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Hannah Ridge at Feathergrass



Filings 3 and 4

(LSC #174210) Resolved Add filing number(s)

August 9, 2017

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.


Jeffrey C. Hodsdon, P.E., #31684  8/9/17 Date

Developer's Statement

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

Date



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August 9, 2017

Feathergrass Investments, LLC
c/o David R. Gorman, P.E.
M.V.E. Inc.
1903 Lelaray Street, Suite 200
Colorado Springs, CO 80909

RE: Hannah Ridge at Feathergrass
Filings 3 and 4
El Paso County, CO
Traffic Impact Analysis
LSC #174210

Dear Mr. Gorman:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact analysis for Filings 3 and 4 of the Hannah Ridge at Feathergrass development located north and south of Constitution Avenue and west of Marksheffel Road in El Paso County, Colorado. The site location is shown in Figure 1. A previous traffic impact study for this development was completed by LSC dated October 23, 2007.

REPORT CONTENTS

This report is being prepared as part of a submittal to El Paso County. It identifies the traffic impacts of this development. The report contains the following:

- The traffic count data and street conditions.
- Projections of short-term (2020) and long-term (2040) baseline/background traffic volumes.
- The projected average weekday and peak-hour vehicle-trips to be generated by the site by phase.
- The assignment of the site's projected traffic volumes to the key area streets and intersections for the short and long term and the resulting total traffic volumes for the short and long term.
- The resulting traffic impacts including level of service analysis at key intersections and average daily traffic volumes on key street sections in the vicinity of the site.
- Recommended lane configuration for Constitution Avenue.
- Recommendations for contributions for a future traffic signal at Hannah Ridge/Constitution.

LAND USE AND ACCESS

The Hannah Ridge at Feathergrass development is planned to contain a mix of residential and commercial uses. The proposed preliminary plan is attached. The preliminary plan also shows the proposed phasing of the development.

The Hannah Ridge at Feathergrass development is planned to contain 353 lots for single-family homes. The 2007 study assumed the site would be developed with 354 lots for single-family homes. Since completion of that report 45 lots have been platted as part of Filing No. 1 and 39 lots have been platted as Filing No. 2. At the time traffic counts were conducted 44 homes had been constructed within Filing No. 1 and five homes had been constructed within Filing 2.

Thirty-nine lots for single-family homes are currently proposed to be platted as Filing No. 3. With this filing, Hunter Jumper Drive and Winslow Park Drive would be extended east to Grand Prix Court. Shawnee Drive would not be extended north of Constitution as part of this filing.

Fifty-two lots for single-family homes are currently proposed to be platted as Filing No. 4. With this filing Shawnee Drive would be extended north of Constitution Avenue. The intersection of Constitution/Shawnee is planned to be restricted to three-quarter movements (left-in/right-in/right-out only) with Filing No. 4. Center raised median modification to a standard three-quarter channelizing median would also restrict the south side of Constitution (Shawnee) to a three-quarter movement intersection. The traffic volume projections in this report reflect this.

The remaining 178 lots for single-family homes are proposed for future Filings 5 through 8. Future Filing 9 is located west of Hannah Ridge Drive between Constitution Avenue and Hunter Jumper Drive. The 2007 traffic impact study assumed this area would be developed with about 205 multi-family dwelling units. Future Filing 10 is located in three tracts on the northwest, northeast, and southeast corners of the intersection of Akers/Constitution. The 2007 traffic impact study assumed these parcels would be developed with about 400,000 square feet of retail floor space including a 70,0000 supermarket. Access to Filing 10 is proposed via Akers Drive. An additional right-in/right-out-only access is proposed on the north side of Constitution east of Akers Drive and a right-in-only access on the south side on Constitution. No changes are currently planned for Filings 9 and 10.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The area roadways in the site's vicinity are shown on Figure 1 and 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.

Existing Traffic Volumes

Figure 2 shows the existing peak-hour traffic volumes and existing lane geometries and traffic controls at the intersections of Constitution Avenue/Shawnee Drive, Constitution Avenue/Hannah Ridge Drive and Constitution Avenue/Akers Drive. The traffic volumes are based on counts by LSC in March and July 2017. The traffic count reports are attached.

Existing Level of Service

Level of service (LOS) is a quantitative measure of the level of delay at an intersection. Level of service is indicated on a scale from “A” to “F.” LOS A represents control delay of less than 10 seconds for unsignalized and signalized intersections. LOS F represents control delay of more than 50 seconds for unsignalized intersections and more than 80 seconds for signalized intersections. Table 1 shows the level of service delay ranges.

Table 1 Intersection Levels of Service Delay Ranges		
Level of Service	Signalized Intersections	Unsignalized Intersections
	Control Delay (seconds per vehicle)	
A	10 sec or less	10 sec or less
B	10-20 sec	10-15 sec
C	20-35 sec	15-25 sec
D	35-55 sec	25-35 sec
E	55-80 sec	35-50 sec
F	80 sec or more	50 sec or more

The intersections of Constitution Avenue/Shawnee Drive, Constitution Avenue/Hannah Ridge Drive, and Constitution Avenue/Akers Drive have been analyzed to determine the existing levels of service based on the unsignalized method of analysis procedures found in the *Highway Capacity Manual, 2010 Edition* by the Transportation Research Board. The results of the analysis are shown in Figure 2. The level of service reports are attached.

All movements at the intersections of Constitution Avenue/Shawnee Drive and Constitution Avenue/Akers Drive are currently operating at a satisfactory level of service (LOS D or better) during the peak hours as stop-sign-controlled intersections.

The northbound left-turn movement at the intersection of Constitution Avenue/Hannah Ridge Drive is currently operating at LOS D during the morning peak hour and LOS E during the afternoon peak hour.

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, 9th Edition, 2012* by the Institute of Transportation Engineers (ITE). Table 2 shows the trip generation estimates for the Hannah Ridge at Feathergrass development by phase. The trip generation estimate includes vehicle-trips estimated to be generated by homes that have already been constructed in Filing 1. Table 2 also shows the trip generation estimate from the 2007 traffic impact study. Although the anticipated land uses for Phases 9 and 10 have not changed the ITE trip generation rates for “Shopping Center” and “Supermarket” have changed between the 7th edition published in 2003 and the current 9th edition resulting in a slightly lower trip generation estimate for these parcels.

The total number of external new impact vehicle-trips generated by the retail land uses has been reduced to take into account the “pass-by” phenomena. A pass-by trip is made by a motorist who would already be on the adjacent roadways regardless of the proposed development, but who stops in at the site while passing by. The motorist would then continue on his or her way to a final destination in the original direction. The pass-by percentages shown on Table 2 are from the *Trip Generation Handbook - An ITE Proposed Recommended Practice, 3rd Edition, 2014* by ITE.

Filing No. 3 of the Hannah Ridge at Feathergrass development is expected to generate about 371 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 seven vehicles would enter and 22 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 25 vehicles would enter and 14 vehicles would exit the site.

Filing No. 4 of the Hannah Ridge at Feathergrass development is expected to generate about 495 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 10 vehicles would enter and 29 vehicles would exit the site. During the afternoon peak hour of the adjacent street traffic about 33 vehicles would enter and 19 vehicles would exit the site.

At buildout the site is expected to generate about 17,547 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 414 vehicles would enter and 477 vehicles would exit the site. During the afternoon peak hour of the adjacent street traffic about 1,201 vehicles would enter and 1,095 vehicles would exit the site.

SHORT-TERM BACKGROUND TRAFFIC

Background traffic is the traffic estimated to be on the adjacent roadways and at adjacent intersections without the proposed development’s trip generation of site-generated traffic volumes. Background traffic includes increases in the through traffic and the traffic generated by nearby developments, but assumes no additional traffic generated by development within the Hannah Ridge at Feathergrass Sketch Plan

area including the 35 lots for single-family homes within Hannah Ridge at Feathergrass Filings 1 and 2 that have been platted but were not constructed at the time of the traffic counts. Figure 3 shows the background traffic for the short term (year 2020) assuming the intersection of Shawnee/Constitution remains a full-movement intersection. Figure 4 shows the background traffic for the short term (year 2020) assuming the intersection of Shawnee/Constitution is restricted to three-quarter movement (left-in/right-in/right-out only). The short-term background traffic volumes were based on the existing volumes shown in Figure 2 with some growth in existing through volumes on Constitution Avenue.

2040 BACKGROUND TRAFFIC

Figure 5 shows the projected background traffic volumes for the year 2040. These volumes are estimates by LSC based on previous work completed in the area including The Sands located east of Marksheffel and north of Constitution Avenue and The Wilshire Subdivision located south and west of the site.

DIRECTIONAL DISTRIBUTION

The directional distribution of the site-generated traffic volumes on the area roadways is an important factor in determining the site's traffic impacts. Figure 6 shows the directional distribution estimates for the site-generated traffic volumes. The estimates have been based on the following factors: the site's location with respect to the City of Colorado Springs, Peterson Air Force Base to the south, and the developing area to the east; the roadway system serving the site; the site's proposed land uses; and the existing traffic counts. The pass-by trips were assigned based, in large part, on the magnitude and direction of the existing traffic volumes on the adjacent roadways.

SITE-GENERATED TRAFFIC

The site-generated traffic volumes were calculated by applying the directional distribution percentages (from Figure 6) to the trip generation estimates from Table 2. Figures 7 through 13 show the projected site-generated traffic volumes by filing.

Figure 7 shows the additional traffic volumes estimated to be generated by the 35 homes that had not been constructed within Filing Nos. 1 and 2 at the time traffic counts were conducted. The short-term volumes assume Shawnee Drive has not been extended north of Constitution Avenue. The long-term estimates assume Shawnee Drive has been extended north of Constitution and the intersection of Shawnee/Constitution has been restricted to three-quarter movement only (left-in/right-in/right-out only).

Figure 8 shows traffic volumes estimated to be generated by the 39 homes currently proposed for Filing 3. The short-term volumes assume Shawnee Drive has not been extended north of Constitution Avenue. The long-term estimates assume Shawnee Drive has been extended north of Constitution and the intersection of Shawnee/Constitution has been restricted to three-quarter movement only (left-in/right-in/right-out only).

Figure 9 shows traffic volumes estimated to be generated by the 52 homes currently proposed for Filing 4. The estimates assume Shawnee Drive has been extended north of Constitution and the intersection of Shawnee/Constitution has been restricted to three-quarter movement only (left-in/right-in/right-out only).

Figure 10 shows traffic volumes estimated to be generated by the remaining 178 single-family homes planned for the future Filings 5 through 8. The estimates assume buildout of the Hannah Ridge at Feathergrass street system.

Figures 11 and 12 show the site-generated traffic volumes for the future multi-family development assumed for Filing 9 and the future commercial development assumed for Filing 10. Figure 13 shows site-generated traffic at buildout of the Hannah Ridge at Feathergrass development. These volumes are the sum of the long-term volumes shown in Figures 7 through 12.

SHORT-TERM TOTAL TRAFFIC

Figure 14 shows the projected short-term total traffic volumes assuming buildout of Filings Nos. 1 to 3 only. These volumes are the sum of the short-term background traffic volumes (from Figure 3) plus the additional traffic projected to be generated by the lots left to be developed within Filings Nos. 1 and 2 (from Figure 7) plus the Filing No. 3-generated short-term generated traffic volumes (from Figure 8). These volumes assume Shawnee Drive has not been extended north of Constitution Avenue.

Figure 15 shows the projected short-term total traffic volumes assuming buildout of Filing Nos. 1 to 4 only. These volumes are the sum of the short-term background traffic volumes assuming the intersection of Shawnee/Constitution has been restricted to three-quarter movement (from Figure 4) plus the additional traffic projected to be generated by the lots left to be developed Filing Nos. 1 and 2 (from Figure 7) plus the Filing No. 3-generated long-term traffic volumes (from Figure 8) plus the Filing No. 4-generated traffic volumes (from Figure 9). These volumes assume Shawnee Drive has been extended north of Constitution Avenue and the intersection of Shawnee/Constitution has been restricted to three-quarter movement only (left-in/right-in/right-out only).

2040 TOTAL TRAFFIC

Figure 16 shows the projected 2040 total traffic volumes. The 2040 total traffic volumes are the sum of the 2040 background traffic volumes (from Figure 5) plus the buildout site-generated traffic volumes from Figure 13.

PROJECTED LEVELS OF SERVICE

All of the intersections along Constitution Avenue adjacent to the site were analyzed to determine the projected levels of service for the 2020 and 2040 background and total traffic volumes based on the unsignalized method of analysis procedures from the *Highway Capacity Manual, 2010 Edition* by the Transportation Research Board and the Synchro signalized intersection procedures. Figures 3, 4, 5, 14, 15, and 16 show the level of service analysis results. The laneage and traffic control assumed in the analysis are depicted on the figures. The level of service reports are attached.

Constitution/Akers

All movements at the intersection of Constitution/Akers are projected to continue to operate at a satisfactory level of service (LOS D or better) during the peak hours based on the 2020 total traffic volumes following buildout of Filing No.3 and following buildout of Filing No. 4 assuming this intersection remains stop-sign controlled. By 2040, this intersection was assumed to be signalized. All

movements are projected to operate at a satisfactory level of service based on the projected 2040 total traffic volumes.

Constitution/Hannah Ridge

The northbound left-turn movement at the intersection of Constitution/Hannah Ridge is currently operating at LOS E during the afternoon peak hour. By 2020 the southbound left-turn movement is also projected to operate at LOS E during the peak hours assuming no additional development within the Hannah Ridge at Feathergrass Sketch Plan area. Following buildout of Filings 1 to 3 the southbound through movement is projected to operate at LOS E during the peak hours and the northbound left-turn movement is projected to operate at LOS F during the afternoon peak hour.

If the intersection of Shawnee/Constitution is restricted to three-quarter movement (left-in/right-in/right-out only) the northbound left-turn movement at the intersection of Hannah Ridge/Constitution is projected to operate at LOS E during the morning peak hour based on both the short-term background traffic and the short-term total traffic volumes assuming buildout of Filing Nos. 1 through 4. During the afternoon peak hour the northbound left-turn movement is projected to operate at LOS E based on short-term background traffic and LOS F based on short-term total traffic assuming buildout through Filing 4.

This intersection is planned to be signalized in the future. It is common for the minor/side-street intersection approaches to operate at LOS E or F as the intersection volumes approach the volumes needed to satisfy a traffic signal warrant. As a signalized intersection, all movements are projected to operate at a satisfactory level of service during the peak hours based on the projected 2040 total traffic volumes.

Constitution/Shawnee

It was assumed that the intersection of Constitution/Shawnee would be restricted to three-quarter movement (left-in/right-in/right-out only) once Shawnee is extended north of Constitution. This is planned to occur with development of Hannah Ridge at Feathergrass Filing 4. Based on the projected 2020 total traffic volumes following buildout of Filing No. 4 and the 2040 total traffic volumes all movements at this intersection are projected to operate at LOS C or better during the peak hours.

Future Constitution Site Access

All movements at the future right-in/right-out-only access to Constitution Avenue (right-in only on the south side) are projected to operate at LOS C or better during the peak hours based on the projected 2040 total traffic volumes.

VEHICLE QUEUING ANALYSIS

A queuing analysis was performed using Synchro/SimTraffic to determine if the 300-foot eastbound left-turn lane on Constitution Avenue approaching Hannah Ridge Drive Road will be sufficient to accommodate the projected total traffic volumes. The 2040 total afternoon peak-hour traffic volumes were entered into the Synchro model. The simulation was run five times. The projected eastbound left-turn queue on Constitution Avenue approaching Hannah Ridge Drive is about 85 feet long. The queuing reports are attached.

TRAFFIC SIGNAL WARRANT ANALYSIS

The intersection of Constitution Avenue and Hannah Ridge Drive was analyzed to determine if a Four-Hour Vehicular Volume Traffic Signal Warrant threshold would be reached or exceeded based on the projected 2020 total traffic volumes following buildout of Filing Nos. 1 through 3 (shown in Figure 14) and following buildout of Filing 4 (shown in Figure 15). The results of the analysis are shown in Figures 17 and 18.

As shown in Figure 17, following buildout of Filings 1 through 3 the thresholds for a Four-Hour Vehicular Volume Traffic Signal Warrant are **not** projected to be met for either peak hour. As shown in Figure 18, following buildout of Filings 1 through 4 the thresholds are projected to be just met during the afternoon peak hour but not met during the morning peak hour. This analysis using the peak hours is intended to provide an indication that a warrant may be met or is close to being met. In order for a Four-Hour Traffic Signal Warrant to be satisfied, the volume threshold would need to be met for two additional hours of the day. For example, the four-hour warrant would be satisfied with the volume thresholds met for one hour in the morning, two hours (instead of the one-hour peak) during the afternoon peak period, and an hour during the mid-afternoon. Based on this analysis and our experience, it is likely that the volume thresholds would **not** be met or exceeded until additional development occurs south of Constitution Avenue. Therefore, it is expected that a traffic signal would **not** meet a Four-Hour Volume Warrant in the short term.

PEDESTRIAN AND BICYCLE IMPACT EVALUATIONS

A school pedestrian route evaluation between the site and both Remington Elementary School and Horizon Middle School is required per ECM criteria B.4.1.C *Pedestrian and Bicycle Impact Evaluations*. The routes for both schools are established from the Peterson/Constitution intersection south to Horizon M.S. and north to Remington Elementary School. The route for these subdivisions would connect to these established routes via Hannah Ridge Drive and the north side of Constitution Avenue west of Hannah Ridge Drive. The pedestrian route would include the subdivision streets connecting to the intersection of Hunter Jumper Drive/Hannah Ridge Drive, Hannah Ridge Drive between Constitution and Hunter Jumper Drive and the north side of Constitution between Hannah Ridge Drive and Peterson Road. A sidewalk has been constructed adjacent to the Charter school west of the Rock Island Trail right-of-way. A future county-standard concrete sidewalk would be constructed along the north side of Constitution with development of the parcel adjacent to Constitution Avenue on the northwest corner of Hannah Ridge Drive/Constitution Avenue. The short section of sidewalk across the Rock Island Trail right-of-way will presumably be installed in the future with the Rock Island Trail construction.

ESCROW FOR FUTURE TRAFFIC SIGNAL

An estimate of the fair contribution to the cost of a future traffic signal at the intersection of Constitution Avenue and Hannah Ridge Drive has been calculated for the currently proposed Hannah Ridge at Feathergrass Filing Nos. 3 and 4.

The cost of this signal is approximately \$300,000. Table 3 shows a projection of the key peak-hour intersection turning movement traffic volumes at the intersection of Hannah Ridge/Constitution by filing. These volumes were used to determine a fair share contribution to this signal for Filing Nos. 3 and 4. As

Has a decision been made regarding constructing the reach between Shawnee and the trail with Filing 4?

traffic signal percentages have been based on the minor street approach volumes, only the northbound and southbound left-turn and through movements were included in determining the fair share contribution. The site-generated traffic for Filing 3 would be 1.60 percent of the total. The Filing 3 contribution toward the signal would be \$4,800 (1.60 percent of a \$300,000 signal cost). The site-generated traffic for Filing 4 would be 2.08 percent of the total. The Filing 4 contribution toward the signal would be \$6,420.

ROADWAY IMPROVEMENT FEE PROGRAM

This development is subject to fees established by the El Paso County Road Impact Fee Program per El Paso County Resolution Number 12-389. Based on a per-lot up-front building permit fee of \$923 per dwelling unit, the total building permit fee amount would be \$35,997 for Filing 3 and \$47,996 for Filing 4.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

- Filing 3 of the Feathergrass at Hannah Ridge development is expected to generate about 371 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 seven vehicles would enter and 22 vehicles would exit the site. During the afternoon peak hour of the adjacent street traffic about 25 vehicles would enter and 14 vehicles would exit the site.
- Filing 4 of the Feathergrass at Hannah Ridge development is expected to generate about 495 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 10 vehicles would enter and 29 vehicles would exit the site. During the afternoon peak hour of the adjacent street traffic about 33 vehicles would enter and 19 vehicles would exit the site.

Level of Service

- All movements at the intersection of Constitution/Akers are projected to continue to operate at a satisfactory level of service (LOS D or better) during the peak hours based on the 2020 total traffic volumes following buildout of Filing No. 3 and buildout of Filing No. 4 assuming this intersection remains stop-sign controlled. By 2040, this intersection was assumed to be signalized. All movements are projected to operate at a satisfactory level of service based on the projected 2040 total traffic volumes.
- The northbound left-turn movement at the intersection of Constitution/Hannah Ridge is projected to operate at LOS F and southbound left-turn and through movements at the intersection of Constitution/Hannah Ridge are projected to operate at LOS E during the afternoon peak hour based on the projected 2020 total traffic volumes following buildout of Filing No. 4 assuming this intersection remains stop-sign controlled. Nearby signalized intersections at Peterson/Constitution and Marksheffel/Constitution create gaps in east-west through traffic and side street traffic utilizes these gaps to enter the intersection. This intersection is planned to be signalized in the future. It is common for the minor/side-street intersection approaches to operate at LOS E or F as the intersection

volumes approach the volumes needed to satisfy a traffic signal warrant. As a signalized intersection, all movements are projected to operate at a satisfactory level of service during the peak hours based on the projected 2040 total traffic volumes.

- The intersection of Constitution/Shawnee will be restricted to three-quarter movement (left-in/right-in/right-out only) once Shawnee is extended north of Constitution. This is planned to occur with development of Hannah Ridge at Feathergrass Filing No. 4. This report accounts for this change. Based on the projected 2020 total traffic volumes following buildout of Filing No. 4 and the 2040 total traffic volumes, all movements at this intersection are projected to operate at LOS C or better during the peak hours.
- All movements at the future right-in/right-out-only access to Constitution Avenue (right-in only on the south side) are projected to operate at LOS C or better during the peak hours based on the projected 2040 total traffic volumes.

Recommended Improvements

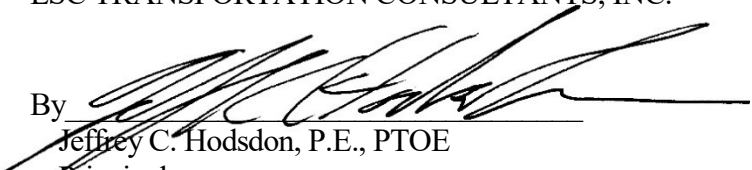
- Table 4 shows the recommended roadway improvements recommended for the overall Hannah Ridge at Feathergrass sketch plan.

