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November 6, 2019

Mr. Dan Romano
COLA, LLC
555 Middle Creek Parkway, Suite 500
Colorado Springs, CO 80921

RE: Trails at Aspen Ridge Filing No. 2 – Traffic Impact and Access Analysis

Dear Mr. Romano:

This letter serves to review the impacts from developing Filing No. 2 of the Trails at Aspen Ridge development as shown in Figure 1. The overall impacts of this development were already analyzed in a traffic impact study prepared by LSC Transportation Consultants, Inc. dated October 15, 2019. The previous study analyzed both Filing No. 1 and the overall PUD area of which Filing No. 2 is a part.

This analysis will determine the incremental traffic increase contributed to the roadway network from Filing No. 2 and will determine if any of the improvements agreed to in the previous TIS will be triggered by the addition of the 98 single-family dwelling units (SFDUs) from Filing No. 2.

Land Use and Access

Land Use

Figure 2 shows the portion of the overall Trails at Aspen Ridge development that makes up Filing No. 2. Filing No. 2 consists of 98 SFDUs and two neighborhood parks that will not generate any traffic on their own. 90 of the SFDUs are located north and east of Legacy Hill Drive and the remaining 8 SFDUs are locate west and south of Legacy Hill Drive along Wagon Hammer Drive south of Falling Rock Drive.

Access

All traffic will access the surrounding roadway network at the Bradley Road/Legacy Hill Drive full-movement intersection in the short-term, but will ultimately be able to access Bradley Road through a right-in/right-out access at Blackmer Street and will be able to access to the east and south as Legacy Hill Drive connects to future development to the east. This analysis will only review the short-term impacts of Filing No. 2 with all traffic bound for the Bradley Road/Legacy Hill Drive intersection.

Roadway and Traffic Conditions

Existing roadway and traffic conditions are as described in the LSC TIS dated October 15, 2019.

Background Traffic

Background traffic conditions are assumed to be the short-term Filing No. 1 traffic conditions from the LSC TIS and shown here in Figure 3. These volumes include the existing volumes as well as traffic generated from Filing No. 1.

Trip Generation

Traffic volumes that will be generated by Filing No. 2 are shown in Table 1.

Table 1 – Trip Generation Estimate

ITE Code	Land Use	Quantity (DUs)	Daily Trips	AM Trips			PM Trips		
				In	Out	Total	In	Out	Total
210	Signle Family Residential	98	1020	19	56	75	63	37	100

Trip generation calculations are based on the Institute of Transportation Engineers (ITE) *Trip Generation* Manual, 10th Edition. All Filing No. 2 trips will access Legacy Hill Drive at one of three intersections; Big Johnson Drive, Sunday Gulch Drive or Moose Meadow Street.

Trip Distribution and Assignment

Traffic will be distributed the same as was shown in the LSC TIS for short-term conditions and is shown in Figure 4. When the Filing No. 2 trips generated in Table 1 are distributed as shown in Figure 4, the resulting Filing No. 2 trip assignment is as shown in Figure 5.

Total Traffic

Figure 6 shows the total traffic that will exist at the completion of Filing No. 2 which consists of existing background traffic, Filing No. 1 traffic and Filing No. 2 traffic. This is the traffic that will be traveling along the roadway network when Filing No. 2 is completed.

Traffic Signal Warrant Analysis

The warrant analysis for the traffic signal at the intersection of Bradley Road and Legacy Hill Drive was completed as part of the Filing No. 1 and PUD traffic study previously prepared. The task of this analysis is to see if the additional traffic from Filing No. 2 will trigger the need for the traffic signal to be constructed. Table 2 shows the traffic signal warrant analysis completed for the incremental traffic increase from Filing No. 2.

Table 2
Trails at Aspen Ridge Filing 2
Traffic Signal Warrant Analysis of Legacy Hill Drive/Bradley Road

Period	2 or More Lanes on Major Approach & 1 Lane on Minor Approach																	
	Traffic Volumes						Warrant 1, Eight Hour Vehicular Volume Evaluation								Warrant 2, Four Hour Vehicular Volume			
	Background[1]		Added by Filing No. 2		Background + Filing No. 2		Warrant Thresholds				Warrant Threshold Met?				Background		Background + Filing 2	
							Condition A 70%		Condition B 70%		Background		Background + Filing 2		Minor Street Minimum		Minor Street Minimum	
Hour	Major[2]	Minor[3]	Major	Minor	Major	Minor	Major	Minor	Major	Minor	A 70%	B 70%	A 70%	B 70%		Met?		Met?
6:00 AM	1069	50	38	31	1107	81	420	105	630	53	No	No	No	Yes	60	No	60	Yes
7:00 AM	1295	72	19	45	1314	117	420	105	630	53	No	Yes	Yes	Yes	60	Yes	60	Yes
8:00 AM	1171	55	41	34	1212	89	420	105	630	53	No	Yes	No	Yes	60	No	60	Yes
9:00 AM	924	44	33	27	957	71	420	105	630	53	No	No	No	Yes	60	No	60	Yes
10:00 AM	943	44	33	27	976	71	420	105	630	53	No	No	No	Yes	60	No	60	Yes
11:00 AM	1109	52	39	32	1148	84	420	105	630	53	No	No	No	Yes	60	No	60	Yes
12:00 PM	879	42	31	25	910	67	420	105	630	53	No	No	No	Yes	60	No	60	Yes
1:00 PM	842	40	30	24	872	64	420	105	630	53	No	No	No	Yes	60	No	60	Yes
2:00 PM	845	40	30	24	875	64	420	105	630	53	No	No	No	Yes	60	No	60	Yes
3:00 PM	1013	48	36	29	1049	77	420	105	630	53	No	No	No	Yes	60	No	60	Yes
4:00 PM	1265	48	69	28	1334	76	420	105	630	53	No	No	No	Yes	60	No	60	Yes
5:00 PM	1304	61	46	37	1350	98	420	105	630	53	No	Yes	No	Yes	60	Yes	60	Yes
6:00 PM	1062	50	38	31	1100	81	420	105	630	53	No	No	No	Yes	60	No	60	Yes
											0	3	1	13		2		13
											No	No	No	Yes		No		Yes

Notes:
(1) Hourly variation based on traffic counts on Powers Blvd
(2) The major street volumes include all (left/through/right) movements on Bradley Road
(3) The minor street volumes includes only the northbound left movement on Legacy Hill Drive

Source: Matrix Design Group

The analysis indicates that both the Eight Hour Vehicular Volume and the Four Hour Vehicular Volume warrants are met with the additional traffic from Filing No. 2. However, this is an estimate using the traffic distribution from Powers Boulevard, a major arterial, and applying it to Legacy Hill Drive which is a collector street. At the completion of Filings 1 and 2, there will only be residential traffic along Legacy Hill Drive. Residential traffic is not distributed as evenly as traffic along a major arterial roadway. We recommend that El Paso County require the incremental fair share towards the traffic signal escrow and wait for actual traffic volumes to determine if warrants for the installation of the traffic signal are met.

The applicant should be required to contribute its incremental fair share towards the traffic signal escrow amount of $350,000. Trails at Aspen Ridge is required to ultimately contribute $99,778.44 towards the $350,000 traffic signal escrow amount. Filing No. 1 already contributed 6.8% of the amount or $23,781.39. Filing No. 2 will constitute an additional 3.6% (12.4% of the development's 28.5% contribution towards the traffic signal escrow amount). This equates to an additional contribution of $12,600.00.

County Road Impact Fee Program

The applicant will be required to participate in the County Road Impact Fee Program. Assuming this development joins the ten-mil PID, the building permit fee portion is $1,221 per single-family dwelling unit. The net fee for the proposed 98 lots in Trails at Aspen Ridge Filing No. 2 will be $119,658.00.

Recommended Improvements

The recommended improvements for the buildout of the Trails at Aspen Ridge development were determined in the previous traffic impact study. This analysis will determine if any of those improvements will be triggered by the addition of Filing No. 2 traffic. Previously required improvements for Trails at Aspen Ridge include the following:

- Full-movement access to Bradley Road at Legacy Hill Drive – will be built with Filing No. 1
- Right-in/right-out access to Bradley Road at Blackmer Drive – will be built with Filing No. 1

- Auxiliary turn lanes along Bradley Road and Legacy Hill Drive – will all be built with Filing No. 1 to their ultimate requirements

Required improvements for Filing No. 2 include:

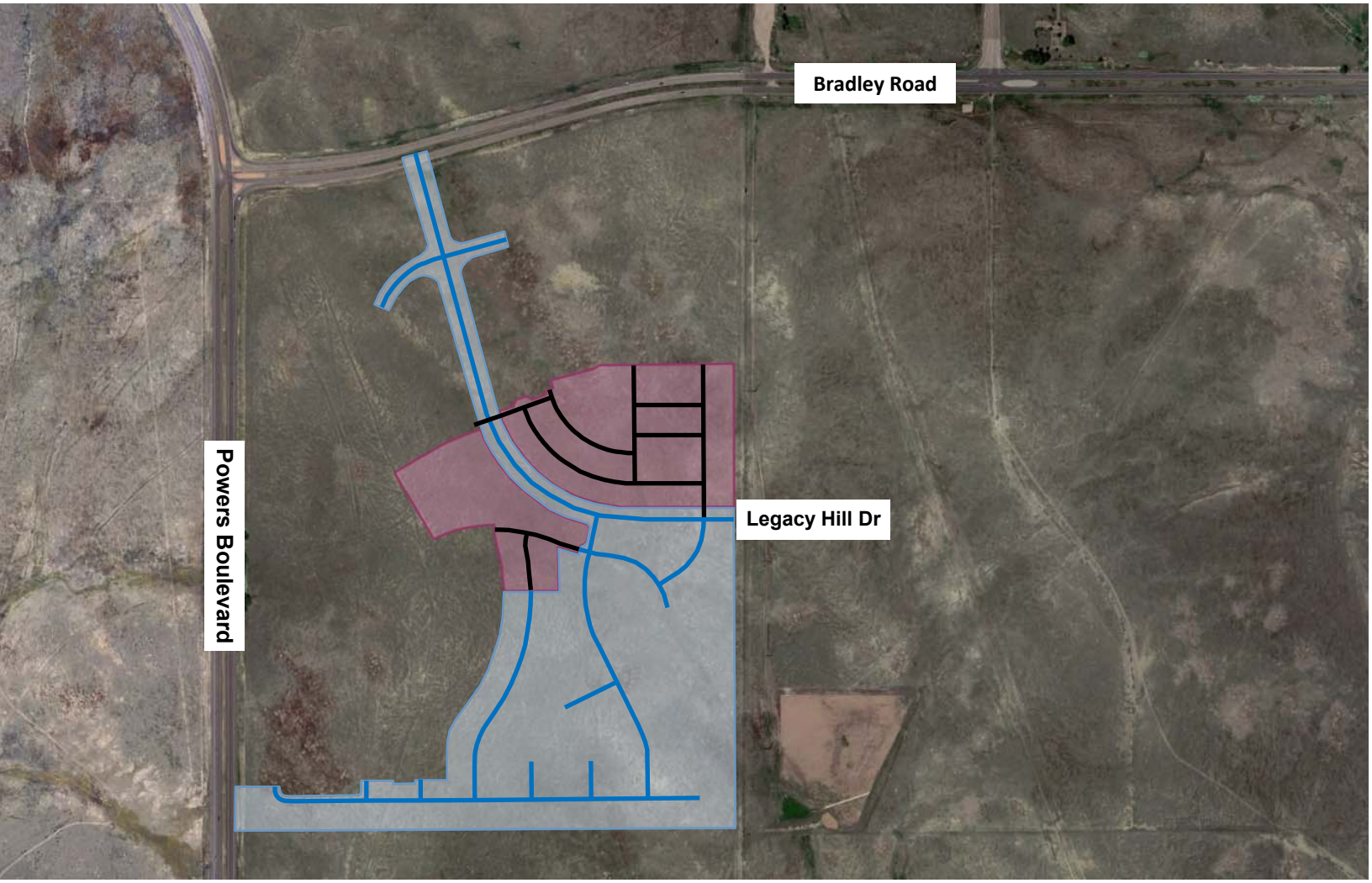
- ***Traffic Signal at Bradley Road/Legacy Hill Drive – contribute $12,600.00 to the traffic signal escrow amount***
- ***The additional Filing No. 2 trips do not trigger any additional roadway geometry improvements identified in the LSC study***

Please contact me if you have any questions regarding this analysis.

Sincerely,

Matrix Design Group, Inc.
Scott D. Barnhart, PE, PTOE
Senior Associate of Transportation Services

Enclosures: Figures 1 - 6



LEGEND

- Filing 2 Boundary
- Filing 2 Roadway
- Filing 1 Boundary
- Filing 1 Roadway

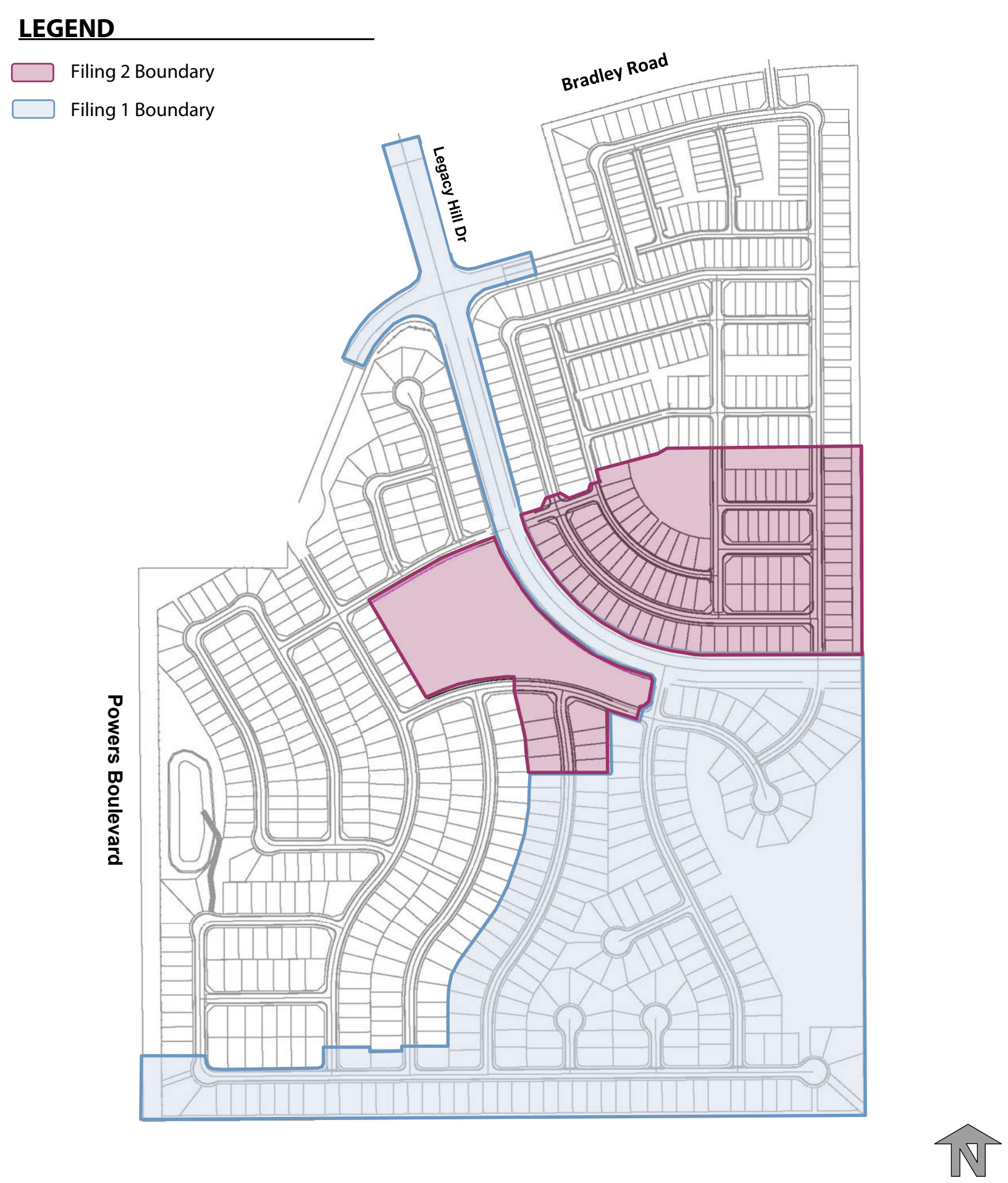
N

TRAILS AT ASPEN RIDGE FILING 2

TRAFFIC IMPACT STUDY

FIGURE 1

Vicinity Map

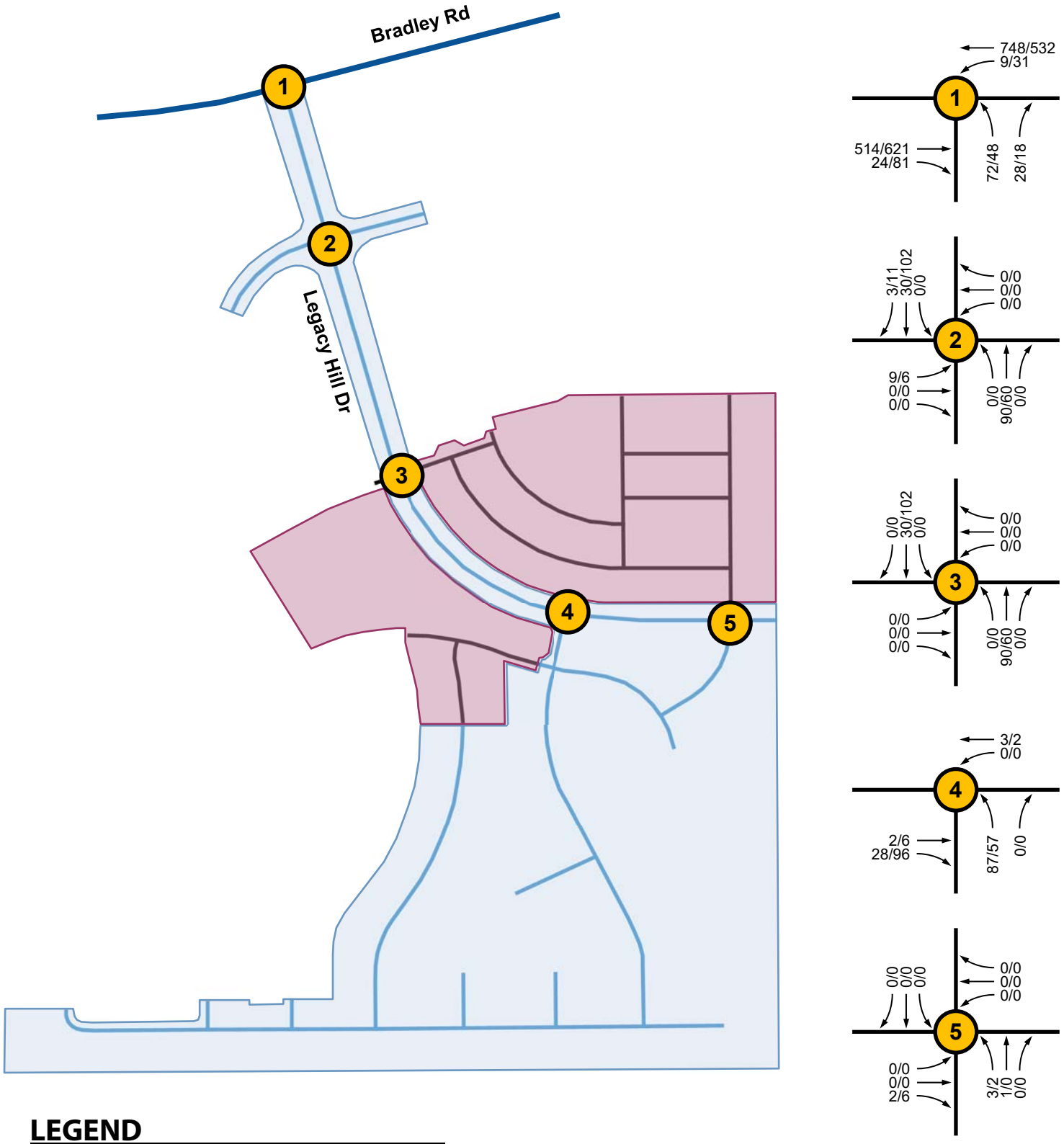


TRAILS AT ASPEN RIDGE
FILING 2

TRAFFIC IMPACT STUDY

FIGURE 2

Site Map



LEGEND

- 1 — Intersection Node
- 999/999 — AM/PM Turning Movement Count
- Filing 2 Boundary
- Filing 1 Boundary

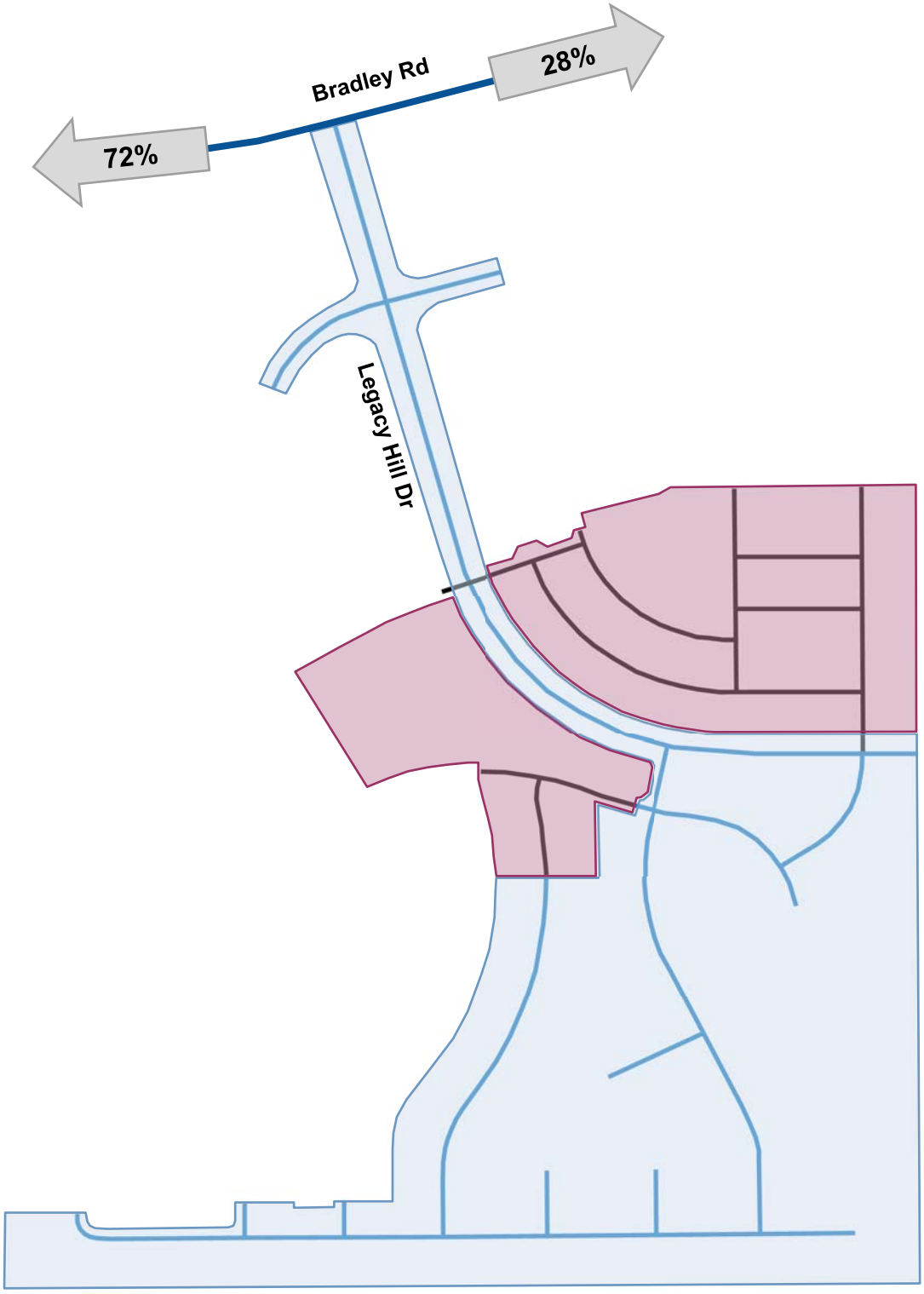
N

TRAILS AT ASPEN RIDGE
FILING 2

TRAFFIC IMPACT STUDY

FIGURE 3

Background Traffic



LEGEND

72% Trip Distribution Percent

Filing 2 Boundary

Filing 1 Boundary

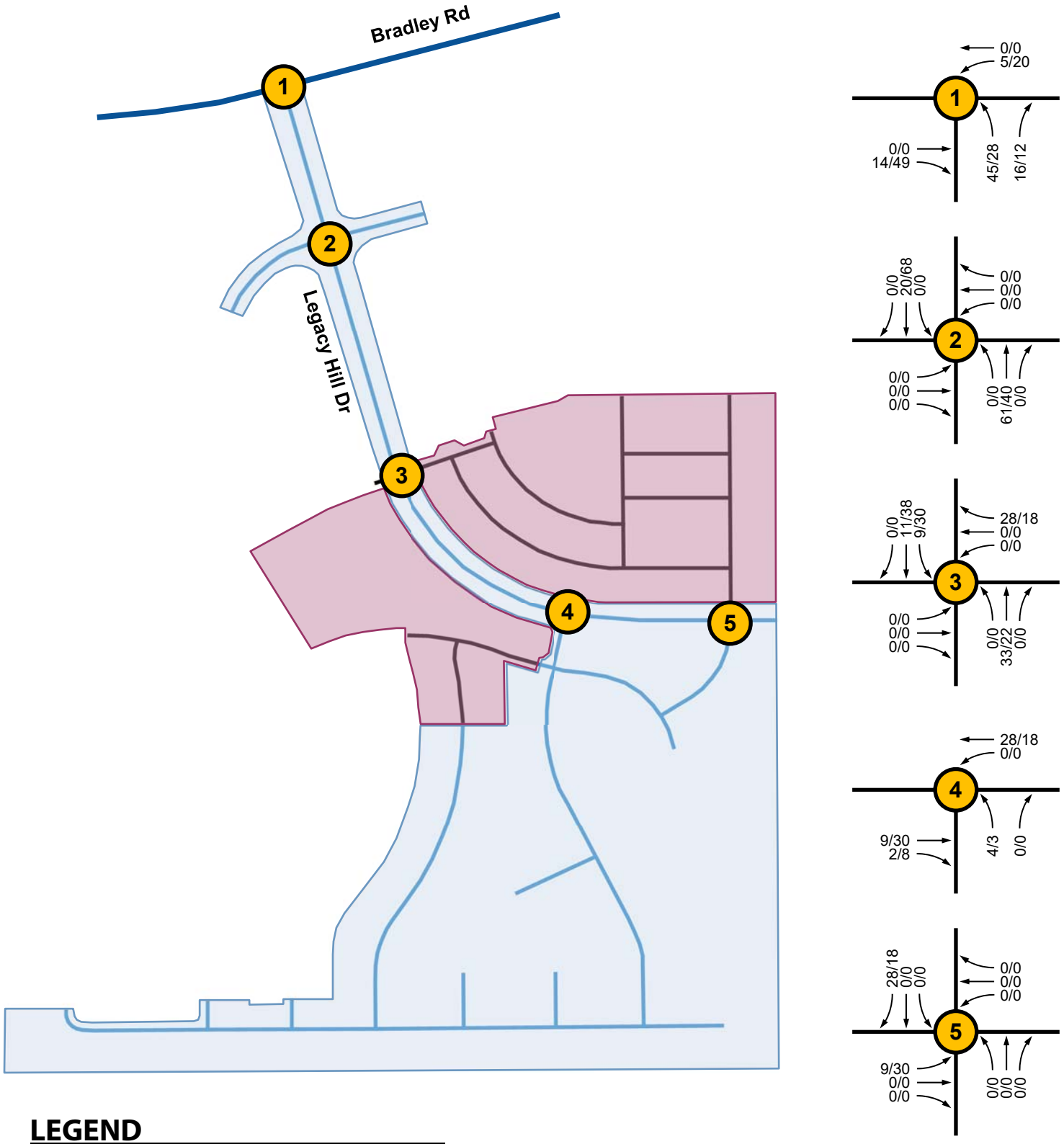
N

TRAILS AT ASPEN RIDGE
FILING 2

TRAFFIC IMPACT STUDY

FIGURE 4

Trip Distribution



LEGEND

- 1 — Intersection Node
- 999/999 — AM/PM Turning Movement Count
- Filing 2 Boundary
- Filing 1 Boundary

