No	No	No	No	
4:45 PM	1735	26	6	50	8	1785	14	37	13	1822	27	420	105	630	53	No	No	No	No	No	No	60	No	No	No	336	84	504	42	No	No	No	No	No	No	
																0	1	0	1	0	1		0	0	0					0	2	0	2	0	2	
																No	No	No	No	No	No		No	No	No					No	No	No	No	No	No	

Notes:

(1) Based on counts by LSC in February 2019.

(2) Constitution Avenue eastbound and westbound left-turn, through, and right-turn volumes.

(3) Hannah Ridge Dr northbound left-turn volume only.

(4) Thresholds are based on 2 or more lanes on the major approach and 1 lane on the minor approach with the 70% factor used as the major street speed exceeds 40 mph. The minor approach volumes include ONLY the left-turn volume as the through volume is very low.

Source: LSC Transportation Consultants, Inc.

HANNAH RIDGE FINAL PLATTING

DECEMBER 11, 2018

-  RECORDED PLATS
-  APPROVED PLATS
-  FUTURE PLATS

**FILING 5
55 LOTS**

**FILING 6
33 LOTS**

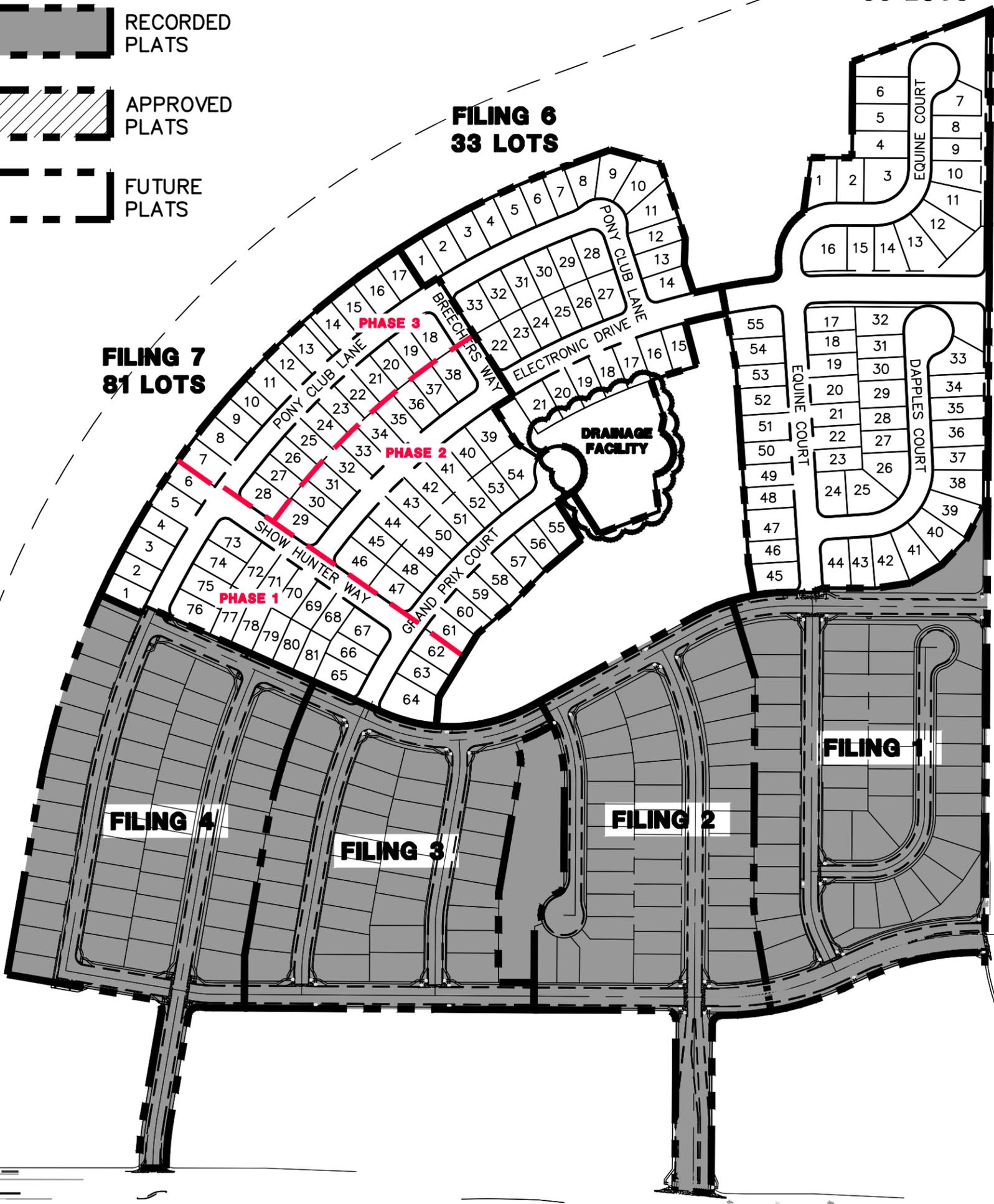
**FILING 7
81 LOTS**

FILING 1

FILING 4

FILING 3

FILING 2



SCALE: 1" = 250'



619 N. Cascade Avenue, Suite 200
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LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