* * * * *

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

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By 
Jeffrey C. Hodson, P.E., PTOE
Principal

JCH:KDF:bjwb

Enclosures: Table 2-4
Figures 1-18
Hannah Ridge at Feathergrass Preliminary Plan
Traffic Count Reports
Level of Service Reports

**Table 2
Trip Generation Estimate
Hannah Ridge at Feathergrass Filing Nos. 3 and 4**

Phase	Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates ⁽¹⁾					Total Trips Generated					Pass-By Trips ⁽²⁾	New External Trips Generated Average New Weekday Traffic
				Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour		Average Weekday Traffic	Morning Peak Hour		Afternoon Peak Hour			
					In	Out	In	Out		In	Out	In	Out		
Trip Generation Estimate Based on the Currently Proposed Sketch Plan															
Existing Filings															
1	210	Single-Family Detached Housing	45 DU ⁽³⁾	9.52	0.19	0.56	0.63	0.37	428	8	25	28	17	0%	428
2	210	Single-Family Detached Housing	39 DU	9.52	0.19	0.56	0.63	0.37	371	7	22	25	14	0%	371
Total Filings 1-3			84 DU						799	15	47	53	31		799
Currently Proposed Filings															
3	210	Single-Family Detached Housing	39 DU	9.52	0.19	0.56	0.63	0.37	371	7	22	25	14	0%	371
4	210	Single-Family Detached Housing	52 DU	9.52	0.19	0.56	0.63	0.37	495	10	29	33	19	0%	495
Total Filings 3-4			91 DU						866	17	51	58	33		866
Future Filings															
5	210	Single-Family Detached Housing	39 DU	9.52	0.19	0.56	0.63	0.37	371	7	22	25	14	0%	371
6	210	Single-Family Detached Housing	16 DU	9.52	0.19	0.56	0.63	0.37	152	3	9	10	6	0%	152
7	210	Single-Family Detached Housing	82 DU	9.52	0.19	0.56	0.63	0.37	781	15	46	52	30	0%	781
8	210	Single-Family Detached Housing	41 DU	9.52	0.19	0.56	0.63	0.37	390	8	23	26	15	0%	390
Total Filings 5-8			178 DU						1,694	33	100	113	65		1,694
9	230	Residential Condominium/Townhouse	205 DU	5.81	0.07	0.37	0.35	0.17	1,191	15	75	71	35	0%	1,191
Total Filings 1-9									4,550	80	273	295	164		4,550
10	820	Shopping Center ⁽⁴⁾	330 KSF ⁽⁵⁾	41.80	0.56	0.34	1.82	1.93	13,795	186	114	601	638	34%	9,105
	850	Supermarket	70 KSF	86.83	2.11	1.29	4.36	4.19	6,078	148	90	305	293	36%	3,890
Total Filing 10									19,873	334	204	906	931		12,995
Total Filings 1-10									24,423	414	477	1,201	1,095		17,545

Notes:

(1) Source: "Trip Generation, 9th Edition, 2012" by the Institute of Transportation Engineers (ITE)

(2) Source: "Trip Generation Handbook - An ITE Proposed Recommended Practice" 3rd Edition, 2014

(3) DU = dwelling unit

(4) Shopping center rates were based on the ITE best-fit curve formula using the square footage of the entire commercial area (400 KSF)

(5) KSF = 1,000 square feet of floor space

Source: LSC Transportation Consultants, Inc.

Do we have escrow for these already? If not, how do we get up to the required \$300,000?

Table 3 Traffic Signal Escrow Calculation Table Constitution Avenue/Hannah Ridge Drive Intersection Hannah Ridge at Feathergrass Filing Nos. 3 and 4											
Filing	2040 Minor Approach Volumes (vehicles per hour)								AM+PM Total	% of Total	Signal Contribution
	AM Peak				PM Peak						
	SB LT	SB TH	NB LT	NB TH	SB LT	SB TH	NB LT	NB TH			
Existing	3	0	25	1	3	0	36	3	71	11.36%	\$34,080
Additional Traffic With Shawnee Restriction	0	0	15	0	0	0	17	0	32	5.12%	\$15,360
Hannah Ridge Fil. 1 & 2	3	1	0	0	2	1	0	1	8	1.28%	\$3,840
Hannah Ridge Fil. 3	4	1	0	0	3	1	0	1	10	1.60%	\$4,800
Hannah Ridge Fil. 4	5	1	0	1	3	1	0	2	13	2.08%	\$6,240
Hannah Ridge Fil. 5-8	3	5	0	2	2	3	0	6	21	3.36%	\$10,080
Hannah Ridge Fil. 9	22	8	0	2	10	4	0	7	53	8.48%	\$25,440
Hannah Ridge Fil. 10	5	4	0	11	29	22	0	29	100	16.00%	\$48,000
Other Background	0	0	164	0	0	0	153	0	317	50.72%	\$152,160
	45	20	204	17	52	32	206	49	625		\$300,000

Source: LSC Transportation Consultants, Inc.

**Table 4
Hannah Ridge at Feathergrass Sketch Plan Amendment/Preliminary Plan
Roadway Improvements**

Improvement	Type	Timing	Phase	Responsibility
Re-stripe outside westbound through lane on Constitution Avenue for acceleration/deceleration lanes approaching Shawnee Drive	Re-striping	When Shawnee Drive is extended north of Constitution Avenue	Phase 4	Applicant and/or Metro District
Lengthen eastbound left-turn lane on Constitution Avenue approaching Shawnee Drive and reconstruct median to restrict the access to three-quarter movement (left-in/right-in/right-out only)	Auxiliary lane and median modification	When Shawnee Drive is extended north of Constitution Avenue	Phase 4	Applicant and/or Metro District
Lengthen westbound right-turn acceleration lane on Constitution Avenue from Shawnee Drive	Auxiliary Lane	When Shawnee Drive is extended north of Constitution Avenue	Phase 4	Applicant and/or Metro District
Signalization of Constitution Avenue/Akers Drive intersection	Traffic Signal	When warranted	—	El Paso County
Signalization of Constitution Avenue/Hannah Ridge Drive intersection	Traffic Signal	When warranted	—	Developments north and south of Constitution Avenue
Signalization of Akers Drive/Hunter Jumper Drive intersection	Traffic Signal	When warranted	Phase 10	Applicant and/or Metro District
Construct dual eastbound left-turn lanes on Constitution Avenue approaching Akers Drive	Auxiliary lane	When needed	Phase 10	Developments and other trip generators along Akers Drive north of Constitution Avenue
Widen Constitution Avenue to six-lane cross section	Roadway segment	Shown on MTCP by 2040	—	Master planned

Source: LSC Transportation Consultants, Inc.



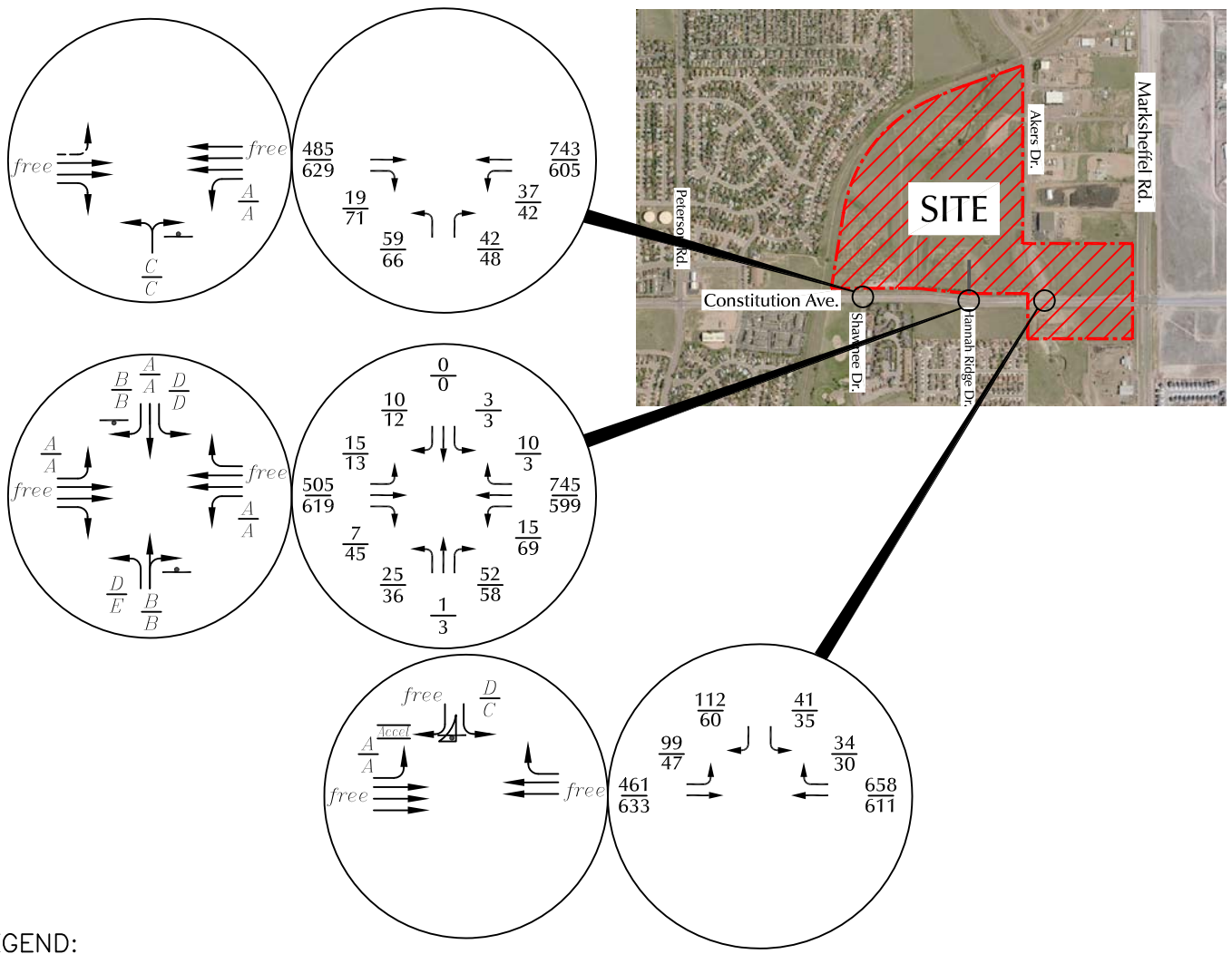
Approximate Scale
Scale: 1" = 2,000'

Figure 1

Vicinity Map

Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)





Approximate Scale
Scale: 1" = 2,000'

LEGEND:

⊥ = Stop Sign

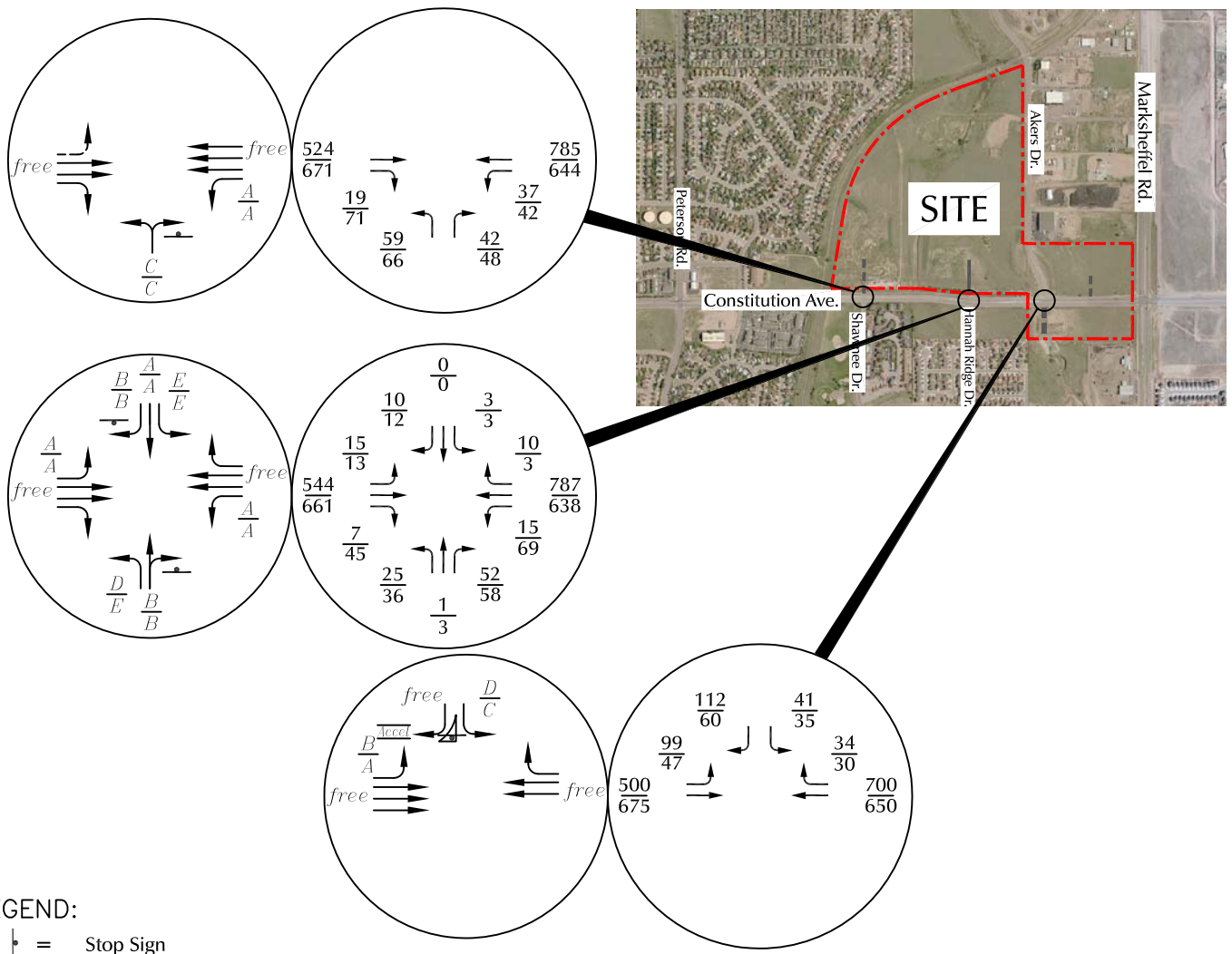
$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour) / PM Weekday Peak-Hour Traffic (vehicles per hour) Based on counts by LSC March & July 2017

$\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service / PM Individual Movement Peak-Hour Level of Service

XXX = Average Weekday Traffic (vehicles per day)



Figure 2
**Existing Traffic, Lane Geometry,
Traffic Control and Level of Service**
Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)



LEGEND:

⊥ = Stop Sign

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)

PM Weekday Peak-Hour Traffic (vehicles per hour)

$\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service

PM Individual Movement Peak-Hour Level of Service

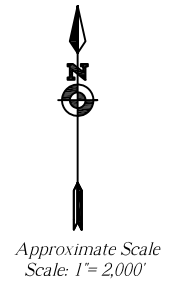
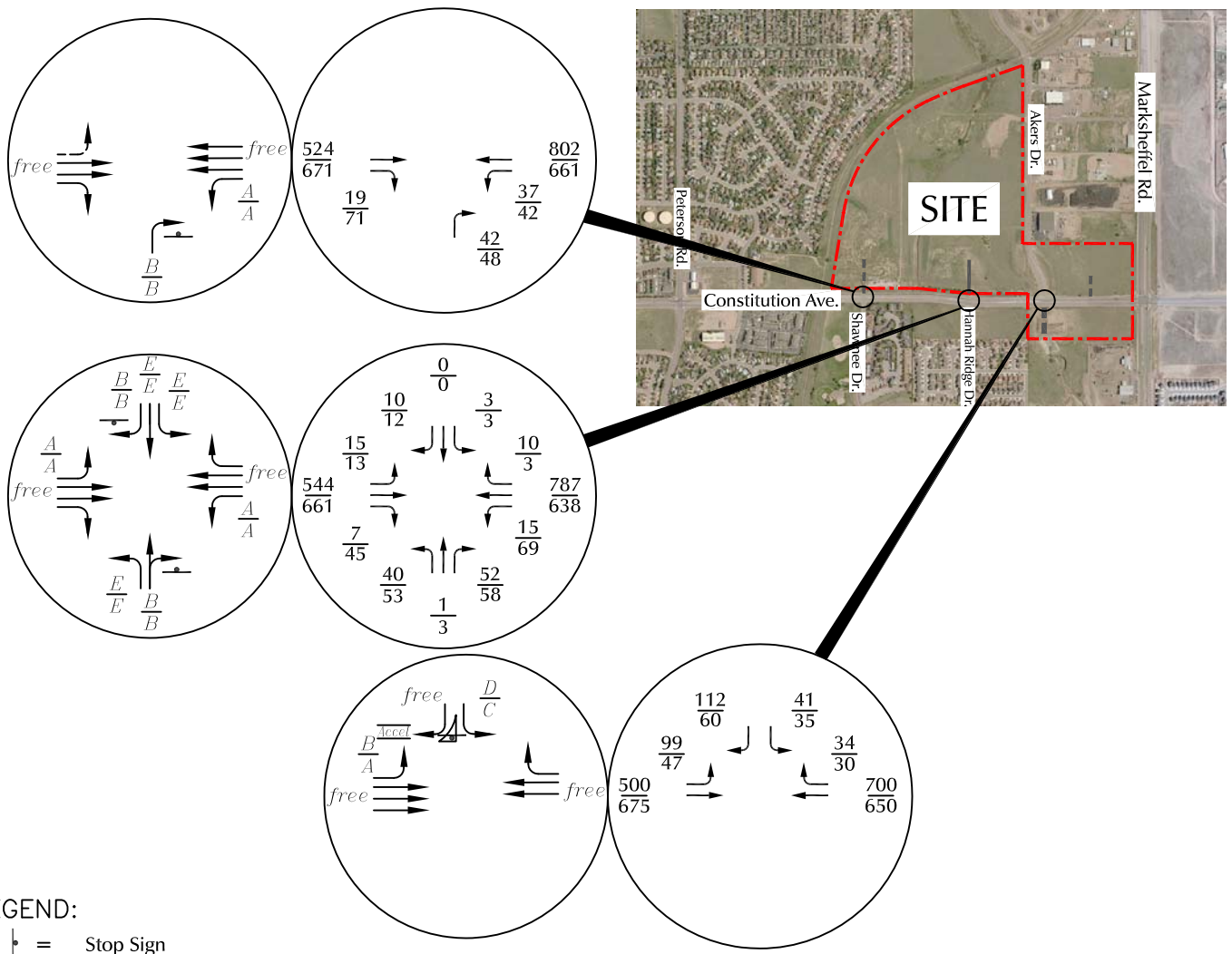
XXX = Average Weekday Traffic (vehicles per day)



Year 2020 Background Traffic, Lane Geometry, Traffic Control and Level of Service with Full Movement Access @ Shawnee/Constitution

Figure 3

Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)



LEGEND:

⊥ = Stop Sign

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service
 $\frac{A}{B}$ = PM Individual Movement Peak-Hour Level of Service

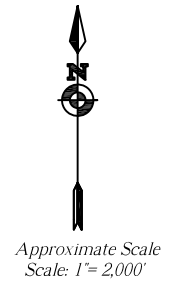
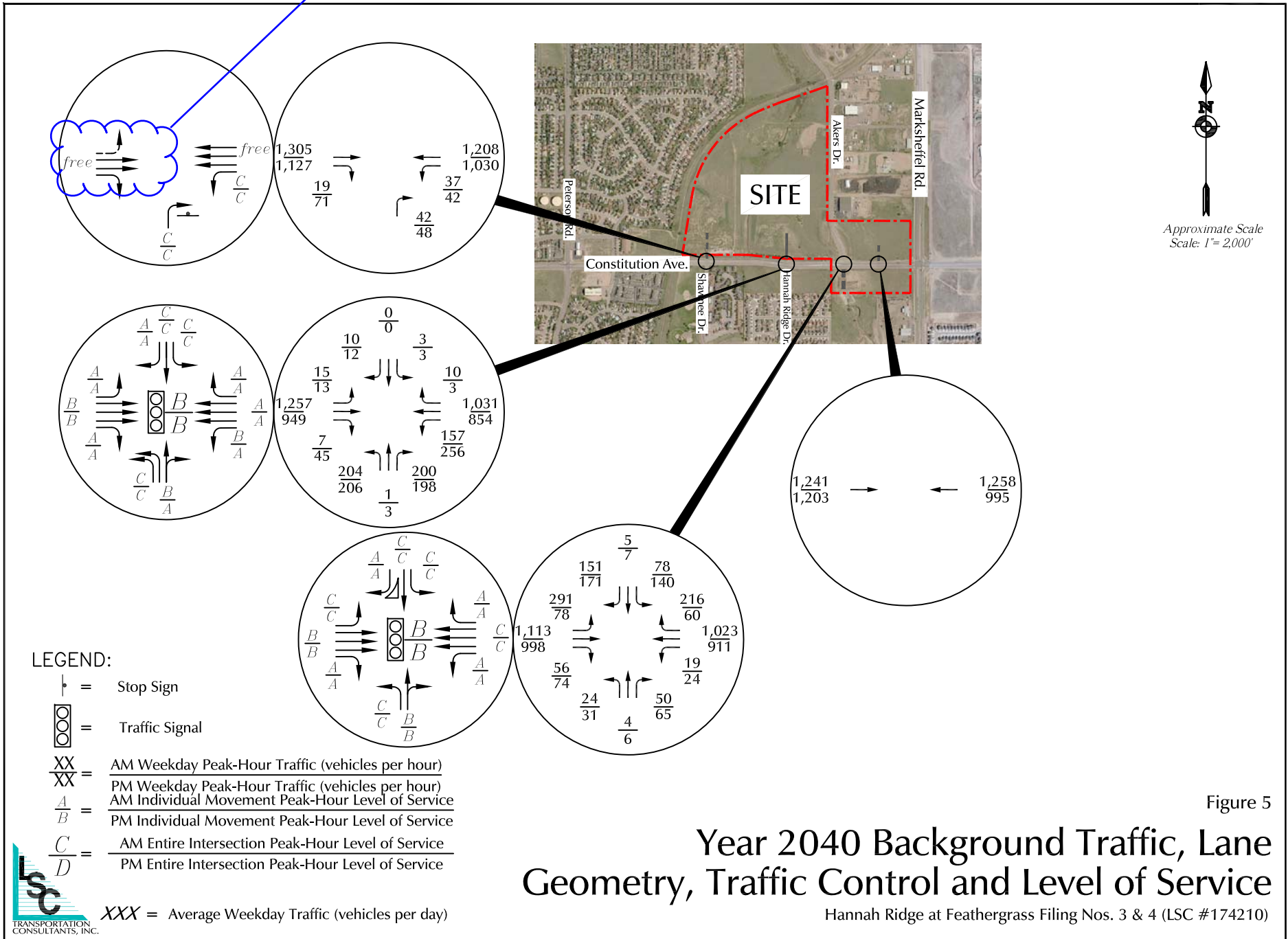
XXX = Average Weekday Traffic (vehicles per day)



Figure 4
Year 2020 Background Traffic, Lane Geometry, Traffic Control and Level of Service with Three Quarter Access @ Shawnee/Constitution

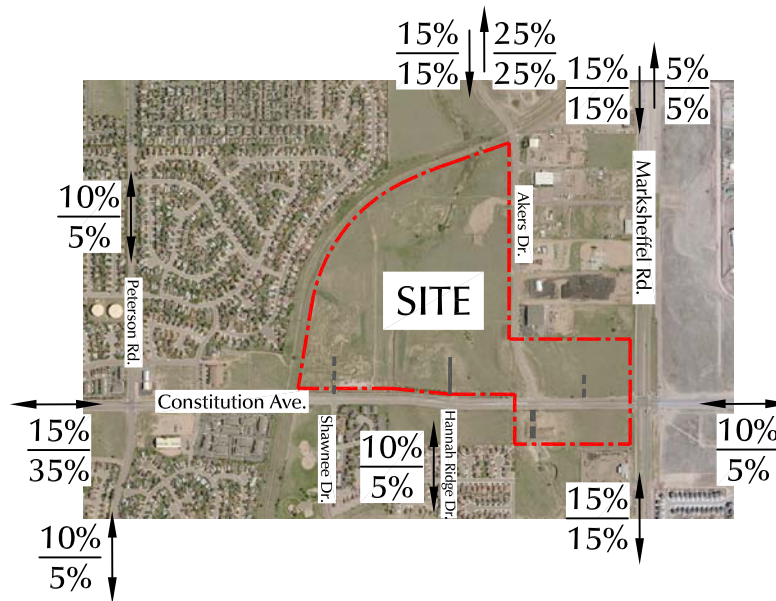
Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)

3 through lanes?