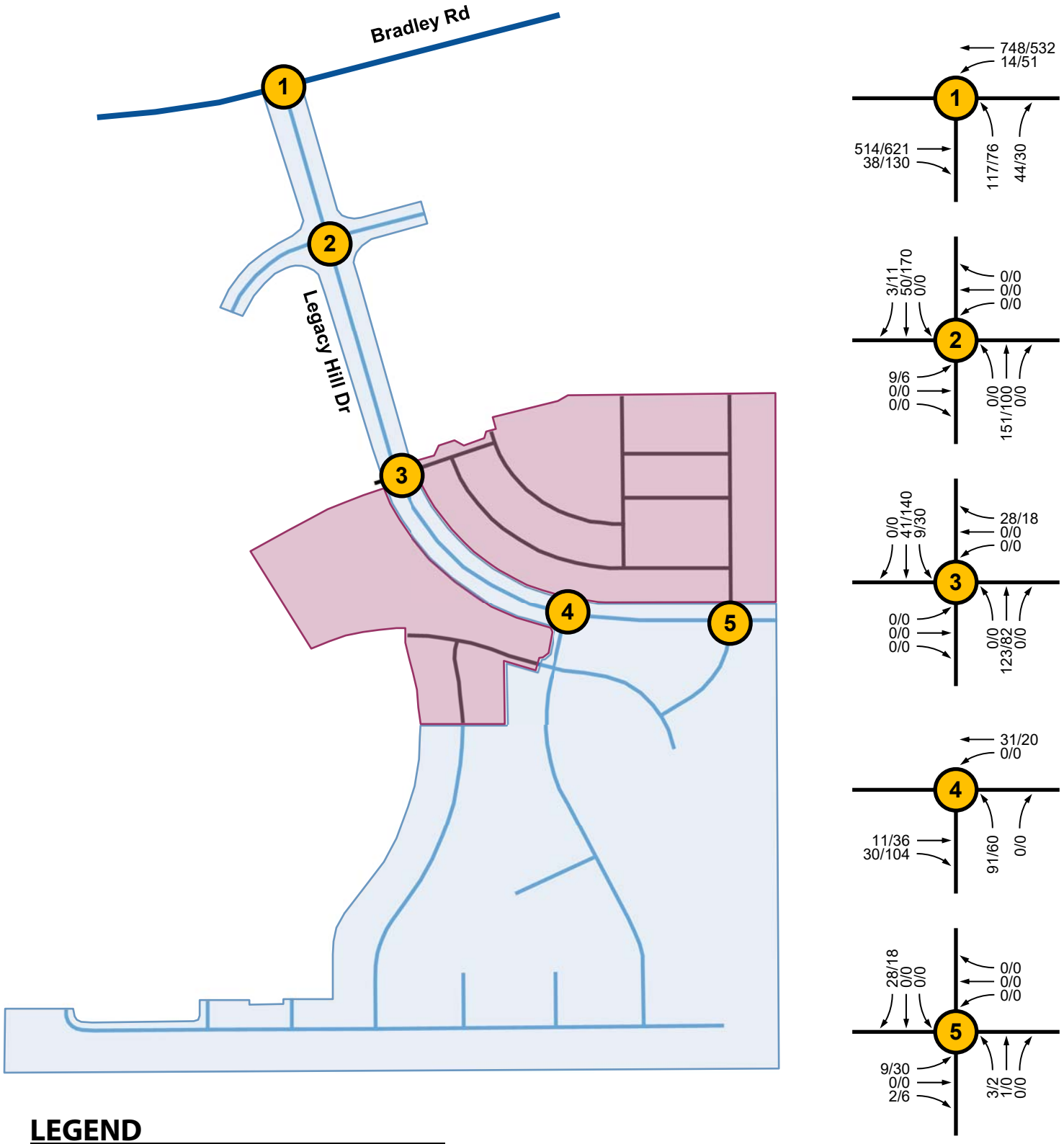
N

TRAILS AT ASPEN RIDGE FILING 2

TRAFFIC IMPACT STUDY

FIGURE 5

Short Term Filing 2 Site Traffic



LEGEND

- 1 — Intersection Node
- 999/999 — AM/PM Turning Movement Count
- Filing 2 Boundary
- Filing 1 Boundary

N

TRAILS AT ASPEN RIDGE FILING 2

TRAFFIC IMPACT STUDY

FIGURE 6

Short Term Filing 2 Total Traffic

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Trails at Aspen Ridge Filing No. 1
Traffic Impact and Access Analysis
PCD#: SF-192
(LSC #184362)
October 15, 2019

Traffic Engineer's Statement

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

Developer's Statement

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

10.16.19
Date

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October 15, 2019

Mr. Dan Romano
COLA, LLC
555 Middle Creek Parkway, Suite 500
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RE: Trails at Aspen Ridge Filing No. 1
Updated Traffic Impact and Access Analysis
El Paso County, Colorado
PCD#: SF-192
LSC #184362

Dear Mr. Romano,

In response to your request, LSC Transportation Consultants, Inc. has prepared this updated traffic impact and access analysis for The Trails at Aspen Ridge Filing No. 1. As shown in Figure 1, the site is located southeast of the intersection of Powers Boulevard and Bradley Road in El Paso County, Colorado. This parcel was included in *The Springs at Waterview East Preliminary Plan Traffic Impact and Access Analysis* dated June 22, 2018 (Revised August 24, 2018). This report contains the following:

- A determination of the existing traffic and roadway conditions in the vicinity of the site including the lane geometries and traffic controls
- The projected average weekday and peak-hour vehicle-trips to be generated by the Trails at Aspen Ridge
- The assignment of the projected trips on the area roadways
- Projections of the future background and resulting total traffic volumes on the area roadways
- Level of service analysis at key intersections adjacent to and in the vicinity of the site
- Recommendations for intersection laneage and traffic control
- Recommendations for street functional classifications for streets within the Trails at Aspen Ridge
- The required Countywide Road Impact Fees

LAND USE AND ACCESS

Land Use

Currently Proposed

Figure 2 shows the proposed site plan for both The Trails at Aspen Ridge Filing No. 1 and the Trails at Aspen Ridge PUD plan. The Trails at Aspen Ridge Filing No. 1 located in the southeast corner of the Springs at Waterview East Preliminary Plan area includes 181 lots for single-family homes. The Trails at Aspen Ridge PUD includes all of the remaining portions of the planned residential area within the Springs at Waterview East Preliminary Plan Area. The PUD includes 605 lots for single-family homes.

Based on the currently proposed plans for Filing No. 1 and the PUD plan, the total number of lots for single family homes located within the residential portion of the Springs at Waterview East Preliminary Plan Area is 786. This is about 72 more homes than assumed in *The Springs at Waterview East Preliminary Plan Traffic Impact and Access Analysis* dated June 22, 2018 (Revised August 24, 2018).

The future commercial parcels located in the northwest corner of the Springs at Waterview East Preliminary Plan area are not included in the PUD. This report assumes these lots will be developed with commercial uses as shown in *The Springs at Waterview East Preliminary Plan Traffic Impact and Access Analysis* dated June 22, 2018 (Revised August 24, 2018).

Access

Access to Bradley Road is proposed via a full-movement intersection 1,030 feet east of Powers Boulevard and an additional right-in/right-out-only access about 1,310 feet east of the full-movement access. These access points are consistent with the access assumed in the *The Springs at Waterview East Preliminary Plan Traffic Impact and Access Analysis* dated June 22, 2018 (Revised August 24, 2018) and deviations to the El Paso County *Engineering Criteria Manual (ECM)* for these access points have been approved.

Internal access for the proposed land uses within the site are proposed to a north/south Non-Residential Urban Collector (Legacy Hill Drive) and an east/west Non-Residential Urban Collector (Frontside Drive).

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

Figure 1 shows the roadways in the vicinity of the two sites. The major roadways are identified below, followed by a brief description.

- **Powers Boulevard** (State Highway 21) is classified as a Freeway (FW). Powers Boulevard is one of the region's main north/south corridors. Powers Boulevard has a center median and a posted speed limit of 60 miles per hour (mph) north of Crestera Parkway. South of this point

the posted speed limit is 65 mph. Powers Boulevard is ultimately planned to be converted to a Freeway with grade-separated intersections.

- **Bradley Road** is shown with a Minor Arterial classification east of Grinnell Boulevard on the 2016 update to the DRAFT 2040 El Paso County *Major Transportation Corridors Plan (MTCP)*. Adjacent to the site, Bradley Road is a four-lane roadway with a 50-mph posted speed limit and has an edge-of-asphalt median, left-turn lanes, and rural paved shoulders. There is a short existing section of raised median approaching Powers Boulevard.

- **Marksheffel Road** extends north from the Link Road/C&S Road intersection in Fountain, Colorado to north of Woodmen Road. It has recently been upgraded north and south of Bradley with a PPRTA project and is shown as a four-lane Expressway on the El Paso County Major Transportation Corridors Plan (MTCP). The posted speed limit on Marksheffel Road in the vicinity of Bradley Road is 55 mph.

Existing Traffic Conditions

Figure 3 shows the existing traffic volumes at the intersections of Powers Boulevard/Bradley Road and Marksheffel Road/Bradley Road. The traffic volumes are based on the attached traffic counts conducted by LSC in April and October 2018. Figure 5 also shows the 2018 Colorado Department of Transportation (CDOT) Average Annual Daily Traffic Volume (AADT) on Powers Boulevard and estimates of the average daily traffic volume on Bradley Road based on the peak-hour traffic counts assuming the afternoon peak hour represents 10 percent of the daily traffic volume. This ratio was based on the Colorado Department of Transportation 30th highest annual hourly traffic volume reported as percentage of average annual daily traffic volumes for Powers Boulevard adjacent to the site. Figure 3 also shows the daily traffic volume on Bradley Road shown in the El Paso County *2016 Major Transportation Corridors Plan Update*.

Existing Levels of Service

Level of service (LOS) is a quantitative measure of the level of congestion or 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.

The signalized intersections of Powers/Bradley and Marksheffel/Bradley have been analyzed to determine the existing levels of service using Synchro. All movements at these intersections are currently operating at LOS D or better during the peak hours.

Table 1 Intersection Levels of Service Delay Ranges		
	Signalized Intersections	**Unsignalized Intersections**
Level of Service	**Average Control Delay (seconds per vehicle)**	**Average Control Delay (seconds per vehicle)[(1)]**
A	10.0 sec or less	10.0 sec or less
B	10.1-20.0 sec	10.1-15.0 sec
C	20.1-35.0 sec	15.1-25.0 sec
D	35.1-55.0 sec	25.1-35.0 sec
E	55.1-80.0 sec	35.1-50.0 sec
F	80.1 sec or more	50.1 sec or more

(1) For unsignalized intersections if V/C ratio is greater than 1.0 the level of service is LOS F regardless of the projected average control delay per vehicle.

BACKGROUND TRAFFIC

Background traffic is the traffic estimated to be on the roadways without the Trails at Aspen Ridge Filing No. 1 and the Trails at Aspen Ridge PUD traffic. The background traffic volumes for the year 2040 are shown on Figure 4. The 2040 background traffic volumes were based on *The Springs at Waterview East Preliminary Plan Traffic Impact and Access Analysis* dated June 22, 2018 (Revised August 24, 2018). The 2040 background traffic volumes assume buildout of the commercial lots located in the northwest corner of the Springs at Waterview East Preliminary Plan area. The 2040 background traffic volumes also assume the area north of Bradley Road developed with about 600 residential dwelling units and 55 acres of commercial/light industrial uses. Appendix Table 1 shows the trip generation estimates for all future land uses assumed to be built out in these areas by 2040.

TRIP GENERATION

The traffic volumes to be generated by the land uses within the currently proposed Trails at Aspen Ridge Filing No. 1 and the Trails at Aspen Ridge PUD plan have been estimated using the nationally published trip generation rates from *Trip Generation, 10th Edition*, by the Institute of Transportation Engineers (ITE). Table 2 shows the average weekday and weekday morning and afternoon peak hour. Table 2 also shows the trip generation estimate for this same area assumed in the August 2018 Preliminary Plan TIS for comparison.

The Trails at Aspen Ridge Filing No. 1 is projected to generate about 1,709 new external 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 a.m. and 8:30 a.m., about 33 vehicles would enter and 100 vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 p.m. and 6:15 p.m., about 113 vehicles would enter and 66 vehicles would exit the site.

The Trails at Aspen Ridge PUD is projected to generate about 5,711 new external 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 112 vehicles would enter and 336 vehicles would exit the site. During the afternoon peak hour, about 377 vehicles would enter and 222 vehicles would exit the site.

TRIP DISTRIBUTION AND ASSIGNMENT

The directional distribution of the site-generated traffic volumes on the adjacent roadway system is one of the most important factors in determining the traffic impacts of the site. Figure 5 shows the short-term and long-term directional distributions of traffic projected to be generated by the residential uses. The short-term directional distribution estimates were based on the existing area roadway system and the traffic counts. The long-term directional distribution estimates were based on the anticipated regional development and future roadway networks including the construction of Bradley Road between Grinnell Street and Powers Boulevard and a future north/south connection between Bradley Road and Fontaine Boulevard through the Bradley Heights development located east of the site. Please see the attached exhibit taken from the City of Colorado Springs Major Thoroughfare Plan that shows north/street connection.

This distribution was estimated with a focus on peak-hour trip assignment as the intersection analysis is based on peak-hour volumes.

- The distribution percentages to/from the east accounts for:
    - Some longer trip lengths by commuters;
    - The proximity of this development to Marksheffel Road;
    - Anticipated use of Marksheffel Road north as a viable alternative to Powers to/from many destinations east of and within the Powers Boulevard corridor. Powers Boulevard intersections experience congestion during peak hours. Marksheffel has recently been upgraded north and south of Bradley with a PPRTA project, which has increased its attractiveness as a north/south travel route;
    - Bradley to/from the east being the route to Schriever AFB and the improved east gate of Peterson AFB;
    - Development occurring in the Marksheffel corridor, and over time, the number of trip destinations continuing to increase.

- The distribution percentages to/from the Bradley Heights connection account for:
    - Planned alternative street connections within Bradley Heights to Bradley Road and Marksheffel Road (south);
    - Future trip destinations within Bradley Heights;
    - The school, and some potential future commercial within Lorson Ranch to the southeast;
    - The long-term distribution split accounts for a north-south road connection between Bradley Heights and Fontaine Boulevard as shown on the Banning Lewis

Master Plan and the City of Colorado Springs Intermodal Transportation Plan. This includes trips oriented **to** the south and southeast. The distribution split is directional to reflect the potential for a higher percentage of residents to travel **to** the site using Powers Boulevard (followed by two right turning movements-northbound to westbound onto Bradley Road and eastbound to southbound into the site). The split reflects a higher percentage of residents exiting to the south using this potential future road connection than entering because for some residents within the development (especially the southern half) it may be faster than traveling north to Bradley and making two left turns (northbound to westbound at Legacy Hill/Bradley then westbound to southbound at Powers/Bradley) to travel south on Powers from Bradley Road.

- The percentages to/from the south on Powers accounts for trips from the south and southeast paired with destinations primarily in Fountain and Fort Carson as well as the south connection to Interstate 25.
- The percentages to/from the north on Powers primarily accounts for trips using Milton Proby Parkway and the Powers Boulevard corridor for travel.

When the distribution percentages (from Figure 5) are applied to the trip generation estimates (from Table 2), the resulting site-generated traffic volumes can be determined. Figures 6 and 7 show the projected short-term and long-term site-generated traffic volume due to The Trails at Aspen Ridge Filing 1 only. Figures 8 and 9 show the projected short-term and long-term site-generated traffic volumes due to The Trails at Aspen Ridge PUD only.

TOTAL TRAFFIC

Figure 10 shows the sum of the existing traffic volumes from Figure 3 plus the short-term site-generated traffic volumes due to the Trails at Aspen Ridge Filing No. 1 from Figure 6.

Figure 11 shows the sum of the existing traffic volumes from Figure 3, the short-term site-generated traffic volumes due to the Trails at Aspen Ridge Filing No. 1 from Figure 6, and the short-term site-generated traffic volumes due to the Trails at Aspen Ridge PUD from Figure 8.

Figure 12 shows the sum of the 2040 background traffic volumes from Figure 4, the long-term site-generated traffic volumes due to Trails at Aspen Ridge Filing No. 1 from Figure 7, and the long-term site-generated traffic volumes due to the Trails at Aspen Ridge PUD from Figure 9. These volumes assume buildout of the Springs at Waterview East Preliminary Plan including the commercial parcels located in the southeast of Powers Boulevard and Bradley Road.

PROJECTED LEVELS OF SERVICE

The key area intersections have been analyzed to determine the projected levels of service for the short-term and 2040 background and short-term and 2040 total traffic volumes, based on the signalized and unsignalized method of analysis procedures found in Synchro and the *Highway*

Capacity Manual, 6th Edition by the Transportation Research Board. Figures 4, 5, 9, and 10 show the level of service analysis results. The level of service reports are attached.

Powers/Bradley

The intersection of Powers/Bradley is currently signalized and is operating at a satisfactory level of service. All movements at this intersection are projected to operate at LOS D or better during the peak hours based on the short-term total traffic volumes. By 2040 it was assumed that the section of Bradley Road between Goldfield Drive and Powers Boulevard would be constructed. Based on the 2040 total traffic volumes shown and the lane geometry shown in Figure 10, the intersection is projected to operate at an overall LOS D during peak hour, however, some of the minor movements are projected to operate at LOS E or F during the peak hours. It is common for left-turn and side-street through movements to have projected delays in the LOS E or F range as signal coordination timing plans generally give priority to moving through traffic. This often results in higher delay for left-turn and side-street movements and can result in movement/ approach delays in the E or F range even though they are projected to have sufficient capacity for the projected traffic volumes. Note: This intersection is planned to be converted to a grade-separated interchange in the long-term future. Figure 13 shows the projected level of service if this occurs by 2040. As shown on Figure 13 all movements are projected to operate at LOS D or better during the peak hours.

Legacy Hill/Bradley

The northbound left-turn movement at the intersection of Bradley Road/Legacy Hill Drive is projected to operate at LOS F during the peak hours if this intersection is two-way stop sign controlled. If this intersection is signalized, all movements are projected to operate at LOS D or better during the peak hours based on the existing traffic plus Filing No. 1 only generated traffic volumes and the existing traffic plus Filing No. 1 and the PUD generated traffic volumes. By 2040 some of the minor movements are projected to operate at LOS E during the peak hours.

Blackmer/Bradley

All movements at the right-in/right-out intersection of Bradley Road and Blackmer Street are projected to operate at LOS B or better during the peak hours based on the projected existing traffic plus Filing No. 1 only generated traffic volumes, the existing traffic plus Filing No. 1 and the PUD generated traffic volumes and 2040 total traffic volumes.

Marksheffel/Bradley

The intersection of Powers/Bradley is currently signalized and is operating at a satisfactory level of service. All movements at this intersection are projected to operate at LOS D or better during the peak hours based on the short-term total traffic volumes. By 2040 the eastbound left-turn movement is projected to operate at LOS E during the peak hours.

Legacy Hill/Frontside

The intersection of the north/south Non-Residential Urban Collector (Legacy Hill Drive) and the east/west Non-Residential Urban Collector (Frontside Drive) is planned to be constructed as a modern one-lane roundabout as part of The Trails at Aspen Ridge Filing No 1. All movements at this intersection are projected to operate at LOS A during the peak hours based on the projected existing traffic plus Filing No. 1 only generated traffic volumes, the existing traffic plus Filing No. 1 and the PUD generated traffic volumes and 2040 total traffic volumes.

Other Legacy Hill Drive Intersections

All movements at the intersections of Legacy Hill Drive/Moose Meadows Street, Legacy Hill Drive/Sunday Gulch Drive and Legacy Hill Drive/Big Johnson Drive are projected to operate at LOS B or better for all movements during the peak hours as stop-sign-controlled intersections based on the projected the existing traffic plus Filing No. 1 and the PUD generated traffic volumes and 2040 total traffic volumes.

TRAFFIC SIGNAL WARRANT ANALYSIS

The intersection of Bradley Road and Legacy Hill Drive was analyzed to determine when either an Eight-Hour or a Four-Hour Vehicular Volume Traffic Signal Warrant would be met or be close to being met.

Table 3 shows that a Four-Hour Vehicular Volume Traffic Signal Warrant is projected to be met once about 242 dwelling units are developed (180 dwelling units in Filing 1 plus 62 dwelling units in the PUD). The satisfaction of warrants does not indicate that a signal must be installed. The decision to require a signal to be installed at this location rests with the County.

Details of the Analysis

The lower threshold volume for an Eight-Hour Vehicular Volume Traffic Signal Warrant for Condition B - Interruption of Continuous Traffic for a major street with two or more lanes and a posted speed limit greater than 40 mph and a minor street approach with one lane is 53 vehicles per hour. This lower threshold is applicable when the major street volumes (northbound and southbound left, through, and right movements) exceeds 630 vehicles per hour. The lower threshold volume for a Four-Hour Vehicular Volume Traffic Signal Warrant for a major street with two or more lanes and a posted speed limit greater than 40 mph and a minor street approach with one lane is 60 vehicles per hour. This lower threshold is applicable when the major street volumes (northbound and southbound left, through, and right movements) exceeds 1,000 vehicles per hour. The existing through volumes on Bradley Road adjacent to the site currently exceeds 1,000 vehicles per hour during both the morning and afternoon peak hours.

Detailed analyses are presented in Table 3. The off-peak through volumes on Bradley Road were estimated based on 24-hour counts conducted by CDOT on Powers Boulevard just south of Bradley Road. The off-peak volumes on Legacy Hill Drive were based on the short-term site-

generated traffic volumes for The Trails at Aspen Ridge Filing 1 shown in Figure 6 and the short-term site-generated traffic volumes for the Trails at Aspen Ridge PUD shown in Figure 8 and the hourly variation data published by the Institute of Transportation Engineers in August 2018.

ROADWAY CLASSIFICATIONS

Figure 14 shows the recommended street classification for all streets within the Trails at Aspen Ridge Filing No. 1 and the Trails at Aspen Ridge PUD based on the projected 2040 weekday traffic volumes.

COUNTY ROAD IMPACT FEE PROGRAM

The applicant will be required to participate in the County Road Impact Fee Program. Assuming this development joins the ten-mil PID, the building permit fee portion is $1,221 per single-family dwelling unit. The net fee for the proposed 181 lots in the Trails at Aspen Ridge Filing No. 1 would be $221,001. The net fee for the proposed 605 lots in the Trails at Aspen Ridge PUD plan would be $738,705.

TRAFFIC SIGNAL ESCROW PERCENTAGES/AMOUNTS

Table 4 presents an escrow analysis based on the currently anticipated number of dwelling units. As shown in Table 4, a fair share contribution for the 180 dwelling units proposed for Filing No. 1 is $23,781.39. The table also included estimated fair share percentages for the balance of the PUD area, the commercial area and future development north of Bradley Road (estimates only and subject to change).

CDOT ACCESS PERMIT

CDOT has indicated that a Colorado State Highway Access Permit will be required. The permittee will likely be El Paso County. The applicant may be the Waterview II Metro District (rather than the Trails at Aspen Ridge developer).

RECOMMENDED IMPROVEMENTS

- The Springs at Waterview East Preliminary Plan TIS dated *June 22, 2018* ***(revised August 24, 2018)*** presented a summary of needed improvements. This table has been updated to indicate if the need for each improvement is projected to be triggered with the Trails at Aspen Ridge Filing No. 1 and the PUD. The updated table has been included as Table 5 in this report. All recommendations for the turn lane lengths shown in the Preliminary Plan TIS are still applicable. Signing and striping plans prepared by Matrix Design Group have been attached for reference. LSC does not anticipate any safety concerns with implementing the recommended improvements prior to the volume triggers being met. Recommendations for additional auxiliary turn lanes needed on Legacy Hill Drive not identified in the Preliminary Plan TIS are provided below.

- Based on the 2040 total traffic volumes and the criteria contained in the *El Paso County Engineering Criteria Manual* (ECM) left-turn lanes would be required on Legacy Hill Drive approaching Moose Meadows Drive. The northbound left-turn lane should be 205 feet long plus a 160-foot taper. The southbound left-turn lane should be 210 feet long plus a 160-foot taper.

- Based on the 2040 total traffic volumes and the criteria contained in the *El Paso County Engineering Criteria Manual* (ECM) left-turn lanes would be required on Legacy Hill Drive approaching Sunday Gulch Drive and Big Johnson Drive. Based on the criteria contained in the ECM these lanes should be 155 feet plus a 160 foot-taper plus storage. As the proposed spacing between these two intersections is about 450 feet, LSC recommends Legacy Hill Drive be striped with a striped, center, two-way left-turn lane (TWLTL) between these two intersections.

- Based on the 2040 total traffic volumes and the criteria contained in the *El Paso County Engineering Criteria Manual* (ECM) southbound right-turn deceleration lanes would be required on Legacy Hill Drive approaching Moose Meadows Drive and Sunday Gulch Drive. A southbound right-turn deceleration lane would not be required approaching Big Johnson Drive. Northbound right-turn deceleration lanes would not be required on Legacy Hill Drive. The required southbound right-turn deceleration lanes should be 155 feet long plus a 160-foot taper.

* * * * * *

Please contact me if you have any questions regarding this report.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

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

JCH:KDF:jas

Enclosures: Tables 2-5
Figures 1-14
Traffic Count Reports
Level of Service Reports
Signing and Striping Plans prepared by Matrix Design Group
Appendix Table

Tables and Figures

TRANSPORTATION
CONSULTANTS, INC.

Table 2
Trip Generation Estimate
Trails at Aspen Ridge Filing 1 & PUD

Land Use Code	Land Use Description	Trip Generation Units	Trip Generation Rates [1] Average Weekday Traffic	Morning Peak-Hour In	Morning Peak-Hour Out	Afternoon Peak-Hour In	Afternoon Peak-Hour Out	Total Future Trips Generated Average Weekday Traffic	Morning Peak-Hour In	Morning Peak-Hour Out	Afternoon Peak-Hour In	Afternoon Peak-Hour Out
Trails at Aspen Ridge Filing 1												
210	Single-Family Detached Housing	181 DU	9.44	0.19	0.56	0.62	0.37	1,709	33	100	113	66
Trails at Aspen Ridge PUD												
210	Single-Family Detached Housing	605 DU[2]	9.44	0.19	0.56	0.62	0.37	5,711	112	336	377	222
	Total	**786 DU**						**7420**	**145**	**436**	**490**	**288**

Notes:

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

(2) DU = dwelling unit

Source: LSC Transportation Consultants, Inc.