719-633-2868

File Name : Hanna Ridge Dr - Constitution Ave AM.2

Site Code : 194190

Start Date : 2/26/2019

Page No : 1

Groups Printed- Unshifted

Start Time	Hanna Ridge Dr Southbound				Constitution Ave Westbound				Hanna Ridge Dr Northbound				Constitution Ave Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
06:30	3	0	5	0	11	122	2	0	10	0	23	0	2	134	0	5	317
06:45	3	0	11	0	13	147	0	0	11	0	32	0	1	132	2	4	356
Total	6	0	16	0	24	269	2	0	21	0	55	0	3	266	2	9	673
07:00	1	0	7	0	15	171	0	0	20	0	22	0	0	170	2	6	414
07:15	4	0	5	0	23	231	0	0	14	0	31	0	2	169	5	9	493
07:30	0	0	7	0	22	204	1	0	17	0	23	0	1	120	1	8	404
07:45	1	0	3	0	35	217	1	0	6	0	26	0	2	160	5	7	463
Total	6	0	22	0	95	823	2	0	57	0	102	0	5	619	13	30	1774
08:00	0	0	3	0	12	150	1	0	9	0	24	0	1	145	5	2	352
08:15	2	0	2	0	10	114	2	0	11	0	15	0	3	87	3	7	256
Grand Total	14	0	43	0	141	1356	7	0	98	0	196	0	12	1117	23	48	3055
Apprch %	24.6	0	75.4	0	9.4	90.2	0.5	0	33.3	0	66.7	0	1	93.1	1.9	4	
Total %	0.5	0	1.4	0	4.6	44.4	0.2	0	3.2	0	6.4	0	0.4	36.6	0.8	1.6	

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Colorado Springs, CO 80905

719-633-2868

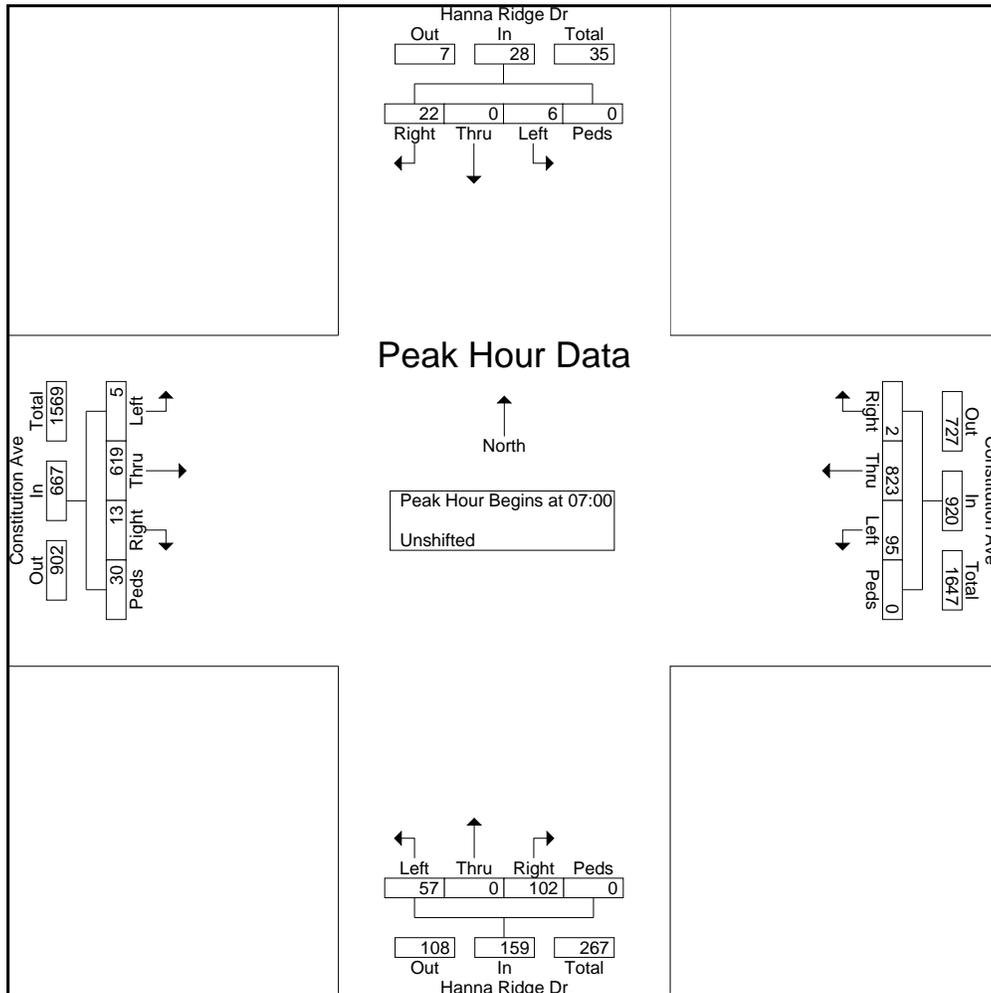
File Name : Hanna Ridge Dr - Constitution Ave AM.2