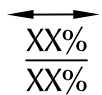




Approximate Scale
Scale: 1" = 2,000'



LEGEND:



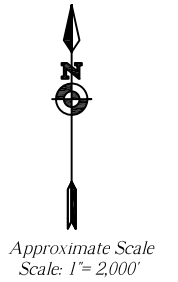
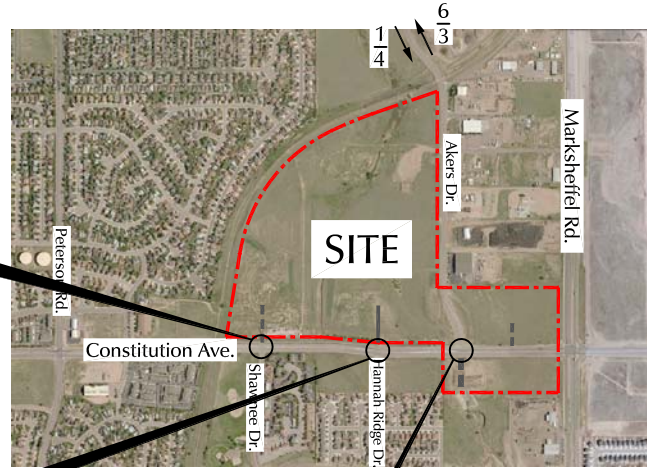
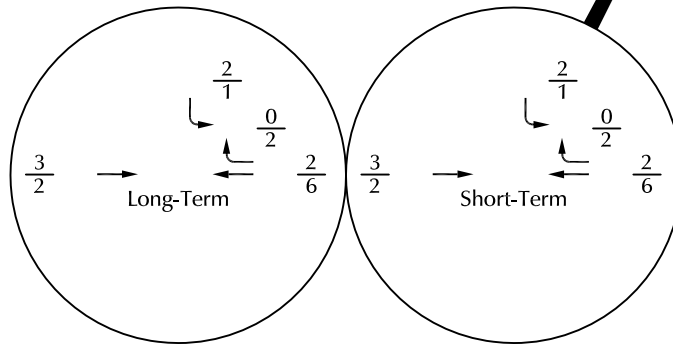
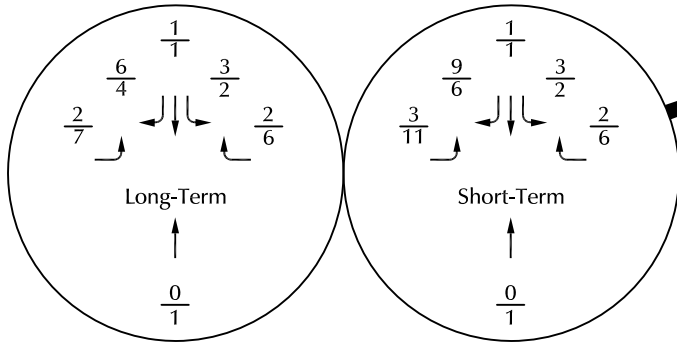
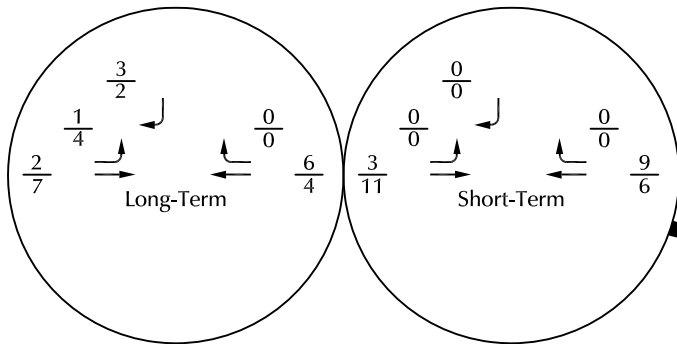
= Commercial Percent Directional Distribution
Residential Percent Directional Distribution



Figure 6

Directional Distribution of Site-Generated Traffic

Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)



* Assumes 35 homes left to be constructed in Filing Nos. 1-2

LEGEND:



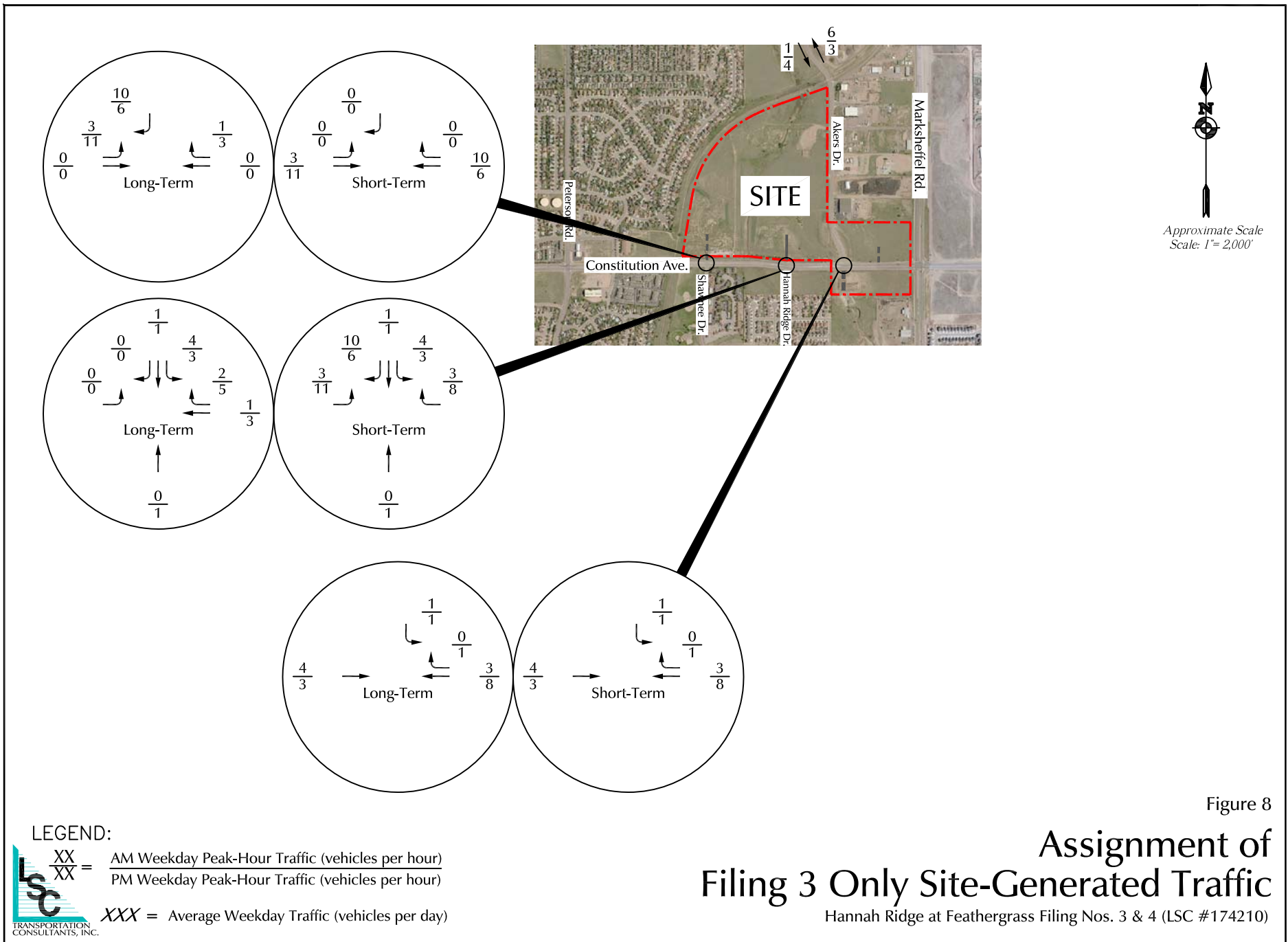
$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)

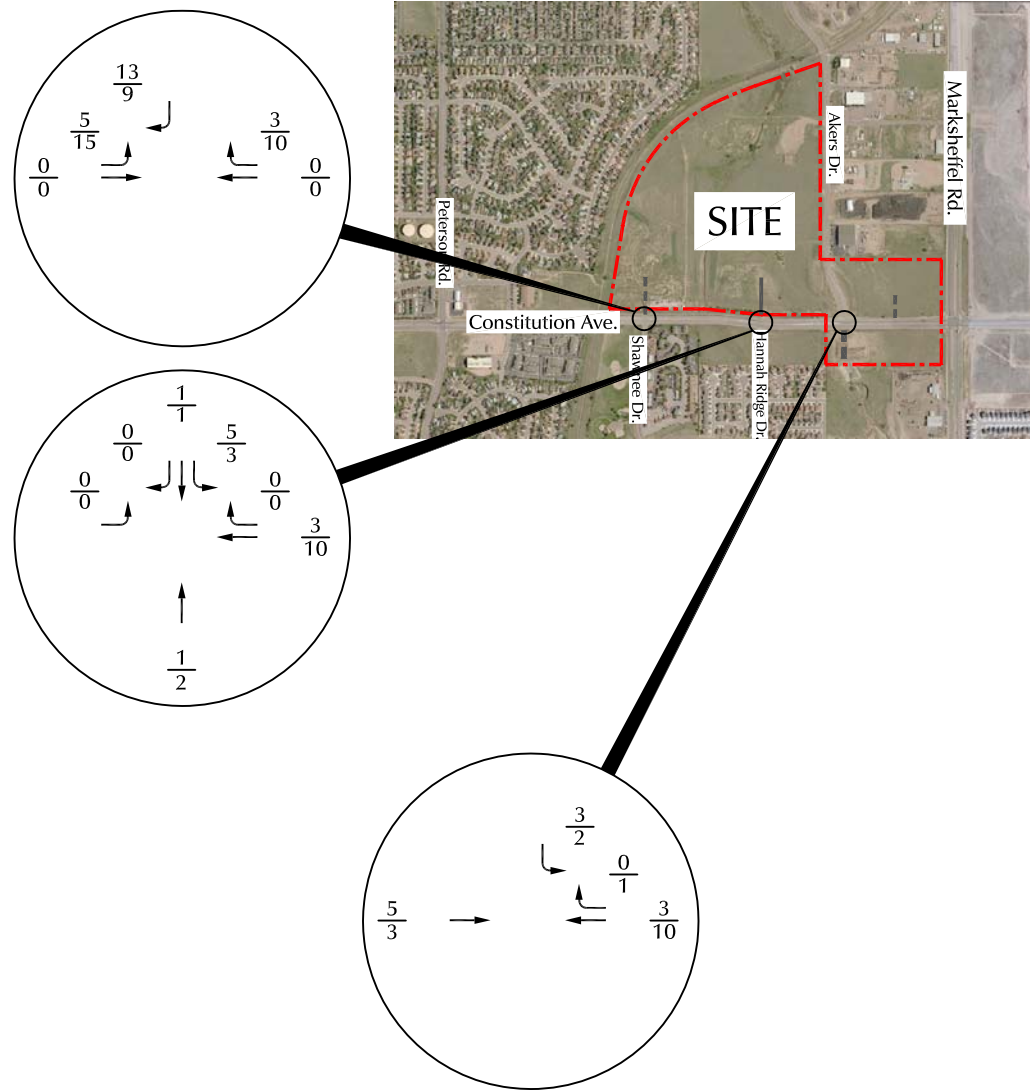
XXX = Average Weekday Traffic (vehicles per day)

Assignment of Future Filings 1-2 Only Generated Traffic*

Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)

Figure 7





Approximate Scale
Scale: 1" = 2,000'

LEGEND:


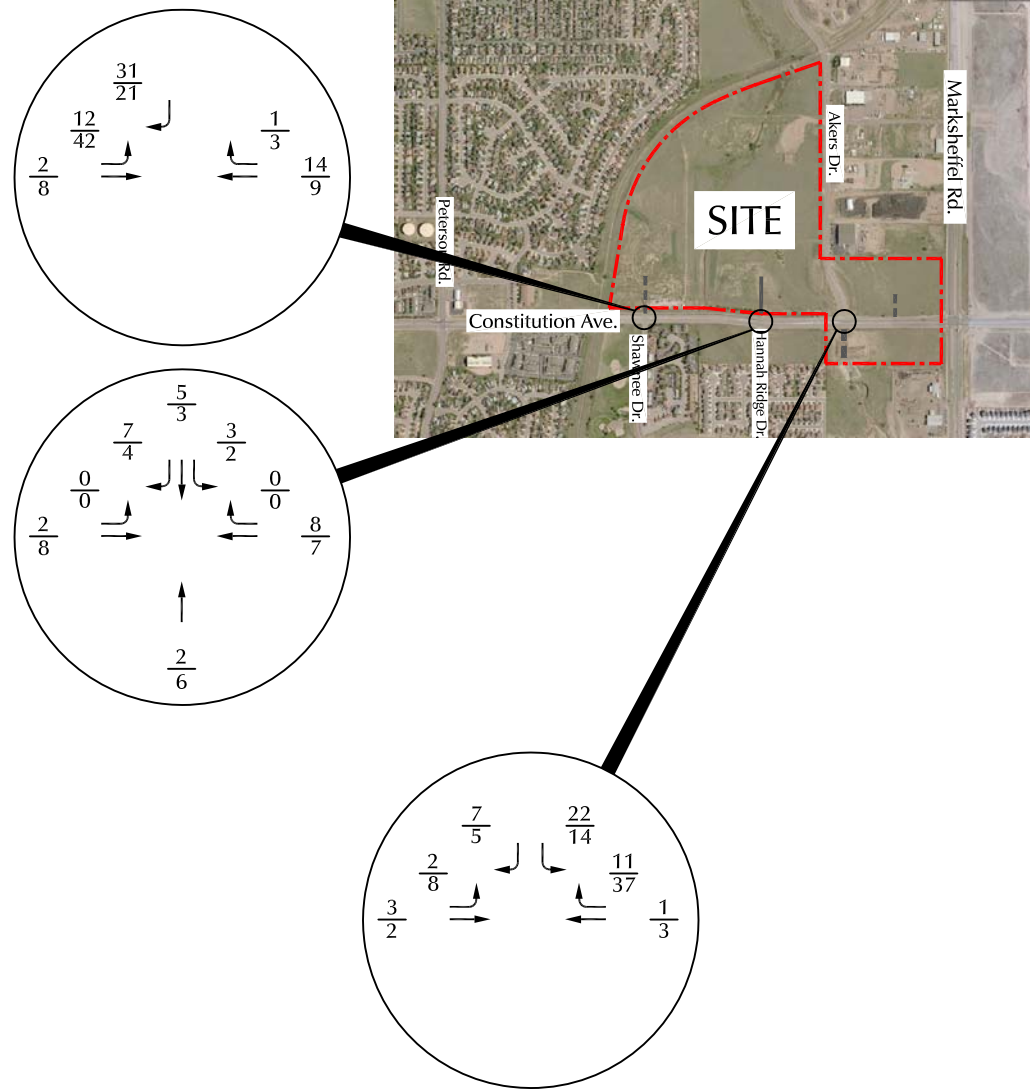

 $\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)
 XXX = Average Weekday Traffic (vehicles per day)

Figure 9
Assignment of Filing 4 Only Site-Generated Traffic
 Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)



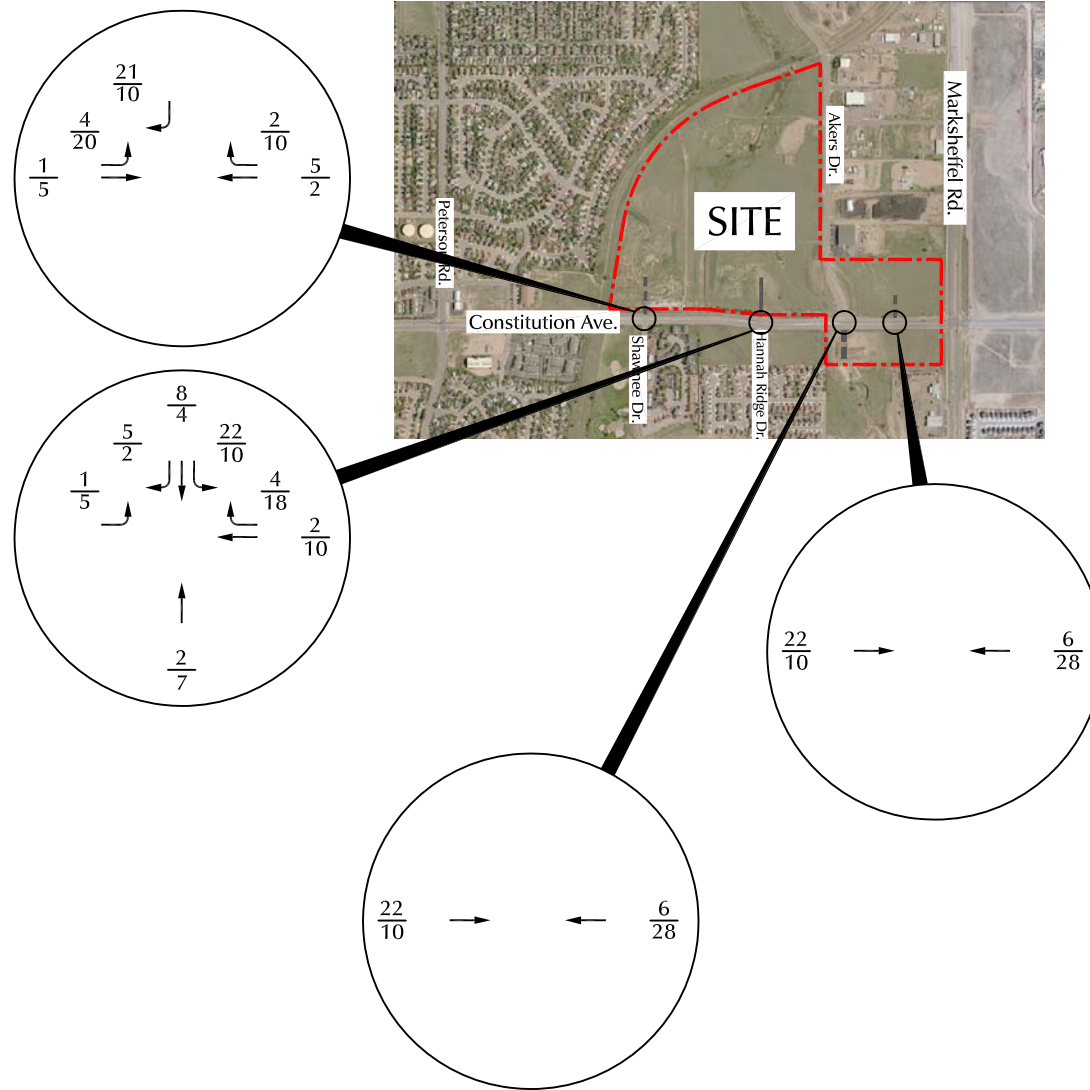
Approximate Scale
Scale: 1" = 2,000'


LEGEND:



$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)
 XXX = Average Weekday Traffic (vehicles per day)

Figure 10
Assignment of Filings 5-8 Only Site-Generated Traffic
 Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)




 Approximate Scale
 Scale: 1" = 2,000'

LEGEND:


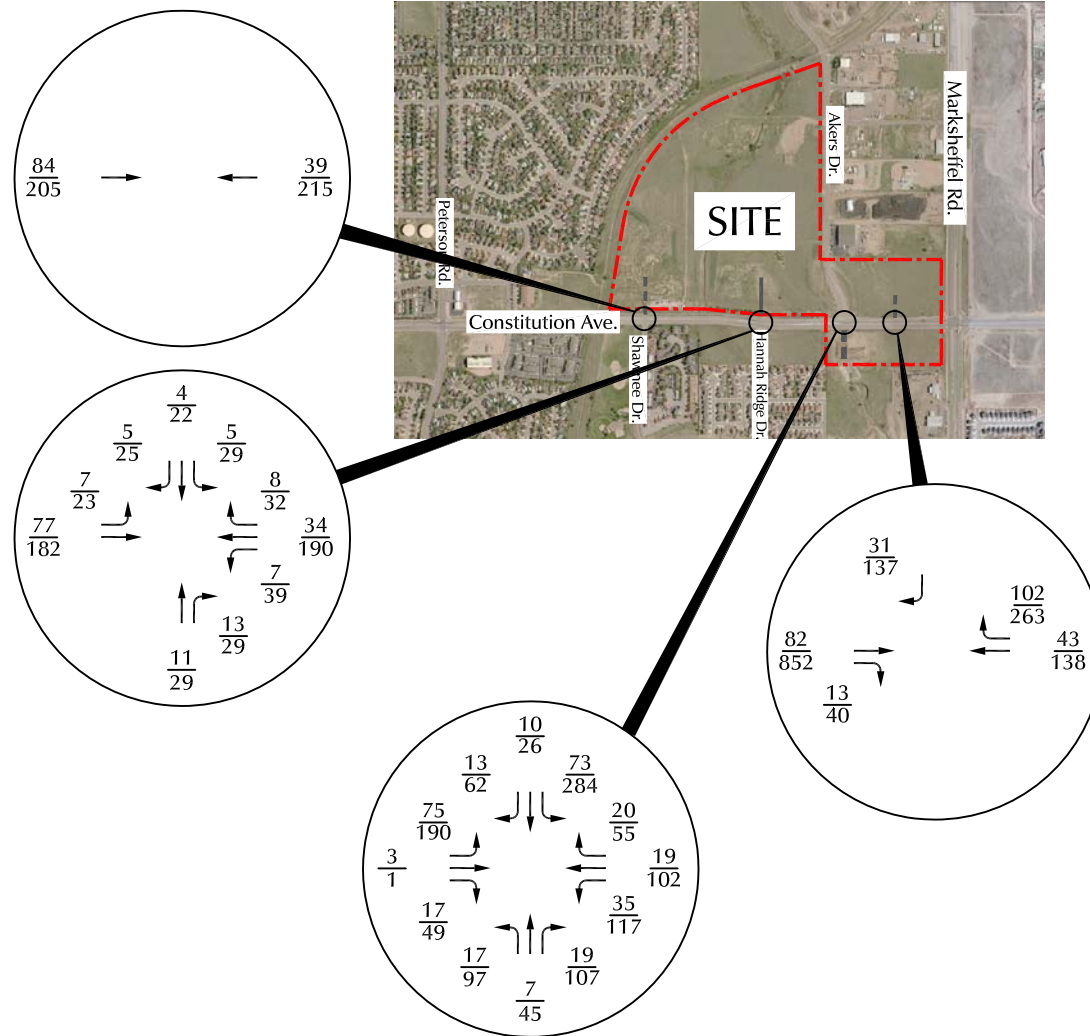


 $\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)
 XXX = Average Weekday Traffic (vehicles per day)

Figure 11
**Assignment of
 Phase 9 Only Site-Generated Traffic**
 Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)




 Approximate Scale
 Scale: 1" = 2,000'