Table 3
Trails at Aspen Ridge Filing 1 & PUD
Traffic Signal Warrant Analysis of Legacy Hill Drive/Bradley Road

Period	2 or More Lanes on Major Approach & 1 Lane on Minor Approach																											
	Traffic Volumes														Warrant 1, Eight Hour Vehicular Volume Evaluation										Warrant 2, Four Hour Vehicular Volume Evaluation					
															Warrant Thresholds				Warrant Threshold Met?											
															Condition A 70%		Condition B 70%		Existing + Fil No. 1		Existing + 242 DUs		Existing + Buildout of Filing 1 and the PUD		Existing + Filing No. 1		Existing + 242 DUs		Existing + Buildout of Filing 1 and the PUD	
	Existing [1]		Added by Buildout of Filing No. 1 (180 DUs[4])		Added by 62 DUs in the PUD		Added by Remaining DUs in the PUD (543 DUs)		Existing + Buildout of Filing No. 1		Existing + 242 DUs (180 DUs in Filing 1 + 62 DUs in the PUD)		Existing + Buildout of Filing 1 and the PUD												Minor Street Minimum	Met?	Minor Street Minimum	Met?	Minor Street Minimum	Met?
Hour	Major[2]	Minor[3]	Major	Minor	Major	Minor	Major	Minor	Major	Minor	Major	Minor	Major	Minor	Major	Minor	Major	Minor	A 70%	B 70%	A 70%	B 70%	A 70%	B 70%						
6:00 AM	1002	0	14	36	5	12	41	109	1016	36	1021	48	1062	157	420	105	630	53	No	No	No	No	Yes	Yes	60	No	60	No	60	Yes
7:00 AM	1237	0	33	72	9	22	78	185	1270	72	1279	94	1357	279	420	105	630	53	No	Yes	No	Yes	Yes	Yes	60	Yes	60	Yes	60	Yes
8:00 AM	1098	0	31	53	11	18	95	159	1129	53	1140	71	1235	230	420	105	630	53	No	No	No	Yes	Yes	Yes	60	No	60	Yes	60	Yes
9:00 AM	866	0	27	33	9	11	82	100	893	33	902	44	984	144	420	105	630	53	No	No	No	No	Yes	Yes	66	No	65	No	61	Yes
10:00 AM	884	0	36	33	12	11	108	100	920	33	932	44	1040	144	420	105	630	53	No	No	No	No	Yes	Yes	64	No	63	No	60	Yes
11:00 AM	1039	0	46	31	16	11	138	94	1085	31	1101	42	1239	136	420	105	630	53	No	No	No	No	Yes	Yes	60	No	60	No	60	Yes
12:00 Noon	824	0	47	34	16	12	141	103	871	34	887	46	1028	149	420	105	630	53	No	No	No	No	Yes	Yes	69	No	67	No	60	Yes
1:00 PM	789	0	51	36	18	12	154	109	840	36	858	48	1012	157	420	105	630	53	No	No	No	No	Yes	Yes	74	No	71	No	60	Yes
2:00 PM	792	0	60	38	21	13	179	114	852	38	873	51	1052	165	420	105	630	53	No	No	No	No	Yes	Yes	72	No	69	No	60	Yes
3:00 PM	949	0	72	37	25	13	218	111	1021	37	1046	50	1264	161	420	105	630	53	No	No	No	No	Yes	Yes	60	No	60	No	60	Yes
4:00 PM	1165	0	112	48	31	16	264	121	1277	48	1308	64	1572	185	420	105	630	53	No	No	No	Yes	Yes	Yes	60	No	60	Yes	60	Yes
5:00 PM	1222	0	88	45	30	16	264	137	1310	45	1340	61	1604	198	420	105	630	53	No	No	No	Yes	Yes	Yes	60	No	60	Yes	60	Yes
6:00 PM	995	0	73	36	25	12	220	109	1068	36	1093	48	1313	157	420	105	630	53	No	No	No	No	Yes	Yes	60	No	60	No	60	Yes
																			0	1	0	4	13	13		1		4		13
																			No	No	No	No	Yes	Yes		No		Yes		Yes

Notes:

(1) Hourly variation based on traffic counts on Powers Boulevard south of Bradley Road

(2) The major street volumes include all (left/through/right) movements on Bradley Rd

(3) The minor street volumes includes only the northbound left movement on Legacy Hills Drive

(4) DU = Dwelling Unit

Source: LSC Transportation Consultants, Inc.

Table 4
Legacy Hill Drive and Bradley Road Signal Escrow Analysis
Trails Aspen Ridge Filing No. 1

Development	Minor Approach Volume[(1)] AM	Minor Approach Volume[(1)] PM	Fair Share	Signal Escrow Amounts Escrow of $350,000
Based on Projected 2040 Total Traffic Volumes				
Trails at Aspen Ridge Fil No. 1	55	37	6.8%	$23,781.39
Trails at Aspen Ridge PUD	176	118	21.7%	$75,997.05
Springs at Waterview East Commercial	60	231	21.5%	$75,221.57
Waterview North of Bradley Road	220	457	50.0%	$175,000.00
				$350,000

Notes:

Minor approach volume includes all northbound left-turn and through movements plus 25% of northbound right-turn movements and all southbound left-turn and through movements plus the portion of the southbound right-turn movements anticipated to ultimately travel south on Powers Boulevard

Source: LSC Transportation Consultants, Inc. 10/15/2019

Table 5
Improvements Table
Trails at Aspen Ridge
Filing No. 1 and PUD Plan

Improvement	Timing /"Trigger Point(s)"	Required Length	Proposed Length	Projected To Be Triggered With Trails at Aspen Ridge Filing No. 1?	Projected To Be Triggered With Trails at Aspen Ridge PUD?	Responsibility[1]
Access Points to Bradley Road (Future Public Street Intersections)						
Full-movement access to Bradley Road 1,030 feet east of Powers Boulevard (Legacy Hill Drive)	With development of either the Trails at Aspen Ridge residential development or commercial portion of the Springs at Waterview East.	- - -	- - -	**Yes**	**Yes**	Applicant
Right-in/right-out access 1,300 feet east of Legacy Hill Drive	This access would be constructed with the adjacent portion of the residential subdivision or it may be required to provide a second access if a connection east to Bradley Heights (City development) is not available.	- - -	- - -	No - Not from a traffic capacity standpoint. It may be needed as a second access per the LDC.	**Yes**	Applicant
Traffic Signals						
Traffic Signal Escrow (Bradley/Legacy Hill Drive) - Prorated escrow amount with each final plat toward the residential PUD's fair share portion of the **future** traffic signal at Bradley Road/Legacy Hill Drive.	Per EPC comments: "Each final plat shall deposit into an escrow account its fair share contribution toward the construction of a traffic signal at the intersection of Bradley Road / "A" Street. FYI: "A" Street is now identified as Legacy [Hill] Drive in the final plat. Provide the prorated escrow amount for the Legacy [Hill]/Bradley signal and the Powers/Bradley existing signal."	- - -	- - -	**Yes**	**Yes**	Waterview II Metropolitan District
The balance of the Traffic Signal Escrow (Bradley/Legacy Hill Drive) - Escrow amounts by other area developments (other than the residential PUD) toward the **future** traffic signal at Bradley Road/Legacy Hill Drive (see Table 4)..	With future development	- - -	- - -	**----**	**----**	Waterview II Metropolitan District and/or other area developments adding traffic to the side street at this intersection.
Traffic Signal Installation - Installation of the traffic signal at Legacy Hill Drive/Bradley Road.	As determined by El Paso County Public Works - typically this is when traffic signal warrants are met, however traffic signal warrants are guidelines and the actual timing of installation is at the discretion of El Paso County Public Works. The estimated timing based on the traffic volumes projected in this report is as follows: With either development of 31% of the Trails at Aspen Ridge (242 DUs) or development of about 23% of the commercial portion of Springs at Waterview East. These trigger points/timing estimates and the need for the signal are subject to change and would be evaluated with each final plat application. County public works approval is required for signal installation.	- - -	- - -	No	**Yes**	Waterview II Metropolitan District
Auxiliary Turn Lanes						
Extend the existing northbound right-turn deceleration lane on Powers Boulevard approaching Bradley Road	As specified in the terms and conditions of the CDOT Access Permit. An application is being submitted to CDOT.	800' plus 25:1 transition taper	Extend existing lane approximately 200'	**Yes**	**Yes**	Applicant
Northbound left-turn lane on Legacy Hill Drive approaching Bradley Road	With initial development/final plat of either the residential or commercial portion of the Springs at Waterview East.	220' Plus 90' Reverse Curve Taper (Per Approved Deviation SP 17-010) _____ (For Reference Only - ECM Required: 155' full width lane plus 250' Storage plus 160' taper)	Shown on Plans: 220' Dual Left Turn Lanes Plus 130' Taper	**Yes**	**Yes**	Applicant
Northbound right-turn deceleration lane on Legacy Hill Drive approaching Bradley Road	With initial development/final plat of either the residential or commercial portion of the Springs at Waterview East.	155' lane plus 160' taper	220' lane plus 120' taper	**Yes**	**Yes**	Applicant
Eastbound right-turn deceleration lane on Bradley Road approaching Legacy Hill Drive	With initial development/final plat of either the residential or commercial portion of the Springs at Waterview East. The trigger is an eastbound right-turn volume of 50 vehicles per hour.	290' plus 200' taper	Create a continuous right-turn acceleration/deceleration lane between Powers Boulevard and Legacy Hills Drive by using a solid white stripe for 235' feet approaching Legacy Hill Drive. Lane drop (short-dashed white line) markings should be extended back to the existing solid striping for the northbound to eastbound right-turn acceleration lane	**Yes**	**Yes**	Applicant
Westbound left-turn lane on Bradley Road approaching Legacy Hill Drive	With initial development/final plat of either the residential or commercial portion of the Springs at Waterview East. The trigger is a westbound left-turn volume of 25 vehicles per hour.	560' plus 200' taper	495' plus 200' taper	**Yes**	**Yes**	Applicant
Eastbound right-turn acceleration lanes on Bradley Road in the form of continuous accel/decel lanes between Legacy Hill Drive and the right-in/right-out site access and between the right-in/right-out site access and the city access point to the east.	With the applicable final plat of either the residential or commercial portion of the Springs at Waterview East which results in the turn lane threshold to be exceeded (as determined by final plat traffic reports). Right-turn acceleration lanes are not typically required on Minor Arterial Stets, however, this lane is required as part of the approved deviation for the access points to Bradley Road. LSC recommends a threshold of 50 vehicles per hour for the northbound right-turn volume based on the criteria for Principal Arterials. LSC would not see an issue if this lane were installed prior to the volumes exceeding the threshold.	760' plus 200' taper	Create a continuous right-turn acceleration/deceleration lane between Legacy Hill Drive and the right-in/right-out access by using a solid white stripe for 380' feet leaving Legacy Hill Drive, a 235' solid white stripe approaching the access point and lane drop (short-dashed white line) markings between these solid lines.	No	No	Applicant
Eastbound right-turn deceleration lane on Bradley Road approaching the right-in/right-out access	With development of the residential portion of the Springs at Waterview East (Parcel P-18) **OR** if the access is required for a secondary access **and** the right turning volume would exceed 50 vehicles per hour.	290' plus 200' taper		No	**Yes**	Applicant
Reconstruct the Powers Boulevard median north of Bradley Road to provide dual southbound left-turn lanes	With development of the commercial portion of Springs at Waterview East if not completed by other development(s) or CDOT. The timing of this improvement could be evaluated with each final plat.	- - -	- - -	No	No	Likely the commercial portion of Springs at Waterview East if not completed by other development(s) or CDOT.
New Roadway Segment Construction						
Future Bradley Heights Roadway Network (See appendix exhibit 1)	The need, timing, phasing etc. per plans approved by the City and/or to be determined through the City's development review process associated with Future Bradley Heights development (within the City of Colorado Springs)	- - -	- - -	- - -	- - -	**As per plans approved by the City and/or to be determined through the City's development review process associated with Future Bradley Heights development (within the City of Colorado Springs)**
Future North/South Arterial Roadway from Bradley Heights south to Fontaine Boulevard as shown on the City Intermodal Transportation Plan (See appendix exhibit 1)	The need, timing, phasing etc. would be determined through the City's development review process associated with future development on parcel No.5500000400 (within the City of Colorado Springs)	- - -	- - -	- - -	- - -	**As be determined through the City's development review process associated with future development on parcel No. 5500000400 (within the City of Colorado Springs)**
Construct Bradley Road between Goldfield Drive and Powers Boulevard. This would include intersection modifications at the Powers/Bradley intersection associated with conversion of this intersection from a three-leg to a four-leg intersection.	Future with development of the Waterview parcel northwest of Powers/Bradley or by El Paso County/PPRTA[2] if that parcel is not developed. The 2040 MTCP shows the roadway segment constructed.	- - -	- - -	No	No	The developer of the Waterview parcel northwest of Powers/Bradley (if this parcel is developed) or El Paso County/PPRTA if that parcel is not developed.

Notes:

(1) Preliminary concept of responsibility; the actual construction responsibility would be determined through subdivision applications and cost recovery if applicable agreements.

(2) PPRTA = Pikes Peak Rural Transportation Authority.

Source: LSC Transportation Consultants, Inc. 5/18/2018

Figure 1

Vicinity Map

Trails at Aspen Ridge PUD (LSC #184362)

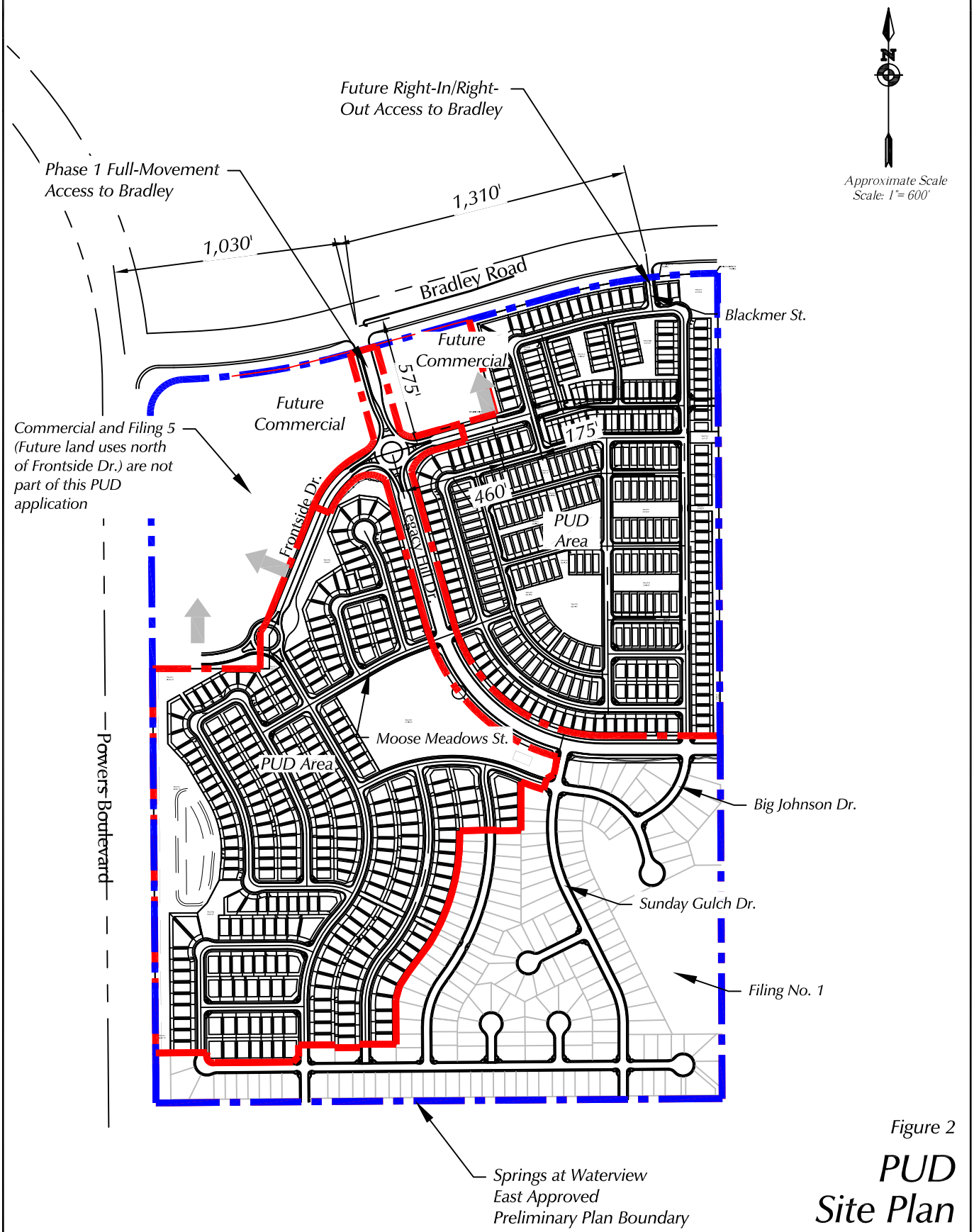
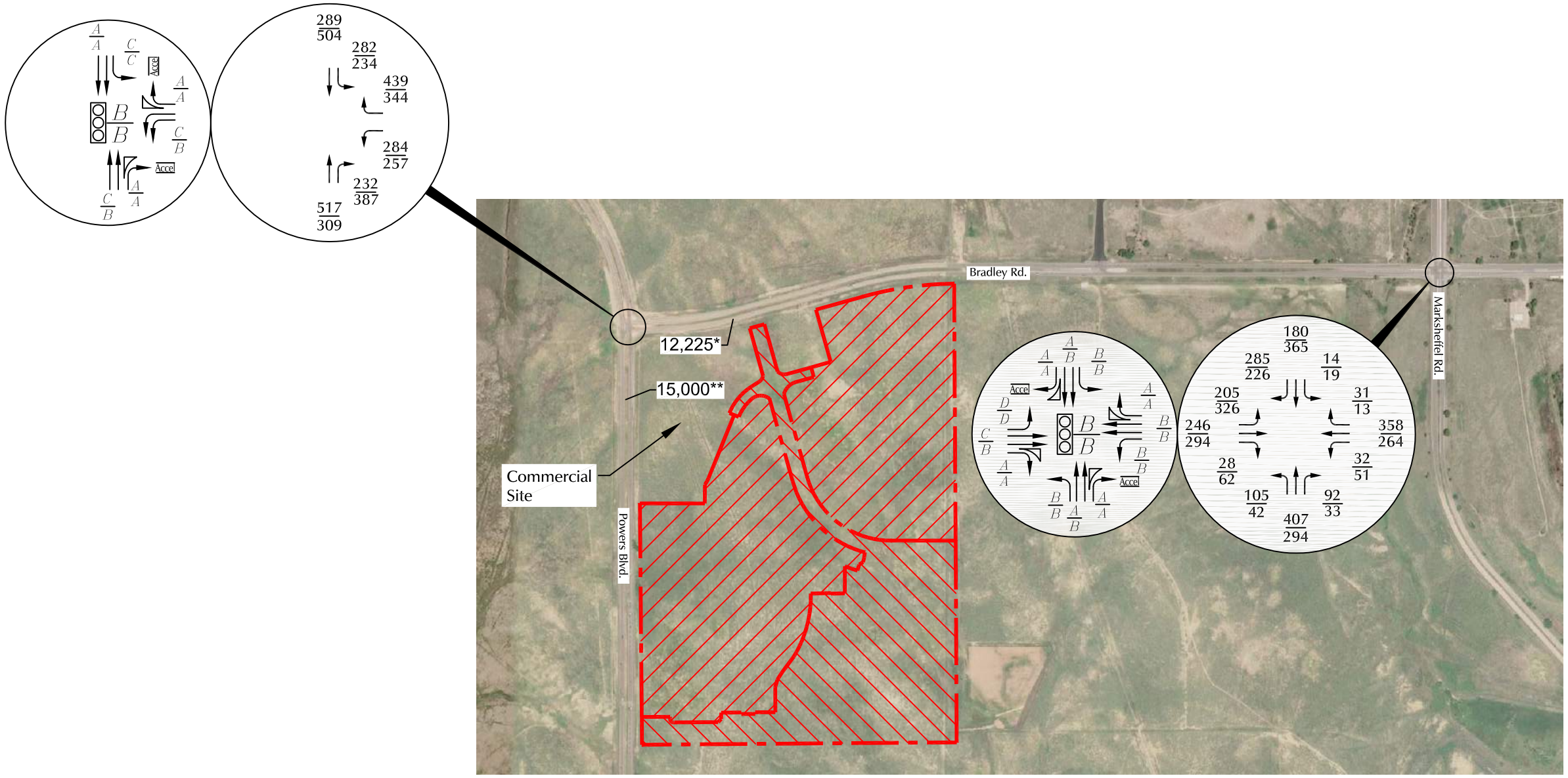


Figure 2

PUD Site Plan

Trails at Aspen Ridge PUD (LSC #184362)



Approximate Scale
Scale: 1"= 1,000'

LEGEND:

= Traffic Signal

$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$ Counts by LSC April and October 2018

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

$\frac{C}{C}$ = $\frac{\text{AM Entire Intersection Peak-Hour Level of Service}}{\text{PM Entire Intersection Peak-Hour Level of Service}}$

X,XXX= Average Daily Traffic (vehicles per day)

* Estimate by LSC
** 2018 AADT CDOT

Figure 3

Existing Traffic, Lane Geometry, Traffic Control and Level of Service

Trails at Aspen Ridge PUD (LSC #184362)

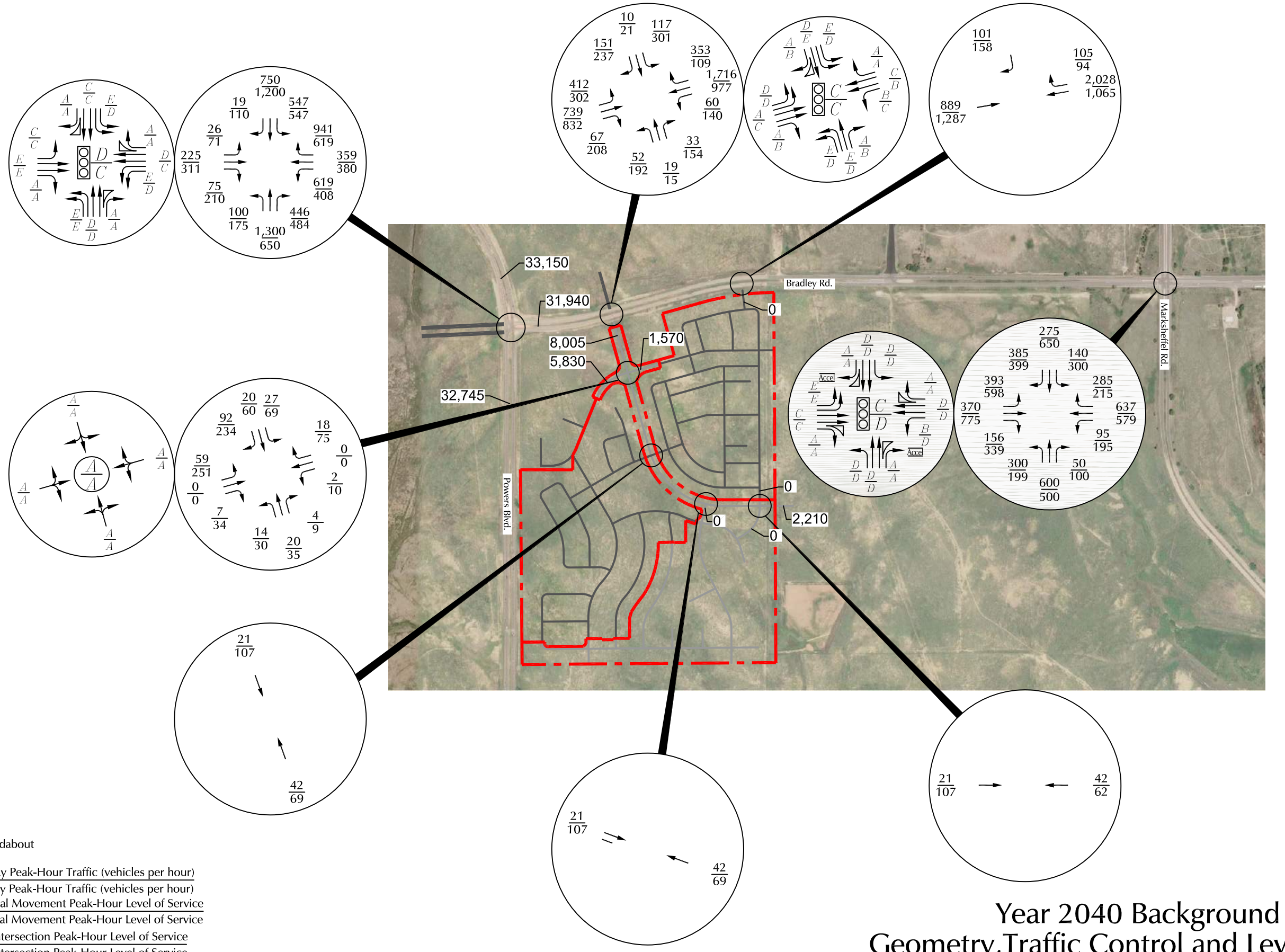
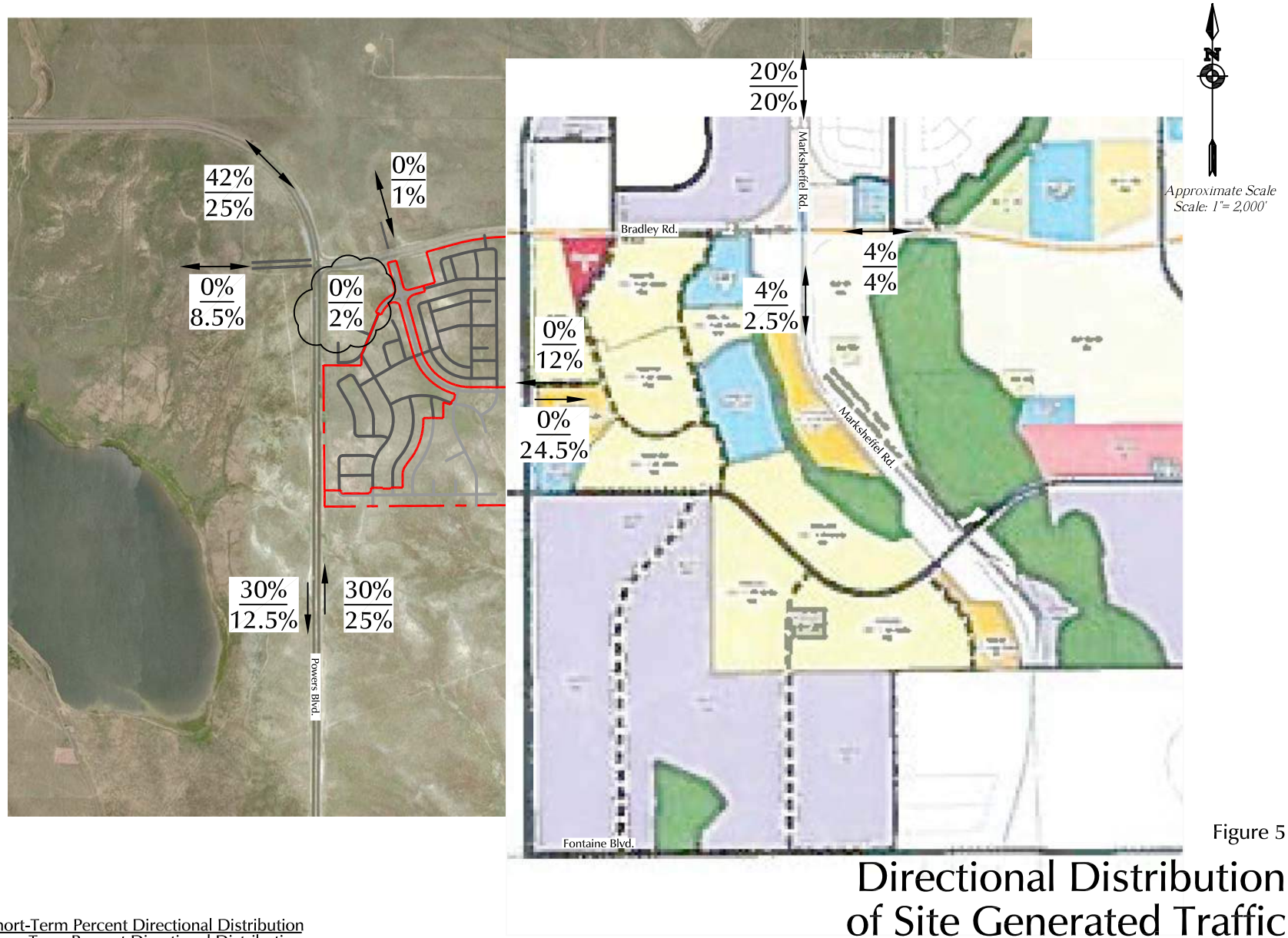


Figure 4

Year 2040 Background Traffic, Lane Geometry,Traffic Control and Level of Service

Trails at Aspen Ridge PUD (LSC #184362)