Site Code : 194190

Start Date : 2/26/2019

Page No : 2

Start Time	Hanna Ridge Dr Southbound					Constitution Ave Westbound					Hanna Ridge Dr Northbound					Constitution Ave Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	1	0	7	0	8	15	171	0	0	186	20	0	22	0	42	0	170	2	6	178	414
07:15	4	0	5	0	9	23	231	0	0	254	14	0	31	0	45	2	169	5	9	185	493
07:30	0	0	7	0	7	22	204	1	0	227	17	0	23	0	40	1	120	1	8	130	404
07:45	1	0	3	0	4	35	217	1	0	253	6	0	26	0	32	2	160	5	7	174	463
Total Volume	6	0	22	0	28	95	823	2	0	920	57	0	102	0	159	5	619	13	30	667	1774
% App. Total	21.4	0	78.6	0		10.3	89.5	0.2	0		35.8	0	64.2	0		0.7	92.8	1.9	4.5		
PHF	.375	.000	.786	.000	.778	.679	.891	.500	.000	.906	.713	.000	.823	.000	.883	.625	.910	.650	.833	.901	.900



LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

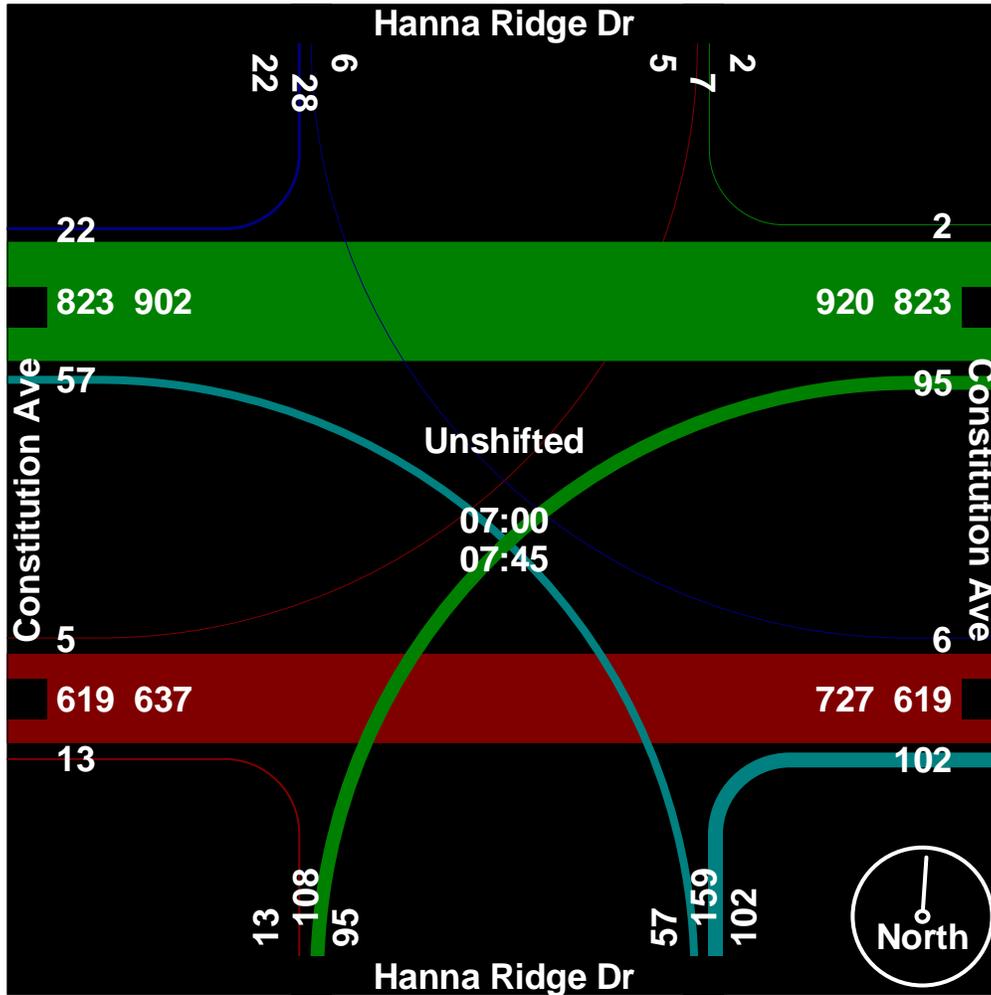
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LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210

Colorado Springs, CO 80905

719-633-2868

File Name : Hanna Ridge Dr - Constitution Ave Mid

Site Code : 00194190

Start Date : 2/28/2019

Page No : 1

Groups Printed- Unshifted

Start Time	Hanna Ridge Dr Southbound				Constitution Ave Westbound				Hanna Ridge Dr Northbound				Constitution Ave Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
13:30	2	0	1	0	11	126	1	0	11	1	8	0	3	148	4	4	320
13:45	0	0	0	0	8	105	0	0	4	0	16	0	3	121	5	3	265
Total	2	0	1	0	19	231	1	0	15	1	24	0	6	269	9	7	585
14:00	3	0	3	0	6	107	0	0	7	0	5	0	3	114	3	2	253
14:15	2	0	0	0	10	115	0	1	3	0	15	0	3	128	7	3	287
14:30	0	0	3	0	13	134	0	0	9	0	17	0	1	138	9	4	328
14:45	1	0	3	0	22	133	0	0	11	0	11	0	2	144	8	1	336
Total	6	0	9	0	51	489	0	1	30	0	48	0	9	524	27	10	1204
15:00	0	0	4	0	22	162	2	0	10	0	20	0	2	165	11	2	400
15:15	0	1	3	0	19	185	2	1	11	0	19	0	3	196	16	6	462
Grand Total	8	1	17	0	111	1067	5	2	66	1	111	0	20	1154	63	25	2651
Apprch %	30.8	3.8	65.4	0	9.4	90	0.4	0.2	37.1	0.6	62.4	0	1.6	91.4	5	2	
Total %	0.3	0	0.6	0	4.2	40.2	0.2	0.1	2.5	0	4.2	0	0.8	43.5	2.4	0.9	