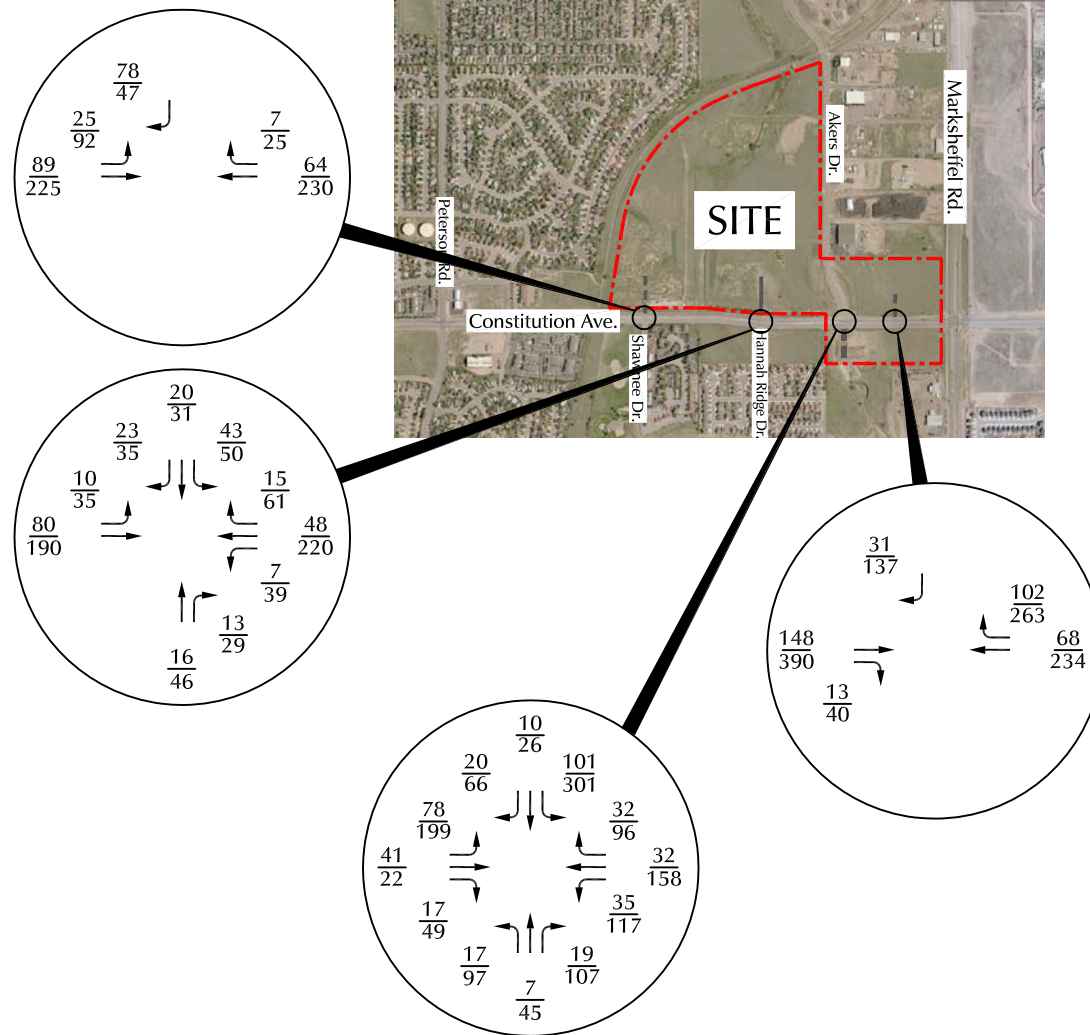
LEGEND:




$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)

XXX = Average Weekday Traffic (vehicles per day)

Figure 12
**Assignment of
 Phase 10 Only Site-Generated Traffic**
 Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)




 Approximate Scale
 Scale: 1" = 2,000'

LEGEND:


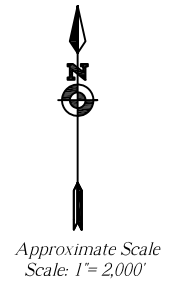
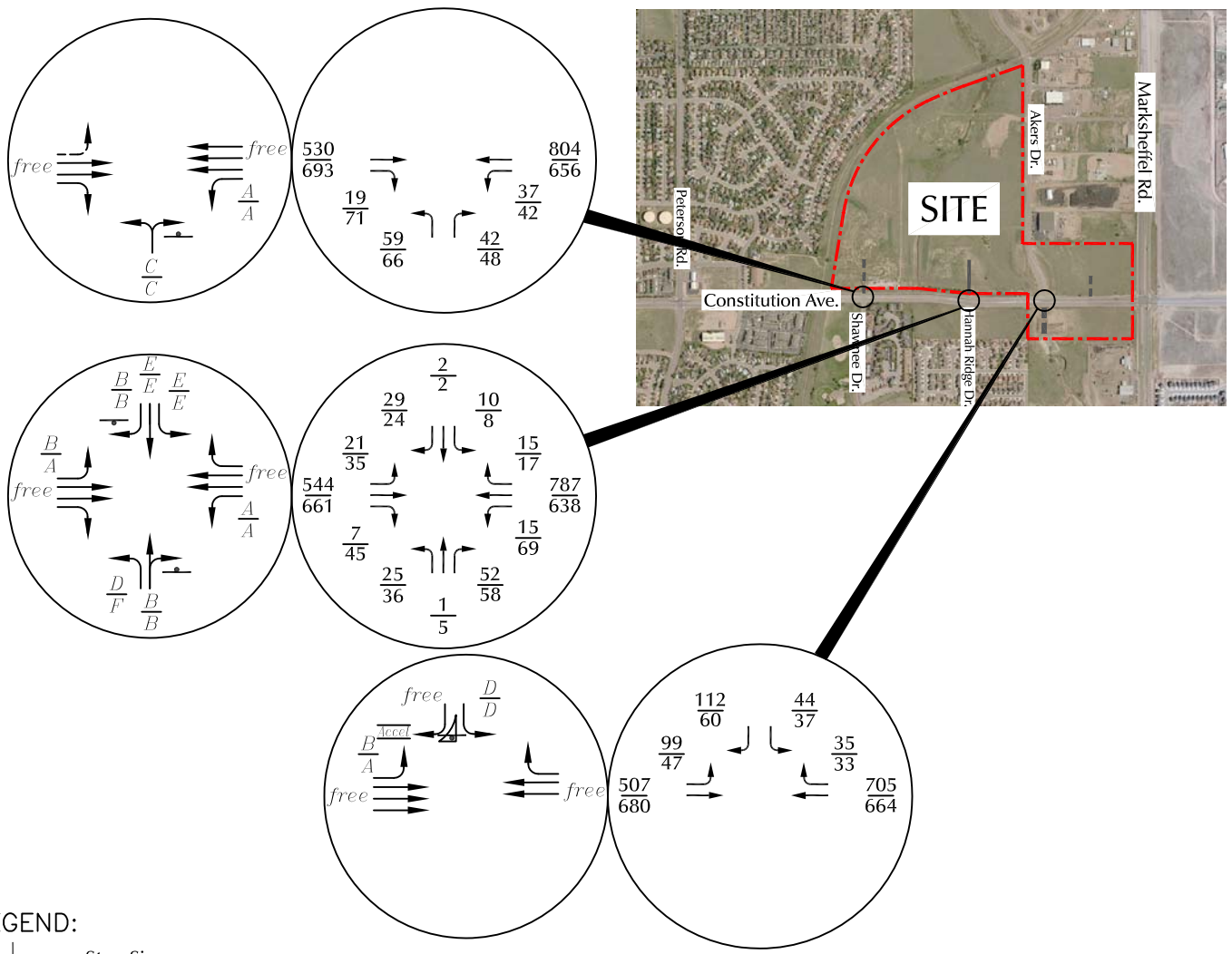

 $\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)
 $\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)
 XXX = Average Weekday Traffic (vehicles per day)

Figure 13
**Assignment of
 Buildout Site-Generated Traffic**
 Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)



LEGEND:

⊥ = Stop Sign

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)

$\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)

$\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service

$\frac{A}{B}$ = PM Individual Movement Peak-Hour Level of Service

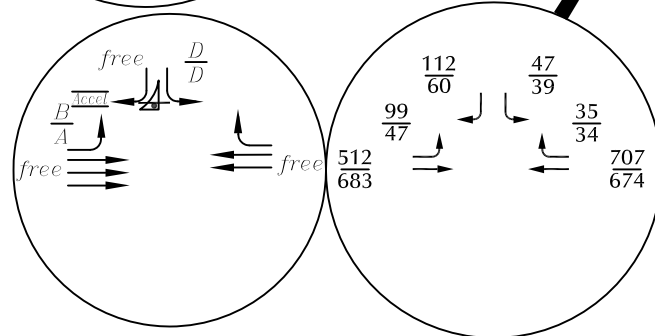
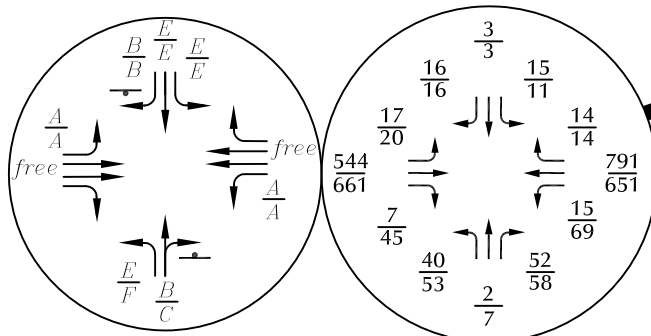
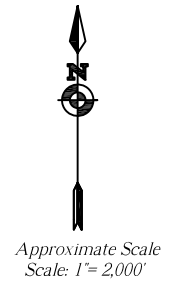
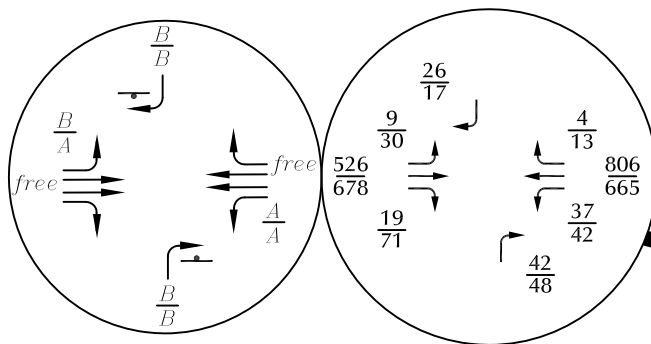
XXX = Average Weekday Traffic (vehicles per day)



Figure 14

Short-Term Total Traffic Following Buildout of Filing Nos. 1-3 Only Lane Geometry, Traffic Control and Level of Service

Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)



LEGEND:

┆ = Stop Sign

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)

$\frac{XX}{XX}$ = PM Weekday Peak-Hour Traffic (vehicles per hour)

$\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service

$\frac{A}{B}$ = PM Individual Movement Peak-Hour Level of Service

XXX = Average Weekday Traffic (vehicles per day)



Figure 15

Short-Term Total Traffic Following Buildout of Filing Nos. 1-4 Lane Geometry, Traffic Control and Level of Service

Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)

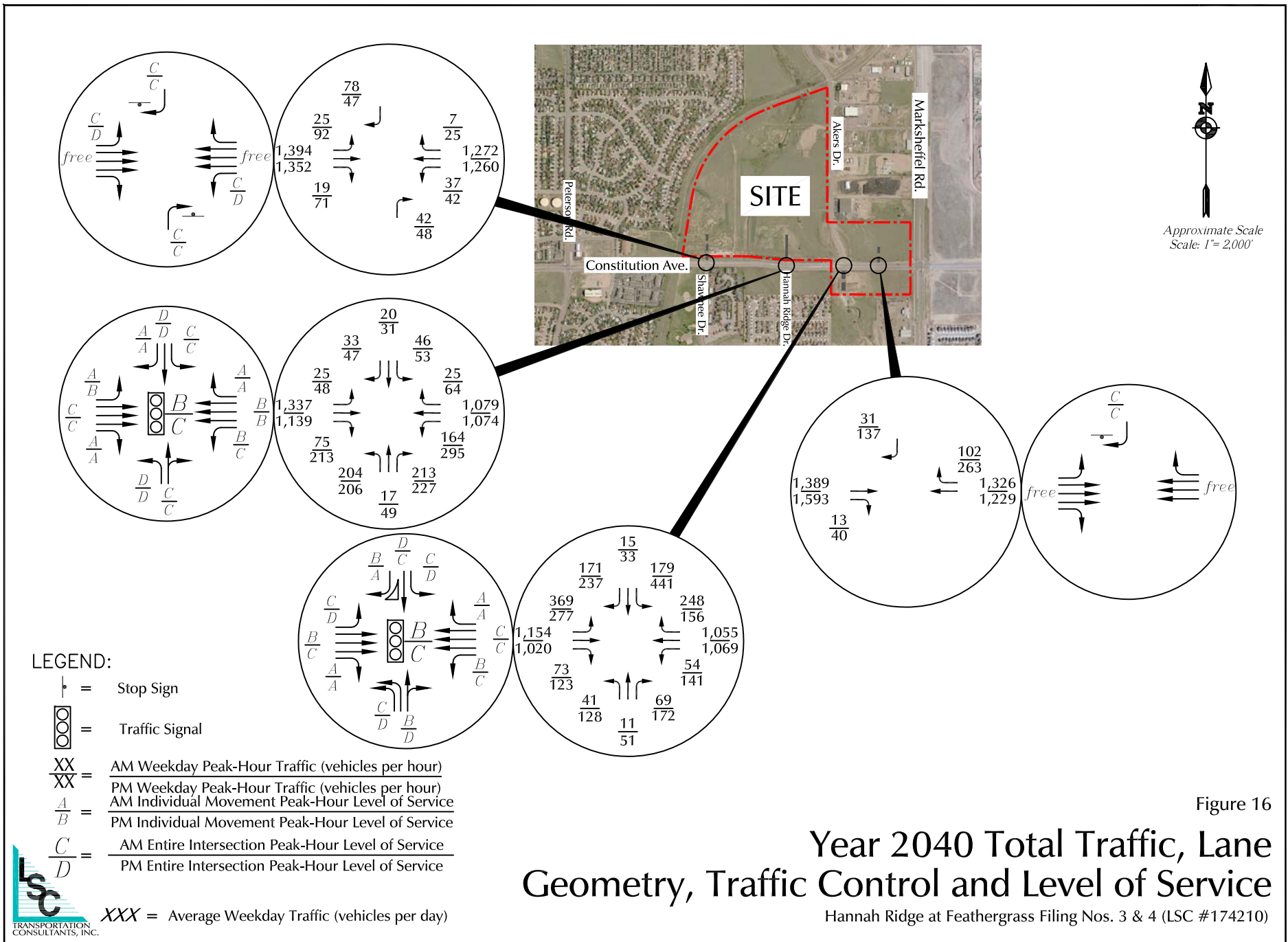
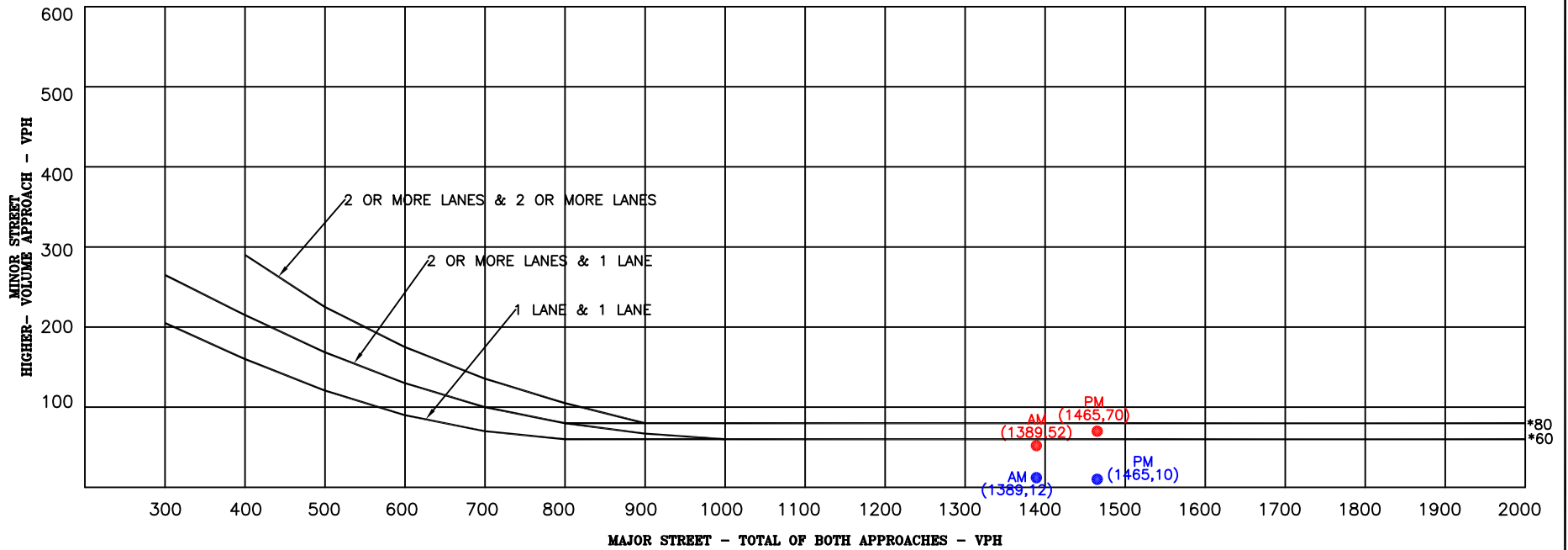


Figure 4C-2. Warrant 2 Four-Hour Vehicular Volume (70% Factor)
 (Community Less than 10,000 population or above 40 mph on Major Street)



* Note: 80 vph applies as the lower threshold volumes for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

- Northbound Minor Approach: (northbound left-turn and through volume plus 50% of right-turn volume).
- Southbound Minor Approach: (southbound left-turn and through volume).

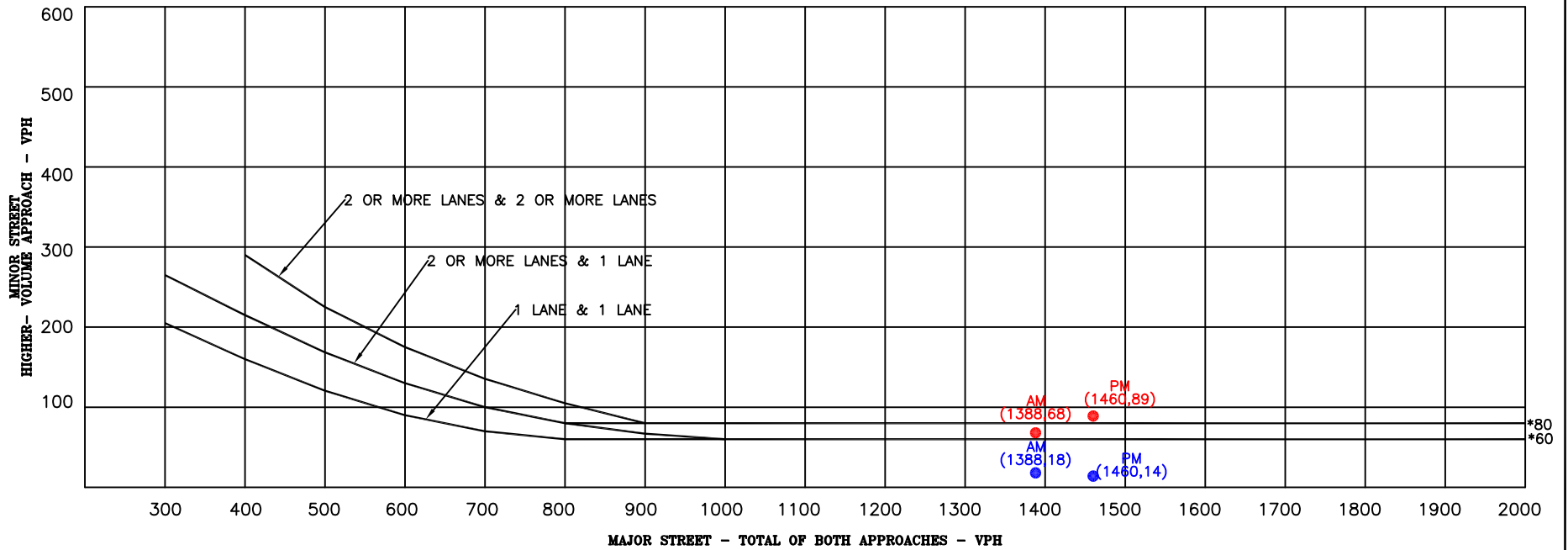
Figure 17

Short-Term Traffic Signal Warrant Constitution/Hannah Ridge Following Filing 3

Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)



Figure 4C-2. Warrant 2 Four-Hour Vehicular Volume (70% Factor)
 (Community Less than 10,000 population or above 40 mph on Major Street)



* Note: 80 vph applies as the lower threshold volumes for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

- Northbound Minor Approach: (northbound left-turn and through volume plus 50% of right-turn volume).
- Southbound Minor Approach: (southbound left-turn and through volume).

Figure 18

Short-Term Traffic Signal Warrant Constitution/Hannah Ridge Following Filing 4

Hannah Ridge at Feathergrass Filing Nos. 3 & 4 (LSC #174210)

Hannah Ridge at Feathergrass

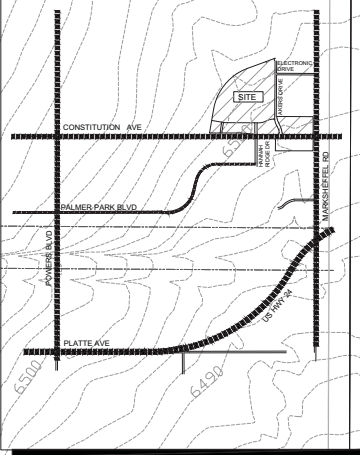
AMENDMENT TO THE SAND CREEK COMMUNITIES PRELIMINARY PLAN - EL PASO COUNTY, COLORADO
 THAT PORTION OF THE SOUTH HALF OF SECTION 32, TOWNSHIP 13 SOUTH, RANGE 65
 WEST OF THE 6TH P.M., EL PASO COUNTY, COLORADO

LAND OWNER: EL PASO COUNTY
 ADDRESS: 27 E. PASO COUNTY
 COLORADO SPRINGS, CO
 80903

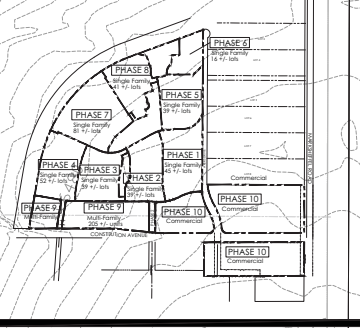
PHASE 6
 LAND OWNER: D & K ACKERS LLC
 ADDRESS: 2875 AKERS DR
 COLORADO SPRINGS, CO
 80907

NOTES
 **ALL GRADES THROUGH INTERSECTIONS ARE
 4.0% OR LESS
 **UNLESS OTHERWISE NOTED ALL CURVE
 ANGLES ARE 90°00'00"

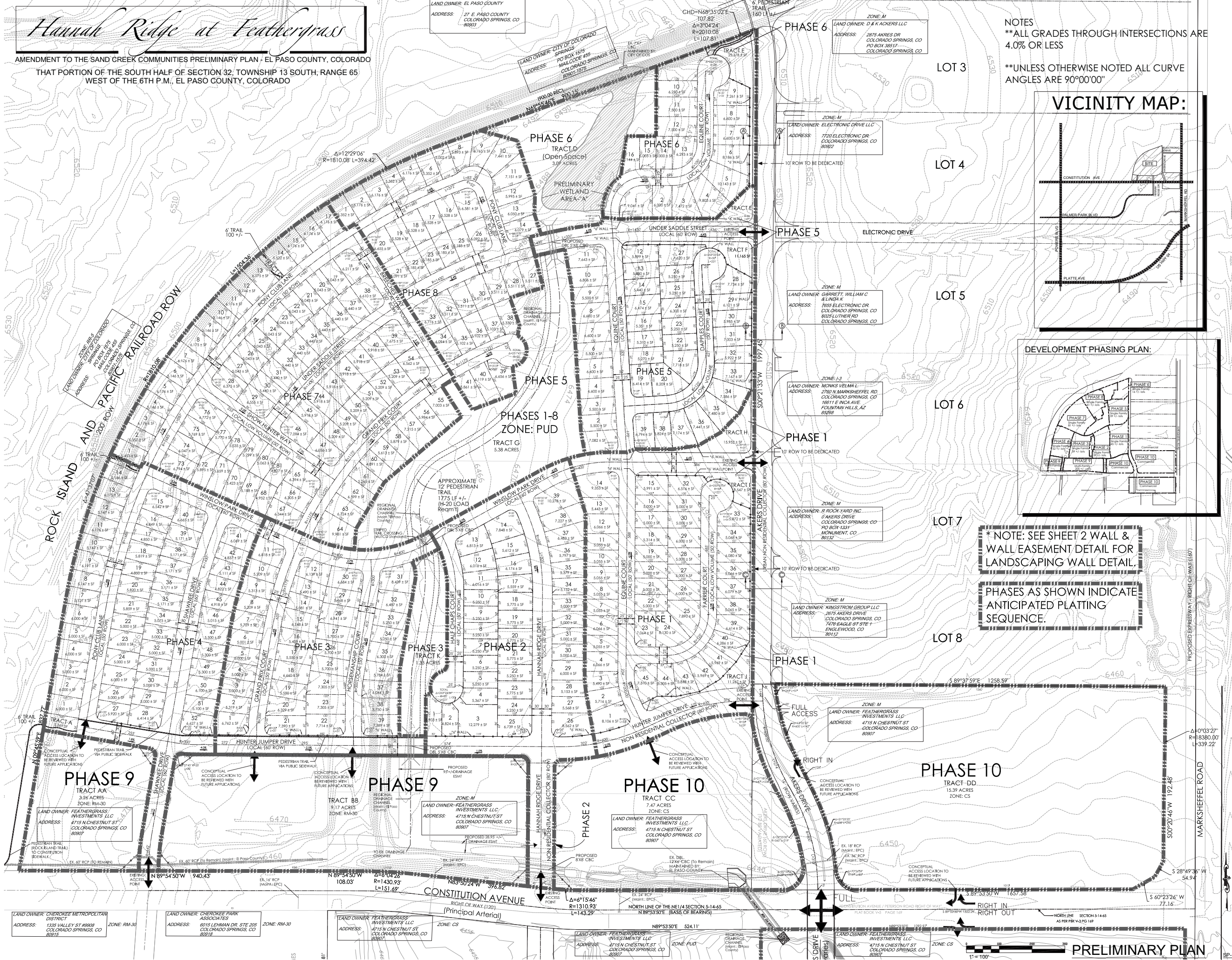
VICINITY MAP:



DEVELOPMENT PHASING PLAN:



* NOTE: SEE SHEET 2 WALL &
 WALL EASEMENT DETAIL FOR
 LANDSCAPING WALL DETAIL.
 PHASES AS SHOWN INDICATE
 ANTICIPATED PLATTING
 SEQUENCE.