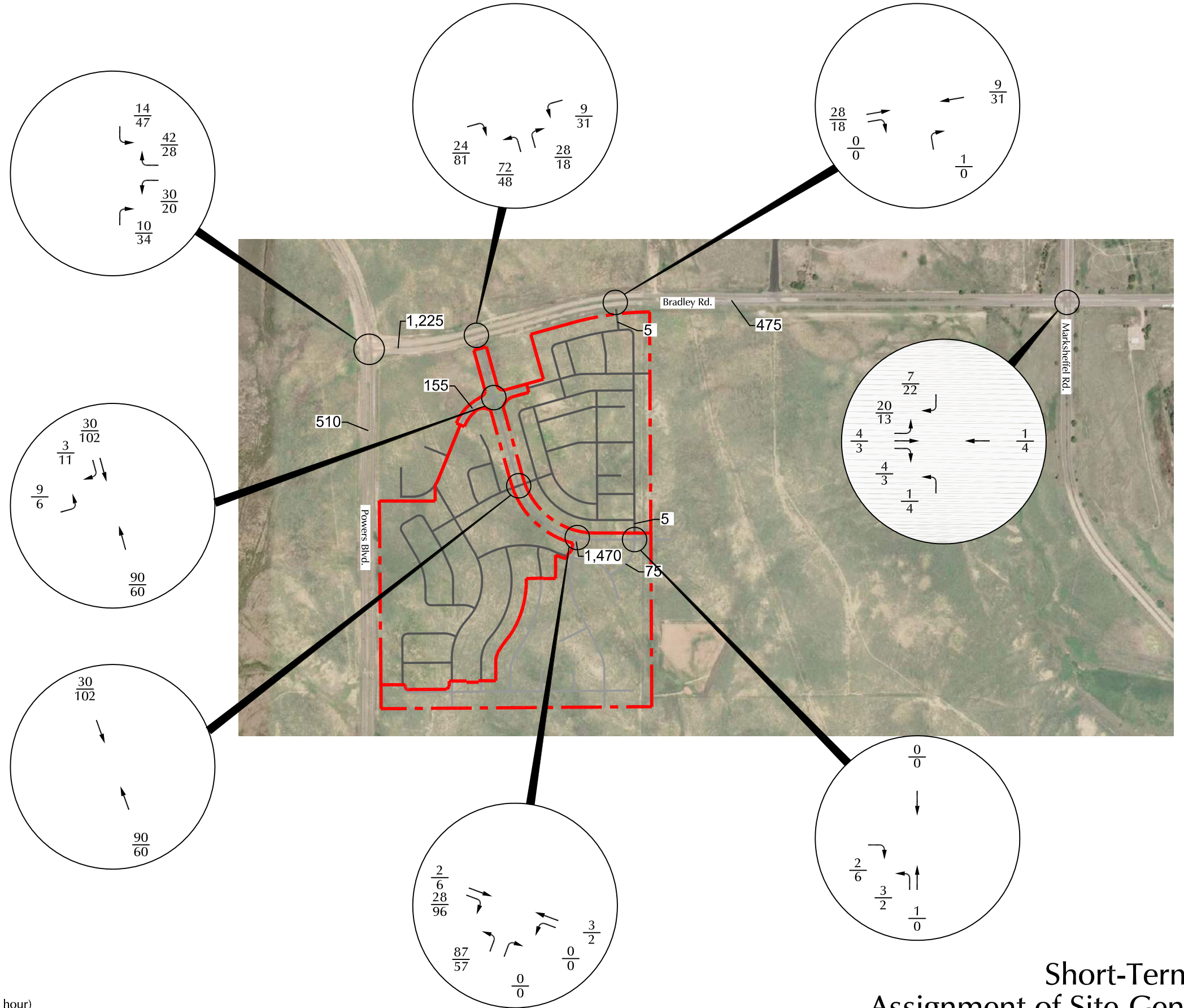
LEGEND:

XX% / XX% = Short-Term Percent Directional Distribution / Long-Term Percent Directional Distribution

Figure 5

Directional Distribution of Site Generated Traffic

Trails at Aspen Ridge PUD (LSC #184362)



Approximate Scale
Scale: 1"= 1,000'

LEGEND:

XX/XX = AM Weekday Peak-Hour Traffic (vehicles per hour) / PM Weekday Peak-Hour Traffic (vehicles per hour)

X,XXX= Average Daily Traffic (vehicles per day)

Figure 6

Short-Term Filing No. 1
Assignment of Site-Generated Traffic

Trails at Aspen Ridge PUD (LSC #184362)

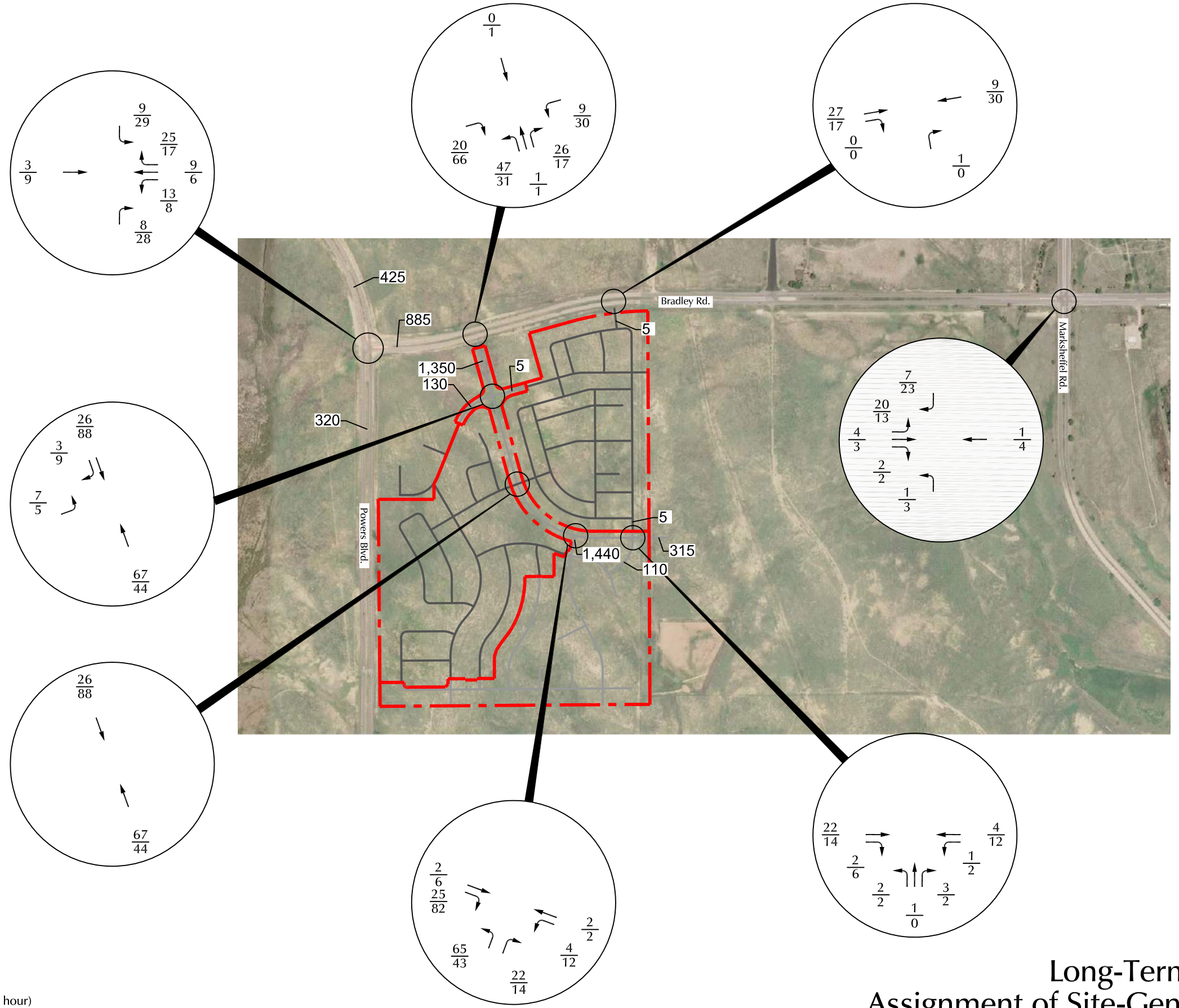
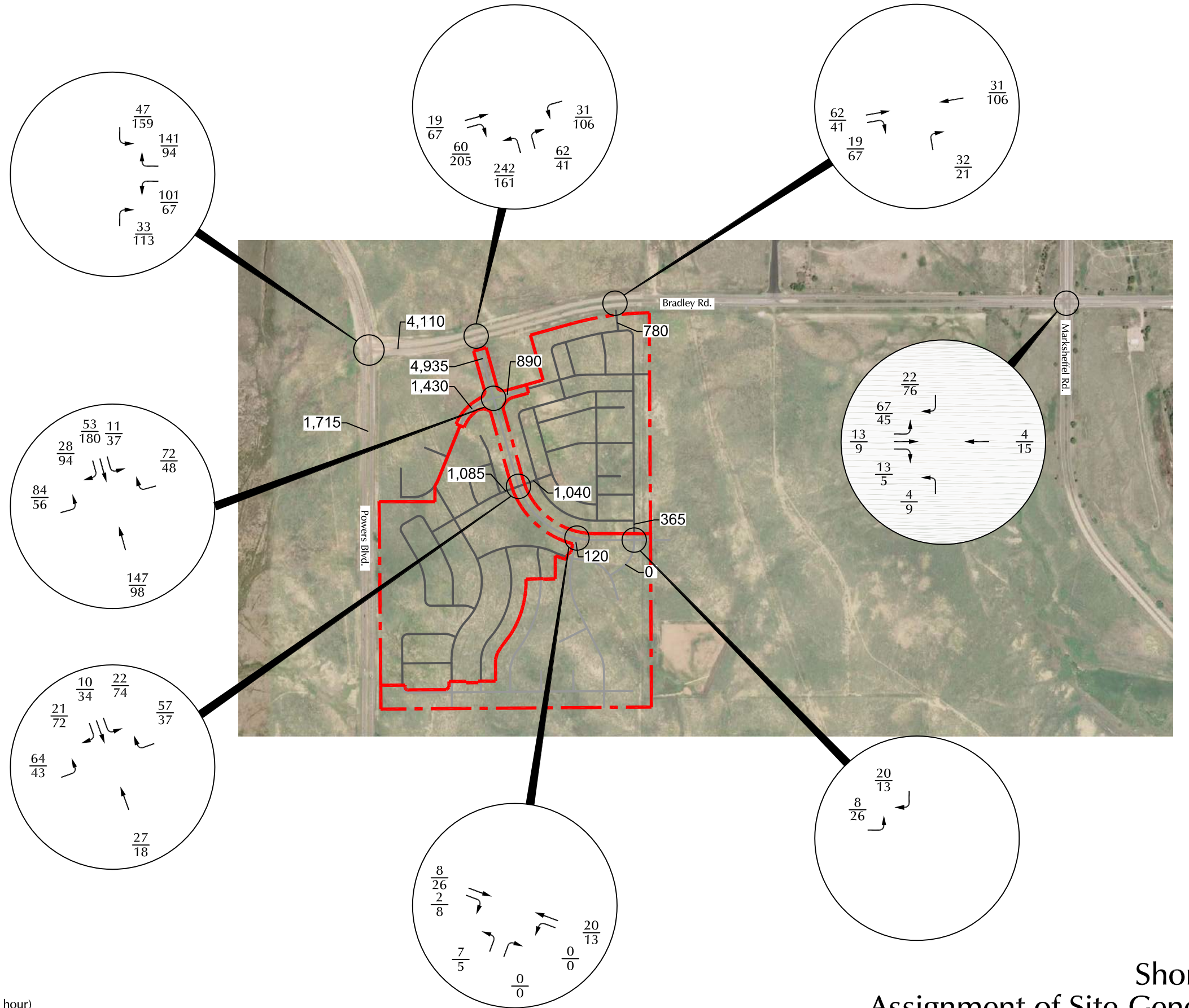


Figure 7

Long-Term Filing No. 1
Assignment of Site-Generated Traffic

Trails at Aspen Ridge PUD (LSC #184362)



Approximate Scale
Scale: 1"= 1,000'

LEGEND:

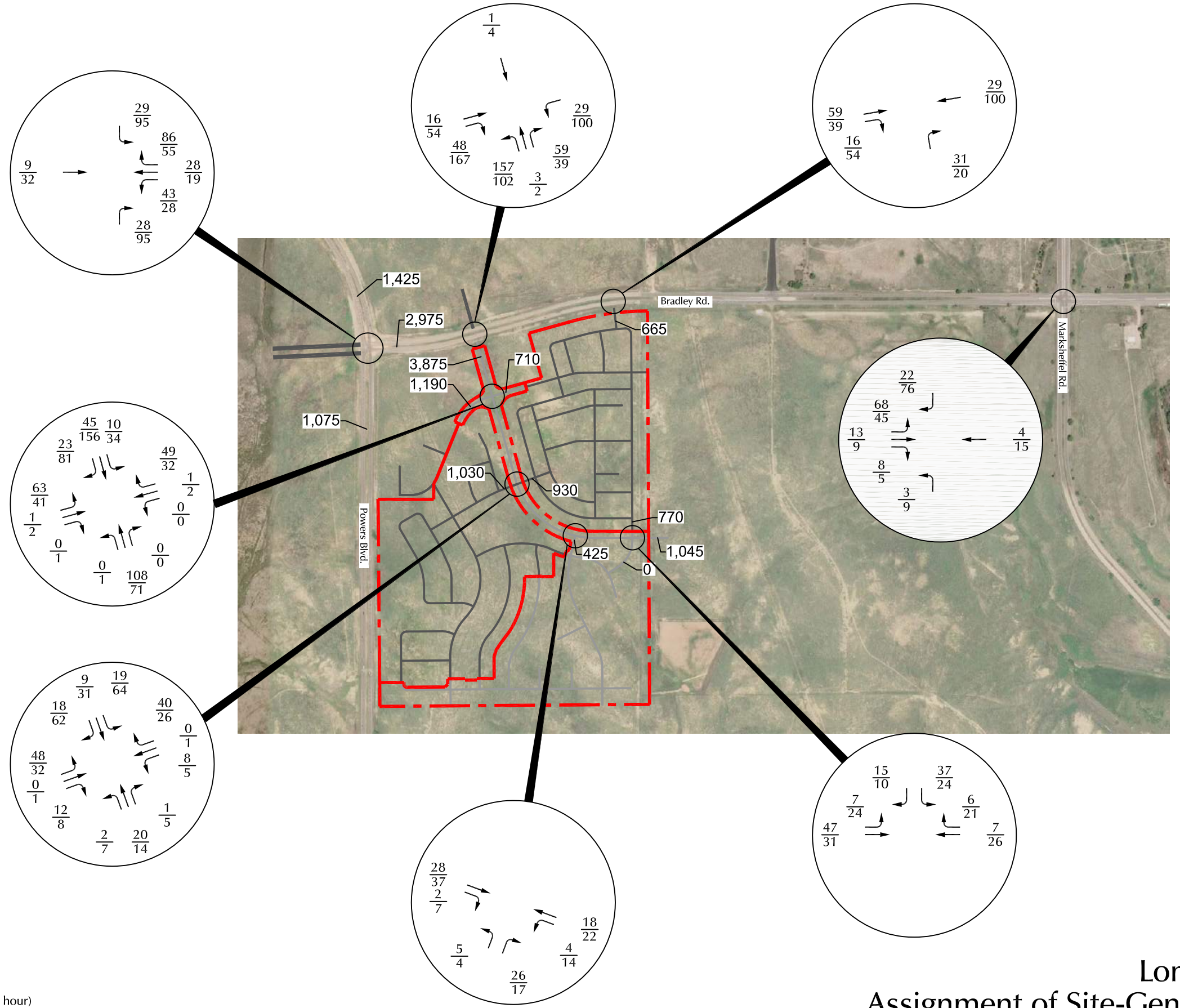
$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$

X,XXX= Average Daily Traffic (vehicles per day)

Figure 8

Short-Term PUD
Assignment of Site-Generated Traffic

Trails at Aspen Ridge PUD (LSC #184362)



Approximate Scale
Scale: 1"= 1,000'

LEGEND:

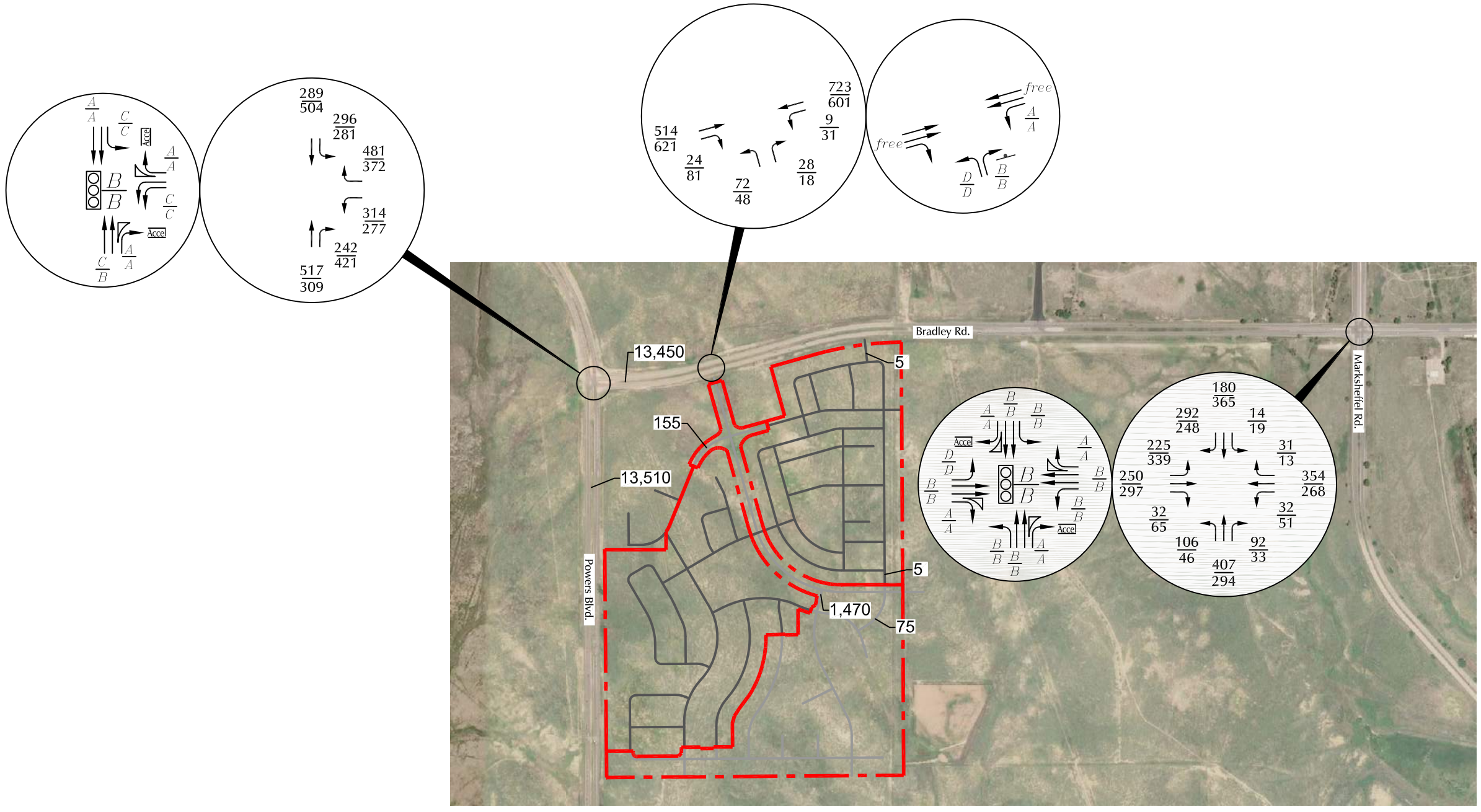
XX/XX = AM Weekday Peak-Hour Traffic (vehicles per hour) / PM Weekday Peak-Hour Traffic (vehicles per hour)

X,XXX= Average Daily Traffic (vehicles per day)

Figure 9

Long-Term PUD
Assignment of Site-Generated Traffic

Trails at Aspen Ridge PUD (LSC #184362)



Approximate Scale
Scale: 1" = 1,000'

LEGEND:

= Stop Sign

= Traffic Signal

XX/XX = AM Weekday Peak-Hour Traffic (vehicles per hour) / PM Weekday Peak-Hour Traffic (vehicles per hour)

A/B = AM Individual Movement Peak-Hour Level of Service / PM Individual Movement Peak-Hour Level of Service

C/C = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service

X,XXX= Average Daily Traffic (vehicles per day)

Figure 10

Existing plus Filing No. 1 Generated Traffic, Lane Geometry, Traffic Control and Level of Service

Trails at Aspen Ridge PUD (LSC #184362)

Figure 11

Existing plus Filing No. 1 and PUD Generated Traffic, Lane Geometry,Traffic Control and Level of Service

Trails at Aspen Ridge PUD (LSC #184362)

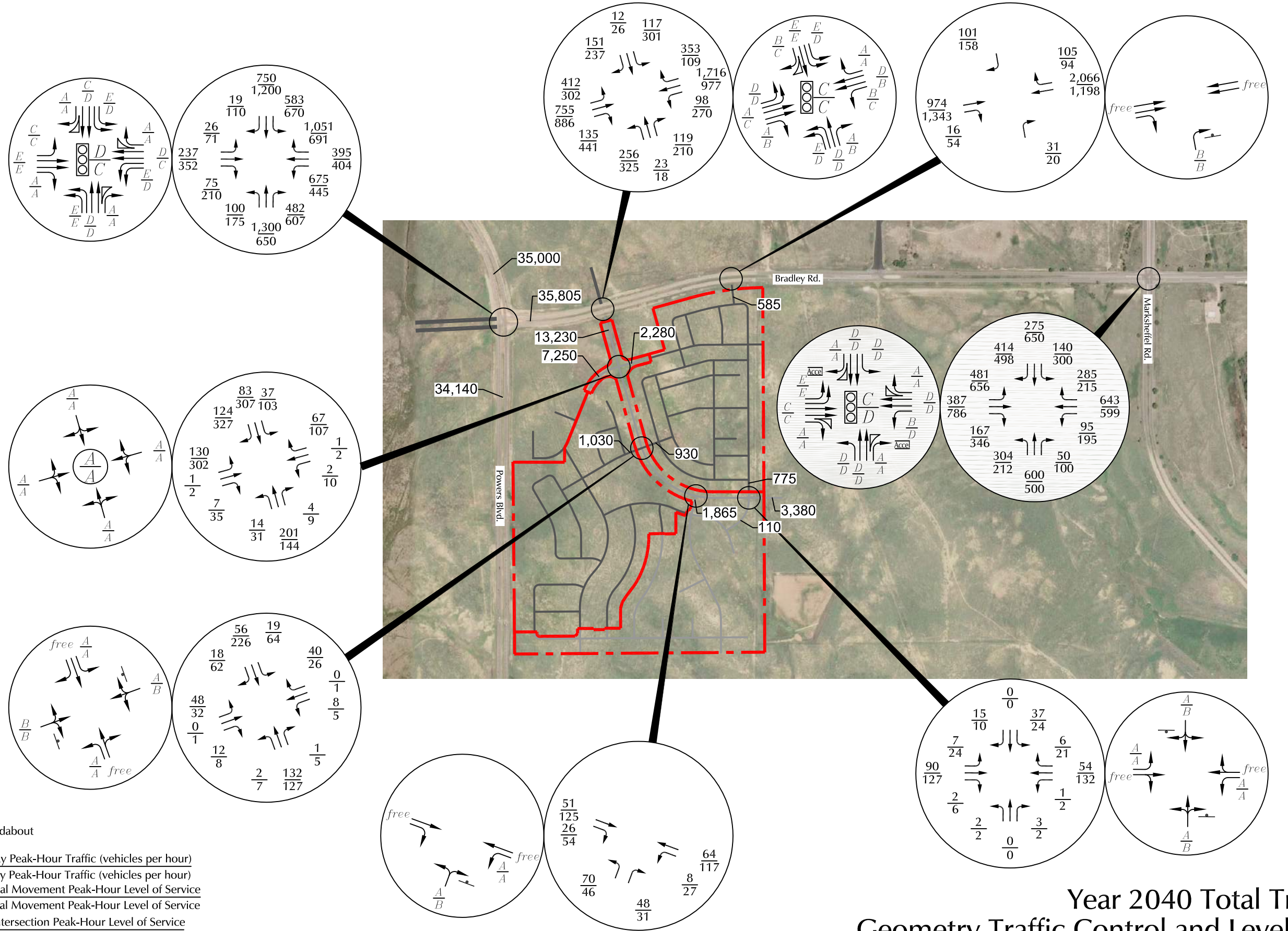
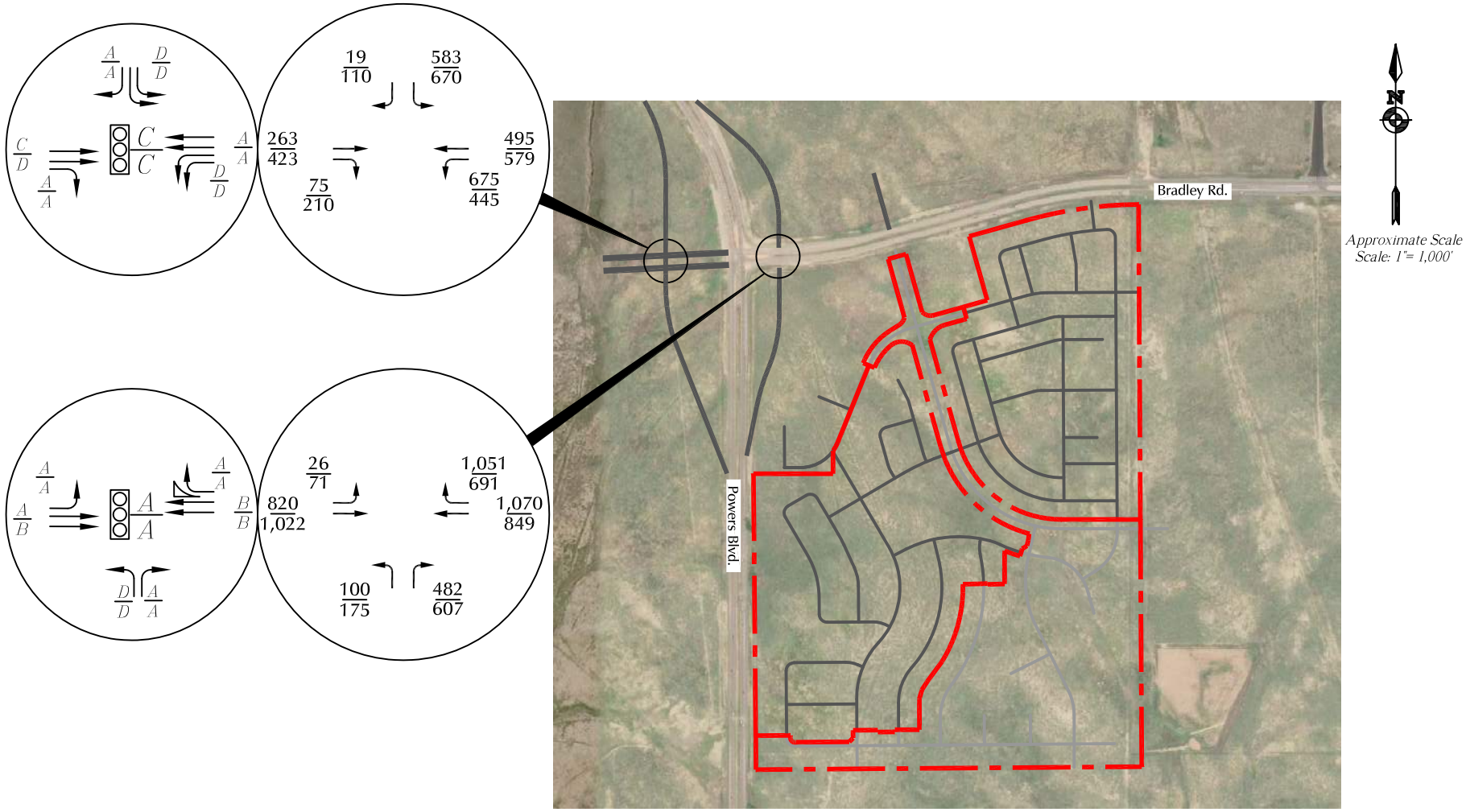


Figure 12

Year 2040 Total Traffic, Lane Geometry,Traffic Control and Level of Service

Trails at Aspen Ridge PUD (LSC #184362)



LEGEND:

= Traffic Signal

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

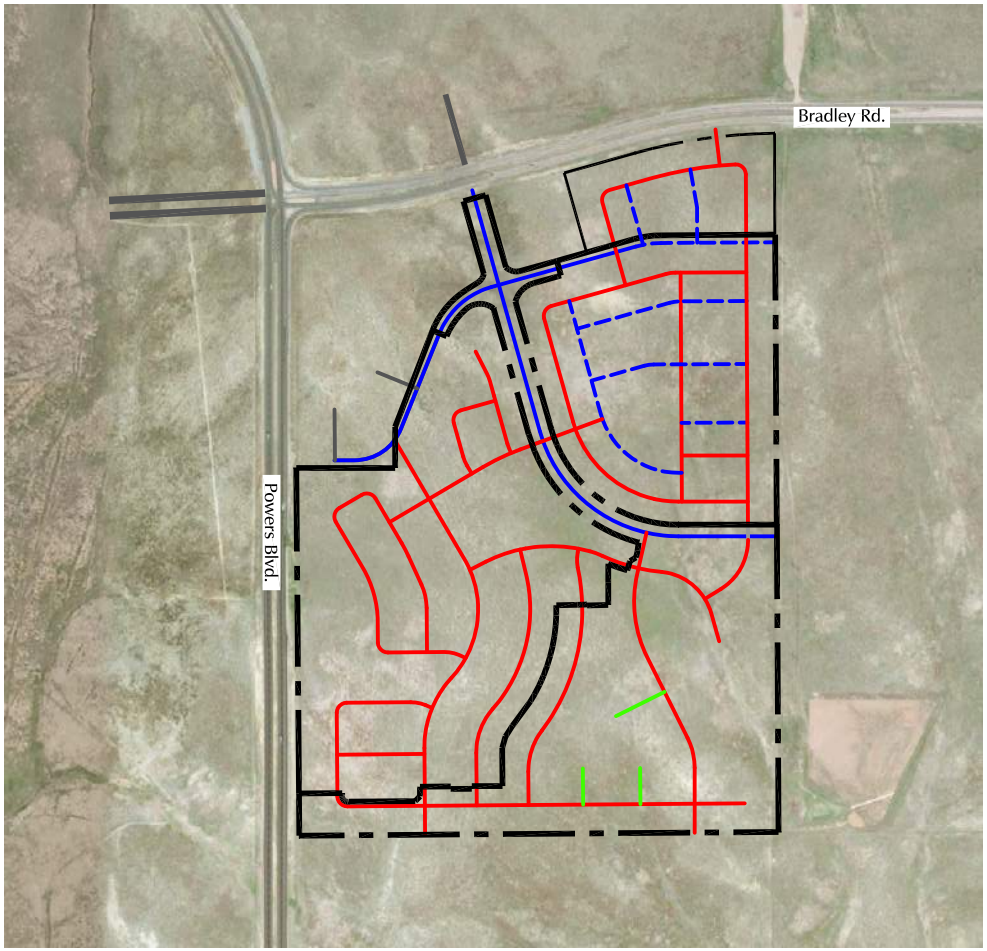
$\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service / PM Individual Movement Peak-Hour Level of Service

$\frac{C}{C}$ = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service

Figure 13

Year 2040 Total Traffic, Lane Geometry, Traffic Control and Level of Service with an Interchange

Trails at Aspen Ridge PUD (LSC #184362)



Approximate Scale
Scale: 1"= 1,000'

LEGEND:

= Urban Non-Residential Collector

= Urban Local

= Urban Local (Low Volume)

= Private

Figure 14

Recommended Street Classifications

Trails at Aspen Ridge PUD (LSC #184362)

Traffic Counts

TRANSPORTATION
CONSULTANTS, INC.