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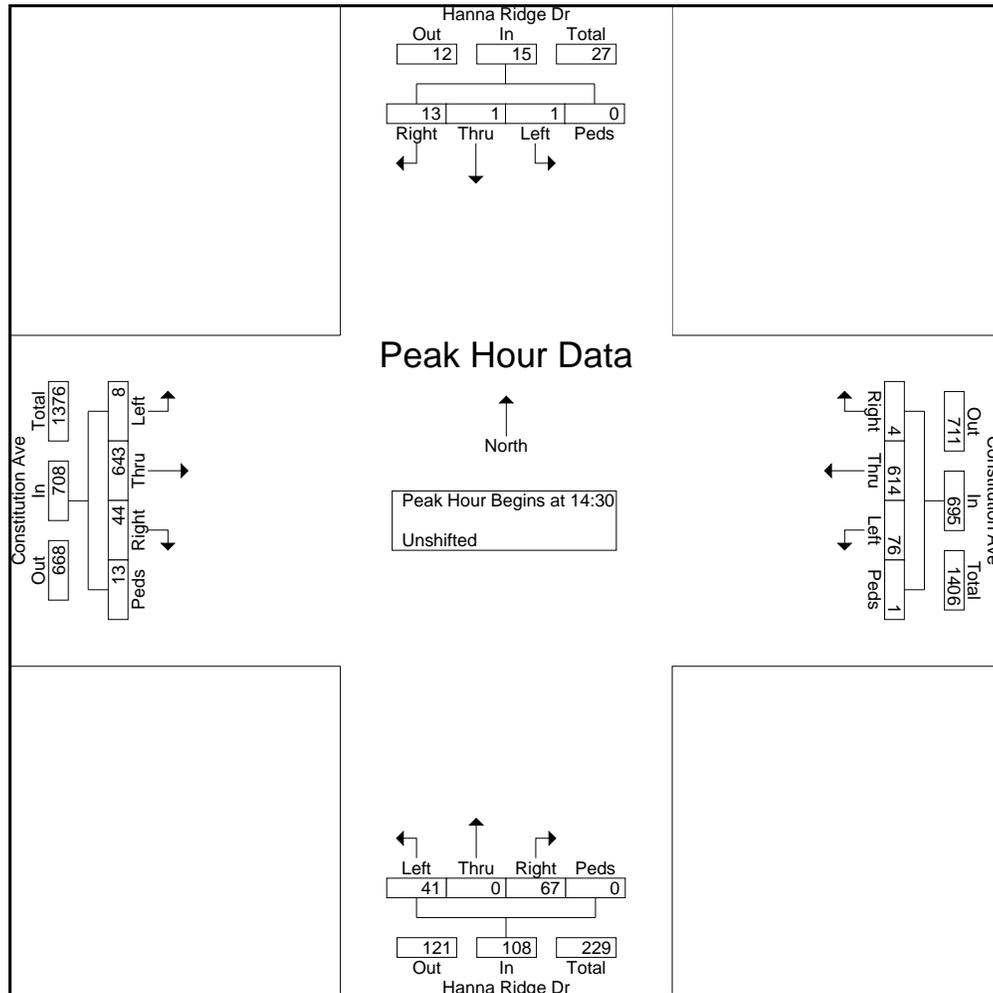
File Name : Hanna Ridge Dr - Constitution Ave Mid

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Start Time	Hanna Ridge Dr Southbound					Constitution Ave Westbound					Hanna Ridge Dr Northbound					Constitution Ave Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 13:30 to 15:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 14:30																					
14:30	0	0	3	0	3	13	134	0	0	147	9	0	17	0	26	1	138	9	4	152	328
14:45	1	0	3	0	4	22	133	0	0	155	11	0	11	0	22	2	144	8	1	155	336
15:00	0	0	4	0	4	22	162	2	0	186	10	0	20	0	30	2	165	11	2	180	400
15:15	0	1	3	0	4	19	185	2	1	207	11	0	19	0	30	3	196	16	6	221	462
Total Volume	1	1	13	0	15	76	614	4	1	695	41	0	67	0	108	8	643	44	13	708	1526
% App. Total	6.7	6.7	86.7	0		10.9	88.3	0.6	0.1		38	0	62	0		1.1	90.8	6.2	1.8		
PHF	.250	.250	.813	.000	.938	.864	.830	.500	.250	.839	.932	.000	.838	.000	.900	.667	.820	.688	.542	.801	.826