LAND OWNER: CHEROKEE METROPOLITAN DISTRICT
 ADDRESS: 1335 VALLEY ST #9908
 COLORADO SPRINGS, CO
 80915

LAND OWNER: CHEROKEE PARK ASSOCIATES
 ADDRESS: 8015 LEHMAN DR, STE 205
 COLORADO SPRINGS, CO
 80918

LAND OWNER: FEATHERGRASS INVESTMENTS LLC
 ADDRESS: 4715 N CHESTNUT ST
 COLORADO SPRINGS, CO
 80907

LAND OWNER: FEATHERGRASS INVESTMENTS LLC
 ADDRESS: 4715 N CHESTNUT ST
 COLORADO SPRINGS, CO
 80907

LAND OWNER: FEATHERGRASS INVESTMENTS LLC
 ADDRESS: 4715 N CHESTNUT ST
 COLORADO SPRINGS, CO
 80907

LAND OWNER: FEATHERGRASS INVESTMENTS LLC
 ADDRESS: 4715 N CHESTNUT ST
 COLORADO SPRINGS, CO
 80907

PRELIMINARY PLAN



LSC Transportation Consultants, Inc.

545 E. Pikes Peak Ave., #210

LSC Transportation Consultants, Inc. Colorado Springs, CO 80903 File Name : Akers Dr - Constitution AM

(719) 633-2868

Site Code : 00174210

Start Date : 03/15/2017

Page No : 1

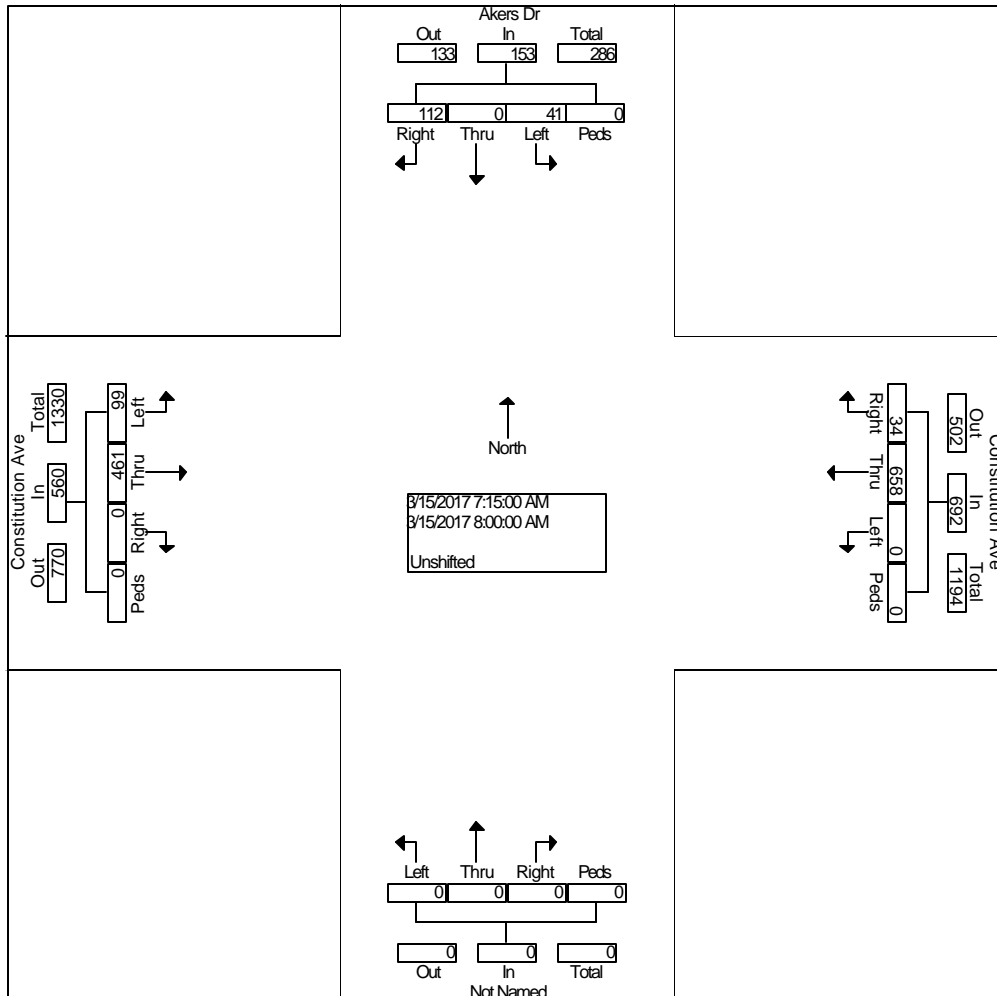
Groups Printed- Unshifted

Start Time	Akers Dr From North				Constitution Ave From East				From South				Constitution Ave From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	7	0	6	0	12	93	0	0	0	0	0	0	0	113	4	1	236
06:45 AM	8	0	7	0	19	114	0	1	0	0	0	0	0	123	18	0	290
Total	15	0	13	0	31	207	0	1	0	0	0	0	0	236	22	1	526
07:00 AM	18	0	10	0	6	130	0	2	0	0	0	0	0	102	8	0	276
07:15 AM	24	0	13	0	3	171	0	0	0	0	0	0	0	121	27	0	359
07:30 AM	32	0	12	0	8	190	0	0	0	0	0	0	0	108	36	0	386
07:45 AM	33	0	9	0	13	166	0	0	0	0	0	0	0	100	23	0	344
Total	107	0	44	0	30	657	0	2	0	0	0	0	0	431	94	0	1365
08:00 AM	23	0	7	0	10	131	0	0	0	0	0	0	0	132	13	0	316
08:15 AM	5	0	11	0	5	104	0	0	0	0	0	0	0	103	8	0	236
Grand Total	150	0	75	0	76	1099	0	3	0	0	0	0	0	902	137	1	2443
Apprch %	66.7	0.0	33.3	0.0	6.5	93.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	86.7	13.2	0.1	
Total %	6.1	0.0	3.1	0.0	3.1	45.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	36.9	5.6	0.0	

LSC Transportation Consultants, Inc.
 545 E. Pikes Peak Ave., #210
 Colorado Springs, CO 80903
 (719) 633-2868

File Name : Akers Dr - Constitution AM
 Site Code : 00174210
 Start Date : 03/15/2017
 Page No : 2

Start Time	Akers Dr From North					Constitution Ave From East					From South					Constitution Ave From West					Int. Total
	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	112	0	41	0	153	34	658	0	0	692	0	0	0	0	0	0	461	99	0	560	1405
Percent	73.2	0.0	26.8	0.0		4.9	95.1	0.0	0.0		0.0	0.0	0.0	0.0		0.0	82.3	17.7	0.0		
07:30 Volume	32	0	12	0	44	8	190	0	0	198	0	0	0	0	0	0	108	36	0	144	386
Peak Factor																					0.910
High Int.	07:30 AM					07:30 AM					6:15:00 AM					07:15 AM					
Volume	32	0	12	0	44	8	190	0	0	198	0	0	0	0	0	0	121	27	0	148	
Peak Factor	0.869										0.874										0.946



LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210

LSC Transportation Consultants, Inc. Colorado Springs, CO 80908 File Name : Akers Dr - Constitution PM
 (719) 633-2868 Site Code : 00174210
 Start Date : 03/15/2017
 Page No : 1

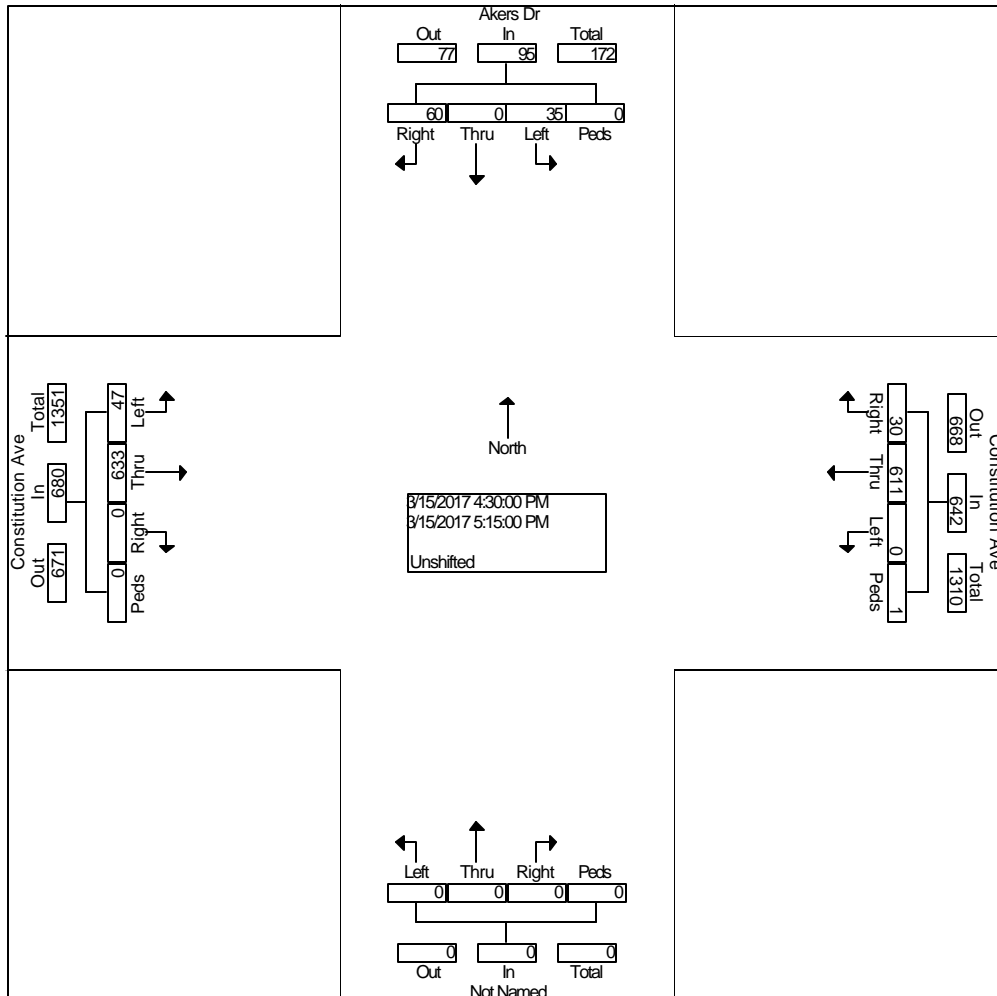
Groups Printed- Unshifted

Start Time	Akers Dr From North				Constitution Ave From East				From South				Constitution Ave From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	30	0	14	0	22	127	0	1	0	0	0	0	0	174	21	0	389
04:15 PM	7	0	9	0	16	163	0	0	0	0	0	0	0	151	16	0	362
04:30 PM	7	0	3	0	7	161	0	0	0	0	0	0	0	151	8	0	337
04:45 PM	6	0	5	0	6	138	0	0	0	0	0	0	0	151	15	0	321
Total	50	0	31	0	51	589	0	1	0	0	0	0	0	627	60	0	1409
05:00 PM	35	0	18	0	7	156	0	1	0	0	0	0	0	156	12	0	385
05:15 PM	12	0	9	0	10	156	0	0	0	0	0	0	0	175	12	0	374
05:30 PM	13	0	5	0	3	127	0	1	0	0	0	0	0	169	11	0	329
05:45 PM	3	0	3	0	3	126	0	1	0	0	0	0	0	146	9	0	291
Total	63	0	35	0	23	565	0	3	0	0	0	0	0	646	44	0	1379
Grand Total	113	0	66	0	74	1154	0	4	0	0	0	0	0	1273	104	0	2788
Apprch %	63.1	0.0	36.9	0.0	6.0	93.7	0.0	0.3	0.0	0.0	0.0	0.0	0.0	92.4	7.6	0.0	
Total %	4.1	0.0	2.4	0.0	2.7	41.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	45.7	3.7	0.0	

LSC Transportation Consultants, Inc.
545 E. Pikes Peak Ave., #210
Colorado Springs, CO 80908
(719) 633-2868

Site Name : Akers Dr - Constitution PM
 Site Code : 00174210
 Start Date : 03/15/2017
 Page No : 2

Start Time	Akers Dr From North					Constitution Ave From East					From South					Constitution Ave From West					Int. Total
	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	60	0	35	0	95	30	61	0	1	642	0	0	0	0	0	0	63	47	0	680	1417
Percent	63.2	0.0	36.8	0.0		4.7	95.2	0.0	0.2		0.0	0.0	0.0	0.0		0.0	93.1	6.9	0.0		
05:00 Volume	35	0	18	0	53	7	15	0	1	164	0	0	0	0	0	0	15	12	0	168	385
Peak Factor																					0.920
High Int.	05:00 PM					04:30 PM					3:45:00 PM					05:15 PM					
Volume	35	0	18	0	53	7	16	0	0	168	0	0	0	0	0	0	17	5	12	0	187
Peak Factor	0.448					0.955										0.909					



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Hanna Ridge - Constitution Ave AM
 Site Code : 00174210
 Start Date : 07/25/2017
 Page No : 1

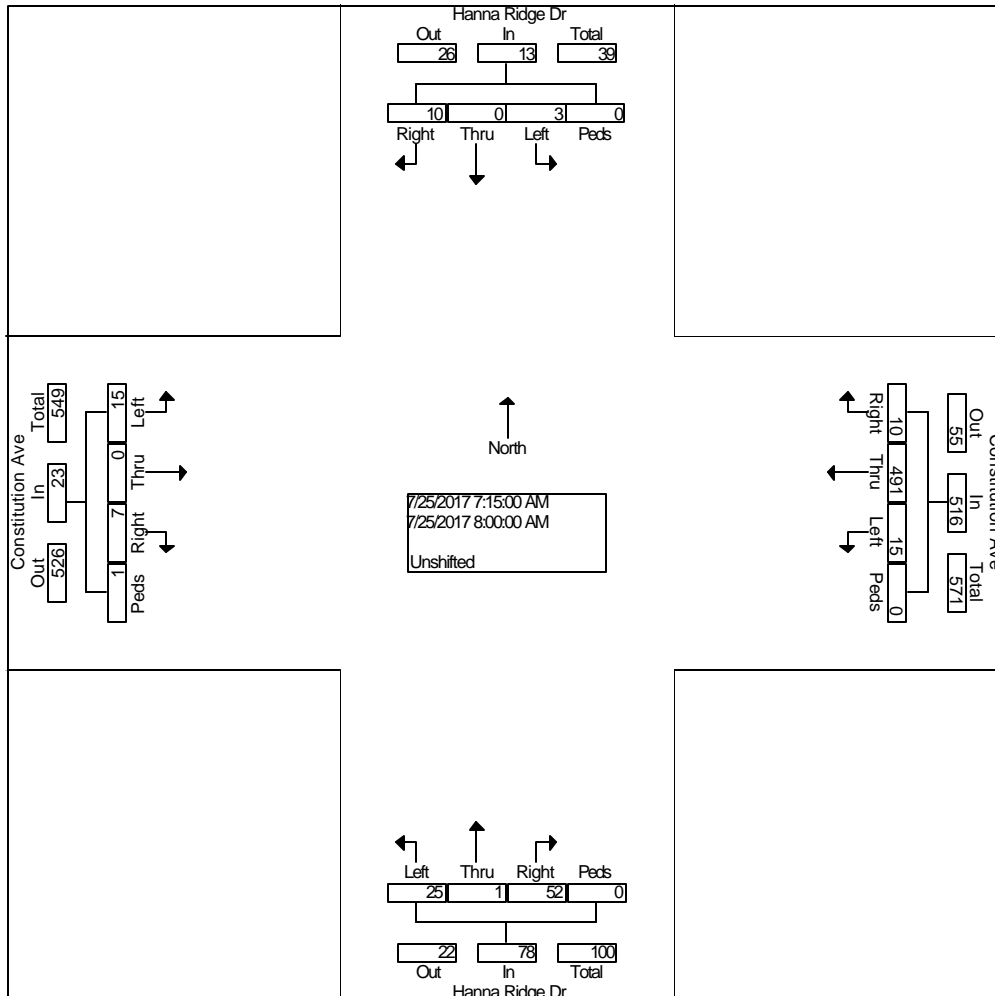
Groups Printed- Unshifted

Start Time	Hanna Ridge Dr From North				Constitution Ave From East				Hanna Ridge Dr From South				Constitution Ave From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	3	1	0	0	1	75	7	0	20	0	2	0	2	0	0	0	111
06:45 AM	1	0	1	0	1	118	12	0	12	0	6	0	1	0	1	0	153
Total	4	1	1	0	2	193	19	0	32	0	8	0	3	0	1	0	264
07:00 AM	4	0	1	0	2	86	5	0	12	0	15	0	2	0	3	2	132
07:15 AM	3	0	0	0	3	143	2	0	15	0	10	0	0	0	4	0	180
07:30 AM	3	0	1	0	4	117	5	0	19	0	7	0	0	0	5	1	162
07:45 AM	2	0	1	0	0	119	2	0	8	1	5	0	4	0	2	0	144
Total	12	0	3	0	9	465	14	0	54	1	37	0	6	0	14	3	618
08:00 AM	2	0	1	0	3	112	6	0	10	0	3	0	3	0	4	0	144
08:15 AM	2	0	1	0	1	79	4	1	13	1	2	0	2	0	0	0	106
Grand Total	20	1	6	0	15	849	43	1	109	2	50	0	14	0	19	3	1132
Apprch %	74.1	3.7	22.2	0.0	1.7	93.5	4.7	0.1	67.7	1.2	31.1	0.0	38.9	0.0	52.8	8.3	
Total %	1.8	0.1	0.5	0.0	1.3	75.0	3.8	0.1	9.6	0.2	4.4	0.0	1.2	0.0	1.7	0.3	

Counts by LSC

File Name : Hanna Ridge - Constitution Ave AM
 Site Code : 00174210
 Start Date : 07/25/2017
 Page No : 2

Start Time	Hanna Ridge Dr From North					Constitution Ave From East					Hanna Ridge Dr From South					Constitution Ave From West					Int. Total
	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	10	0	3	0	13	10	49	15	0	516	52	1	25	0	78	7	0	15	1	23	630
Percent	76.9	0.0	23.1	0.0		1.9	95.2	2.9	0.0		66.7	1.3	32.1	0.0		30.4	0.0	65.2	4.3		
07:15 Volume	3	0	0	0	3	3	14	2	0	148	15	0	10	0	25	0	0	4	0	4	180
Peak Factor																					0.875
High Int.	07:30 AM					07:15 AM					07:30 AM					08:00 AM					
Volume	3	0	1	0	4	3	14	2	0	148	19	0	7	0	26	3	0	4	0	7	
Peak Factor	0.81					0.87					0.75					0.82					
	3					2					0					1					



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Hanna Ridge - Constitution Ave PM
 Site Code : 00174210
 Start Date : 07/24/2017
 Page No : 1

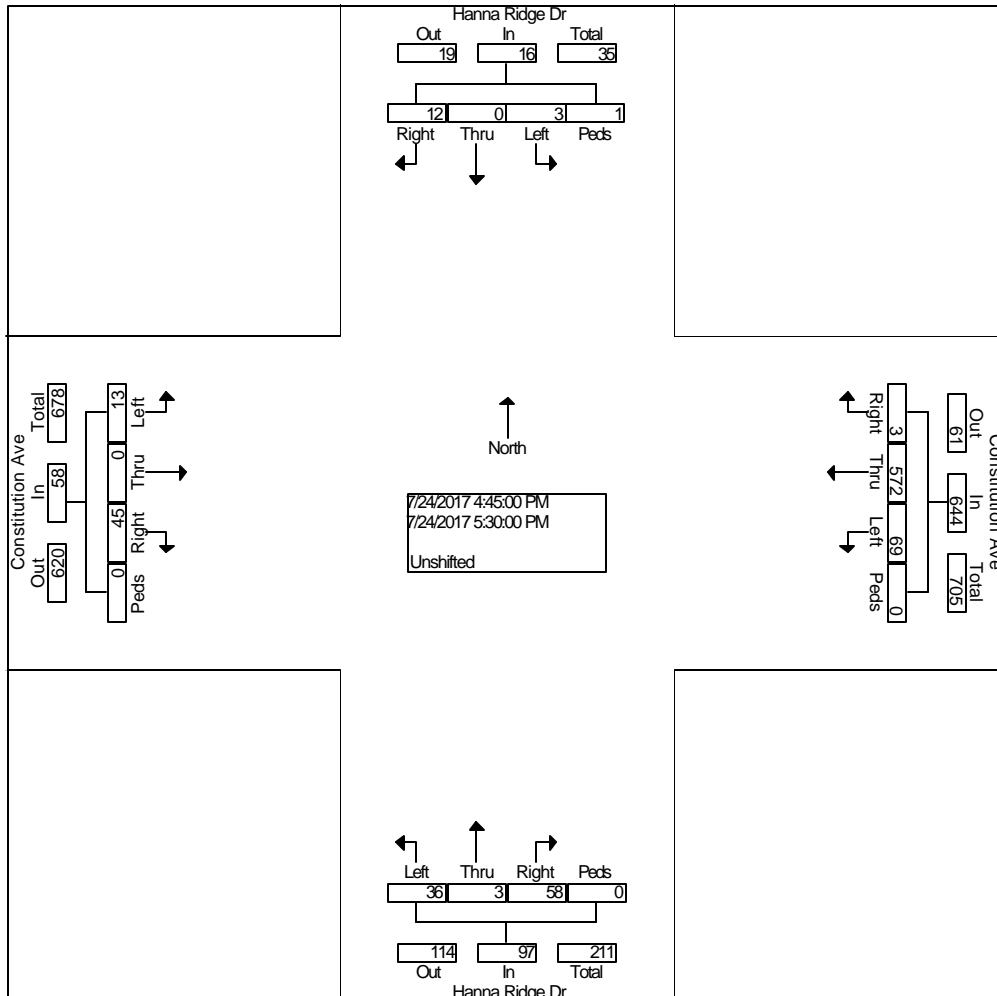
Groups Printed- Unshifted

Start Time	Hanna Ridge Dr From North				Constitution Ave From East				Hanna Ridge Dr From South				Constitution Ave From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	4	0	2	0	2	130	16	0	12	3	10	0	13	0	2	0	194
04:15 PM	1	0	0	0	2	108	15	0	17	5	10	0	7	0	5	0	170
04:30 PM	3	0	0	0	2	122	11	0	6	7	7	0	8	0	4	0	170
04:45 PM	2	0	1	0	1	135	21	0	13	2	8	0	7	0	1	0	191
Total	10	0	3	0	7	495	63	0	48	17	35	0	35	0	12	0	725
05:00 PM	6	0	0	0	1	167	17	0	18	0	8	0	13	0	2	0	232
05:15 PM	3	0	1	1	0	152	14	0	9	1	10	0	12	0	8	0	211
05:30 PM	1	0	1	0	1	118	17	0	18	0	10	0	13	0	2	0	181
05:45 PM	5	0	0	0	0	95	12	0	11	1	10	0	10	0	4	0	148
Total	15	0	2	1	2	532	60	0	56	2	38	0	48	0	16	0	772
Grand Total	25	0	5	1	9	1027	123	0	104	19	73	0	83	0	28	0	1497
Apprch %	80.6	0.0	16.1	3.2	0.8	88.6	10.6	0.0	53.1	9.7	37.2	0.0	74.8	0.0	25.2	0.0	
Total %	1.7	0.0	0.3	0.1	0.6	68.6	8.2	0.0	6.9	1.3	4.9	0.0	5.5	0.0	1.9	0.0	