LSC Transportation Consultants, Inc.
Colorado Springs, CO 80905
719-633-2868

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

Groups Printed- Unshifted

	Powers Blvd Southbound					Bradley Rd Westbound					Powers Blvd Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30	61	54	0	0	115	68	0	71	0	139	0	89	73	0	162	0	0	0	0	0	416
06:45	67	68	0	0	135	80	0	104	0	184	0	110	55	0	165	0	0	0	0	0	484
Total	128	122	0	0	250	148	0	175	0	323	0	199	128	0	327	0	0	0	0	0	900
07:00	67	87	0	0	154	71	0	119	0	190	0	120	58	0	178	0	0	0	0	0	522
07:15	66	56	5	0	127	65	3	111	2	181	0	154	65	0	219	0	0	0	0	0	527
07:30	82	78	0	0	160	68	0	105	0	173	0	133	54	0	187	0	0	0	0	0	520
07:45	63	77	0	0	140	78	0	62	0	140	0	93	54	0	147	0	0	0	0	0	427
Total	278	298	5	0	581	282	3	397	2	684	0	500	231	0	731	0	0	0	0	0	1996
08:00	36	66	0	0	102	89	0	70	0	159	0	97	47	0	144	0	0	0	0	0	405
08:15	50	72	0	0	122	93	0	61	0	154	0	73	37	0	110	0	0	0	0	0	386

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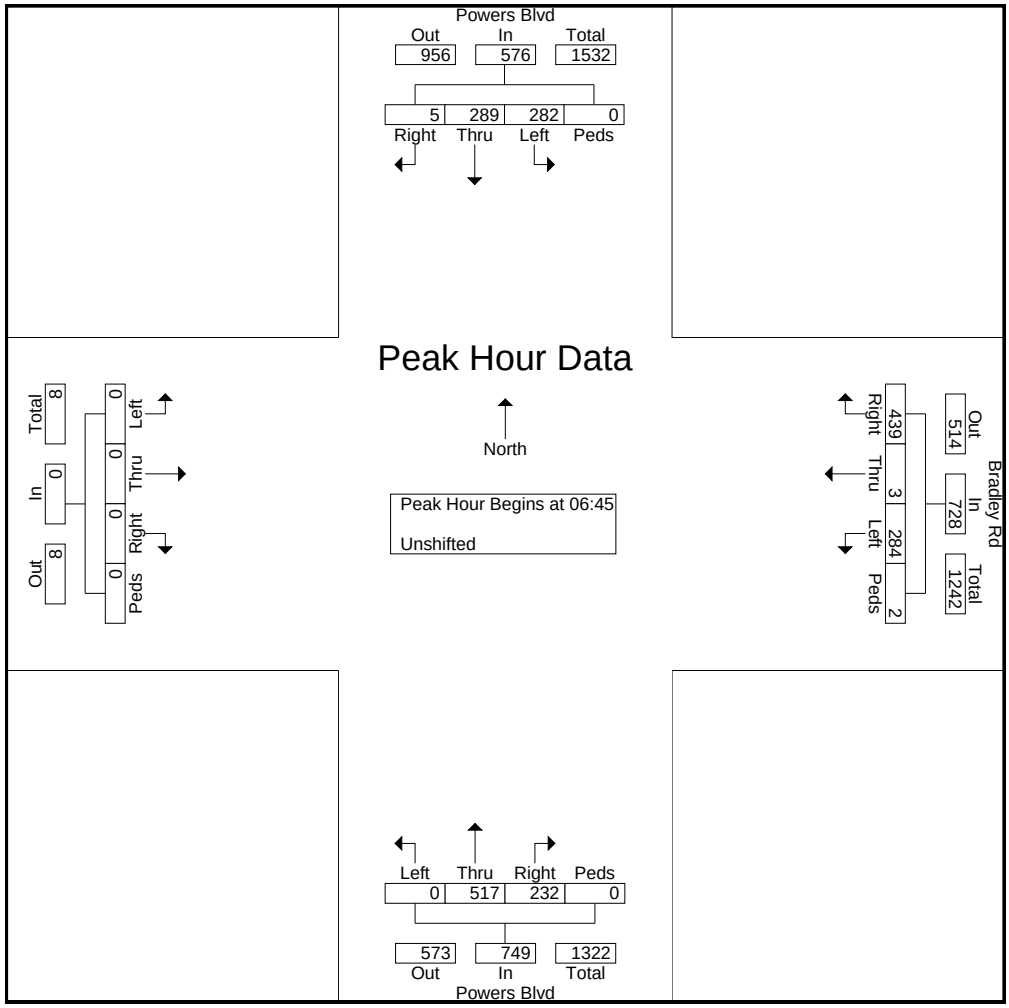
	Powers Blvd Southbound					Bradley Rd Westbound					Powers Blvd Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45																					
06:45	67	68	0	0	135	**80**	0	104	0	184	0	110	55	0	165	0	0	0	0	0	484
07:00	67	**87**	0	0	154	71	0	**119**	0	**190**	0	120	58	0	178	0	0	0	0	0	522
07:15	66	56	**5**	0	127	65	**3**	111	**2**	181	0	**154**	**65**	0	**219**	0	0	0	0	0	**527**
07:30	**82**	78	0	0	**160**	68	0	105	0	173	0	133	54	0	187	0	0	0	0	0	520
Total Volume	282	289	5	0	576	284	3	439	2	728	0	517	232	0	749	0	0	0	0	0	2053
% App. Total	49	50.2	0.9	0		39	0.4	60.3	0.3		0	69	31	0		0	0	0	0		
PHF	.860	.830	.250	.000	.900	.888	.250	.922	.250	.958	.000	.839	.892	.000	.855	.000	.000	.000	.000	.000	.974



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Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

Groups Printed- Unshifted

	Powers Blvd Southbound					Bradley Rd Westbound					Powers Blvd Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
16:00	82	119	0	0	201	55	1	100	0	156	0	75	70	0	145	0	0	0	0	0	502
16:15	66	121	0	0	187	63	0	90	0	153	0	55	115	0	170	0	0	0	0	0	510
16:30	64	122	0	0	186	65	0	95	0	160	0	81	80	0	161	0	0	0	0	0	507
16:45	45	124	0	1	170	64	0	95	0	159	0	66	103	0	169	0	0	0	0	0	498
Total	257	486	0	1	744	247	1	380	0	628	0	277	368	0	645	0	0	0	0	0	2017
17:00	59	137	0	0	196	65	0	64	0	129	0	107	89	0	196	0	0	0	0	0	521
17:15	78	125	0	0	203	52	0	58	0	110	0	77	97	0	174	0	0	0	0	0	487
17:30	55	109	0	0	164	54	0	46	0	100	0	80	78	0	158	0	0	0	0	0	422
17:45	57	116	0	0	173	49	0	52	0	101	0	82	81	0	163	0	0	0	0	0	437
Total	249	487	0	0	736	220	0	220	0	440	0	346	345	0	691	0	0	0	0	0	1867

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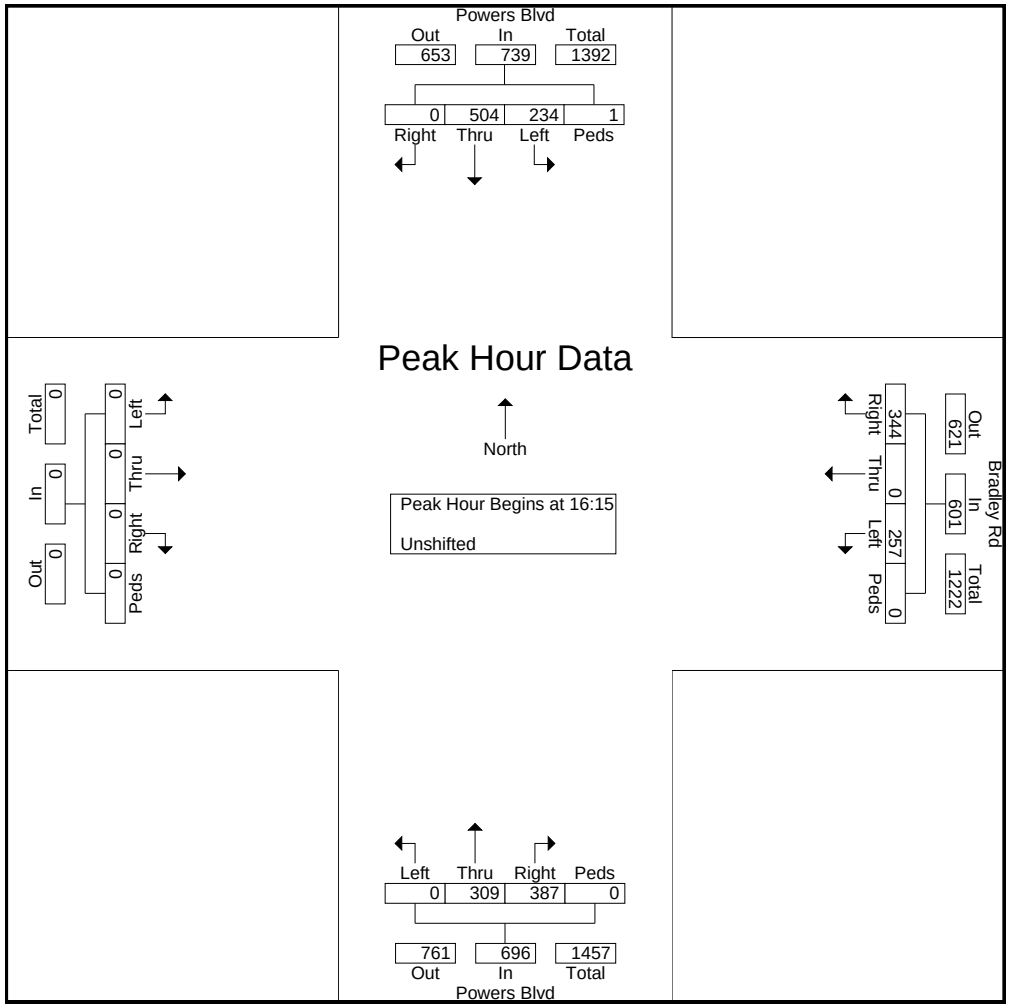
719-633-2868

	Powers Blvd Southbound					Bradley Rd Westbound					Powers Blvd Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	**66**	121	0	0	187	63	0	90	0	153	0	55	**115**	0	170	0	0	0	0	0	510
16:30	64	122	0	0	186	**65**	0	**95**	0	**160**	0	81	80	0	161	0	0	0	0	0	507
16:45	45	124	0	**1**	170	64	0	95	0	159	0	66	103	0	169	0	0	0	0	0	498
17:00	59	**137**	0	0	**196**	65	0	64	0	129	0	**107**	89	0	**196**	0	0	0	0	0	**521**
Total Volume	234	504	0	1	739	257	0	344	0	601	0	309	387	0	696	0	0	0	0	0	2036
% App. Total	31.7	68.2	0	0.1		42.8	0	57.2	0		0	44.4	55.6	0		0	0	0	0		
PHF	.886	.920	.000	.250	.943	.988	.000	.905	.000	.939	.000	.722	.841	.000	.888	.000	.000	.000	.000	.000	.977



LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Marksheffel Rd - Bradley Rd AM
Site Code : 184690
Start Date : 10/16/2018
Page No : 1

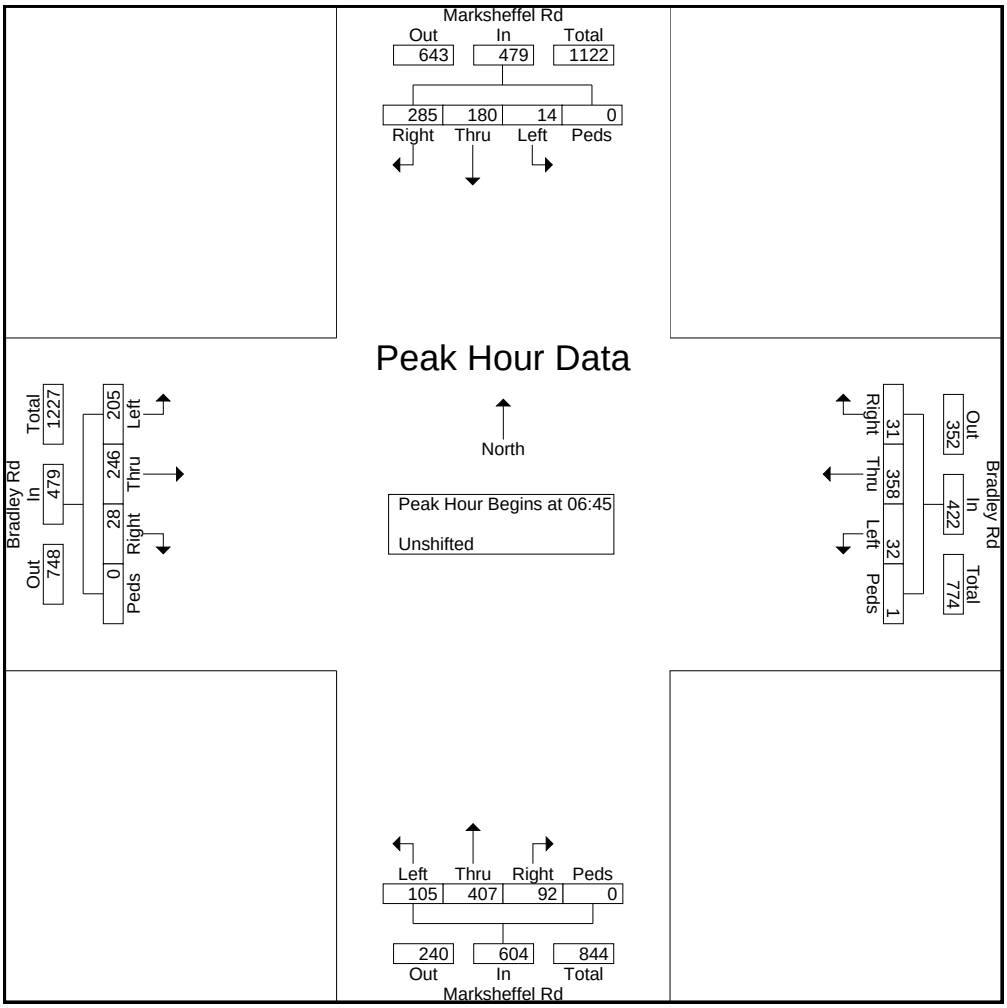
Groups Printed- Unshifted

	Marksheffel Rd Southbound				Bradley Rd Westbound				Marksheffel Rd Northbound				Bradley Rd Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:30	2	52	59	0	5	78	7	0	12	116	16	0	47	56	6	0	456
06:45	3	48	76	0	7	88	4	0	17	101	21	0	38	54	10	0	467
Total	5	100	135	0	12	166	11	0	29	217	37	0	85	110	16	0	923
07:00	3	36	66	0	12	94	10	0	32	124	31	0	48	69	4	0	529
07:15	6	37	71	0	6	105	6	1	40	91	18	0	65	72	6	0	524
07:30	2	59	72	0	7	71	11	0	16	91	22	0	54	51	8	0	464
07:45	3	49	56	0	4	47	3	0	22	94	9	0	57	59	10	0	413
Total	14	181	265	0	29	317	30	1	110	400	80	0	224	251	28	0	1930
08:00	4	25	48	0	4	54	5	0	14	68	6	0	31	23	8	0	290
08:15	2	43	80	0	9	52	1	0	13	59	2	0	38	30	8	0	337
Grand Total	25	349	528	0	54	589	47	1	166	744	125	0	378	414	60	0	3480
Apprch %	2.8	38.7	58.5	0	7.8	85.2	6.8	0.1	16	71.9	12.1	0	44.4	48.6	7	0	
Total %	0.7	10	15.2	0	1.6	16.9	1.4	0	4.8	21.4	3.6	0	10.9	11.9	1.7	0	

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Marksheffel Rd - Bradley Rd AM
Site Code : 184690
Start Date : 10/16/2018
Page No : 2

	Marksheffel Rd Southbound					Bradley Rd Westbound					Marksheffel Rd Northbound					Bradley Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45																					
06:45	3	48	**76**	0	127	7	88	4	0	99	17	101	21	0	139	38	54	**10**	0	102	467
07:00	3	36	66	0	105	**12**	94	10	0	116	32	**124**	**31**	0	**187**	48	69	4	0	121	**529**
07:15	**6**	37	71	0	114	6	**105**	6	**1**	**118**	**40**	91	18	0	149	**65**	**72**	6	0	**143**	524
07:30	2	**59**	72	0	**133**	7	71	**11**	0	89	16	91	22	0	129	54	51	8	0	113	464
Total Volume	14	180	285	0	479	32	358	31	1	422	105	407	92	0	604	205	246	28	0	479	1984
% App. Total	2.9	37.6	59.5	0		7.6	84.8	7.3	0.2		17.4	67.4	15.2	0		42.8	51.4	5.8	0		
PHF	.583	.763	.938	.000	.900	.667	.852	.705	.250	.894	.656	.821	.742	.000	.807	.788	.854	.700	.000	.837	.938



LSC Transportation Consultants, Inc.

545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Marksheffel Rd - Bradley Rd PM
Site Code : 184960
Start Date : 10/16/2018
Page No : 1

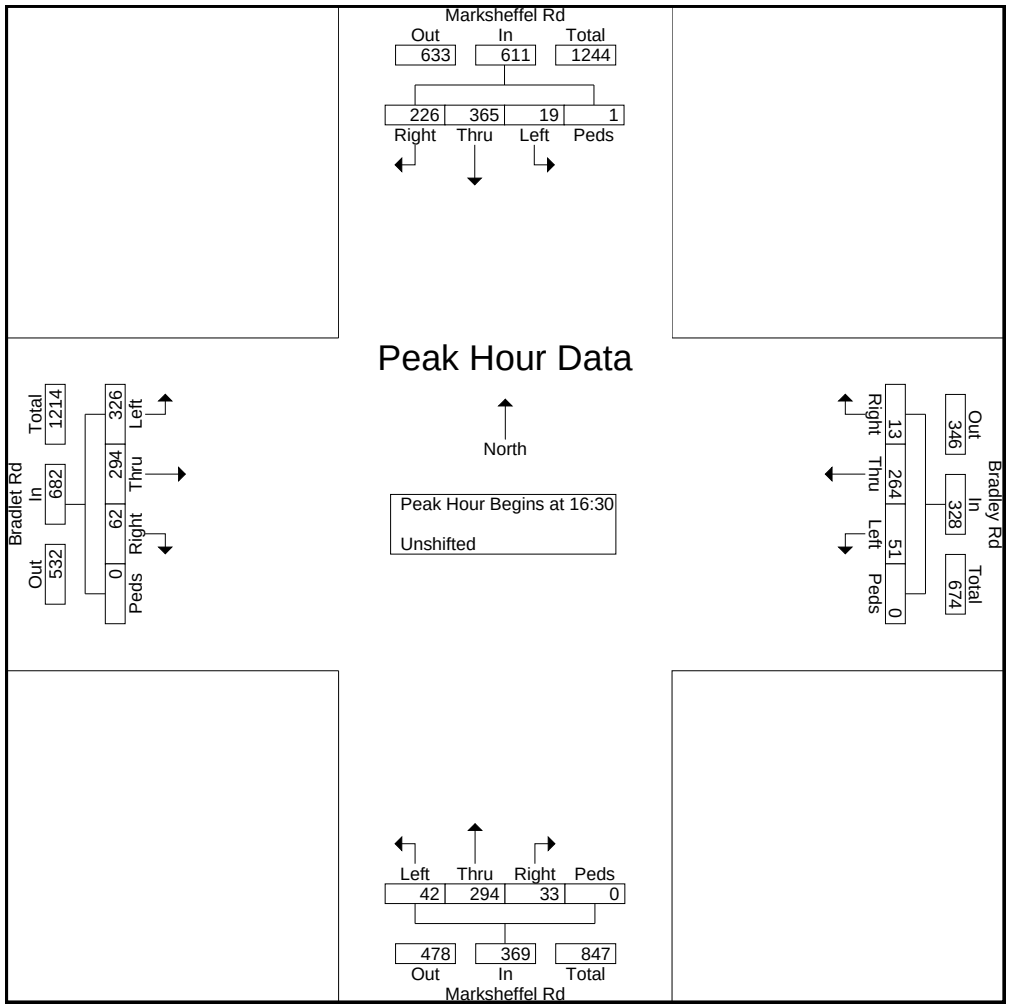
Groups Printed- Unshifted

	Marksheffel Rd Southbound				Bradley Rd Westbound				Marksheffel Rd Northbound				Bradlet Rd Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
16:00	3	82	46	0	14	50	9	0	18	64	8	0	87	63	21	0	465
16:15	5	90	46	1	23	75	4	0	8	57	5	0	77	78	18	0	487
16:30	6	89	51	1	15	59	3	0	11	73	10	0	79	76	16	0	489
16:45	4	98	53	0	8	74	5	0	9	57	9	0	91	67	17	0	492
Total	18	359	196	2	60	258	21	0	46	251	32	0	334	284	72	0	1933
17:00	3	82	60	0	15	81	2	0	10	77	6	0	69	83	10	0	498
17:15	6	96	62	0	13	50	3	0	12	87	8	0	87	68	19	0	511
17:30	4	70	49	0	11	53	6	0	11	65	12	0	71	95	24	0	471
17:45	6	79	31	0	8	37	3	0	13	44	6	0	63	71	16	0	377
Total	19	327	202	0	47	221	14	0	46	273	32	0	290	317	69	0	1857
Grand Total	37	686	398	2	107	479	35	0	92	524	64	0	624	601	141	0	3790
Apprch %	3.3	61.1	35.4	0.2	17.2	77.1	5.6	0	13.5	77.1	9.4	0	45.7	44	10.3	0	
Total %	1	18.1	10.5	0.1	2.8	12.6	0.9	0	2.4	13.8	1.7	0	16.5	15.9	3.7	0	

LSC Transportation Consultants, Inc.
545 E Pikes Peak Ave, Suite 210
Colorado Springs, CO 80905
719-633-2868

File Name : Marksheffel Rd - Bradley Rd PM
Site Code : 184960
Start Date : 10/16/2018
Page No : 2

	Marksheffel Rd Southbound					Bradley Rd Westbound					Marksheffel Rd Northbound					Bradlet Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	**6**	89	51	**1**	147	**15**	59	3	0	77	11	73	**10**	0	94	79	76	16	0	171	489
16:45	4	**98**	53	0	155	8	74	**5**	0	87	9	57	9	0	75	**91**	67	17	0	**175**	492
17:00	3	82	60	0	145	15	**81**	2	0	**98**	10	77	6	0	93	69	**83**	10	0	162	498
17:15	6	96	**62**	0	**164**	13	50	3	0	66	**12**	**87**	8	0	**107**	87	68	**19**	0	174	**511**
Total Volume	19	365	226	1	611	51	264	13	0	328	42	294	33	0	369	326	294	62	0	682	1990
% App. Total	3.1	59.7	37	0.2		15.5	80.5	4	0		11.4	79.7	8.9	0		47.8	43.1	9.1	0		
PHF	.792	.931	.911	.250	.931	.850	.815	.650	.000	.837	.875	.845	.825	.000	.862	.896	.886	.816	.000	.974	.974



Levels of Service

TRANSPORTATION
CONSULTANTS, INC.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	284	439	517	232	282	289
Future Volume (vph)	284	439	517	232	282	289
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	20.0	20.0	60.0	60.0	20.0	80.0
Total Split (%)	20.0%	20.0%	60.0%	60.0%	20.0%	80.0%
Yellow Time (s)	3.0	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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None
Act Effct Green (s)	10.7	10.7	14.1	14.1	15.1	34.3
Actuated g/C Ratio	0.19	0.19	0.26	0.26	0.27	0.62
v/c Ratio	0.45	0.68	0.57	0.40	0.62	0.14
Control Delay	22.3	8.3	20.8	5.3	26.8	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.3	8.3	20.8	5.3	26.8	4.8
LOS	C	A	C	A	C	A
Approach Delay	13.8		16.0			15.7
Approach LOS	B		B			B