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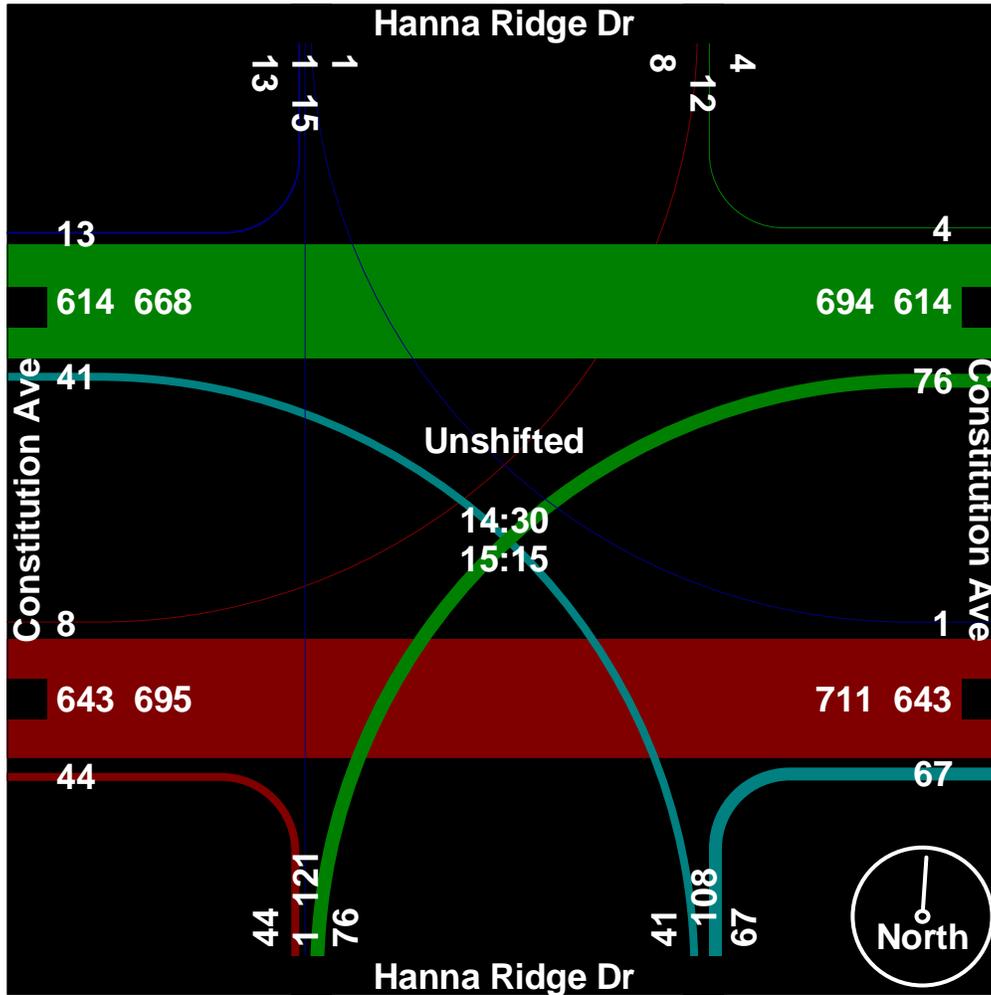
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Start Date : 2/27/2019

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Start Time	Hanna Ridge Dr Southbound				Constitution Ave Westbound				Hanna Ridge Dr Northbound				Constitution Ave Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
11:30	2	0	1	0	10	111	1	1	9	0	8	0	1	109	5	2	260
11:45	0	0	0	0	9	117	2	0	7	1	7	0	0	125	8	2	278
Total	2	0	1	0	19	228	3	1	16	1	15	0	1	234	13	4	538
12:00	1	0	1	0	6	125	0	0	7	0	6	0	0	136	7	0	289
12:15	1	0	1	0	4	111	1	0	7	0	13	0	4	125	5	2	274
12:30	0	0	2	0	12	105	0	0	6	1	11	0	3	115	7	4	266
12:45	2	0	1	0	11	107	0	0	6	1	9	0	1	121	11	1	271
Total	4	0	5	0	33	448	1	0	26	2	39	0	8	497	30	7	1100
13:00	1	0	1	0	2	95	2	0	8	1	13	0	2	134	6	6	271
13:15	1	1	3	0	12	101	0	0	6	1	11	0	3	109	5	5	258
Grand Total	8	1	10	0	66	872	6	1	56	5	78	0	14	974	54	22	2167
Apprch %	42.1	5.3	52.6	0	7	92.3	0.6	0.1	40.3	3.6	56.1	0	1.3	91.5	5.1	2.1	
Total %	0.4	0	0.5	0	3	40.2	0.3	0	2.6	0.2	3.6	0	0.6	44.9	2.5	1	