Counts by LSC

File Name : Hanna Ridge - Constitution Ave PM
 Site Code : 00174210
 Start Date : 07/24/2017
 Page No : 2

Start Time	Hanna Ridge Dr From North					Constitution Ave From East					Hanna Ridge Dr From South					Constitution Ave From West					Int. Total
	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	Rig ht	Thr u	Lef t	Pe ds	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	12	0	3	1	16	3	57	69	0	644	58	3	36	0	97	45	0	13	0	58	815
Percent	75.0	0.0	18.8	6.3		0.5	88.8	10.7	0.0		59.8	3.1	37.1	0.0		77.6	0.0	22.4	0.0		
05:00 Volume	6	0	0	0	6	1	16	17	0	185	18	0	8	0	26	13	0	2	0	15	232
Peak Factor																					0.878
High Int.	05:00 PM					05:00 PM					05:30 PM					05:15 PM					
Volume	6	0	0	0	6	1	16	17	0	185	18	0	10	0	28	12	0	8	0	20	
Peak Factor	0.667					0.870					0.866					0.725					



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Shawnee Dr - Constitution Ave AM
 Site Code : 00174210
 Start Date : 07/25/2017
 Page No : 1

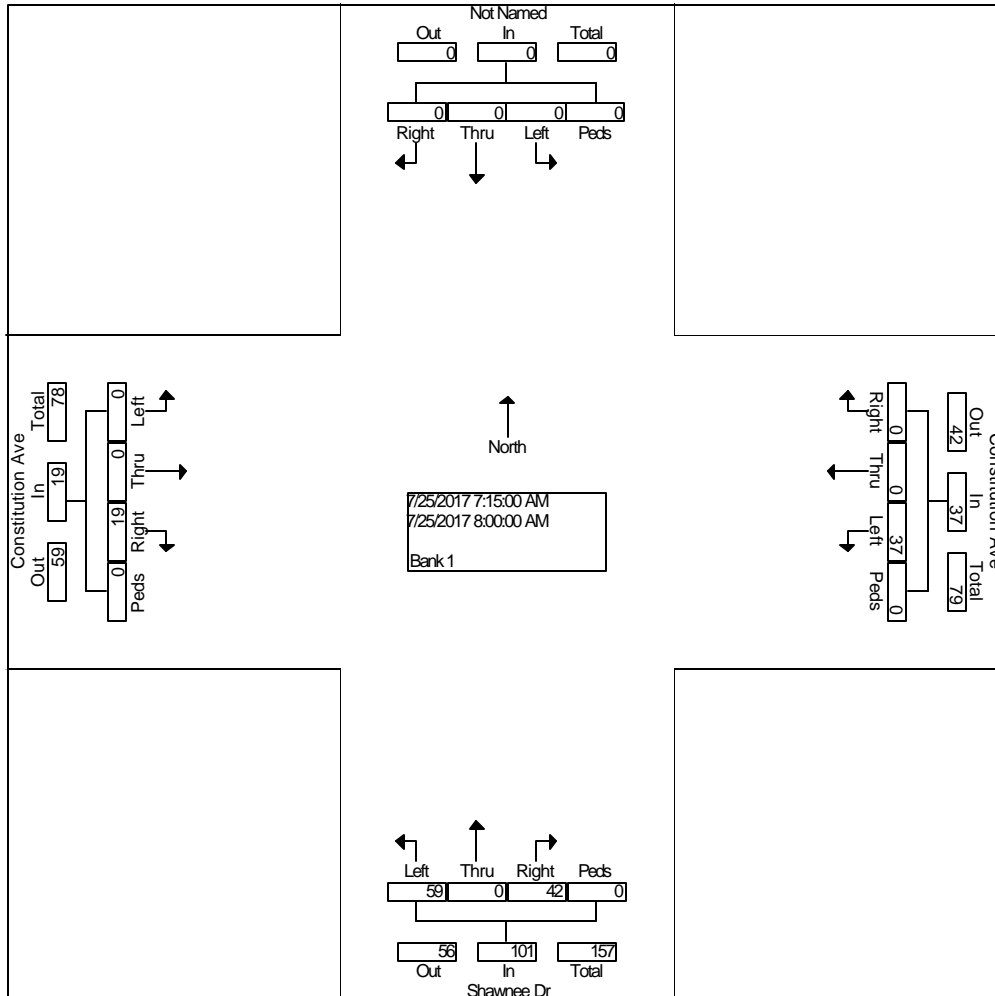
Groups Printed- Bank 1

Start Time	From North				Constitution Ave From East				Shawnee Dr From South				Constitution Ave From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	0	0	4	0	12	0	10	0	3	0	0	0	29
06:45 AM	0	0	0	0	0	0	4	0	15	0	16	0	3	0	0	0	38
Total	0	0	0	0	0	0	8	0	27	0	26	0	6	0	0	0	67
07:00 AM	0	0	0	0	0	0	7	0	13	0	12	0	4	0	0	0	36
07:15 AM	0	0	0	0	0	0	13	0	11	0	20	0	4	0	0	0	48
07:30 AM	0	0	0	0	0	0	3	0	12	0	13	0	5	0	0	0	33
07:45 AM	0	0	0	0	0	0	11	0	14	0	9	0	4	0	0	0	38
Total	0	0	0	0	0	0	34	0	50	0	54	0	17	0	0	0	155
08:00 AM	0	0	0	0	0	0	10	0	5	0	17	0	6	0	0	0	38
08:15 AM	0	0	0	0	0	0	3	0	6	0	11	0	4	0	0	0	24
Grand Total	0	0	0	0	0	0	55	0	88	0	108	0	33	0	0	0	284
Apprch %	0.0	0.0	0.0	0.0	0.0	0.0	100. 0	0.0	44.9	0.0	55.1	0.0	100. 0	0.0	0.0	0.0	
Total %	0.0	0.0	0.0	0.0	0.0	0.0	19.4	0.0	31.0	0.0	38.0	0.0	11.6	0.0	0.0	0.0	

Counts by LSC

File Name : Shawnee Dr - Constitution Ave AM
 Site Code : 00174210
 Start Date : 07/25/2017
 Page No : 2

Start Time	From North					Constitution Ave From East					Shawnee Dr From South					Constitution Ave From West					Int. Total
	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	0	0	0	0	0	0	0	37	0	37	42	0	59	0	101	19	0	0	0	19	157
Percent	0.0	0.0	0.0	0.0		0.0	0.0	10	0.0		41.6	0.0	58.4	0.0		0.0	0.0	0.0	0.0		
07:15 Volume	0	0	0	0	0	0	0	13	0	13	11	0	20	0	31	4	0	0	0	4	48
Peak Factor																					
High Int.	6:15:00 AM					07:15 AM					07:15 AM					08:00 AM					
Volume	0	0	0	0	0	0	0	13	0	13	11	0	20	0	31	6	0	0	0	6	6
Peak Factor						0.71					0.81					0.79					
						2					5					2					



Counts by LSC

LSC Transportation Consultants, Inc.

File Name : Shawnee Dr - Constitution Ave PM
 Site Code : 00174210
 Start Date : 07/24/2017
 Page No : 1

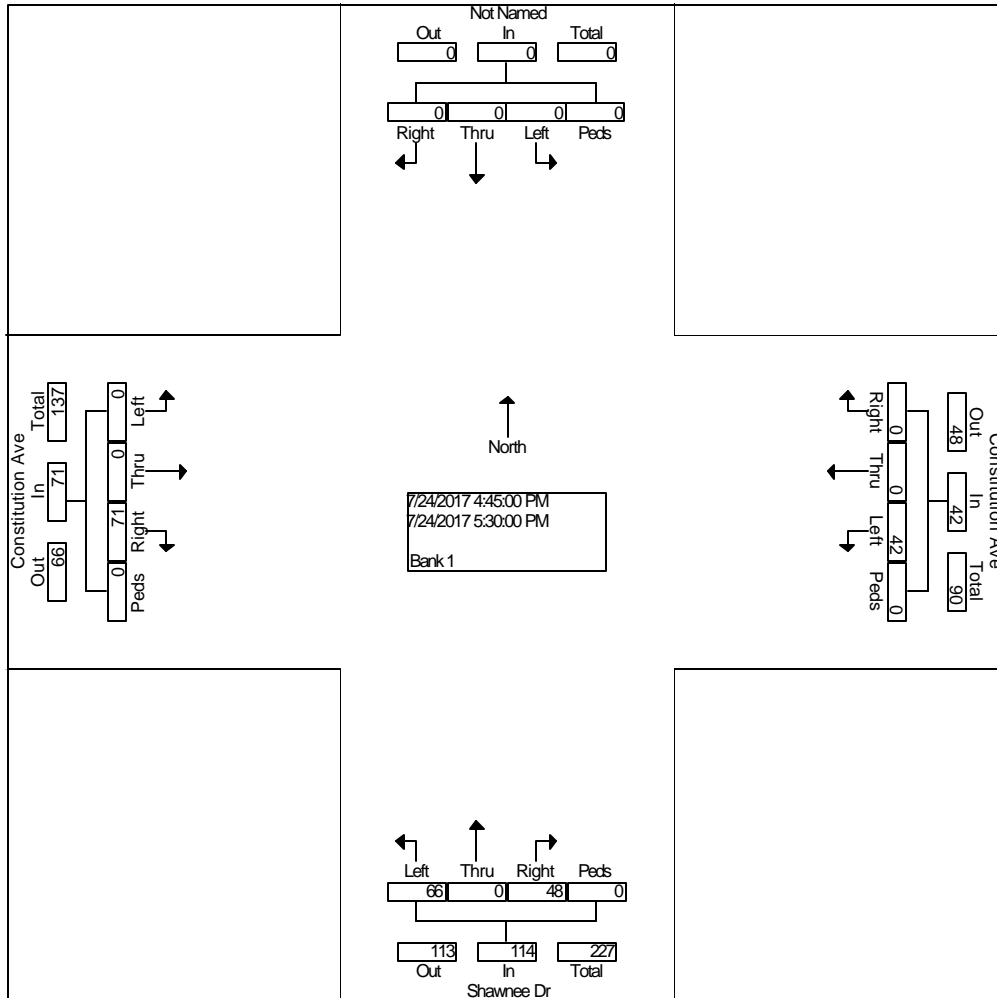
Groups Printed- Bank 1

Start Time	From North				Constitution Ave From East				Shawnee Dr From South				Constitution Ave From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	0	0	0	0	0	0	3	0	11	0	8	0	11	0	0	0	33
04:15 PM	0	0	0	0	0	0	11	0	9	0	8	0	19	0	0	1	48
04:30 PM	0	0	0	0	0	0	12	0	14	0	10	0	17	0	0	0	53
04:45 PM	0	0	0	0	0	0	5	0	12	0	17	0	19	0	0	0	53
Total	0	0	0	0	0	0	31	0	46	0	43	0	66	0	0	1	187
05:00 PM	0	0	0	0	0	0	11	0	15	0	14	0	17	0	0	0	57
05:15 PM	0	0	0	0	0	0	16	0	12	0	14	0	16	0	0	0	58
05:30 PM	0	0	0	0	0	0	10	0	9	0	21	0	19	0	0	0	59
05:45 PM	0	0	0	0	0	0	10	0	7	0	14	0	20	0	0	0	51
Total	0	0	0	0	0	0	47	0	43	0	63	0	72	0	0	0	225
Grand Total	0	0	0	0	0	0	78	0	89	0	106	0	138	0	0	1	412
Apprch %	0.0	0.0	0.0	0.0	0.0	0.0	100. 0	0.0	45.6	0.0	54.4	0.0	99.3	0.0	0.0	0.7	
Total %	0.0	0.0	0.0	0.0	0.0	0.0	18.9	0.0	21.6	0.0	25.7	0.0	33.5	0.0	0.0	0.2	

Counts by LSC

File Name : Shawnee Dr - Constitution Ave PM
 Site Code : 00174210
 Start Date : 07/24/2017
 Page No : 2

Start Time	From North					Constitution Ave From East					Shawnee Dr From South					Constitution Ave From West					Int. Total				
	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total	Rig ht	Thru	Lef t	Pe ds	App. Total					
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Intersection	04:45 PM																								
Volume	0	0	0	0	0	0	0	42	0	42	48	0	66	0	114	71	0	0	0	71	227				
Percent	0.0	0.0	0.0	0.0		0.0	0.0	10	0.0		42.	0.0	57.	0.0		10	0.0	0.0	0.0						
								0.0			1		9			0.0									
05:30 Volume	0	0	0	0	0	0	0	10	0	10	9	0	21	0	30	19	0	0	0	19	59				
Peak Factor																									
High Int.	3:45:00 PM					05:15 PM					05:30 PM					04:45 PM									
Volume	0	0	0	0	0	0	0	16	0	16	9	0	21	0	30	19	0	0	0	19					
Peak Factor											0.65					0.95					0.93				
											6					0					4				



HCM 2010 TWSC
2: Hannah Ridge Dr & Constitution Ave

Existing Traffic
AM Peak Hour

Intersection

Int Delay, s/veh 1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	505	7	15	745	10	25	1	52	3	0	10
Future Vol, veh/h	15	505	7	15	745	10	25	1	52	3	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	0	185	-	0	0	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	87	87	87	78	78	78	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	505	7	17	856	11	32	1	67	3	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	867	0	0	512	0	0	997	1436	253	1173	1432	428
Stage 1	-	-	-	-	-	-	535	535	-	890	890	-
Stage 2	-	-	-	-	-	-	462	901	-	283	542	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	772	-	-	1050	-	-	198	132	746	147	133	575
Stage 1	-	-	-	-	-	-	497	522	-	304	359	-
Stage 2	-	-	-	-	-	-	549	355	-	700	518	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	772	-	-	1050	-	-	189	127	746	129	128	575
Mov Cap-2 Maneuver	-	-	-	-	-	-	189	127	-	129	128	-
Stage 1	-	-	-	-	-	-	488	512	-	298	353	-
Stage 2	-	-	-	-	-	-	531	349	-	623	508	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	16.3	16.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	189	683	772	-	-	1050	-	-	129	-	575
HCM Lane V/C Ratio	0.17	0.099	0.019	-	-	0.016	-	-	0.023	-	0.017
HCM Control Delay (s)	27.9	10.9	9.8	-	-	8.5	-	-	33.6	0	11.4
HCM Lane LOS	D	B	A	-	-	A	-	-	D	A	B
HCM 95th %tile Q(veh)	0.6	0.3	0.1	-	-	0.1	-	-	0.1	-	0.1

HCM 2010 TWSC
4: Shawnee Dr & Constitution Ave

Existing Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑	
Traffic Vol, veh/h	485	19	37	743	59	42
Future Vol, veh/h	485	19	37	743	59	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	275	215	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	87	87	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	500	20	43	854	73	52
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	520	0	928	250
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	428	-
Critical Hdwy	-	-	4.14	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	-	-	2.22	-	3.67	3.32
Pot Cap-1 Maneuver	-	-	1042	-	300	750
Stage 1	-	-	-	-	556	-
Stage 2	-	-	-	-	590	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1042	-	288	750
Mov Cap-2 Maneuver	-	-	-	-	288	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	590	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		18.7	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	387	-	-	1042	-	
HCM Lane V/C Ratio	0.322	-	-	0.041	-	
HCM Control Delay (s)	18.7	-	-	8.6	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	1.4	-	-	0.1	-	

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘ ↑↑↑		↑↑ ↘		↘ ↘	↘ ↘
Traffic Vol, veh/h	99	461	658	34	41	112
Future Vol, veh/h	99	461	658	34	41	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	0	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	475	756	39	47	129

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	795	0	1150
Stage 1	-	-	756
Stage 2	-	-	394
Critical Hdwy	4.14	-	6.29
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	6.04
Follow-up Hdwy	2.22	-	3.67
Pot Cap-1 Maneuver	822	-	223
Stage 1	-	-	413
Stage 2	-	-	615
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	822	-	195
Mov Cap-2 Maneuver	-	-	195
Stage 1	-	-	362
Stage 2	-	-	615

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	29.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	822	-	-	-	195	-
HCM Lane V/C Ratio	0.124	-	-	-	0.242	-
HCM Control Delay (s)	10	-	-	-	29.2	0
HCM Lane LOS	A	-	-	-	D	A
HCM 95th %tile Q(veh)	0.4	-	-	-	0.9	-

HCM 2010 TWSC
2: Hannah Ridge Dr & Constitution Ave

Existing Traffic
PM Peak Hour

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↔		↔	↕	↔
Traffic Vol, veh/h	13	619	45	69	599	3	36	3	58	3	0	12
Future Vol, veh/h	13	619	45	69	599	3	36	3	58	3	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	0	185	-	0	0	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	93	93	100	100	100	93	93	93	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	666	48	69	599	3	39	3	62	5	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	602	0	0	714	0	0	1132	1434	333	1100	1479	300
Stage 1	-	-	-	-	-	-	694	694	-	737	737	-
Stage 2	-	-	-	-	-	-	438	740	-	363	742	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	971	-	-	882	-	-	158	133	663	167	125	696
Stage 1	-	-	-	-	-	-	399	442	-	376	423	-
Stage 2	-	-	-	-	-	-	567	421	-	628	420	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	971	-	-	882	-	-	143	121	663	138	114	696
Mov Cap-2 Maneuver	-	-	-	-	-	-	143	121	-	138	114	-
Stage 1	-	-	-	-	-	-	393	436	-	371	390	-
Stage 2	-	-	-	-	-	-	508	388	-	557	414	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1	22.4	14.6
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	143	543	971	-	-	882	-	-	138	-	696
HCM Lane V/C Ratio	0.271	0.121	0.015	-	-	0.078	-	-	0.035	-	0.027
HCM Control Delay (s)	39.3	12.5	8.8	-	-	9.4	-	-	32	0	10.3
HCM Lane LOS	E	B	A	-	-	A	-	-	D	A	B
HCM 95th %tile Q(veh)	1	0.4	0	-	-	0.3	-	-	0.1	-	0.1

Intersection

Int Delay, s/veh 1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑	
Traffic Vol, veh/h	629	71	42	605	66	48
Future Vol, veh/h	629	71	42	605	66	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	275	215	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	98	98	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	676	76	43	617	69	51

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1009
Stage 1	-	-	676
Stage 2	-	-	333
Critical Hdwy	-	4.14	6.29
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	6.04
Follow-up Hdwy	-	2.22	3.67
Pot Cap-1 Maneuver	-	853	269
Stage 1	-	-	453
Stage 2	-	-	662
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	853	256
Mov Cap-2 Maneuver	-	-	256
Stage 1	-	-	430
Stage 2	-	-	662

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	20.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	345	-	-	853	-
HCM Lane V/C Ratio	0.348	-	-	0.05	-
HCM Control Delay (s)	20.9	-	-	9.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.5	-	-	0.2	-

Intersection

Int Delay, s/veh 1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘ ↑↑↑		↑↑ ↗		↘ ↗	
Traffic Vol, veh/h	47	633	611	30	35	60
Future Vol, veh/h	47	633	611	30	35	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	0	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	98	98	45	45
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	633	623	31	78	133

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	654	0	-
Stage 1	-	-	623
Stage 2	-	-	347
Critical Hdwy	4.14	-	6.29
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	6.04
Follow-up Hdwy	2.22	-	3.67
Pot Cap-1 Maneuver	929	-	284
Stage 1	-	-	482
Stage 2	-	-	651
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	929	-	270
Mov Cap-2 Maneuver	-	-	270
Stage 1	-	-	457
Stage 2	-	-	651

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	23.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	929	-	-	-	270	-
HCM Lane V/C Ratio	0.051	-	-	-	0.288	-
HCM Control Delay (s)	9.1	-	-	-	23.6	0
HCM Lane LOS	A	-	-	-	C	A
HCM 95th %tile Q(veh)	0.2	-	-	-	1.2	-

Intersection

Int Delay, s/veh 1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↕	↔	↔	↕	↔
Traffic Vol, veh/h	15	544	7	15	787	10	25	1	52	3	0	10
Future Vol, veh/h	15	544	7	15	787	10	25	1	52	3	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	0	185	-	0	0	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	87	87	87	78	78	78	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	544	7	17	905	11	32	1	67	3	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	916	0	0	551	0	0	1061	1524	272	1242	1520	453
Stage 1	-	-	-	-	-	-	574	574	-	939	939	-
Stage 2	-	-	-	-	-	-	487	950	-	303	581	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	740	-	-	1015	-	-	178	117	726	131	118	554
Stage 1	-	-	-	-	-	-	471	501	-	284	341	-
Stage 2	-	-	-	-	-	-	531	337	-	681	498	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	740	-	-	1015	-	-	170	113	726	115	114	554
Mov Cap-2 Maneuver	-	-	-	-	-	-	170	113	-	115	114	-
Stage 1	-	-	-	-	-	-	462	491	-	278	335	-
Stage 2	-	-	-	-	-	-	513	331	-	604	488	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	17.5	17.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	170	659	740	-	-	1015	-	-	115	-	554
HCM Lane V/C Ratio	0.189	0.103	0.02	-	-	0.017	-	-	0.026	-	0.018
HCM Control Delay (s)	31	11.1	10	-	-	8.6	-	-	37.1	0	11.6
HCM Lane LOS	D	B	A	-	-	A	-	-	E	A	B
HCM 95th %tile Q(veh)	0.7	0.3	0.1	-	-	0.1	-	-	0.1	-	0.1

Intersection

Int Delay, s/veh 1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑	
Traffic Vol, veh/h	524	19	37	785	59	42
Future Vol, veh/h	524	19	37	785	59	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	275	215	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	87	87	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	540	20	43	902	73	52

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	987
Stage 1	-	-	540
Stage 2	-	-	447
Critical Hdwy	-	4.14	6.29
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	6.04
Follow-up Hdwy	-	2.22	3.67
Pot Cap-1 Maneuver	-	1007	277
Stage 1	-	-	531
Stage 2	-	-	577
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1007	265
Mov Cap-2 Maneuver	-	-	265
Stage 1	-	-	508
Stage 2	-	-	577