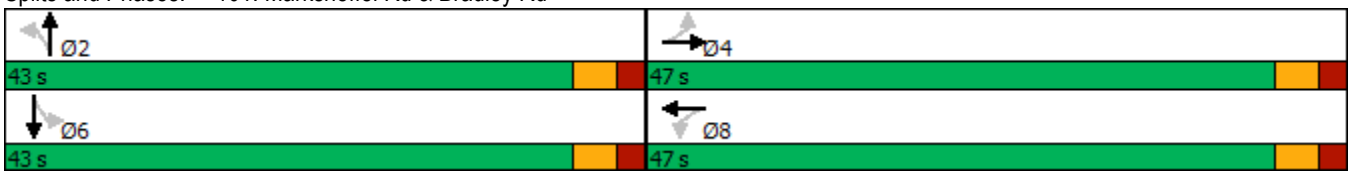
Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 55.1	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 15.1	Intersection LOS: B
Intersection Capacity Utilization 50.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Powers & Bradley Rd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	246	28	32	358	31	105	407	92	14	180	285
Future Volume (vph)	205	246	28	32	358	31	105	407	92	14	180	285
Turn Type	Perm	NA	Free	Perm	NA	Free	Perm	NA	Free	Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	47.0	47.0		47.0	47.0		43.0	43.0		43.0	43.0	
Total Split (%)	52.2%	52.2%		52.2%	52.2%		47.8%	47.8%		47.8%	47.8%	
Yellow Time (s)	3.0	3.0		3.0	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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Act Effct Green (s)	20.1	20.1	68.7	20.1	20.1	68.7	38.5	38.5	68.7	38.5	38.5	68.7
Actuated g/C Ratio	0.29	0.29	1.00	0.29	0.29	1.00	0.56	0.56	1.00	0.56	0.56	1.00
v/c Ratio	0.78	0.24	0.02	0.11	0.38	0.02	0.20	0.25	0.07	0.03	0.09	0.18
Control Delay	42.4	18.1	0.0	17.1	19.6	0.0	10.7	9.5	0.1	10.1	8.9	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	0.0
Total Delay	42.4	18.1	0.0	17.1	19.6	0.0	10.7	9.5	0.1	10.1	8.9	0.2
LOS	D	B	A	B	B	A	B	A	A	B	A	A
Approach Delay		27.5			18.0			8.3			3.8	
Approach LOS		C			B			A			A	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 68.7	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 13.6	Intersection LOS: B
Intersection Capacity Utilization 52.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 101: Marksheffel Rd & Bradley Rd



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	257	344	309	387	234	504
Future Volume (vph)	257	344	309	387	234	504
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	20.0	20.0	61.0	61.0	19.0	80.0
Total Split (%)	20.0%	20.0%	61.0%	61.0%	19.0%	80.0%
Yellow Time (s)	3.0	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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None
Act Effct Green (s)	9.4	9.4	11.0	11.0	14.1	30.2
Actuated g/C Ratio	0.19	0.19	0.22	0.22	0.28	0.61
v/c Ratio	0.40	0.60	0.44	0.63	0.50	0.25
Control Delay	20.0	7.6	18.7	6.9	20.3	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	7.6	18.7	6.9	20.3	5.0
LOS	B	A	B	A	C	A
Approach Delay	12.9		12.1			9.9
Approach LOS	B		B			A

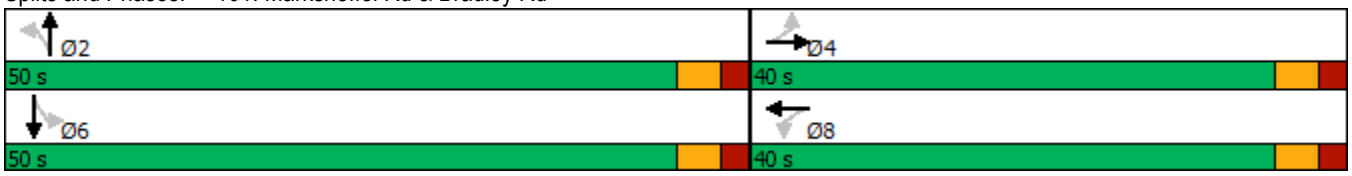
Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 49.6	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.5	Intersection LOS: B
Intersection Capacity Utilization 45.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Powers & Bradley Rd.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	326	294	62	51	264	13	42	294	33	19	365	226
Future Volume (vph)	326	294	62	51	264	13	42	294	33	19	365	226
Turn Type	Perm	NA	Free	Perm	NA	Free	Perm	NA	Free	Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	40.0	40.0		40.0	40.0		50.0	50.0		50.0	50.0	
Total Split (%)	44.4%	44.4%		44.4%	44.4%		55.6%	55.6%		55.6%	55.6%	
Yellow Time (s)	3.0	3.0		3.0	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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Act Effct Green (s)	29.2	29.2	84.5	29.2	29.2	84.5	45.3	45.3	84.5	45.3	45.3	84.5
Actuated g/C Ratio	0.35	0.35	1.00	0.35	0.35	1.00	0.54	0.54	1.00	0.54	0.54	1.00
v/c Ratio	0.88	0.25	0.04	0.14	0.22	0.01	0.09	0.18	0.02	0.04	0.21	0.15
Control Delay	51.1	19.8	0.0	19.3	19.5	0.0	12.1	11.4	0.0	11.6	11.6	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	0.0
Total Delay	51.1	19.8	0.0	19.3	19.5	0.0	12.1	11.4	0.0	11.6	11.6	0.2
LOS	D	B	A	B	B	A	B	B	A	B	B	A
Approach Delay		33.0			18.7			10.5			7.4	
Approach LOS		C			B			B			A	

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 84.5			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 18.2		Intersection LOS: B	
Intersection Capacity Utilization 55.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 101: Marksheffel Rd & Bradley Rd



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	314	481	517	242	296	289
Future Volume (vph)	314	481	517	242	296	289
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	20.0	20.0	60.0	60.0	20.0	80.0
Total Split (%)	20.0%	20.0%	60.0%	60.0%	20.0%	80.0%
Yellow Time (s)	3.0	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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None
Act Effct Green (s)	11.2	11.2	14.7	14.7	15.2	34.9
Actuated g/C Ratio	0.20	0.20	0.26	0.26	0.27	0.62
v/c Ratio	0.49	0.72	0.56	0.41	0.67	0.14
Control Delay	23.0	9.6	20.6	5.1	29.3	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.0	9.6	20.6	5.1	29.3	4.9
LOS	C	A	C	A	C	A
Approach Delay	14.9		15.7			17.2
Approach LOS	B		B			B

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 56.2	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 15.8	Intersection LOS: B
Intersection Capacity Utilization 52.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Powers & Bradley Rd.

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	514	24	9	723	72	28
Future Vol, veh/h	514	24	9	723	72	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	415	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	559	26	10	786	78	30

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	585	0	972	280
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	413	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	986	-	250	717
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	636	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	986	-	248	717
Mov Cap-2 Maneuver	-	-	-	-	248	-
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	636	-

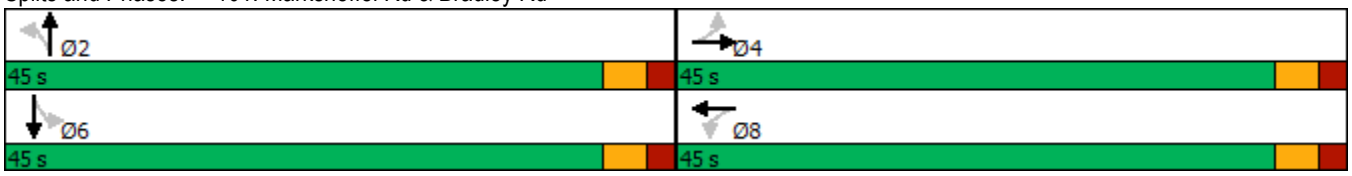
Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	21.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	248	717	-	-	986	-
HCM Lane V/C Ratio	0.316	0.042	-	-	0.01	-
HCM Control Delay (s)	26.1	10.2	-	-	8.7	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1.3	0.1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	250	32	32	359	31	106	407	92	14	180	292
Future Volume (vph)	225	250	32	32	359	31	106	407	92	14	180	292
Turn Type	Perm	NA	Free	Perm	NA	Free	Perm	NA	Free	Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Act Effct Green (s)	23.1	23.1	73.8	23.1	23.1	73.8	40.6	40.6	73.8	40.6	40.6	73.8
Actuated g/C Ratio	0.31	0.31	1.00	0.31	0.31	1.00	0.55	0.55	1.00	0.55	0.55	1.00
v/c Ratio	0.81	0.23	0.02	0.10	0.36	0.02	0.20	0.26	0.07	0.03	0.09	0.18
Control Delay	44.5	18.2	0.0	17.0	19.6	0.0	12.1	10.8	0.1	11.6	10.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	18.2	0.0	17.0	19.6	0.0	12.1	10.8	0.1	11.6	10.1	0.3
LOS	D	B	A	B	B	A	B	B	A	B	B	A
Approach Delay		28.8			18.0			9.4			4.2	
Approach LOS		C			B			A			A	

Intersection Summary		
Cycle Length: 90		
Actuated Cycle Length: 73.8		
Natural Cycle: 45		
Control Type: Semi Act-Uncoord		
Maximum v/c Ratio: 0.81		
Intersection Signal Delay: 14.6	Intersection LOS: B	
Intersection Capacity Utilization 53.6%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 101: Marksheffel Rd & Bradley Rd



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	277	372	309	421	281	504
Future Volume (vph)	277	372	309	421	281	504
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	20.0	20.0	61.0	61.0	19.0	80.0
Total Split (%)	20.0%	20.0%	61.0%	61.0%	19.0%	80.0%
Yellow Time (s)	3.0	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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None
Act Effct Green (s)	10.0	10.0	12.4	12.4	14.2	31.6
Actuated g/C Ratio	0.19	0.19	0.24	0.24	0.27	0.61
v/c Ratio	0.44	0.63	0.41	0.64	0.62	0.25
Control Delay	21.1	7.8	18.2	6.6	25.8	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	7.8	18.2	6.6	25.8	5.2
LOS	C	A	B	A	C	A
Approach Delay	13.5		11.5			12.6
Approach LOS	B		B			B

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 51.7	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 12.5	Intersection LOS: B
Intersection Capacity Utilization 50.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Powers & Bradley Rd.

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	621	81	31	601	48	18
Future Vol, veh/h	621	81	31	601	48	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	415	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	675	88	34	653	52	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	763	0	1070	338
Stage 1	-	-	-	-	675	-
Stage 2	-	-	-	-	395	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	845	-	216	658
Stage 1	-	-	-	-	467	-
Stage 2	-	-	-	-	650	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	845	-	207	658
Mov Cap-2 Maneuver	-	-	-	-	207	-
Stage 1	-	-	-	-	448	-
Stage 2	-	-	-	-	650	-

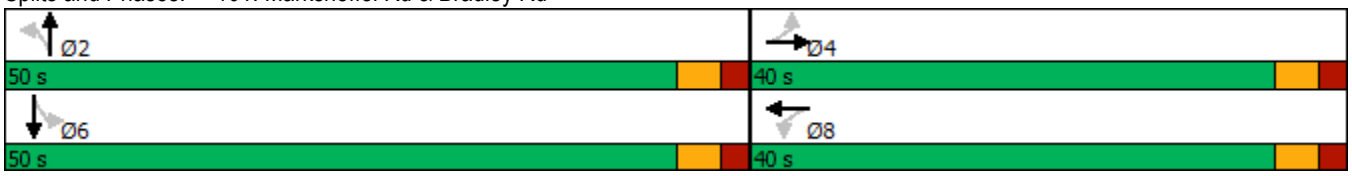
Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	23.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	207	658	-	-	845	-
HCM Lane V/C Ratio	0.252	0.03	-	-	0.04	-
HCM Control Delay (s)	28.2	10.6	-	-	9.4	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1	0.1	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	339	297	65	51	268	13	46	294	33	19	365	248
Future Volume (vph)	339	297	65	51	268	13	46	294	33	19	365	248
Turn Type	Perm	NA	Free	Perm	NA	Free	Perm	NA	Free	Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	40.0	40.0		40.0	40.0		50.0	50.0		50.0	50.0	
Total Split (%)	44.4%	44.4%		44.4%	44.4%		55.6%	55.6%		55.6%	55.6%	
Yellow Time (s)	3.0	3.0		3.0	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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Act Effct Green (s)	30.2	30.2	85.5	30.2	30.2	85.5	45.2	45.2	85.5	45.2	45.2	85.5
Actuated g/C Ratio	0.35	0.35	1.00	0.35	0.35	1.00	0.53	0.53	1.00	0.53	0.53	1.00
v/c Ratio	0.90	0.24	0.04	0.14	0.21	0.01	0.10	0.18	0.02	0.04	0.21	0.17
Control Delay	53.2	19.6	0.0	19.1	19.3	0.0	12.4	11.7	0.0	11.7	11.9	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	0.0
Total Delay	53.2	19.6	0.0	19.1	19.3	0.0	12.4	11.7	0.0	11.7	11.9	0.2
LOS	D	B	A	B	B	A	B	B	A	B	B	A
Approach Delay		34.1			18.5			10.8			7.3	
Approach LOS		C			B			B			A	

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 85.5			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 18.6		Intersection LOS: B	
Intersection Capacity Utilization 56.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 101: Marksheffel Rd & Bradley Rd



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	415	622	517	275	342	289
Future Volume (vph)	415	622	517	275	342	289
Turn Type	Prot	Free	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	9.0		9.0	9.0	9.0	9.0
Total Split (s)	25.0		54.0	54.0	21.0	75.0
Total Split (%)	25.0%		54.0%	54.0%	21.0%	75.0%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None		None	None	None	None
Act Effct Green (s)	12.9	60.1	15.9	15.9	16.2	37.1
Actuated g/C Ratio	0.21	1.00	0.26	0.26	0.27	0.62
v/c Ratio	0.60	0.41	0.55	0.44	0.77	0.14
Control Delay	25.5	0.8	21.6	5.2	36.2	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.5	0.8	21.6	5.2	36.2	5.3
LOS	C	A	C	A	D	A
Approach Delay	10.7		15.9			22.0
Approach LOS	B		B			C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 60.1	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 57.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Powers & Bradley Rd.

Intersection	
Int Delay, s/veh	61.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	533	84	40	723	314	89
Future Vol, veh/h	533	84	40	723	314	89
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	415	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	579	91	43	786	341	97

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	670	0	1058	290
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	479	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	916	-	~ 220	707
Stage 1	-	-	-	-	524	-
Stage 2	-	-	-	-	589	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	916	-	~ 210	707
Mov Cap-2 Maneuver	-	-	-	-	~ 210	-
Stage 1	-	-	-	-	499	-
Stage 2	-	-	-	-	589	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	269.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	210	707	-	-	916	-
HCM Lane V/C Ratio	1.625	0.137	-	-	0.047	-
HCM Control Delay (s)	$ 342.6	10.9	-	-	9.1	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	22.2	0.5	-	-	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	533	84	40	723	314	89
Future Volume (vph)	533	84	40	723	314	89
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	68.0	68.0	68.0	68.0	32.0	32.0
Total Split (%)	68.0%	68.0%	68.0%	68.0%	32.0%	32.0%
Yellow Time (s)	3.0	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
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	67.8	67.8	67.8	67.8	24.2	24.2
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.24	0.24
v/c Ratio	0.24	0.08	0.08	0.33	0.80	0.21
Control Delay	7.0	1.7	7.0	7.6	49.6	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	1.7	7.0	7.6	49.6	7.0
LOS	A	A	A	A	D	A
Approach Delay	6.2			7.5	40.2	
Approach LOS	A			A	D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 14.5	Intersection LOS: B
Intersection Capacity Utilization 46.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Legacy Dr & Bradley Rd.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	603	19	0	763	0	33
Future Vol, veh/h	603	19	0	763	0	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	500	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	655	21	0	829	0	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	328
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	668
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	668
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	668	-	-	-
HCM Lane V/C Ratio	0.054	-	-	-
HCM Control Delay (s)	10.7	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Intersection Delay, s/veh	4.3
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	101	78	259	136
Demand Flow Rate, veh/h	103	79	264	139
Vehicles Circulating, veh/h	104	367	115	0
Vehicles Exiting, veh/h	35	12	92	446
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	3.6	4.6	4.9	3.5
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	103	79	264	139
Cap Entry Lane, veh/h	1241	949	1227	1380
Entry HV Adj Factor	0.981	0.987	0.980	0.980
Flow Entry, veh/h	101	78	259	136
Cap Entry, veh/h	1217	937	1203	1352
V/C Ratio	0.083	0.083	0.215	0.101
Control Delay, s/veh	3.6	4.6	4.9	3.5
LOS	A	A	A	A
95th %tile Queue, veh	0	0	1	0

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	64	0	0	0	0	57	0	117	0	22	40	21
Future Vol, veh/h	64	0	0	0	0	57	0	117	0	22	40	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	205	-	-	205	-	155
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	70	0	0	0	0	62	0	127	0	24	43	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	249	218	43	230	241	127	66	0	0	127	0	0
Stage 1	91	91	-	127	127	-	-	-	-	-	-	-
Stage 2	158	127	-	103	114	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	705	680	1027	725	660	923	1536	-	-	1459	-	-
Stage 1	916	820	-	877	791	-	-	-	-	-	-	-
Stage 2	844	791	-	903	801	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	649	669	1027	716	649	923	1536	-	-	1459	-	-
Mov Cap-2 Maneuver	649	669	-	716	649	-	-	-	-	-	-	-
Stage 1	916	807	-	877	791	-	-	-	-	-	-	-
Stage 2	787	791	-	888	788	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	9.2	0	2
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1536	-	-	649	923	1459	-	-
HCM Lane V/C Ratio	-	-	-	0.107	0.067	0.016	-	-
HCM Control Delay (s)	0	-	-	11.2	9.2	7.5	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	5.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	9	31	0	23	94	0
Future Vol, veh/h	9	31	0	23	94	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	155	205	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	34	0	25	102	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	44	0	35	10
Stage 1	-	-	-	-	10	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1564	-	978	1071
Stage 1	-	-	-	-	1013	-
Stage 2	-	-	-	-	998	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1564	-	978	1071
Mov Cap-2 Maneuver	-	-	-	-	905	-
Stage 1	-	-	-	-	1013	-
Stage 2	-	-	-	-	998	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	905	-	-	1564	-
HCM Lane V/C Ratio	0.113	-	-	-	-
HCM Control Delay (s)	9.5	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	2	0	0	0	3	1	0	0	0	20
Future Vol, veh/h	8	0	2	0	0	0	3	1	0	0	0	20
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	205	-	-	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	2	0	0	0	3	1	0	0	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1	0	0	2	0	0	31	20	1	21	21	1
Stage 1	-	-	-	-	-	-	19	19	-	1	1	-
Stage 2	-	-	-	-	-	-	12	1	-	20	20	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1622	-	-	1620	-	-	977	874	1084	992	873	1084
Stage 1	-	-	-	-	-	-	1000	880	-	1022	895	-
Stage 2	-	-	-	-	-	-	1009	895	-	999	879	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1622	-	-	1620	-	-	954	869	1084	987	868	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	954	869	-	987	868	-
Stage 1	-	-	-	-	-	-	994	875	-	1016	895	-
Stage 2	-	-	-	-	-	-	989	895	-	992	874	-

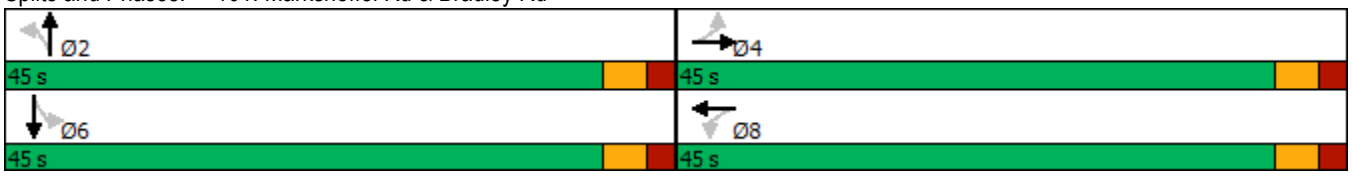
Approach	EB	WB	NB	SB
HCM Control Delay, s	5.8	0	8.9	8.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	931	1622	-	-	1620	-	-	1084
HCM Lane V/C Ratio	0.005	0.005	-	-	-	-	-	0.02
HCM Control Delay (s)	8.9	7.2	-	-	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	263	45	32	364	31	111	407	92	14	180	314
Future Volume (vph)	292	263	45	32	364	31	111	407	92	14	180	314
Turn Type	Perm	NA	Free	Perm	NA	Free	Perm	NA	Free	Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Act Effct Green (s)	29.8	29.8	80.5	29.8	29.8	80.5	40.5	40.5	80.5	40.5	40.5	80.5
Actuated g/C Ratio	0.37	0.37	1.00	0.37	0.37	1.00	0.50	0.50	1.00	0.50	0.50	1.00
v/c Ratio	0.88	0.20	0.03	0.09	0.31	0.02	0.23	0.28	0.07	0.03	0.10	0.20
Control Delay	50.3	16.8	0.0	15.6	17.8	0.0	15.0	13.7	0.1	14.0	12.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	16.8	0.0	15.6	17.8	0.0	15.0	13.7	0.1	14.0	12.7	0.3
LOS	D	B	A	B	B	A	B	B	A	B	B	A
Approach Delay		31.8			16.4			11.9			5.0	
Approach LOS		C			B			B			A	

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 80.5			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 16.5		Intersection LOS: B	
Intersection Capacity Utilization 57.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 101: Marksheffel Rd & Bradley Rd



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	344	465	309	534	440	504
Future Volume (vph)	344	465	309	534	440	504
Turn Type	Prot	Free	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		Free		2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	9.0		9.0	9.0	9.0	9.0
Total Split (s)	20.0		57.0	57.0	23.0	80.0
Total Split (%)	20.0%		57.0%	57.0%	23.0%	80.0%
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None		None	None	None	None
Act Effct Green (s)	11.5	60.6	15.5	15.5	18.3	39.0
Actuated g/C Ratio	0.19	1.00	0.26	0.26	0.30	0.64
v/c Ratio	0.56	0.31	0.38	0.76	0.87	0.24
Control Delay	27.0	0.5	19.5	10.9	43.4	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	0.5	19.5	10.9	43.4	4.9
LOS	C	A	B	B	D	A
Approach Delay	11.8		14.0			22.9
Approach LOS	B		B			C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 60.6	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 16.5	Intersection LOS: B
Intersection Capacity Utilization 65.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Powers & Bradley Rd.

Intersection	
Int Delay, s/veh	64.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	688	286	137	601	208	59
Future Vol, veh/h	688	286	137	601	208	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	415	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	748	311	149	653	226	64

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1059	0	1373	374
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	625	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	653	-	~ 137	623
Stage 1	-	-	-	-	429	-
Stage 2	-	-	-	-	496	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	653	-	~ 106	623
Mov Cap-2 Maneuver	-	-	-	-	~ 106	-
Stage 1	-	-	-	-	331	-
Stage 2	-	-	-	-	496	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	$ 474.8
HCM LOS			F

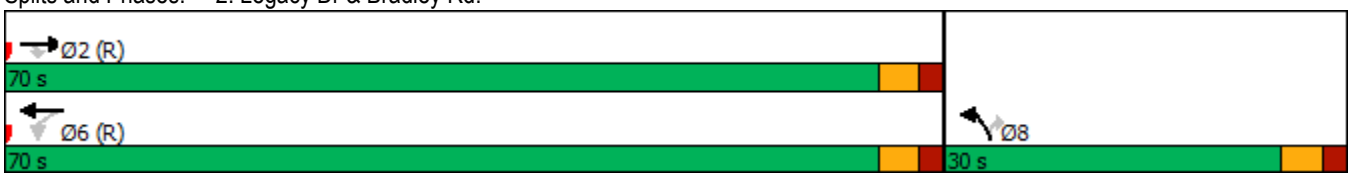
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	106	623	-	-	653	-
HCM Lane V/C Ratio	2.133	0.103	-	-	0.228	-
HCM Control Delay (s)	$ 606.2	11.4	-	-	12.1	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	19.4	0.3	-	-	0.9	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	688	286	137	601	208	59
Future Volume (vph)	688	286	137	601	208	59
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	70.0	70.0	70.0	70.0	30.0	30.0
Total Split (%)	70.0%	70.0%	70.0%	70.0%	30.0%	30.0%
Yellow Time (s)	3.0	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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	72.0	72.0	72.0	72.0	18.0	18.0
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.18	0.18
v/c Ratio	0.29	0.25	0.32	0.26	0.71	0.19
Control Delay	5.8	1.3	8.2	5.6	50.6	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.8	1.3	8.2	5.6	50.6	9.5
LOS	A	A	A	A	D	A
Approach Delay	4.5			6.1	41.5	
Approach LOS	A			A	D	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 50.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Legacy Dr & Bradley Rd.



Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	680	67	0	738	0	22
Future Vol, veh/h	680	67	0	738	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	500	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	739	73	0	802	0	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	370
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	627
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	627
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	627	-	-	-
HCM Lane V/C Ratio	0.038	-	-	-
HCM Control Delay (s)	11	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Intersection Delay, s/veh	5.1
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	67	52	171	461
Demand Flow Rate, veh/h	68	53	174	469
Vehicles Circulating, veh/h	353	242	108	0
Vehicles Exiting, veh/h	116	40	313	295
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.4	3.8	4.2	5.7
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	68	53	174	469
Cap Entry Lane, veh/h	963	1078	1236	1380
Entry HV Adj Factor	0.985	0.981	0.980	0.983
Flow Entry, veh/h	67	52	171	461
Cap Entry, veh/h	949	1058	1212	1356
V/C Ratio	0.071	0.049	0.141	0.340
Control Delay, s/veh	4.4	3.8	4.2	5.7
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	2

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	0	0	0	0	37	0	77	0	74	136	72
Future Vol, veh/h	43	0	0	0	0	37	0	77	0	74	136	72
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	205	-	-	205	-	155
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	47	0	0	0	0	40	0	84	0	80	148	78

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	412	392	148	431	470	84	226	0	0	84	0	0
Stage 1	308	308	-	84	84	-	-	-	-	-	-	-
Stage 2	104	84	-	347	386	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	550	544	899	535	492	975	1342	-	-	1513	-	-
Stage 1	702	660	-	924	825	-	-	-	-	-	-	-
Stage 2	902	825	-	669	610	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	506	515	899	514	466	975	1342	-	-	1513	-	-
Mov Cap-2 Maneuver	506	515	-	514	466	-	-	-	-	-	-	-
Stage 1	702	625	-	924	825	-	-	-	-	-	-	-
Stage 2	865	825	-	634	578	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.8	8.9	0	2
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1342	-	-	506	975	1513	-	-
HCM Lane V/C Ratio	-	-	-	0.092	0.041	0.053	-	-
HCM Control Delay (s)	0	-	-	12.8	8.9	7.5	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	32	104	0	15	62	0
Future Vol, veh/h	32	104	0	15	62	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	155	205	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	113	0	16	67	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	148	0	51	35
Stage 1	-	-	-	-	35	-
Stage 2	-	-	-	-	16	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1434	-	958	1038
Stage 1	-	-	-	-	987	-
Stage 2	-	-	-	-	1007	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1434	-	958	1038
Mov Cap-2 Maneuver	-	-	-	-	891	-
Stage 1	-	-	-	-	987	-
Stage 2	-	-	-	-	1007	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	891	-	-	1434	-
HCM Lane V/C Ratio	0.076	-	-	-	-
HCM Control Delay (s)	9.4	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	0	6	0	0	0	2	0	0	0	0	13
Future Vol, veh/h	26	0	6	0	0	0	2	0	0	0	0	13
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	205	-	-	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	0	7	0	0	0	2	0	0	0	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1	0	0	7	0	0	68	61	4	61	64	1
Stage 1	-	-	-	-	-	-	60	60	-	1	1	-
Stage 2	-	-	-	-	-	-	8	1	-	60	63	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1622	-	-	1614	-	-	925	830	1080	934	827	1084
Stage 1	-	-	-	-	-	-	951	845	-	1022	895	-
Stage 2	-	-	-	-	-	-	1013	895	-	951	842	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1622	-	-	1614	-	-	901	816	1080	922	813	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	901	816	-	922	813	-
Stage 1	-	-	-	-	-	-	935	831	-	1005	895	-
Stage 2	-	-	-	-	-	-	1000	895	-	935	828	-