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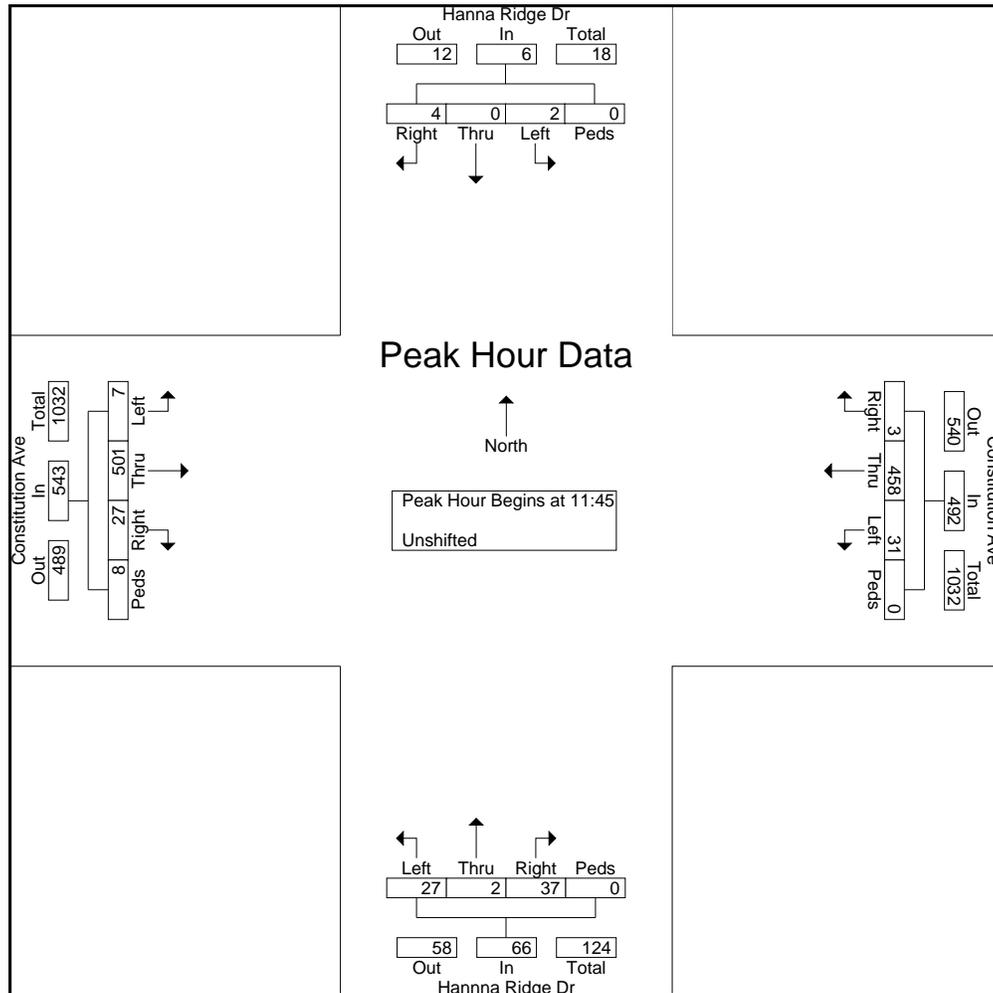
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	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 11:30 to 13:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:45																					
11:45	0	0	0	0	0	9	117	2	0	128	7	1	7	0	15	0	125	8	2	135	278
12:00	1	0	1	0	2	6	125	0	0	131	7	0	6	0	13	0	136	7	0	143	289
12:15	1	0	1	0	2	4	111	1	0	116	7	0	13	0	20	4	125	5	2	136	274
12:30	0	0	2	0	2	12	105	0	0	117	6	1	11	0	18	3	115	7	4	129	266
Total Volume	2	0	4	0	6	31	458	3	0	492	27	2	37	0	66	7	501	27	8	543	1107
% App. Total	33.3	0	66.7	0		6.3	93.1	0.6	0		40.9	3	56.1	0		1.3	92.3	5	1.5		
PHF	.500	.000	.500	.000	.750	.646	.916	.375	.000	.939	.964	.500	.712	.000	.825	.438	.921	.844	.500	.949	.958