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	20.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	360	-	-	1007	-
HCM Lane V/C Ratio	0.346	-	-	0.042	-
HCM Control Delay (s)	20.2	-	-	8.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.5	-	-	0.1	-

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘ ↑↑↑		↑↑ ↘		↘ ↘	
Traffic Vol, veh/h	99	500	700	34	41	112
Future Vol, veh/h	99	500	700	34	41	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	0	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	515	805	39	47	129

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	844	0	-
Stage 1	-	-	805
Stage 2	-	-	410
Critical Hdwy	4.14	-	6.29
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	6.04
Follow-up Hdwy	2.22	-	3.67
Pot Cap-1 Maneuver	788	-	205
Stage 1	-	-	390
Stage 2	-	-	603
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	788	-	179
Mov Cap-2 Maneuver	-	-	179
Stage 1	-	-	340
Stage 2	-	-	603

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	32.1
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	788	-	-	-	179	-
HCM Lane V/C Ratio	0.13	-	-	-	0.263	-
HCM Control Delay (s)	10.2	-	-	-	32.1	0
HCM Lane LOS	B	-	-	-	D	A
HCM 95th %tile Q(veh)	0.4	-	-	-	1	-

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↕	↗	↔	↕↕	↗	↔	↗		↔	↕	↗
Traffic Vol, veh/h	13	661	45	69	638	3	36	3	58	3	0	12
Future Vol, veh/h	13	661	45	69	638	3	36	3	58	3	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	0	185	-	0	0	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	93	93	100	100	100	93	93	93	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	711	48	69	638	3	39	3	62	5	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	641	0	0	759	0	0	1196	1518	356	1161	1563	319
Stage 1	-	-	-	-	-	-	739	739	-	776	776	-
Stage 2	-	-	-	-	-	-	457	779	-	385	787	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	939	-	-	848	-	-	142	118	640	150	111	677
Stage 1	-	-	-	-	-	-	375	422	-	356	406	-
Stage 2	-	-	-	-	-	-	553	404	-	610	401	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	939	-	-	848	-	-	128	107	640	123	100	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	128	107	-	123	100	-
Stage 1	-	-	-	-	-	-	369	416	-	351	373	-
Stage 2	-	-	-	-	-	-	494	371	-	538	395	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.9	24.8	15.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	128	514	939	-	-	848	-	-	123	-	677
HCM Lane V/C Ratio	0.302	0.128	0.015	-	-	0.081	-	-	0.039	-	0.028
HCM Control Delay (s)	44.9	13	8.9	-	-	9.6	-	-	35.4	0	10.5
HCM Lane LOS	E	B	A	-	-	A	-	-	E	A	B
HCM 95th %tile Q(veh)	1.2	0.4	0	-	-	0.3	-	-	0.1	-	0.1

Intersection

Int Delay, s/veh 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑	
Traffic Vol, veh/h	671	71	42	644	66	48
Future Vol, veh/h	671	71	42	644	66	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	275	215	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	98	98	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	722	76	43	657	69	51

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1071
Stage 1	-	-	722
Stage 2	-	-	349
Critical Hdwy	-	4.14	6.29
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	6.04
Follow-up Hdwy	-	2.22	3.67
Pot Cap-1 Maneuver	-	820	248
Stage 1	-	-	430
Stage 2	-	-	649
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	820	235
Mov Cap-2 Maneuver	-	-	235
Stage 1	-	-	408
Stage 2	-	-	649

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	22.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	320	-	-	820	-
HCM Lane V/C Ratio	0.375	-	-	0.052	-
HCM Control Delay (s)	22.8	-	-	9.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.7	-	-	0.2	-

Intersection

Int Delay, s/veh 1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘ ↑↑↑		↑↑ ↘		↘ ↘	↘ ↘
Traffic Vol, veh/h	47	675	650	30	35	60
Future Vol, veh/h	47	675	650	30	35	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	0	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	98	98	45	45
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	675	663	31	78	133

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	694	0	1027
Stage 1	-	-	663
Stage 2	-	-	364
Critical Hdwy	4.14	-	6.29
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	6.04
Follow-up Hdwy	2.22	-	3.67
Pot Cap-1 Maneuver	897	-	263
Stage 1	-	-	460
Stage 2	-	-	638
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	897	-	249
Mov Cap-2 Maneuver	-	-	249
Stage 1	-	-	436
Stage 2	-	-	638

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	25.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	897	-	-	-	249	-
HCM Lane V/C Ratio	0.052	-	-	-	0.312	-
HCM Control Delay (s)	9.2	-	-	-	25.9	0
HCM Lane LOS	A	-	-	-	D	A
HCM 95th %tile Q(veh)	0.2	-	-	-	1.3	-

Intersection

Int Delay, s/veh 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↕	↗	↔	↕↕	↗	↔	↗		↔	↕	↗
Traffic Vol, veh/h	15	544	7	15	787	10	40	1	52	3	1	10
Future Vol, veh/h	15	544	7	15	787	10	40	1	52	3	1	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	0	185	-	0	0	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	87	87	87	78	78	78	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	544	7	17	905	11	51	1	67	3	1	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	916	0	0	551	0	0	1061	1524	272	1242	1520	453
Stage 1	-	-	-	-	-	-	574	574	-	939	939	-
Stage 2	-	-	-	-	-	-	487	950	-	303	581	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	740	-	-	1015	-	-	178	117	726	131	118	554
Stage 1	-	-	-	-	-	-	471	501	-	284	341	-
Stage 2	-	-	-	-	-	-	531	337	-	681	498	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	740	-	-	1015	-	-	169	113	726	115	114	554
Mov Cap-2 Maneuver	-	-	-	-	-	-	169	113	-	115	114	-
Stage 1	-	-	-	-	-	-	462	491	-	278	335	-
Stage 2	-	-	-	-	-	-	511	331	-	604	488	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	21.5	18.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	169	659	740	-	-	1015	-	-	115	114	554
HCM Lane V/C Ratio	0.303	0.103	0.02	-	-	0.017	-	-	0.026	0.009	0.018
HCM Control Delay (s)	35.3	11.1	10	-	-	8.6	-	-	37.1	36.9	11.6
HCM Lane LOS	E	B	A	-	-	A	-	-	E	E	B
HCM 95th %tile Q(veh)	1.2	0.3	0.1	-	-	0.1	-	-	0.1	0	0.1

Intersection

Int Delay, s/veh 0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑↑		↑
Traffic Vol, veh/h	524	19	37	802	0	42
Future Vol, veh/h	524	19	37	802	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	275	215	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	87	87	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	540	20	43	922	0	52

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	560	270
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	4.14	6.94
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	2.22	3.32
Pot Cap-1 Maneuver	-	1007	728
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1007	728
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	728	-	-	1007	-
HCM Lane V/C Ratio	0.071	-	-	0.042	-
HCM Control Delay (s)	10.3	-	-	8.7	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↕	↔	↔	↕↕	↔	↔	↔		↔	↕	↔
Traffic Vol, veh/h	13	661	45	69	638	3	43	3	58	3	1	12
Future Vol, veh/h	13	661	45	69	638	3	43	3	58	3	1	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	0	185	-	0	0	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	93	93	100	100	100	93	93	93	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	711	48	69	638	3	46	3	62	5	2	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	641	0	0	759	0	0	1197	1518	356	1161	1563	319
Stage 1	-	-	-	-	-	-	739	739	-	776	776	-
Stage 2	-	-	-	-	-	-	458	779	-	385	787	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	939	-	-	848	-	-	141	118	640	150	111	677
Stage 1	-	-	-	-	-	-	375	422	-	356	406	-
Stage 2	-	-	-	-	-	-	552	404	-	610	401	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	939	-	-	848	-	-	125	107	640	123	100	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	125	107	-	123	100	-
Stage 1	-	-	-	-	-	-	369	416	-	351	373	-
Stage 2	-	-	-	-	-	-	491	371	-	538	395	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.9	28.2	17.1
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	125	514	939	-	-	848	-	-	123	100	677
HCM Lane V/C Ratio	0.37	0.128	0.015	-	-	0.081	-	-	0.039	0.016	0.028
HCM Control Delay (s)	49.8	13	8.9	-	-	9.6	-	-	35.4	41.6	10.5
HCM Lane LOS	E	B	A	-	-	A	-	-	E	E	B
HCM 95th %tile Q(veh)	1.5	0.4	0	-	-	0.3	-	-	0.1	0	0.1

Intersection

Int Delay, s/veh 0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑↑		↑
Traffic Vol, veh/h	671	71	42	661	0	48
Future Vol, veh/h	671	71	42	661	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	275	215	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	98	98	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	722	76	43	674	0	51

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	798	361
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	4.14	6.94
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	2.22	3.32
Pot Cap-1 Maneuver	-	820	636
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	820	636
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	11.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	636	-	-	820	-
HCM Lane V/C Ratio	0.079	-	-	0.052	-
HCM Control Delay (s)	11.1	-	-	9.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-

Timings
2: Hannah Ridge & Constitution

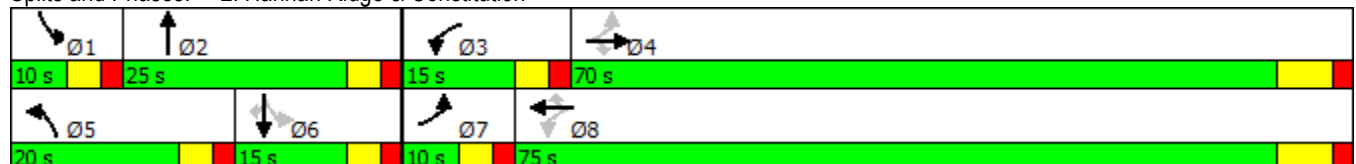
2040 Total Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	15	1257	75	157	1031	10	204	1	3	1	10	
Future Volume (vph)	15	1257	75	157	1031	10	204	1	3	1	10	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2	1	6		
Permitted Phases	4		4	8		8			6		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	22.0	22.0	9.0	22.0	22.0	9.0	13.0	9.0	13.0	13.0	
Total Split (s)	10.0	70.0	70.0	15.0	75.0	75.0	20.0	25.0	10.0	15.0	15.0	
Total Split (%)	8.3%	58.3%	58.3%	12.5%	62.5%	62.5%	16.7%	20.8%	8.3%	12.5%	12.5%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Act Effct Green (s)	32.8	25.5	25.5	40.7	37.2	37.2	9.9	10.0	6.1	5.8	5.8	
Actuated g/C Ratio	0.52	0.41	0.41	0.65	0.59	0.59	0.16	0.16	0.10	0.09	0.09	
v/c Ratio	0.05	0.64	0.11	0.48	0.36	0.01	0.40	0.53	0.02	0.01	0.04	
Control Delay	6.0	16.9	0.3	11.5	8.3	0.0	28.7	12.9	26.3	34.0	0.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.0	16.9	0.3	11.5	8.3	0.0	28.7	12.9	26.3	34.0	0.2	
LOS	A	B	A	B	A	A	C	B	C	C	A	
Approach Delay		15.9			8.6			20.9		7.7		
Approach LOS		B			A			C		A		

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 62.7
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 13.6
 Intersection Capacity Utilization 59.6%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 2: Hannah Ridge & Constitution



Intersection

Int Delay, s/veh 0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑		↑
Traffic Vol, veh/h	1305	19	37	1208	0	42
Future Vol, veh/h	1305	19	37	1208	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	285	420	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1374	20	39	1272	0	44

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	1394	687
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	5.34	7.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.12	3.92
Pot Cap-1 Maneuver	-	251	334
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	251	334
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	17.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	334	-	-	251	-
HCM Lane V/C Ratio	0.132	-	-	0.155	-
HCM Control Delay (s)	17.4	-	-	22	-
HCM Lane LOS	C	-	-	C	-
HCM 95th %tile Q(veh)	0.5	-	-	0.5	-

Timings
5: Akers & Constitution

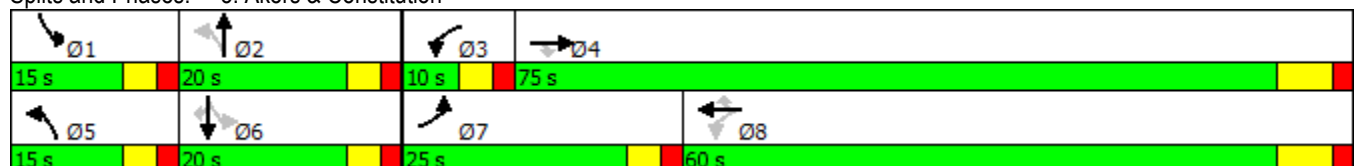
2040 Total Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	291	1113	56	19	1023	216	24	4	78	5	151
Future Volume (vph)	291	1113	56	19	1023	216	24	4	78	5	151
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4	8		8	2		6		6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	23.0	23.0	9.0	23.0	23.0	9.0	15.0	9.0	20.0	20.0
Total Split (s)	25.0	75.0	75.0	10.0	60.0	60.0	15.0	20.0	15.0	20.0	20.0
Total Split (%)	20.8%	62.5%	62.5%	8.3%	50.0%	50.0%	12.5%	16.7%	12.5%	16.7%	16.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None
Act Effct Green (s)	12.2	37.8	37.8	31.0	23.6	23.6	10.5	6.7	12.1	9.5	9.5
Actuated g/C Ratio	0.18	0.56	0.56	0.46	0.35	0.35	0.16	0.10	0.18	0.14	0.14
v/c Ratio	0.49	0.41	0.06	0.07	0.60	0.32	0.10	0.28	0.17	0.02	0.43
Control Delay	30.4	10.7	0.6	7.9	20.6	4.3	24.4	15.9	24.0	32.8	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	10.7	0.6	7.9	20.6	4.3	24.4	15.9	24.0	32.8	9.4
LOS	C	B	A	A	C	A	C	B	C	C	A
Approach Delay		14.3			17.6			18.5		14.8	
Approach LOS		B			B			B		B	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 67.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 15.8
 Intersection LOS: B
 Intersection Capacity Utilization 51.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 5: Akers & Constitution



Timings
2: Hannah Ridge & Constitution

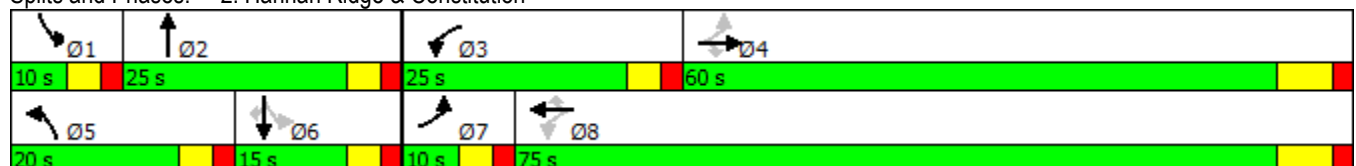
2040 Background Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	13	949	213	256	854	3	206	3	3	1	12
Future Volume (vph)	13	949	213	256	854	3	206	3	3	1	12
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases	4		4	8		8			6		6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	22.0	22.0	9.0	22.0	22.0	9.0	13.0	9.0	13.0	13.0
Total Split (s)	10.0	60.0	60.0	25.0	75.0	75.0	20.0	25.0	10.0	15.0	15.0
Total Split (%)	8.3%	50.0%	50.0%	20.8%	62.5%	62.5%	16.7%	20.8%	8.3%	12.5%	12.5%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None
Act Effct Green (s)	27.6	20.2	20.2	37.7	34.2	34.2	9.9	10.0	6.1	5.9	5.9
Actuated g/C Ratio	0.46	0.34	0.34	0.63	0.57	0.57	0.17	0.17	0.10	0.10	0.10
v/c Ratio	0.04	0.58	0.33	0.58	0.31	0.00	0.38	0.48	0.02	0.01	0.04
Control Delay	6.7	18.3	4.3	11.7	8.2	0.0	27.1	9.2	25.0	33.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	18.3	4.3	11.7	8.2	0.0	27.1	9.2	25.0	33.0	0.2
LOS	A	B	A	B	A	A	C	A	C	C	A
Approach Delay		15.6			8.9			18.3		6.5	
Approach LOS		B			A			B		A	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 59.6
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 13.2
 Intersection LOS: B
 Intersection Capacity Utilization 59.2%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 2: Hannah Ridge & Constitution



Intersection

Int Delay, s/veh 0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑		↑
Traffic Vol, veh/h	1127	71	42	1030	0	48
Future Vol, veh/h	1127	71	42	1030	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	285	420	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1186	75	44	1084	0	51

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	593
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	5.34	7.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.12	3.92
Pot Cap-1 Maneuver	-	292	385
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	292	385
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	15.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	385	-	-	292	-
HCM Lane V/C Ratio	0.131	-	-	0.151	-
HCM Control Delay (s)	15.8	-	-	19.5	-
HCM Lane LOS	C	-	-	C	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	-

Timings
5: Akers & Constitution

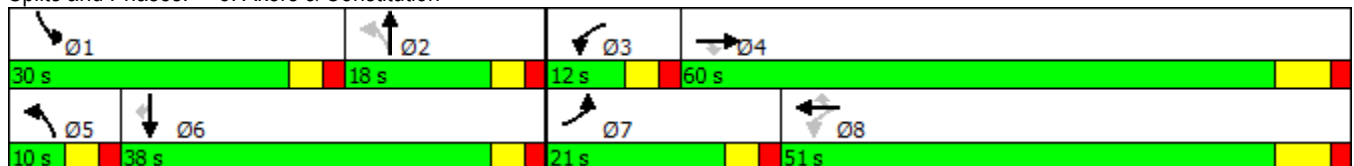
2040 Background Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	291	1113	56	19	1023	216	24	4	78	5	151	
Future Volume (vph)	291	1113	56	19	1023	216	24	4	78	5	151	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Perm	
Protected Phases	7	4		3	8		5	2	1	6		
Permitted Phases			4	8		8	2				6	
Detector Phase	7	4	4	3	8	8	5	2	1	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	23.0	23.0	9.0	23.0	23.0	9.0	15.0	9.0	20.0	20.0	
Total Split (s)	21.0	60.0	60.0	12.0	51.0	51.0	10.0	18.0	30.0	38.0	38.0	
Total Split (%)	17.5%	50.0%	50.0%	10.0%	42.5%	42.5%	8.3%	15.0%	25.0%	31.7%	31.7%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Act Effct Green (s)	12.2	36.8	36.8	31.4	23.2	23.2	10.3	6.6	7.5	12.7	12.7	
Actuated g/C Ratio	0.18	0.53	0.53	0.45	0.33	0.33	0.15	0.10	0.11	0.18	0.18	
v/c Ratio	0.51	0.43	0.06	0.06	0.63	0.33	0.11	0.28	0.22	0.01	0.37	
Control Delay	31.4	12.2	0.1	7.7	22.1	4.4	24.1	16.1	34.0	30.0	7.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.4	12.2	0.1	7.7	22.1	4.4	24.1	16.1	34.0	30.0	7.7	
LOS	C	B	A	A	C	A	C	B	C	C	A	
Approach Delay		15.5			18.8			18.5		16.9		
Approach LOS		B			B			B		B		

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 69.3
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 17.1
 Intersection Capacity Utilization 51.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 5: Akers & Constitution



Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↕	↔	↔	↕↕	↔	↔	↔		↔	↕	↔
Traffic Vol, veh/h	21	544	7	15	787	15	25	1	52	10	2	29
Future Vol, veh/h	21	544	7	15	787	15	25	1	52	10	2	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	0	185	-	0	0	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	87	87	92	78	78	78	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	544	7	17	905	16	32	1	67	11	2	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	921	0	0	551	0	0	1074	1541	272	1254	1532	453
Stage 1	-	-	-	-	-	-	586	586	-	939	939	-
Stage 2	-	-	-	-	-	-	488	955	-	315	593	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	737	-	-	1015	-	-	174	114	726	128	116	554
Stage 1	-	-	-	-	-	-	463	495	-	284	341	-
Stage 2	-	-	-	-	-	-	530	335	-	671	492	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	737	-	-	1015	-	-	156	109	726	111	111	554
Mov Cap-2 Maneuver	-	-	-	-	-	-	156	109	-	111	111	-
Stage 1	-	-	-	-	-	-	450	481	-	276	335	-
Stage 2	-	-	-	-	-	-	488	329	-	590	478	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.2	18.4	20.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	156	656	737	-	-	1015	-	-	111	111	554
HCM Lane V/C Ratio	0.205	0.104	0.028	-	-	0.017	-	-	0.098	0.02	0.057
HCM Control Delay (s)	33.9	11.1	10	-	-	8.6	-	-	40.9	38.1	11.9
HCM Lane LOS	D	B	B	-	-	A	-	-	E	E	B
HCM 95th %tile Q(veh)	0.7	0.3	0.1	-	-	0.1	-	-	0.3	0.1	0.2

Intersection

Int Delay, s/veh 1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑	
Traffic Vol, veh/h	530	19	37	804	59	42
Future Vol, veh/h	530	19	37	804	59	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	275	215	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	87	87	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	546	20	43	924	73	52

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	566	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.22	-
Pot Cap-1 Maneuver	-	-	1002	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1002	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	20.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	355	-	-	1002	-
HCM Lane V/C Ratio	0.351	-	-	0.042	-
HCM Control Delay (s)	20.5	-	-	8.8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.5	-	-	0.1	-

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘ ↑↑↑		↑↑ ↘		↘ ↘	
Traffic Vol, veh/h	99	507	705	35	44	112
Future Vol, veh/h	99	507	705	35	44	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	0	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	523	810	40	51	129

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	850	0	1223
Stage 1	-	-	810
Stage 2	-	-	413
Critical Hdwy	4.14	-	6.29
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	6.04
Follow-up Hdwy	2.22	-	3.67
Pot Cap-1 Maneuver	784	-	203
Stage 1	-	-	387
Stage 2	-	-	601
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	784	-	177
Mov Cap-2 Maneuver	-	-	177
Stage 1	-	-	337
Stage 2	-	-	601

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	33.3
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	784	-	-	-	177	-
HCM Lane V/C Ratio	0.13	-	-	-	0.286	-
HCM Control Delay (s)	10.3	-	-	-	33.3	0
HCM Lane LOS	B	-	-	-	D	A
HCM 95th %tile Q(veh)	0.4	-	-	-	1.1	-

HCM 2010 TWSC
2: Hannah Ridge Dr & Constitution Ave

2020 Total Traffic (Following Filings 1-3)
PM Peak Hour

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↕	↔	↔	↕↕	↔	↔	↔	↔	↔	↕	↕
Traffic Vol, veh/h	35	661	45	69	638	17	36	5	58	8	2	24
Future Vol, veh/h	35	661	45	69	638	17	36	5	58	8	2	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	0	185	-	0	0	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	93	93	100	100	92	93	93	93	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	711	48	69	638	18	39	5	62	9	2	26
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	656	0	0	759	0	0	1245	1581	356	1210	1611	319
Stage 1	-	-	-	-	-	-	787	787	-	776	776	-
Stage 2	-	-	-	-	-	-	458	794	-	434	835	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	927	-	-	848	-	-	130	108	640	138	103	677
Stage 1	-	-	-	-	-	-	351	401	-	356	406	-
Stage 2	-	-	-	-	-	-	552	398	-	570	381	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	927	-	-	848	-	-	112	95	640	108	91	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	112	95	-	108	91	-
Stage 1	-	-	-	-	-	-	337	385	-	341	373	-
Stage 2	-	-	-	-	-	-	485	366	-	486	365	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.9			28.7			19.8		
HCM LOS	D			D			D			C		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3	
Capacity (veh/h)	112	440	927	-	-	848	-	-	108	91	677	
HCM Lane V/C Ratio	0.346	0.154	0.041	-	-	0.081	-	-	0.081	0.024	0.039	
HCM Control Delay (s)	53.2	14.7	9.1	-	-	9.6	-	-	41.2	45.5	10.5	
HCM Lane LOS	F	B	A	-	-	A	-	-	E	E	B	
HCM 95th %tile Q(veh)	1.4	0.5	0.1	-	-	0.3	-	-	0.3	0.1	0.1	