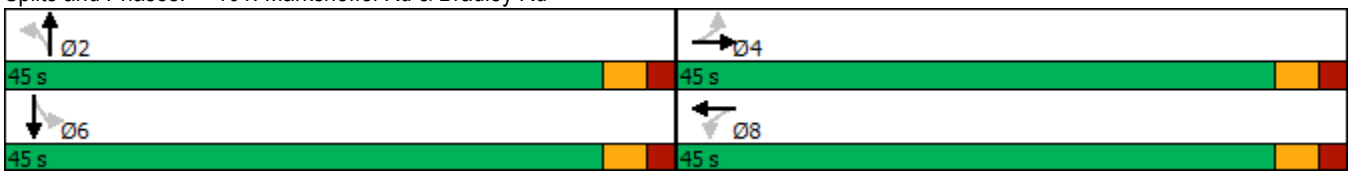
Approach	EB	WB	NB	SB
HCM Control Delay, s	5.9	0	9	8.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	901	1622	-	-	1614	-	-	1084
HCM Lane V/C Ratio	0.002	0.017	-	-	-	-	-	0.013
HCM Control Delay (s)	9	7.3	-	-	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	384	306	74	51	284	13	62	294	33	19	365	324
Future Volume (vph)	384	306	74	51	284	13	62	294	33	19	365	324
Turn Type	Perm	NA	Free	Perm	NA	Free	Perm	NA	Free	Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4		Free	8		Free	2		Free	6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Act Effct Green (s)	34.1	34.1	84.5	34.1	34.1	84.5	40.3	40.3	84.5	40.3	40.3	84.5
Actuated g/C Ratio	0.40	0.40	1.00	0.40	0.40	1.00	0.48	0.48	1.00	0.48	0.48	1.00
v/c Ratio	0.90	0.22	0.05	0.12	0.20	0.01	0.16	0.20	0.02	0.04	0.23	0.22
Control Delay	49.4	16.4	0.1	15.8	16.2	0.0	15.8	14.4	0.0	14.4	14.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.4	16.4	0.1	15.8	16.2	0.0	15.8	14.4	0.0	14.4	14.6	0.3
LOS	D	B	A	B	B	A	B	B	A	B	B	A
Approach Delay		31.4			15.5			13.4			8.1	
Approach LOS		C			B			B			A	

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 84.5			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 18.0		Intersection LOS: B	
Intersection Capacity Utilization 59.3%		ICU Level of Service B	
Analysis Period (min) 15			

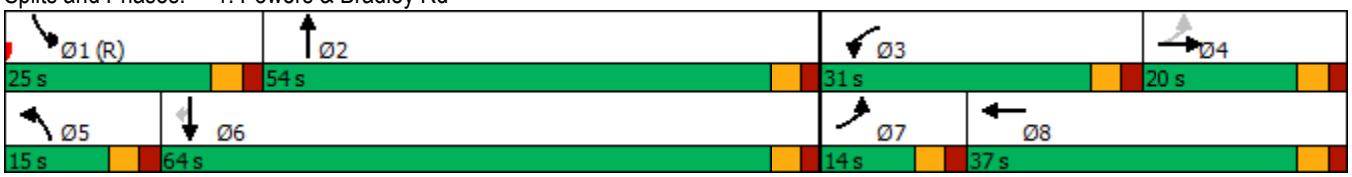
Splits and Phases: 101: Marksheffel Rd & Bradley Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	225	75	619	359	941	100	1300	446	547	750	19
Future Volume (vph)	26	225	75	619	359	941	100	1300	446	547	750	19
Turn Type	pm+pt	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free			Free			Free			6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	9.0	15.0		9.0	9.0		9.0	9.0		9.0	9.0	9.0
Total Split (s)	14.0	20.0		31.0	37.0		15.0	54.0		25.0	64.0	64.0
Total Split (%)	10.8%	15.4%		23.8%	28.5%		11.5%	41.5%		19.2%	49.2%	49.2%
Yellow Time (s)	3.0	3.0		3.0	3.0		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
Lost Time Adjust (s)	-1.0	-1.0		-2.0	-1.0		-1.0	-2.0		-2.0	-2.0	-1.0
Total Lost Time (s)	4.0	4.0		3.0	4.0		4.0	3.0		3.0	3.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	None		C-Max	None	None
Act Effct Green (s)	22.1	14.2	130.0	27.4	37.1	130.0	9.8	51.0	130.0	24.3	64.5	63.5
Actuated g/C Ratio	0.17	0.11	1.00	0.21	0.29	1.00	0.08	0.39	1.00	0.19	0.50	0.49
v/c Ratio	0.13	0.60	0.05	0.87	0.37	0.61	0.40	0.96	0.29	0.87	0.44	0.02
Control Delay	30.7	61.7	0.1	66.7	37.4	5.0	61.6	54.4	0.5	66.8	22.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.7	61.7	0.1	66.7	37.4	5.0	61.6	54.4	0.5	66.8	22.7	0.1
LOS	C	E	A	E	D	A	E	D	A	E	C	A
Approach Delay		45.1			30.9			41.6			40.6	
Approach LOS		D			C			D			D	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 125 (96%), Referenced to phase 1:SBL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 37.8	Intersection LOS: D
Intersection Capacity Utilization 90.9%	ICU Level of Service E
Analysis Period (min) 15	

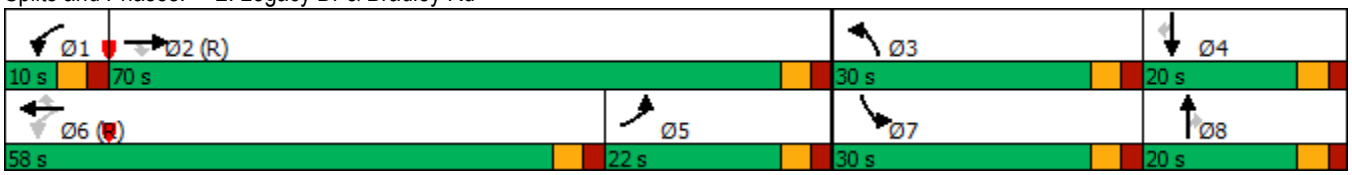
Splits and Phases: 1: Powers & Bradley Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	412	739	67	60	1716	353	53	19	34	117	10	151
Future Volume (vph)	412	739	67	60	1716	353	53	19	34	117	10	151
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2	6		6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	22.0	70.0	70.0	10.0	58.0	58.0	30.0	20.0	20.0	30.0	20.0	20.0
Total Split (%)	16.9%	53.8%	53.8%	7.7%	44.6%	44.6%	23.1%	15.4%	15.4%	23.1%	15.4%	15.4%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	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	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	18.0	90.6	90.6	79.0	79.0	79.0	8.5	8.1	8.1	11.0	10.6	10.6
Actuated g/C Ratio	0.14	0.70	0.70	0.61	0.61	0.61	0.07	0.06	0.06	0.08	0.08	0.08
v/c Ratio	0.91	0.32	0.06	0.15	0.84	0.36	0.25	0.17	0.16	0.42	0.07	0.58
Control Delay	54.9	3.2	0.1	13.0	26.4	8.6	59.9	60.4	1.4	60.5	54.7	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	3.2	0.1	13.0	26.4	8.6	59.9	60.4	1.4	60.5	54.7	16.9
LOS	D	A	A	B	C	A	E	E	A	E	D	B
Approach Delay		20.5			23.1			41.2			36.6	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 102 (78%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 23.8	Intersection LOS: C
Intersection Capacity Utilization 79.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Legacy Dr & Bradley Rd



Intersection	
Intersection Delay, s/veh	3.4
Intersection LOS	A

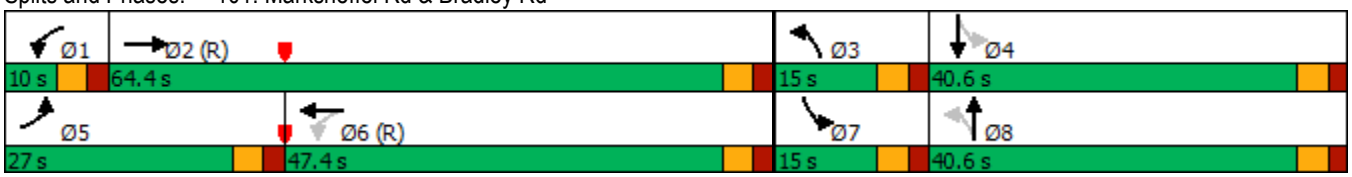
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	74	22	47	149
Demand Flow Rate, veh/h	75	22	48	152
Vehicles Circulating, veh/h	45	111	97	17
Vehicles Exiting, veh/h	124	34	23	116
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	3.2	3.1	3.2	3.6
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	75	22	48	152
Cap Entry Lane, veh/h	1318	1232	1250	1356
Entry HV Adj Factor	0.987	1.000	0.988	0.979
Flow Entry, veh/h	74	22	47	149
Cap Entry, veh/h	1300	1232	1235	1327
V/C Ratio	0.057	0.018	0.038	0.112
Control Delay, s/veh	3.2	3.1	3.2	3.6
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	393	370	156	95	637	285	300	600	50	140	275	385
Future Volume (vph)	393	370	156	95	637	285	300	600	50	140	275	385
Turn Type	Prot	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free	6		Free	8		Free	4		Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	10.0	21.0		10.0	21.0		10.0	21.0		10.0	21.0	
Total Split (s)	27.0	64.4		10.0	47.4		15.0	40.6		15.0	40.6	
Total Split (%)	20.8%	49.5%		7.7%	36.5%		11.5%	31.2%		11.5%	31.2%	
Yellow Time (s)	3.0	3.0		3.0	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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	19.9	59.4	130.0	49.5	44.5	130.0	45.9	35.9	130.0	45.3	35.6	130.0
Actuated g/C Ratio	0.15	0.46	1.00	0.38	0.34	1.00	0.35	0.28	1.00	0.35	0.27	1.00
v/c Ratio	0.79	0.24	0.10	0.25	0.55	0.19	0.79	0.65	0.03	0.60	0.30	0.26
Control Delay	64.5	22.0	0.1	19.5	37.2	0.3	49.2	45.2	0.0	37.6	38.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.5	22.0	0.1	19.5	37.2	0.3	49.2	45.2	0.0	37.6	38.4	0.4
LOS	E	C	A	B	D	A	D	D	A	D	D	A
Approach Delay		36.5			25.2			44.1			19.9	
Approach LOS		D			C			D			B	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 31.7	Intersection LOS: C
Intersection Capacity Utilization 69.8%	ICU Level of Service C
Analysis Period (min) 15	

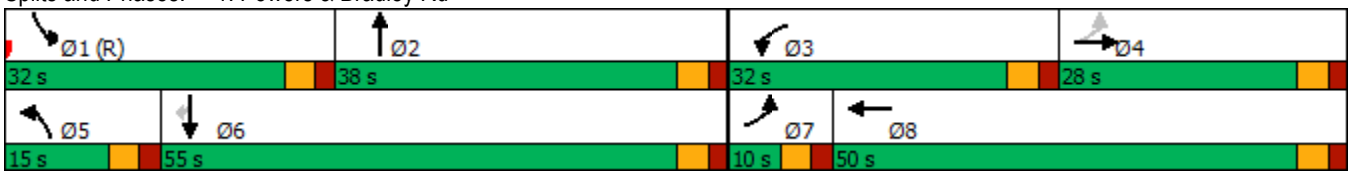
Splits and Phases: 101: Marksheffel Rd & Bradley Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	311	210	408	380	619	175	650	484	547	1200	110
Future Volume (vph)	71	311	210	408	380	619	175	650	484	547	1200	110
Turn Type	pm+pt	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free			Free			Free			6
Detector Phase	7	4		3	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
Minimum Split (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	9.0
Total Split (s)	10.0	28.0		32.0	50.0		15.0	38.0		32.0	55.0	55.0
Total Split (%)	7.7%	21.5%		24.6%	38.5%		11.5%	29.2%		24.6%	42.3%	42.3%
Yellow Time (s)	3.0	3.0		3.0	3.0		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
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Max		C-Max	Max	Max
Act Effct Green (s)	24.2	18.2	130.0	22.1	36.3	130.0	12.4	34.0	130.0	39.7	61.2	61.2
Actuated g/C Ratio	0.19	0.14	1.00	0.17	0.28	1.00	0.10	0.26	1.00	0.31	0.47	0.47
v/c Ratio	0.35	0.66	0.14	0.72	0.40	0.40	0.55	0.72	0.32	0.54	0.74	0.14
Control Delay	34.2	59.3	0.2	54.7	30.0	1.0	62.5	49.0	0.5	41.3	32.9	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	59.3	0.2	54.7	30.0	1.0	62.5	49.0	0.5	41.3	32.9	2.2
LOS	C	E	A	D	C	A	E	D	A	D	C	A
Approach Delay		35.3			24.4			32.9			33.6	
Approach LOS		D			C			C			C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 1 (1%), Referenced to phase 1:SBL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 31.1	Intersection LOS: C
Intersection Capacity Utilization 71.7%	ICU Level of Service C
Analysis Period (min) 15	

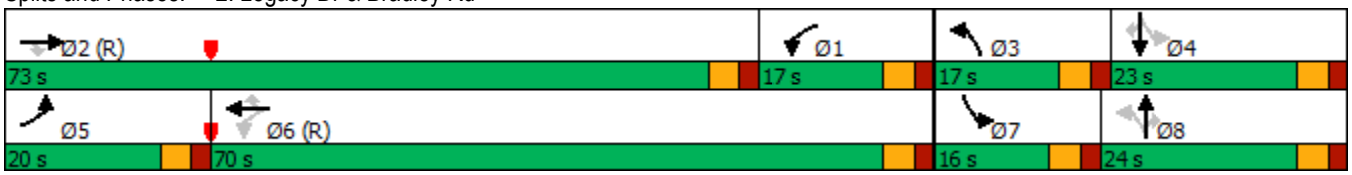
Splits and Phases: 1: Powers & Bradley Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	302	832	208	140	977	109	192	15	154	301	21	237
Future Volume (vph)	302	832	208	140	977	109	192	15	154	301	21	237
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	20.0	73.0	73.0	17.0	70.0	70.0	17.0	24.0	24.0	16.0	23.0	23.0
Total Split (%)	15.4%	56.2%	56.2%	13.1%	53.8%	53.8%	13.1%	18.5%	18.5%	12.3%	17.7%	17.7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	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	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	17.5	78.7	78.7	74.2	74.2	74.2	22.5	10.3	10.3	22.2	10.2	10.2
Actuated g/C Ratio	0.13	0.61	0.61	0.57	0.57	0.57	0.17	0.08	0.08	0.17	0.08	0.08
v/c Ratio	0.69	0.41	0.21	0.32	0.51	0.12	0.38	0.11	0.59	0.60	0.15	0.71
Control Delay	51.2	28.4	11.7	20.4	18.8	3.6	45.3	54.4	16.9	50.3	56.4	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	28.4	11.7	20.4	18.8	3.6	45.3	54.4	16.9	50.3	56.4	17.8
LOS	D	C	B	C	B	A	D	D	B	D	E	B
Approach Delay		31.0			17.7			33.6			36.8	
Approach LOS		C			B			C			D	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 67 (52%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 27.5	Intersection LOS: C
Intersection Capacity Utilization 60.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Legacy Dr & Bradley Rd



Intersection	
Intersection Delay, s/veh	5.3
Intersection LOS	A

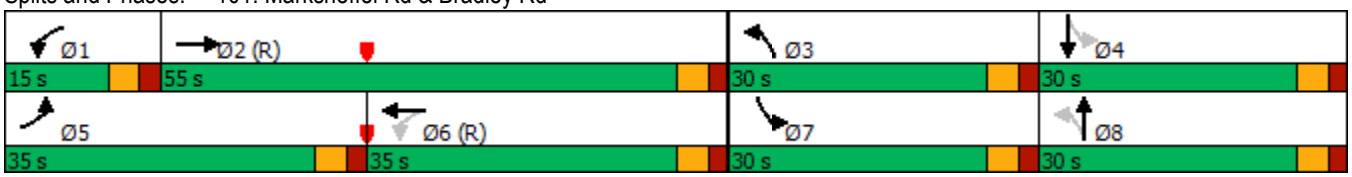
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	307	90	73	388
Demand Flow Rate, veh/h	313	91	75	395
Vehicles Circulating, veh/h	152	342	350	44
Vehicles Exiting, veh/h	287	83	115	389
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.5	4.6	4.5	5.5
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	313	91	75	395
Cap Entry Lane, veh/h	1182	974	966	1319
Entry HV Adj Factor	0.981	0.989	0.978	0.981
Flow Entry, veh/h	307	90	73	388
Cap Entry, veh/h	1159	963	944	1295
V/C Ratio	0.265	0.093	0.078	0.299
Control Delay, s/veh	5.5	4.6	4.5	5.5
LOS	A	A	A	A
95th %tile Queue, veh	1	0	0	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	598	775	339	195	579	215	199	500	100	300	650	399
Future Volume (vph)	598	775	339	195	579	215	199	500	100	300	650	399
Turn Type	Prot	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free	6		Free	8		Free	4		Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	10.0	21.0		10.0	21.0		10.0	21.0		10.0	21.0	
Total Split (s)	35.0	55.0		15.0	35.0		30.0	30.0		30.0	30.0	
Total Split (%)	26.9%	42.3%		11.5%	26.9%		23.1%	23.1%		23.1%	23.1%	
Yellow Time (s)	3.0	3.0		3.0	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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	27.6	50.0	130.0	42.4	32.4	130.0	45.1	28.6	130.0	54.3	33.5	130.0
Actuated g/C Ratio	0.21	0.38	1.00	0.33	0.25	1.00	0.35	0.22	1.00	0.42	0.26	1.00
v/c Ratio	0.86	0.60	0.23	0.72	0.69	0.14	0.69	0.68	0.07	0.81	0.75	0.27
Control Delay	62.3	34.3	0.3	39.2	49.6	0.2	38.1	52.3	0.1	45.3	51.1	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.3	34.3	0.3	39.2	49.6	0.2	38.1	52.3	0.1	45.3	51.1	0.4
LOS	E	C	A	D	D	A	D	D	A	D	D	A
Approach Delay		37.3			36.8			42.2			34.8	
Approach LOS		D			D			D			C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 37.3	Intersection LOS: D
Intersection Capacity Utilization 80.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 101: Marksheffel Rd & Bradley Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	237	75	675	395	1051	100	1300	482	583	750	19
Future Volume (vph)	26	237	75	675	395	1051	100	1300	482	583	750	19
Turn Type	pm+pt	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free			Free			Free			6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	9.0	15.0		9.0	9.0		9.0	9.0		9.0	9.0	9.0
Total Split (s)	14.0	20.0		31.0	37.0		15.0	54.0		25.0	64.0	64.0
Total Split (%)	10.8%	15.4%		23.8%	28.5%		11.5%	41.5%		19.2%	49.2%	49.2%
Yellow Time (s)	3.0	3.0		3.0	3.0		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
Lost Time Adjust (s)	-1.0	-1.0		-2.0	-1.0		-1.0	-2.0		-2.0	-2.0	-1.0
Total Lost Time (s)	4.0	4.0		3.0	4.0		4.0	3.0		3.0	3.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	None		C-Max	None	None
Act Effct Green (s)	22.3	14.5	130.0	28.0	37.9	130.0	9.8	51.0	130.0	23.5	63.7	62.7
Actuated g/C Ratio	0.17	0.11	1.00	0.22	0.29	1.00	0.08	0.39	1.00	0.18	0.49	0.48
v/c Ratio	0.13	0.62	0.05	0.93	0.39	0.68	0.40	0.96	0.31	0.96	0.45	0.02
Control Delay	30.7	62.2	0.1	74.5	40.8	6.6	61.6	54.4	0.5	80.0	23.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.7	62.2	0.1	74.5	40.8	6.6	61.6	54.4	0.5	80.0	23.1	0.1
LOS	C	E	A	E	D	A	E	D	A	E	C	A
Approach Delay		46.0			34.4			40.9			47.1	
Approach LOS		D			C			D			D	

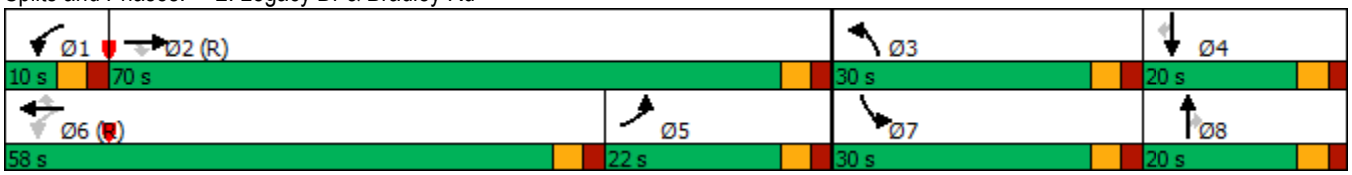
Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 125 (96%), Referenced to phase 1:SBL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 40.3	Intersection LOS: D
Intersection Capacity Utilization 93.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 1: Powers & Bradley Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	412	755	135	98	1716	353	256	23	119	117	12	151
Future Volume (vph)	412	755	135	98	1716	353	256	23	119	117	12	151
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2	6		6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	22.0	70.0	70.0	10.0	58.0	58.0	30.0	20.0	20.0	30.0	20.0	20.0
Total Split (%)	16.9%	53.8%	53.8%	7.7%	44.6%	44.6%	23.1%	15.4%	15.4%	23.1%	15.4%	15.4%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	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	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	18.0	78.5	78.5	70.7	70.7	70.7	16.5	14.3	14.3	11.0	8.8	8.8
Actuated g/C Ratio	0.14	0.60	0.60	0.54	0.54	0.54	0.13	0.11	0.11	0.08	0.07	0.07
v/c Ratio	0.91	0.37	0.14	0.28	0.94	0.40	0.62	0.12	0.42	0.42	0.10	0.62
Control Delay	53.6	5.1	0.2	17.9	38.9	11.2	59.9	51.4	9.6	60.5	56.7	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	5.1	0.2	17.9	38.9	11.2	59.9	51.4	9.6	60.5	56.7	19.4
LOS	D	A	A	B	D	B	E	D	A	E	E	B
Approach Delay		19.9			33.4			44.4			38.2	
Approach LOS		B			C			D			D	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 102 (78%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 30.6	Intersection LOS: C
Intersection Capacity Utilization 83.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Legacy Dr & Bradley Rd



Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	974	16	0	2066	0	31
Future Vol, veh/h	974	16	0	2066	0	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	95	95	98	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	994	17	0	2108	0	33

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	497
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	519
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	519
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	519	-	-	-
HCM Lane V/C Ratio	0.063	-	-	-
HCM Control Delay (s)	12.4	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Intersection Delay, s/veh	4.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	150	76	237	265
Demand Flow Rate, veh/h	153	77	241	271
Vehicles Circulating, veh/h	135	381	186	18
Vehicles Exiting, veh/h	154	46	102	440
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.1	4.7	5.1	4.4
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	153	77	241	271
Cap Entry Lane, veh/h	1202	936	1141	1355
Entry HV Adj Factor	0.980	0.987	0.982	0.979
Flow Entry, veh/h	150	76	237	265
Cap Entry, veh/h	1179	923	1121	1326
V/C Ratio	0.127	0.082	0.211	0.200
Control Delay, s/veh	4.1	4.7	5.1	4.4
LOS	A	A	A	A
95th %tile Queue, veh	0	0	1	1

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	48	0	12	8	0	40	2	132	1	19	56	18
Future Vol, veh/h	48	0	12	8	0	40	2	132	1	19	56	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	205	-	-	205	-	155
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	0	13	9	0	43	2	143	1	21	61	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	272	251	61	268	271	144	81	0	0	144	0	0
Stage 1	103	103	-	148	148	-	-	-	-	-	-	-
Stage 2	169	148	-	120	123	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	680	652	1004	685	636	903	1517	-	-	1438	-	-
Stage 1	903	810	-	855	775	-	-	-	-	-	-	-
Stage 2	833	775	-	884	794	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	639	642	1004	668	626	903	1517	-	-	1438	-	-
Mov Cap-2 Maneuver	639	642	-	668	626	-	-	-	-	-	-	-
Stage 1	902	798	-	854	774	-	-	-	-	-	-	-
Stage 2	792	774	-	860	782	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	9.5	0.1	1.5
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1517	-	-	689	853	1438	-	-
HCM Lane V/C Ratio	0.001	-	-	0.095	0.061	0.014	-	-
HCM Control Delay (s)	7.4	-	-	10.8	9.5	7.5	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	-	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	51	26	8	64	70	48
Future Vol, veh/h	51	26	8	64	70	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	-	155	205	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	28	9	70	76	52

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	83	0	143	55
Stage 1	-	-	-	-	55	-
Stage 2	-	-	-	-	88	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1514	-	850	1012
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	935	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1514	-	845	1012
Mov Cap-2 Maneuver	-	-	-	-	815	-
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	935	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	885	-	-	1514	-
HCM Lane V/C Ratio	0.145	-	-	0.006	-
HCM Control Delay (s)	9.8	-	-	7.4	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	90	2	1	54	6	2	0	3	37	0	15
Future Vol, veh/h	7	90	2	1	54	6	2	0	3	37	0	15
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	205	-	-	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	98	2	1	59	7	2	0	3	40	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	66	0	0	100	0	0	188	183	99	182	181	63
Stage 1	-	-	-	-	-	-	115	115	-	65	65	-
Stage 2	-	-	-	-	-	-	73	68	-	117	116	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1536	-	-	1493	-	-	772	711	957	779	713	1002
Stage 1	-	-	-	-	-	-	890	800	-	946	841	-
Stage 2	-	-	-	-	-	-	937	838	-	888	800	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1536	-	-	1493	-	-	756	707	957	773	709	1002
Mov Cap-2 Maneuver	-	-	-	-	-	-	756	707	-	773	709	-
Stage 1	-	-	-	-	-	-	886	796	-	941	840	-
Stage 2	-	-	-	-	-	-	921	837	-	880	796	-

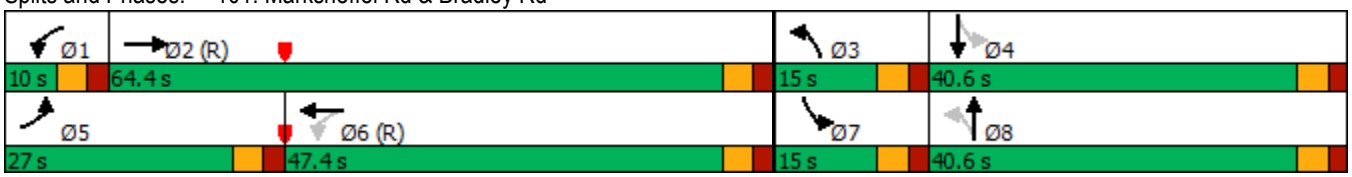
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.1	9.2	9.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	865	1536	-	-	1493	-	-	828
HCM Lane V/C Ratio	0.006	0.005	-	-	0.001	-	-	0.068
HCM Control Delay (s)	9.2	7.4	-	-	7.4	-	-	9.7
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	481	387	167	95	643	285	304	600	50	140	275	414
Future Volume (vph)	481	387	167	95	643	285	304	600	50	140	275	414
Turn Type	Prot	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free	6		Free	8		Free	4		Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	10.0	21.0		10.0	21.0		10.0	21.0		10.0	21.0	
Total Split (s)	27.0	64.4		10.0	47.4		15.0	40.6		15.0	40.6	
Total Split (%)	20.8%	49.5%		7.7%	36.5%		11.5%	31.2%		11.5%	31.2%	
Yellow Time (s)	3.0	3.0		3.0	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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	21.5	59.4	130.0	47.9	42.9	130.0	45.9	35.9	130.0	45.3	35.6	130.0
Actuated g/C Ratio	0.17	0.46	1.00	0.37	0.33	1.00	0.35	0.28	1.00	0.35	0.27	1.00
v/c Ratio	0.89	0.25	0.11	0.26	0.58	0.19	0.80	0.65	0.03	0.60	0.30	0.28
Control Delay	72.2	22.2	0.1	19.8	38.6	0.3	50.1	45.2	0.0	37.6	38.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.2	22.2	0.1	19.8	38.6	0.3	50.1	45.2	0.0	37.6	38.4	0.4
LOS	E	C	A	B	D	A	D	D	A	D	D	A
Approach Delay		41.9			26.2			44.4			19.3	
Approach LOS		D			C			D			B	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 33.5	Intersection LOS: C
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