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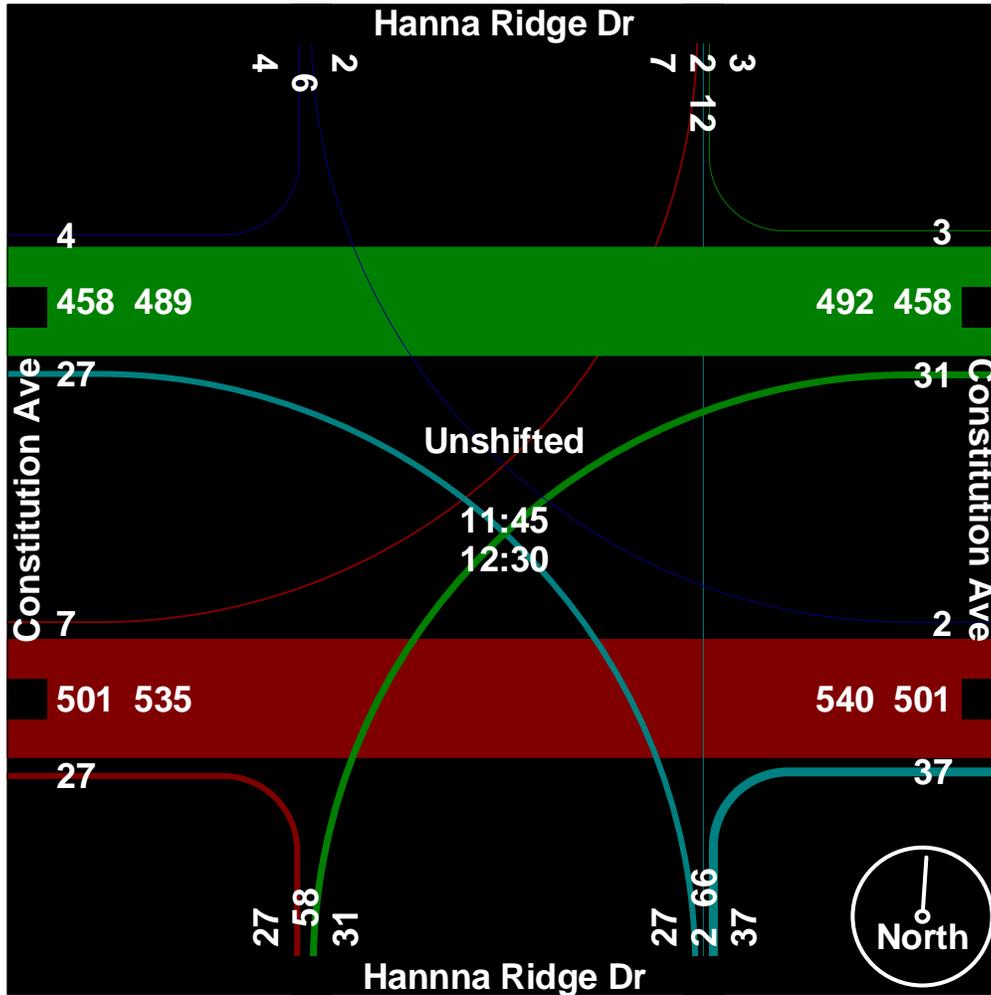
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	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
15:45	2	1	1	0	18	205	4	0	4	0	17	0	1	188	7	6	454
Total	2	1	1	0	18	205	4	0	4	0	17	0	1	188	7	6	454
16:00	1	0	3	0	18	148	0	0	10	1	14	0	2	187	6	6	396
16:15	1	0	3	0	19	184	4	0	9	0	17	0	1	170	10	5	423
16:30	1	0	1	0	20	214	3	1	3	0	20	0	3	187	7	6	466
16:45	1	0	6	0	20	195	3	0	10	0	21	1	3	189	12	7	468
Total	4	0	13	0	77	741	10	1	32	1	72	1	9	733	35	24	1753
17:00	2	0	0	0	17	234	5	0	3	0	22	0	5	186	19	8	501
17:15	3	0	4	0	20	165	4	0	5	0	14	0	6	210	12	6	449
17:30	0	0	1	0	21	187	1	0	8	0	12	0	4	210	7	2	453
Grand Total	11	1	19	0	153	1532	24	1	52	1	137	1	25	1527	80	46	3610
Apprch %	35.5	3.2	61.3	0	8.9	89.6	1.4	0.1	27.2	0.5	71.7	0.5	1.5	91	4.8	2.7	
Total %	0.3	0	0.5	0	4.2	42.4	0.7	0	1.4	0	3.8	0	0.7	42.3	2.2	1.3	

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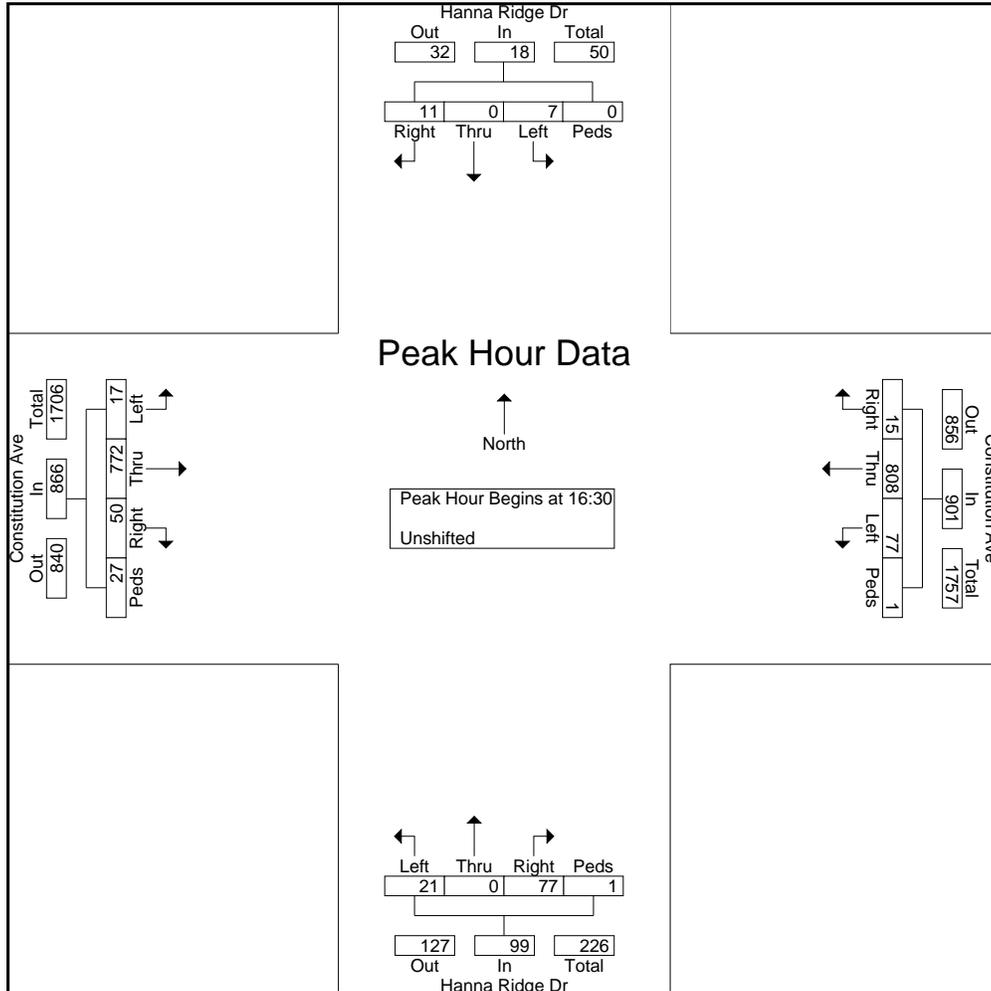
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	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 15:45 to 17:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	1	0	1	0	2	20	214	3	1	238	3	0	20	0	23	3	187	7	6	203	466
16:45	1	0	6	0	7	20	195	3	0	218	10	0	21	1	32	3	189	12	7	211	468
17:00	2	0	0	0	2	17	234	5	0	256	3	0	22	0	25	5	186	19	8	218	501
17:15	3	0	4	0	7	20	165	4	0	189	5	0	14	0	19	6	210	12	6	234	449
Total Volume	7	0	11	0	18	77	808	15	1	901	21	0	77	1	99	17	772	50	27	866	1884
% App. Total	38.9	0	61.1	0		8.5	89.7	1.7	0.1		21.2	0	77.8	1		2	89.1	5.8	3.1		
PHF	.583	.000	.458	.000	.643	.963	.863	.750	.250	.880	.525	.000	.875	.250	.773	.708	.919	.658	.844	.925	.940