Intersection

Int Delay, s/veh 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑	
Traffic Vol, veh/h	693	71	42	656	66	48
Future Vol, veh/h	693	71	42	656	66	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	275	215	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	98	98	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	745	76	43	669	69	51

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1099
Stage 1	-	-	745
Stage 2	-	-	354
Critical Hdwy	-	4.14	6.29
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	6.04
Follow-up Hdwy	-	2.22	3.67
Pot Cap-1 Maneuver	-	804	239
Stage 1	-	-	418
Stage 2	-	-	645
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	804	226
Mov Cap-2 Maneuver	-	-	226
Stage 1	-	-	396
Stage 2	-	-	645

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	23.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	309	-	-	804	-
HCM Lane V/C Ratio	0.388	-	-	0.053	-
HCM Control Delay (s)	23.9	-	-	9.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.8	-	-	0.2	-

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘ ↑↑↑		↑↑ ↘		↘ ↘	
Traffic Vol, veh/h	47	680	664	33	37	60
Future Vol, veh/h	47	680	664	33	37	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	0	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	98	98	45	45
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	680	678	34	82	133

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	712	0	1044
Stage 1	-	-	678
Stage 2	-	-	366
Critical Hdwy	4.14	-	6.29
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	6.04
Follow-up Hdwy	2.22	-	3.67
Pot Cap-1 Maneuver	884	-	257
Stage 1	-	-	452
Stage 2	-	-	636
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	884	-	243
Mov Cap-2 Maneuver	-	-	243
Stage 1	-	-	428
Stage 2	-	-	636

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	27.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	884	-	-	-	243	-
HCM Lane V/C Ratio	0.053	-	-	-	0.338	-
HCM Control Delay (s)	9.3	-	-	-	27.2	0
HCM Lane LOS	A	-	-	-	D	A
HCM 95th %tile Q(veh)	0.2	-	-	-	1.4	-

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↕	↔	↔	↕↕	↔	↔	↔		↔	↕	↔
Traffic Vol, veh/h	17	544	7	15	791	14	40	2	52	15	3	16
Future Vol, veh/h	17	544	7	15	791	14	40	2	52	15	3	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	0	185	-	0	0	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	87	87	92	78	78	78	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	544	7	17	909	15	51	3	67	16	3	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	924	0	0	551	0	0	1068	1536	272	1251	1528	455
Stage 1	-	-	-	-	-	-	578	578	-	943	943	-
Stage 2	-	-	-	-	-	-	490	958	-	308	585	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	735	-	-	1015	-	-	176	115	726	129	116	552
Stage 1	-	-	-	-	-	-	468	499	-	282	339	-
Stage 2	-	-	-	-	-	-	529	334	-	677	496	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	735	-	-	1015	-	-	162	110	726	112	111	552
Mov Cap-2 Maneuver	-	-	-	-	-	-	162	110	-	112	111	-
Stage 1	-	-	-	-	-	-	457	488	-	276	333	-
Stage 2	-	-	-	-	-	-	499	328	-	597	485	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	22.6	27.6
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	162	601	735	-	-	1015	-	-	112	111	552
HCM Lane V/C Ratio	0.317	0.115	0.023	-	-	0.017	-	-	0.146	0.029	0.032
HCM Control Delay (s)	37.2	11.8	10	-	-	8.6	-	-	42.5	38.4	11.7
HCM Lane LOS	E	B	B	-	-	A	-	-	E	E	B
HCM 95th %tile Q(veh)	1.3	0.4	0.1	-	-	0.1	-	-	0.5	0.1	0.1

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↗	↘	↕	↗			↗			↗
Traffic Vol, veh/h	9	526	19	37	806	4	0	0	42	0	0	26
Future Vol, veh/h	9	526	19	37	806	4	0	0	42	0	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	275	215	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	97	97	87	87	92	81	81	81	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	542	20	43	926	4	0	0	52	0	0	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	930	0	0	562	0	0	-	-	271	-	-	463
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	731	-	-	1005	-	-	0	0	727	0	0	546
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	731	-	-	1005	-	-	-	-	727	-	-	546
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.4	10.3	12
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	727	731	-	-	1005	-	-	546
HCM Lane V/C Ratio	0.071	0.013	-	-	0.042	-	-	0.052
HCM Control Delay (s)	10.3	10	-	-	8.7	-	-	12
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘ ↑↑↑		↑↑ ↘		↘ ↘	
Traffic Vol, veh/h	99	512	707	35	47	112
Future Vol, veh/h	99	512	707	35	47	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	0	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	528	813	40	54	129

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	853	0	1228
Stage 1	-	-	813
Stage 2	-	-	415
Critical Hdwy	4.14	-	6.29
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	6.04
Follow-up Hdwy	2.22	-	3.67
Pot Cap-1 Maneuver	782	-	201
Stage 1	-	-	386
Stage 2	-	-	600
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	782	-	175
Mov Cap-2 Maneuver	-	-	175
Stage 1	-	-	336
Stage 2	-	-	600

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	34.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	782	-	-	-	175	-
HCM Lane V/C Ratio	0.131	-	-	-	0.309	-
HCM Control Delay (s)	10.3	-	-	-	34.5	0
HCM Lane LOS	B	-	-	-	D	A
HCM 95th %tile Q(veh)	0.4	-	-	-	1.2	-

HCM 2010 TWSC
2: Hannah Ridge Dr & Constitution Ave

2020 Total Traffic (Following Filings 1-4)
PM Peak Hour

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	661	45	69	651	14	53	7	58	11	3	16
Future Vol, veh/h	20	661	45	69	651	14	53	7	58	11	3	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	0	185	-	0	0	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	93	93	100	100	92	93	93	93	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	711	48	69	651	15	57	8	62	12	3	17
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	666	0	0	759	0	0	1220	1559	356	1193	1592	326
Stage 1	-	-	-	-	-	-	755	755	-	789	789	-
Stage 2	-	-	-	-	-	-	465	804	-	404	803	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	919	-	-	848	-	-	136	111	640	142	106	670
Stage 1	-	-	-	-	-	-	367	415	-	350	400	-
Stage 2	-	-	-	-	-	-	547	394	-	594	394	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	919	-	-	848	-	-	119	100	640	111	95	670
Mov Cap-2 Maneuver	-	-	-	-	-	-	119	100	-	111	95	-
Stage 1	-	-	-	-	-	-	358	405	-	342	368	-
Stage 2	-	-	-	-	-	-	485	362	-	514	385	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.9			35.8			25.2		
HCM LOS	E			E			E			D		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3	
Capacity (veh/h)	119	405	919	-	-	848	-	-	111	95	670	
HCM Lane V/C Ratio	0.479	0.173	0.024	-	-	0.081	-	-	0.108	0.034	0.026	
HCM Control Delay (s)	60.4	15.7	9	-	-	9.6	-	-	41.3	44.2	10.5	
HCM Lane LOS	F	C	A	-	-	A	-	-	E	E	B	
HCM 95th %tile Q(veh)	2.2	0.6	0.1	-	-	0.3	-	-	0.4	0.1	0.1	

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↗	↘	↕	↗			↗			↗
Traffic Vol, veh/h	30	678	71	42	665	13	0	0	48	0	0	17
Future Vol, veh/h	30	678	71	42	665	13	0	0	48	0	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	275	215	-	0	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	93	93	98	98	92	95	92	95	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	729	76	43	679	14	0	0	51	0	0	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	693	0	0	805	0	0	-	-	365	-	-	340
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	898	-	-	815	-	-	0	0	632	0	0	656
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	898	-	-	815	-	-	-	-	632	-	-	656
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.6	11.2	10.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	632	898	-	-	815	-	-	656
HCM Lane V/C Ratio	0.08	0.036	-	-	0.053	-	-	0.028
HCM Control Delay (s)	11.2	9.2	-	-	9.7	-	-	10.6
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.2	-	-	0.1

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘ ↑↑↑		↑↑ ↘		↘ ↘	
Traffic Vol, veh/h	47	683	674	34	39	60
Future Vol, veh/h	47	683	674	34	39	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	0	-	-	0	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	98	98	45	45
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	683	688	35	87	133

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	723	0	1055
Stage 1	-	-	688
Stage 2	-	-	367
Critical Hdwy	4.14	-	6.29
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	6.04
Follow-up Hdwy	2.22	-	3.67
Pot Cap-1 Maneuver	875	-	253
Stage 1	-	-	447
Stage 2	-	-	635
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	875	-	239
Mov Cap-2 Maneuver	-	-	239
Stage 1	-	-	423
Stage 2	-	-	635

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	28.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	875	-	-	-	239	-
HCM Lane V/C Ratio	0.054	-	-	-	0.363	-
HCM Control Delay (s)	9.3	-	-	-	28.4	0
HCM Lane LOS	A	-	-	-	D	A
HCM 95th %tile Q(veh)	0.2	-	-	-	1.6	-

Timings
2: Hannah Ridge & Constitution

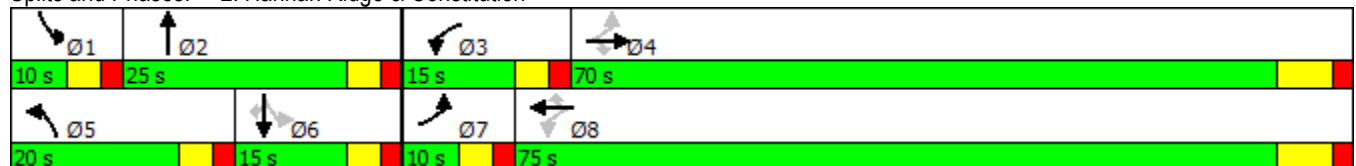
2040 Total Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	25	1337	75	164	1079	25	204	17	46	20	33
Future Volume (vph)	25	1337	75	164	1079	25	204	17	46	20	33
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases	4		4	8		8			6		6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	22.0	22.0	9.0	22.0	22.0	9.0	13.0	9.0	13.0	13.0
Total Split (s)	10.0	70.0	70.0	15.0	75.0	75.0	20.0	25.0	10.0	15.0	15.0
Total Split (%)	8.3%	58.3%	58.3%	12.5%	62.5%	62.5%	16.7%	20.8%	8.3%	12.5%	12.5%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None
Act Effct Green (s)	37.9	30.4	30.4	46.5	41.1	41.1	10.6	12.0	9.3	7.1	7.1
Actuated g/C Ratio	0.51	0.41	0.41	0.63	0.55	0.55	0.14	0.16	0.13	0.10	0.10
v/c Ratio	0.08	0.68	0.11	0.57	0.40	0.03	0.44	0.64	0.21	0.12	0.11
Control Delay	8.4	20.6	0.3	19.1	12.1	0.0	35.7	22.3	26.9	39.3	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.4	20.6	0.3	19.1	12.1	0.0	35.7	22.3	26.9	39.3	0.8
LOS	A	C	A	B	B	A	D	C	C	D	A
Approach Delay		19.3			12.8			28.6		20.6	
Approach LOS		B			B			C		C	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 74.3
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 18.0
 Intersection LOS: B
 Intersection Capacity Utilization 70.6%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 2: Hannah Ridge & Constitution



Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘ ↑↑↑	↑↑↑	↗	↘ ↑↑↑	↑↑↑	↗			↗			↗
Traffic Vol, veh/h	25	1394	19	37	1272	7	0	0	42	0	0	78
Future Vol, veh/h	25	1394	19	37	1272	7	0	0	42	0	0	78
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	335	-	285	420	-	300	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	1467	20	39	1339	7	0	0	44	0	0	82

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	1346	0	0	1487	0	0	-	-	734	-	-	670
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	265	-	-	226	-	-	0	0	311	0	0	343
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	265	-	-	226	-	-	-	-	311	-	-	343
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.7	18.5	18.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	311	265	-	-	226	-	-	343
HCM Lane V/C Ratio	0.142	0.099	-	-	0.172	-	-	0.239
HCM Control Delay (s)	18.5	20.1	-	-	24.2	-	-	18.8
HCM Lane LOS	C	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.5	0.3	-	-	0.6	-	-	0.9

Timings
5: Akers & Constitution

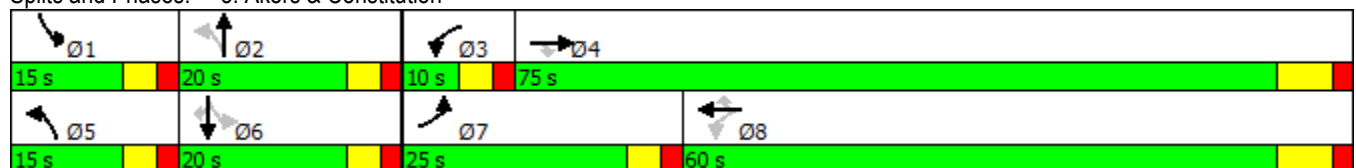
2040 Total Traffic
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	369	1154	73	54	1055	248	41	11	179	15	171
Future Volume (vph)	369	1154	73	54	1055	248	41	11	179	15	171
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4	8		8	2		6		6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	23.0	23.0	9.0	23.0	23.0	9.0	15.0	9.0	20.0	20.0
Total Split (s)	25.0	75.0	75.0	10.0	60.0	60.0	15.0	20.0	15.0	20.0	20.0
Total Split (%)	20.8%	62.5%	62.5%	8.3%	50.0%	50.0%	12.5%	16.7%	12.5%	16.7%	16.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None
Act Effct Green (s)	14.4	38.1	38.1	33.2	25.8	25.8	12.9	7.3	16.5	11.4	11.4
Actuated g/C Ratio	0.19	0.50	0.50	0.43	0.34	0.34	0.17	0.10	0.22	0.15	0.15
v/c Ratio	0.60	0.48	0.09	0.21	0.65	0.37	0.16	0.39	0.34	0.06	0.46
Control Delay	34.8	14.7	1.4	10.5	24.3	4.6	26.5	18.3	26.5	36.6	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.8	14.7	1.4	10.5	24.3	4.6	26.5	18.3	26.5	36.6	10.9
LOS	C	B	A	B	C	A	C	B	C	D	B
Approach Delay		18.8			20.2			21.1		19.6	
Approach LOS		B			C			C		B	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 76.6
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 19.5
 Intersection LOS: B
 Intersection Capacity Utilization 56.9%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 5: Akers & Constitution



Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑						↑
Traffic Vol, veh/h	0	1389	13	0	1326	102	0	0	0	0	0	31
Future Vol, veh/h	0	1389	13	0	1326	102	0	0	0	0	0	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	200	-	-	0	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1462	14	0	1396	107	0	0	0	0	0	33
Major/Minor	Major1			Major2			Minor2					
Conflicting Flow All	-	0	0	-	-	0	-	-	-	-	-	698
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	-	-	-	-	0	0	328
Stage 1	0	-	-	0	-	-	-	-	-	0	0	-
Stage 2	0	-	-	0	-	-	-	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	-	-	0	328
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	0	-
Stage 1	-	-	-	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	-	-	-	0	-
Approach	EB			WB			SB					
HCM Control Delay, s	0			0			17.2					
HCM LOS							C					
Minor Lane/Major Mvmt	EBT	EBR	WBT	WBR	SBLn1							
Capacity (veh/h)	-	-	-	-	328							
HCM Lane V/C Ratio	-	-	-	-	0.099							
HCM Control Delay (s)	-	-	-	-	17.2							
HCM Lane LOS	-	-	-	-	C							
HCM 95th %tile Q(veh)	-	-	-	-	0.3							

Timings
2: Hannah Ridge & Constitution

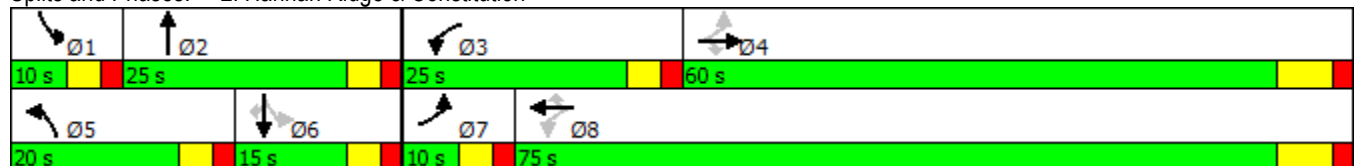
2040 Total Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	48	1139	213	295	1074	62	206	49	53	31	47	
Future Volume (vph)	48	1139	213	295	1074	62	206	49	53	31	47	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2	1	6		
Permitted Phases	4		4	8		8			6		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	22.0	22.0	9.0	22.0	22.0	9.0	13.0	9.0	13.0	13.0	
Total Split (s)	10.0	60.0	60.0	25.0	75.0	75.0	20.0	25.0	10.0	15.0	15.0	
Total Split (%)	8.3%	50.0%	50.0%	20.8%	62.5%	62.5%	16.7%	20.8%	8.3%	12.5%	12.5%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Act Effct Green (s)	35.4	27.9	27.9	49.2	41.8	41.8	11.0	13.1	11.2	7.6	7.6	
Actuated g/C Ratio	0.44	0.35	0.35	0.61	0.52	0.52	0.14	0.16	0.14	0.09	0.09	
v/c Ratio	0.18	0.68	0.32	0.76	0.43	0.07	0.46	0.72	0.27	0.19	0.14	
Control Delay	10.7	25.7	4.6	29.5	14.1	0.2	39.6	27.4	30.0	43.2	0.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	10.7	25.7	4.6	29.5	14.1	0.2	39.6	27.4	30.0	43.2	0.9	
LOS	B	C	A	C	B	A	D	C	C	D	A	
Approach Delay		22.0			16.6			32.6		22.8		
Approach LOS		C			B			C		C		

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 80.5
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 21.3
 Intersection LOS: C
 Intersection Capacity Utilization 76.6%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Hannah Ridge & Constitution



Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘ ↑↑↑	↑↑↑	↗	↘ ↑↑↑	↑↑↑	↗			↗			↗
Traffic Vol, veh/h	92	1352	71	42	1260	25	0	0	48	0	0	47
Future Vol, veh/h	92	1352	71	42	1260	25	0	0	48	0	0	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	335	-	285	420	-	300	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	1423	75	44	1326	26	0	0	51	0	0	49

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1352	0	0	1498	0	0	-	-	712	-	-	663
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	264	-	-	223	-	-	0	0	322	0	0	346
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	264	-	-	223	-	-	-	-	322	-	-	346
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	0.8	18.3	17.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	322	264	-	-	223	-	-	346
HCM Lane V/C Ratio	0.157	0.367	-	-	0.198	-	-	0.143
HCM Control Delay (s)	18.3	26.3	-	-	25.1	-	-	17.1
HCM Lane LOS	C	D	-	-	D	-	-	C
HCM 95th %tile Q(veh)	0.5	1.6	-	-	0.7	-	-	0.5

Timings
5: Akers & Constitution

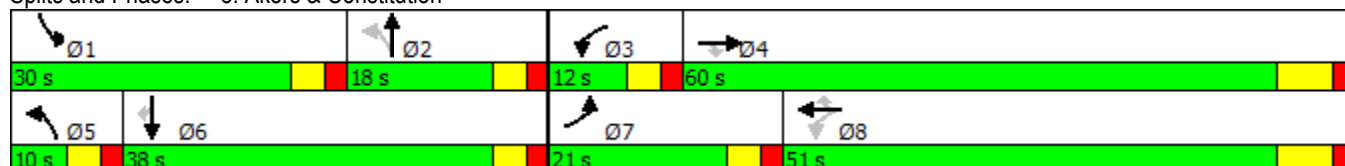
2040 Total Traffic
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	277	1020	123	141	1069	156	128	51	441	33	237	
Future Volume (vph)	277	1020	123	141	1069	156	128	51	441	33	237	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Perm	
Protected Phases	7	4		3	8		5	2	1	6		
Permitted Phases			4	8		8	2				6	
Detector Phase	7	4	4	3	8	8	5	2	1	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	9.0	23.0	23.0	9.0	23.0	23.0	9.0	15.0	9.0	20.0	20.0	
Total Split (s)	21.0	60.0	60.0	12.0	51.0	51.0	10.0	18.0	30.0	38.0	38.0	
Total Split (%)	17.5%	50.0%	50.0%	10.0%	42.5%	42.5%	8.3%	15.0%	25.0%	31.7%	31.7%	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Act Effct Green (s)	13.3	35.7	35.7	38.7	29.5	29.5	16.9	11.7	18.4	25.0	25.0	
Actuated g/C Ratio	0.14	0.37	0.37	0.41	0.31	0.31	0.18	0.12	0.19	0.26	0.26	
v/c Ratio	0.61	0.57	0.19	0.55	0.72	0.26	0.51	0.78	0.70	0.07	0.42	
Control Delay	46.9	25.0	2.7	22.5	32.6	2.9	36.5	42.1	43.6	29.0	7.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	46.9	25.0	2.7	22.5	32.6	2.9	36.5	42.1	43.6	29.0	7.6	
LOS	D	C	A	C	C	A	D	D	D	C	A	
Approach Delay		27.3			28.2			40.0		30.9		
Approach LOS		C			C			D		C		

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 95.5
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 29.5
 Intersection LOS: C
 Intersection Capacity Utilization 72.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 5: Akers & Constitution



Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑	↑						↑
Traffic Vol, veh/h	0	1593	40	0	1229	263	0	0	0	0	0	137
Future Vol, veh/h	0	1593	40	0	1229	263	0	0	0	0	0	137
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	200	-	-	0	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1677	42	0	1294	277	0	0	0	0	0	144

Major/Minor

	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	647
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	355
Stage 1	0	-	-	0	-	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	0	355
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	0	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	0	-

Approach

	EB	WB	SB
HCM Control Delay, s	0	0	21.9
HCM LOS			C

Minor Lane/Major Mvmt

	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	-	355
HCM Lane V/C Ratio	-	-	-	-	0.406
HCM Control Delay (s)	-	-	-	-	21.9
HCM Lane LOS	-	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	-	1.9

Queuing and Blocking Report

Intersection: 2: Hannah Ridge & Constitution

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	L
Maximum Queue (ft)	85	317	279	373	116	261	226	264	257	48	184	152
Average Queue (ft)	28	128	105	145	46	128	71	98	112	15	101	43
95th Queue (ft)	61	277	244	321	93	210	168	208	220	41	163	113
Link Distance (ft)		1111	1111	1111			772	772	772		513	513
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300				300	275				250		
Storage Blk Time (%)		1		1		0	0		0			
Queuing Penalty (veh)		0		3		2	0		0			

Intersection: 2: Hannah Ridge & Constitution

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	280	85	84	64
Average Queue (ft)	129	30	20	18
95th Queue (ft)	235	62	56	44
Link Distance (ft)	513		378	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		75		75
Storage Blk Time (%)		1	0	0
Queuing Penalty (veh)		1	0	0

Markup Summary

dsdrice (6)



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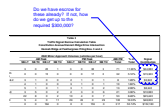


Subject: Callout
Page Label: 9
Lock: Unlocked
Status:
Checkmark: Unchecked
Author: dsdrice
Date: 8/25/2017 1:35:55 PM
Color: ■

Has a decision been made regarding constructing the reach between Shawnee and the trail with Filing 4?

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for ●

Subject: Highlight
Page Label: 10
Lock: Unlocked
Status:
Checkmark: Unchecked
Author: dsdrice
Date: 8/25/2017 1:39:24 PM
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Subject: Cloud+
Page Label: 13
Lock: Unlocked
Status:
Checkmark: Unchecked
Author: dsdrice
Date: 8/25/2017 1:57:34 PM
Color: ■

Do we have escrow for these already? If not, how do we get up to the required \$300,000?



Subject: Cloud+
Page Label: 19
Lock: Unlocked
Status:
Checkmark: Unchecked
Author: dsdrice
Date: 8/25/2017 2:10:18 PM
Color: ■

3 through lanes?