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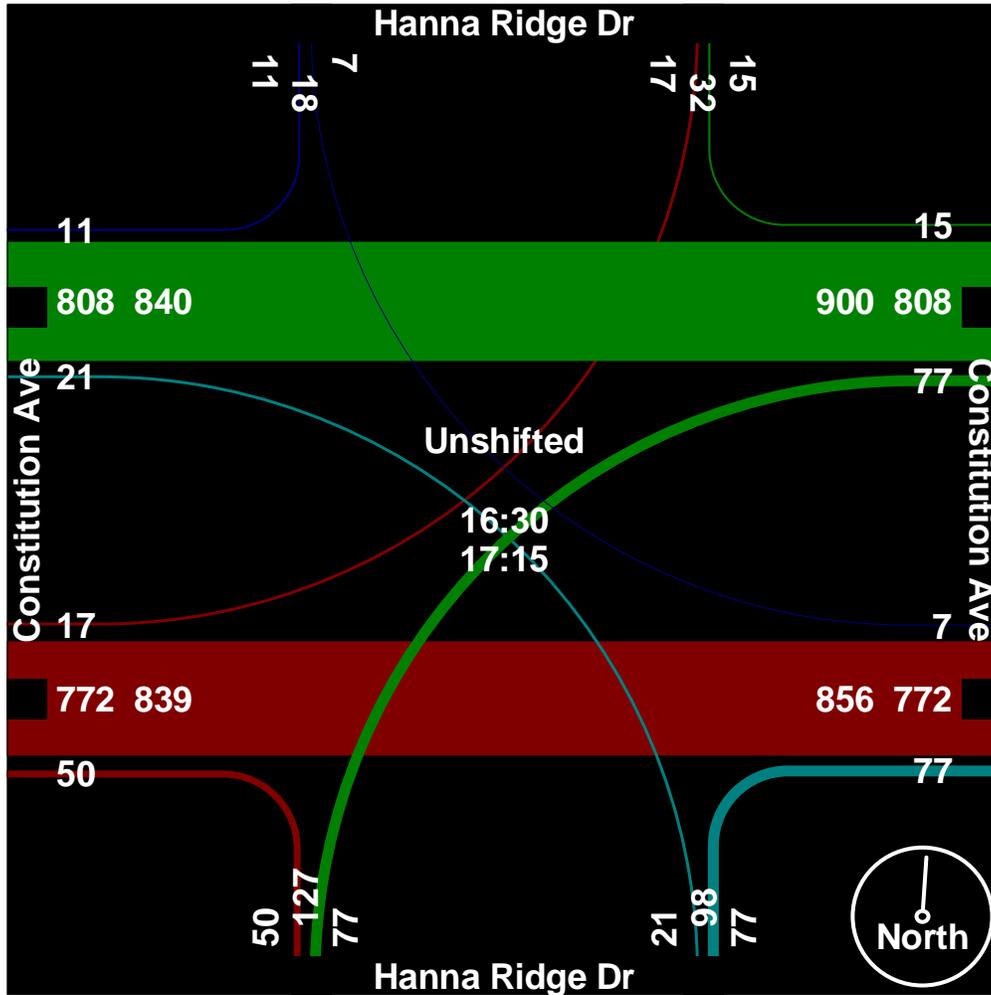
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Website: <http://www.lsctrans.com>

Hannah Ridge at Feathergrass Filings 5, 6, and 7 Traffic Impact Study (LSC #194190) March 14, 2019

Traffic Engineer's Statement

This 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.



Developer's Statement

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

Date