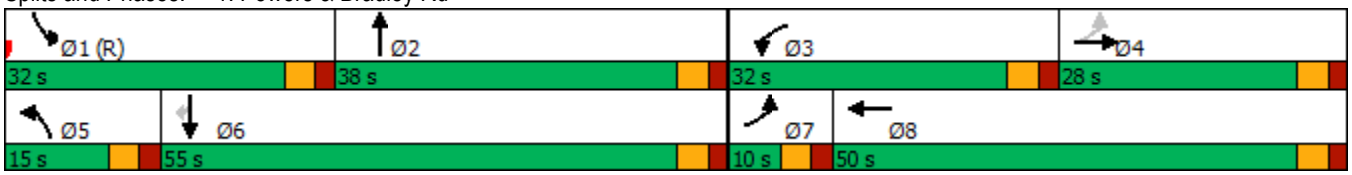
Splits and Phases: 101: Marksheffel Rd & Bradley Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	352	210	445	404	691	175	650	607	670	1200	110
Future Volume (vph)	71	352	210	445	404	691	175	650	607	670	1200	110
Turn Type	pm+pt	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free			Free			Free			6
Detector Phase	7	4		3	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
Minimum Split (s)	9.0	9.0		9.0	9.0		9.0	9.0		9.0	9.0	9.0
Total Split (s)	10.0	28.0		32.0	50.0		15.0	38.0		32.0	55.0	55.0
Total Split (%)	7.7%	21.5%		24.6%	38.5%		11.5%	29.2%		24.6%	42.3%	42.3%
Yellow Time (s)	3.0	3.0		3.0	3.0		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
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Max		C-Max	Max	Max
Act Effct Green (s)	25.7	19.7	130.0	23.4	39.1	130.0	12.0	34.0	130.0	36.9	58.9	58.9
Actuated g/C Ratio	0.20	0.15	1.00	0.18	0.30	1.00	0.09	0.26	1.00	0.28	0.45	0.45
v/c Ratio	0.33	0.69	0.14	0.74	0.39	0.45	0.57	0.72	0.40	0.71	0.77	0.14
Control Delay	32.1	59.1	0.2	53.2	30.6	1.2	63.9	49.0	0.7	47.6	35.3	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	59.1	0.2	53.2	30.6	1.2	63.9	49.0	0.7	47.6	35.3	2.2
LOS	C	E	A	D	C	A	E	D	A	D	D	A
Approach Delay		36.5			23.9			30.4			37.7	
Approach LOS		D			C			C			D	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 1 (1%), Referenced to phase 1:SBL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 31.9	Intersection LOS: C
Intersection Capacity Utilization 73.9%	ICU Level of Service D
Analysis Period (min) 15	

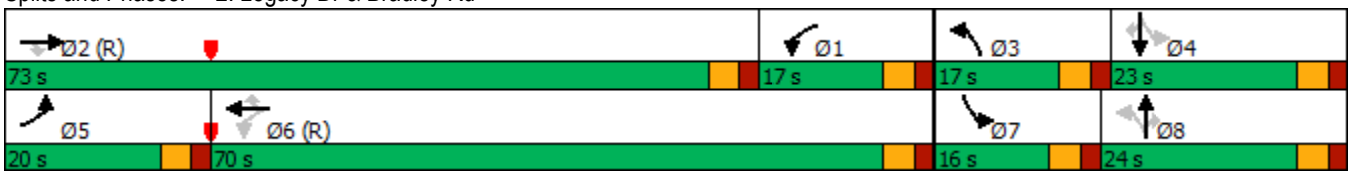
Splits and Phases: 1: Powers & Bradley Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	302	886	441	270	977	109	325	18	210	301	26	237
Future Volume (vph)	302	886	441	270	977	109	325	18	210	301	26	237
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	20.0	73.0	73.0	17.0	70.0	70.0	17.0	24.0	24.0	16.0	23.0	23.0
Total Split (%)	15.4%	56.2%	56.2%	13.1%	53.8%	53.8%	13.1%	18.5%	18.5%	12.3%	17.7%	17.7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	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	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	17.5	78.1	78.1	73.7	73.7	73.7	23.9	10.9	10.9	21.9	9.9	9.9
Actuated g/C Ratio	0.13	0.60	0.60	0.57	0.57	0.57	0.18	0.08	0.08	0.17	0.08	0.08
v/c Ratio	0.69	0.44	0.41	0.64	0.51	0.12	0.63	0.12	0.66	0.61	0.19	0.71
Control Delay	48.8	28.9	12.4	34.6	19.1	3.6	50.6	54.7	16.7	50.2	57.5	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	28.9	12.4	34.6	19.1	3.6	50.6	54.7	16.7	50.2	57.5	18.3
LOS	D	C	B	C	B	A	D	D	B	D	E	B
Approach Delay		28.1			20.9			37.8			37.1	
Approach LOS		C			C			D			D	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 67 (52%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 28.3	Intersection LOS: C
Intersection Capacity Utilization 65.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Legacy Dr & Bradley Rd



Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1343	54	0	1198	0	20
Future Vol, veh/h	1343	54	0	1198	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	95	95	98	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1370	57	0	1222	0	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	685
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	391
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	391
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	391	-	-	-
HCM Lane V/C Ratio	0.054	-	-	-
HCM Control Delay (s)	14.7	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	357	126	194	775
Demand Flow Rate, veh/h	364	127	198	789
Vehicles Circulating, veh/h	449	513	435	47
Vehicles Exiting, veh/h	387	120	378	593
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.3	6.0	6.5	9.9
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	364	127	198	789
Cap Entry Lane, veh/h	873	818	885	1315
Entry HV Adj Factor	0.981	0.992	0.980	0.982
Flow Entry, veh/h	357	126	194	775
Cap Entry, veh/h	856	811	867	1291
V/C Ratio	0.417	0.155	0.224	0.600
Control Delay, s/veh	9.3	6.0	6.5	9.9
LOS	A	A	A	A
95th %tile Queue, veh	2	1	1	4

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	1	8	5	1	26	7	127	5	64	226	62
Future Vol, veh/h	32	1	8	5	1	26	7	127	5	64	226	62
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	205	-	-	205	-	155
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	35	1	9	5	1	28	8	138	5	70	246	67

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	557	545	246	582	610	141	313	0	0	143	0	0
Stage 1	386	386	-	157	157	-	-	-	-	-	-	-
Stage 2	171	159	-	425	453	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	441	446	793	424	409	907	1247	-	-	1440	-	-
Stage 1	637	610	-	845	768	-	-	-	-	-	-	-
Stage 2	831	766	-	607	570	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	408	421	793	401	387	907	1247	-	-	1440	-	-
Mov Cap-2 Maneuver	408	421	-	401	387	-	-	-	-	-	-	-
Stage 1	633	580	-	840	763	-	-	-	-	-	-	-
Stage 2	799	761	-	570	542	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.9	10.2	0.4	1.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1247	-	-	451	732	1440	-	-
HCM Lane V/C Ratio	0.006	-	-	0.099	0.048	0.048	-	-
HCM Control Delay (s)	7.9	-	-	13.9	10.2	7.6	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	125	89	27	117	46	31
Future Vol, veh/h	125	89	27	117	46	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	155	205	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	136	97	29	127	50	34

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	233	0	321	136
Stage 1	-	-	-	-	136	-
Stage 2	-	-	-	-	185	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1335	-	673	913
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	847	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1335	-	658	913
Mov Cap-2 Maneuver	-	-	-	-	684	-
Stage 1	-	-	-	-	870	-
Stage 2	-	-	-	-	847	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	761	-	-	1335	-
HCM Lane V/C Ratio	0.11	-	-	0.022	-
HCM Control Delay (s)	10.3	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	127	6	2	132	21	2	0	2	24	0	10
Future Vol, veh/h	24	127	6	2	132	21	2	0	2	24	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	205	-	-	205	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	138	7	2	143	23	2	0	2	26	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	166	0	0	145	0	0	358	364	142	354	356	155
Stage 1	-	-	-	-	-	-	194	194	-	159	159	-
Stage 2	-	-	-	-	-	-	164	170	-	195	197	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1412	-	-	1437	-	-	597	564	906	601	570	891
Stage 1	-	-	-	-	-	-	808	740	-	843	766	-
Stage 2	-	-	-	-	-	-	838	758	-	807	738	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1412	-	-	1437	-	-	581	553	906	591	559	891
Mov Cap-2 Maneuver	-	-	-	-	-	-	581	553	-	591	559	-
Stage 1	-	-	-	-	-	-	793	727	-	828	765	-
Stage 2	-	-	-	-	-	-	827	757	-	790	725	-

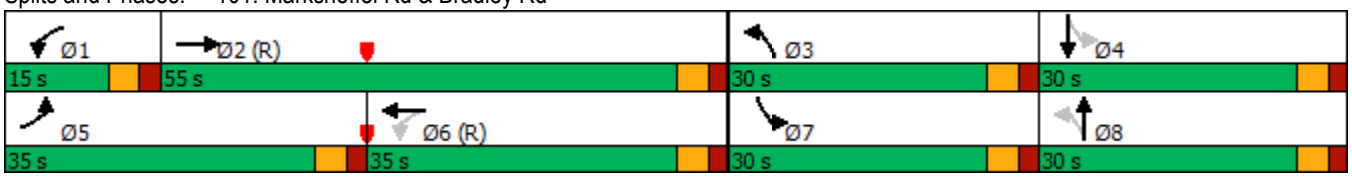
Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.1	10.1	10.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	708	1412	-	-	1437	-	-	656
HCM Lane V/C Ratio	0.006	0.018	-	-	0.002	-	-	0.056
HCM Control Delay (s)	10.1	7.6	-	-	7.5	-	-	10.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	656	786	346	195	599	215	212	500	100	300	650	498
Future Volume (vph)	656	786	346	195	599	215	212	500	100	300	650	498
Turn Type	Prot	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free	6		Free	8		Free	4		Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0		5.0	4.0		5.0	4.0	
Minimum Split (s)	10.0	21.0		10.0	21.0		10.0	21.0		10.0	21.0	
Total Split (s)	35.0	55.0		15.0	35.0		30.0	30.0		30.0	30.0	
Total Split (%)	26.9%	42.3%		11.5%	26.9%		23.1%	23.1%		23.1%	23.1%	
Yellow Time (s)	3.0	3.0		3.0	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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	28.9	50.0	130.0	41.1	31.1	130.0	46.0	28.6	130.0	53.9	32.6	130.0
Actuated g/C Ratio	0.22	0.38	1.00	0.32	0.24	1.00	0.35	0.22	1.00	0.41	0.25	1.00
v/c Ratio	0.91	0.61	0.23	0.73	0.74	0.14	0.72	0.68	0.07	0.81	0.77	0.33
Control Delay	65.7	34.5	0.3	40.1	52.4	0.2	41.1	52.3	0.1	45.0	52.6	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.7	34.5	0.3	40.1	52.4	0.2	41.1	52.3	0.1	45.0	52.6	0.6
LOS	E	C	A	D	D	A	D	D	A	D	D	A
Approach Delay		39.3			38.9			42.9			33.1	
Approach LOS		D			D			D			C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 38.0	Intersection LOS: D
Intersection Capacity Utilization 82.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 101: Marksheffel Rd & Bradley Rd



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	26	820	1070	1051	100	482
Future Volume (vph)	26	820	1070	1051	100	482
Turn Type	pm+pt	NA	NA	Free	Prot	Free
Protected Phases	5	2	6		8	
Permitted Phases	2			Free		Free
Detector Phase	5	2	6		8	
Switch Phase						
Minimum Initial (s)	4.0	10.0	4.0		20.0	
Minimum Split (s)	9.0	15.0	9.0		25.0	
Total Split (s)	15.0	95.0	80.0		35.0	
Total Split (%)	11.5%	73.1%	61.5%		26.9%	
Yellow Time (s)	3.0	3.0	3.0		3.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	4.0	4.0	4.0		4.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	101.0	101.0	94.3	130.0	21.0	130.0
Actuated g/C Ratio	0.78	0.78	0.73	1.00	0.16	1.00
v/c Ratio	0.07	0.31	0.44	0.70	0.37	0.32
Control Delay	2.5	7.3	15.0	6.9	52.8	0.5
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	2.5	7.8	15.0	6.9	52.8	0.5
LOS	A	A	B	A	D	A
Approach Delay		7.7	11.0			
Approach LOS		A	B			

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 25 (19%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 10.0	Intersection LOS: A
Intersection Capacity Utilization 59.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Powers NB Ramp & Bradley Rd

Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	263	75	675	495	583	19
Future Volume (vph)	263	75	675	495	583	19
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	10.0	23.0	23.0	23.0
Total Split (s)	45.0	45.0	40.0	85.0	45.0	45.0
Total Split (%)	34.6%	34.6%	30.8%	65.4%	34.6%	34.6%
Yellow Time (s)	3.0	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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	40.0	40.0	35.0	80.0	40.0	40.0
Actuated g/C Ratio	0.31	0.31	0.27	0.62	0.31	0.31
v/c Ratio	0.25	0.15	0.77	0.24	0.58	0.04
Control Delay	34.6	7.5	42.6	8.1	40.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.6	7.5	42.6	8.1	40.6	0.2
LOS	C	A	D	A	D	A
Approach Delay	28.6			28.0		
Approach LOS	C			C		

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 67 (52%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Pretimed	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 31.3	Intersection LOS: C
Intersection Capacity Utilization 59.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 26: Bradley Rd & Powers SB Ramp

Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	71	1022	849	691	175	607
Future Volume (vph)	71	1022	849	691	175	607
Turn Type	pm+pt	NA	NA	Free	Prot	Free
Protected Phases	5	2	6		8	
Permitted Phases	2			Free		Free
Detector Phase	5	2	6		8	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	
Minimum Split (s)	9.0	9.0	9.0		9.0	
Total Split (s)	15.0	100.0	85.0		30.0	
Total Split (%)	11.5%	76.9%	65.4%		23.1%	
Yellow Time (s)	3.0	3.0	3.0		3.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	4.0	4.0	4.0		4.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		Max	
Act Effct Green (s)	96.0	96.0	86.2	130.0	26.0	130.0
Actuated g/C Ratio	0.74	0.74	0.66	1.00	0.20	1.00
v/c Ratio	0.17	0.41	0.38	0.46	0.52	0.40
Control Delay	9.5	10.4	10.2	1.2	52.5	0.8
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	9.5	10.5	10.2	1.2	52.5	0.8
LOS	A	B	B	A	D	A
Approach Delay		10.4	6.2			
Approach LOS		B	A			

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 47 (36%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 8.9	Intersection LOS: A
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Powers NB Ramp & Bradley Rd

Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	423	210	445	579	670	110
Future Volume (vph)	423	210	445	579	670	110
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	10.0	23.0	23.0	23.0
Total Split (s)	40.0	40.0	45.0	85.0	45.0	45.0
Total Split (%)	30.8%	30.8%	34.6%	65.4%	34.6%	34.6%
Yellow Time (s)	3.0	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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	35.0	35.0	40.0	80.0	40.0	40.0
Actuated g/C Ratio	0.27	0.27	0.31	0.62	0.31	0.31
v/c Ratio	0.47	0.38	0.44	0.28	0.67	0.20
Control Delay	41.6	6.6	43.7	7.8	42.9	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	6.6	43.7	7.8	42.9	6.6
LOS	D	A	D	A	D	A
Approach Delay	30.0			23.4		
Approach LOS	C			C		

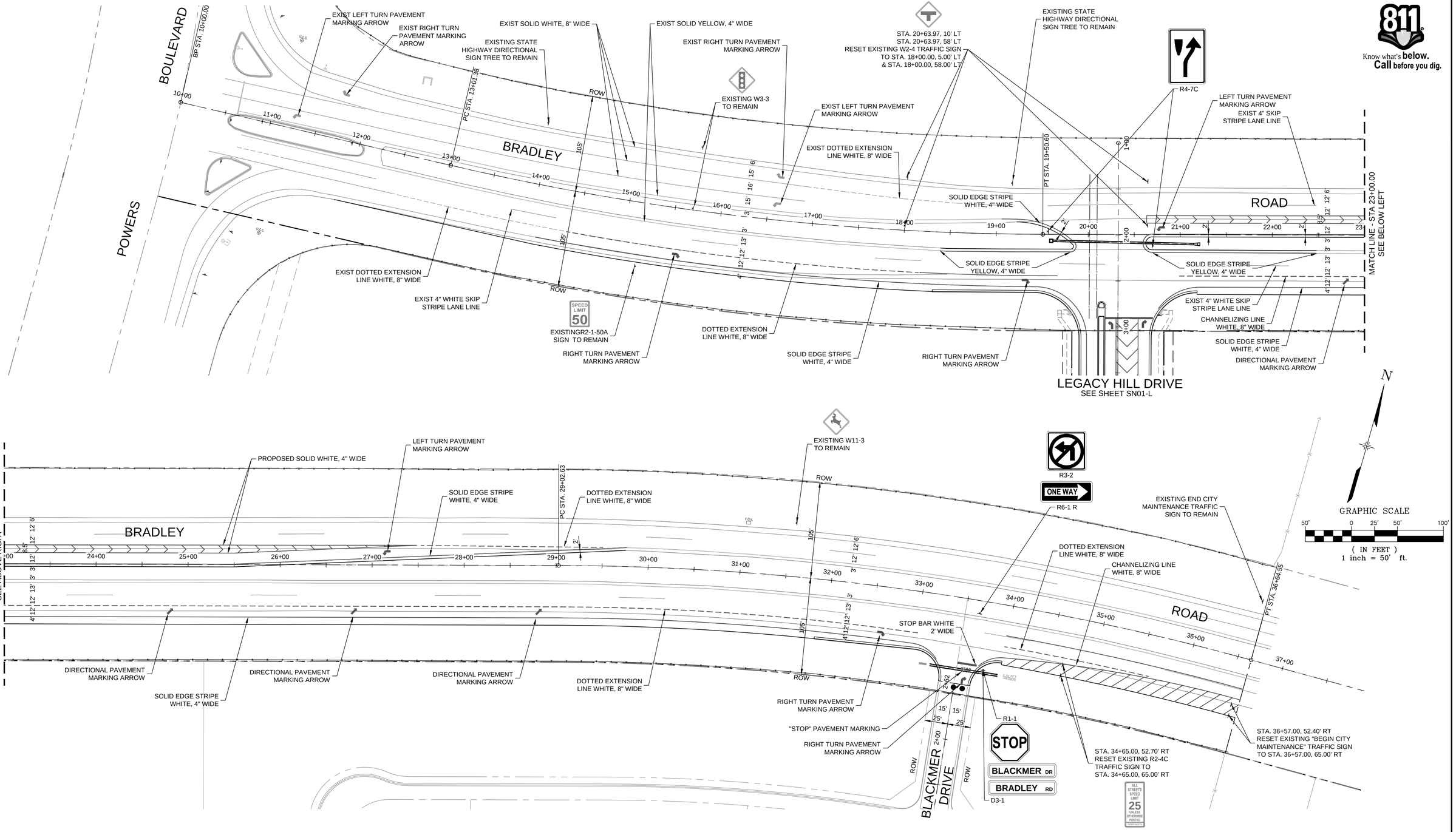
Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 67 (52%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Pretimed	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 29.7	Intersection LOS: C
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 26: Bradley Rd & Powers SB Ramp

Signing and Striping Plans

prepared by Matrix Design Group

TRANSPORTATION
CONSULTANTS, INC.



REFERENCE DRAWINGS

No.	DATE	DESCRIPTION	BY

REVISIONS

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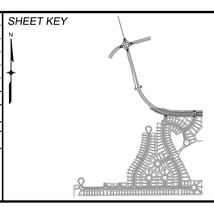

BENCHMARK

COLORADO SPRINGS UTILITIES (FIMS) MONUMENT F206
A BERNTSEN TOP SECURITY MONUMENT SYSTEM WITH A 3.5-INCH DIAMETER ALUMINUM CAP IN A ROAD BOX, LOCATED ON THE NORTHWEST CORNER OF FONTAINE BOULEVARD AND POWERS BOULEVARD,
ELEVATION - 5897.89' U.S. SURVEY FT

BASIS OF BEARING

BEARINGS ARE BASED ON THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 9, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH P.M. SAID LINE BEARS S89°51'23"E FROM THE NORTHWEST CORNER OF SAID SECTION 9 (2 ½" AULM. CAP PLS 17664) TO THE N ¼ CORNER OF SAID SECTION 9 (3 ¼" AULM. CAP PLS 10377)

PREPARED BY:

Matrix DESIGN GROUP

SEAL

PRELIMINARY
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FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC.
PROJECT No. 19.886.011

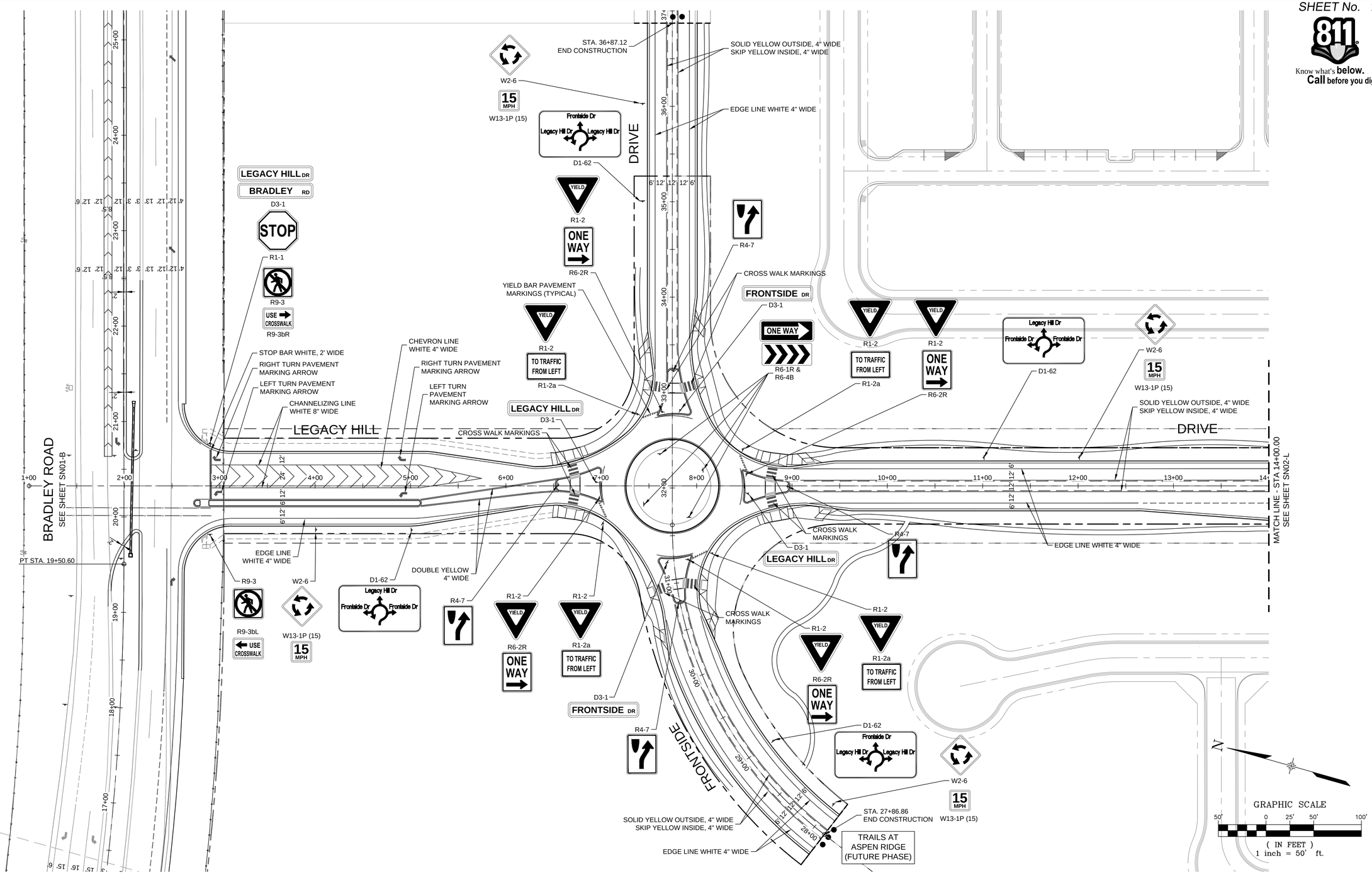
TRAILS AT ASPEN RIDGE

FILING NO. 1
ROADWAY & STORM IMPROVEMENT PLANS

BRADLEY ROAD SIGNING & STRIPING

DESIGNED BY:	NMS	SCALE		DATE ISSUED:	AUGUST, 2019
DRAWN BY:	TJC	HORIZ.	1" = 50'	SHEET	17 OF 71
CHECKED BY:	NMS	VERT.	N.A.		

DRAWING No. SN01-B



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No.	DATE	DESCRIPTION	BY

REVISIONS

COMPUTER FILE MANAGEMENT

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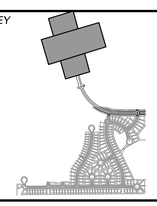

BENCHMARK

COLORADO SPRINGS UTILITIES (FIMS) MONUMENT F206
A BERNTSEN TOP SECURITY MONUMENT SYSTEM WITH A 3.5-INCH DIAMETER ALUMINUM CAP IN A ROAD BOX, LOCATED ON THE NORTHWEST CORNER OF FONTAINE BOULEVARD AND POWERS BOULEVARD,
ELEVATION - 5897.89' U.S. SURVEY FT

BASIS OF BEARING

BEARINGS ARE BASED ON THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 9, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH P.M. SAID LINE BEARS S89°51'23"E FROM THE NORTHWEST CORNER OF SAID SECTION 9 (2 ½" AULM. CAP PLS 17664) TO THE N ¼ CORNER OF SAID SECTION 9 (3 ¼" AULM. CAP PLS 10377)

PREPARED BY:

Matrix DESIGN GROUP

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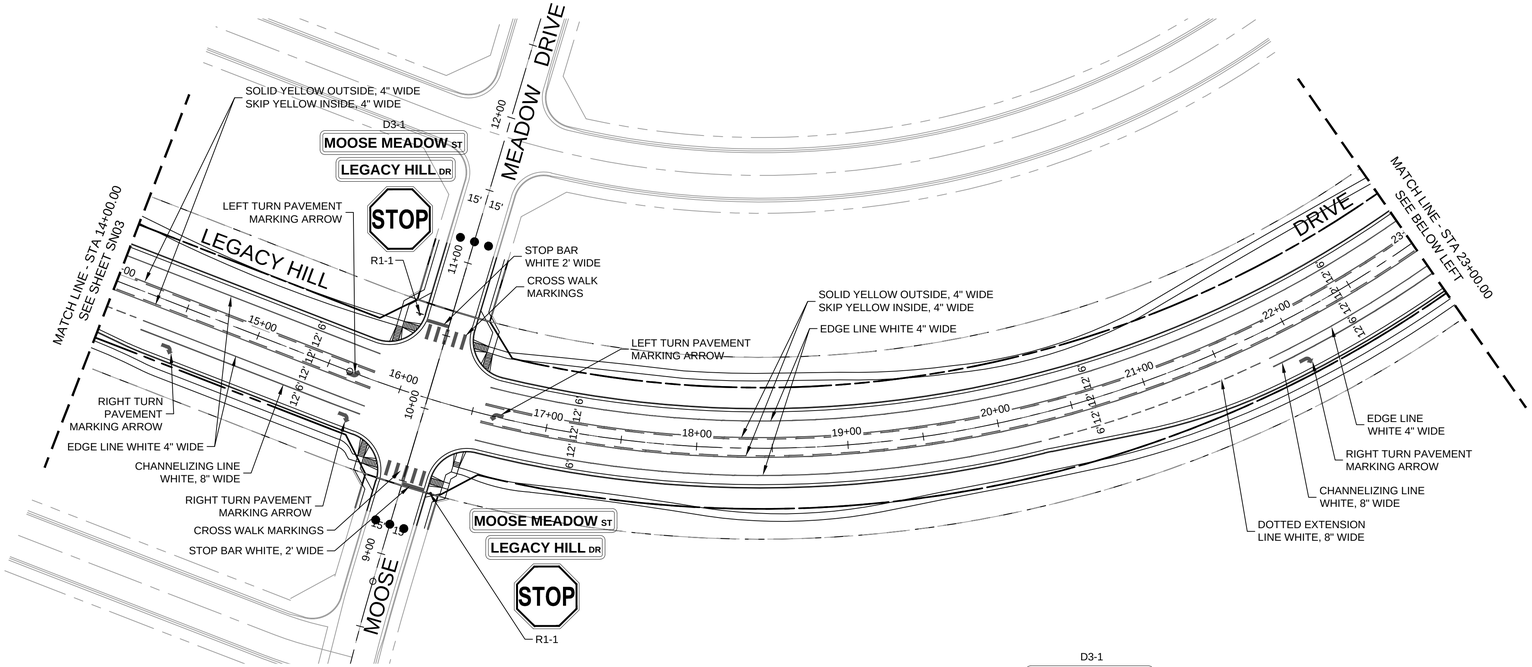
FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC.
PROJECT No. 19.886.011

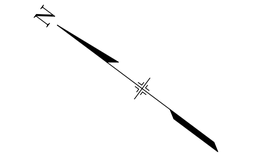
TRAILS AT ASPEN RIDGE

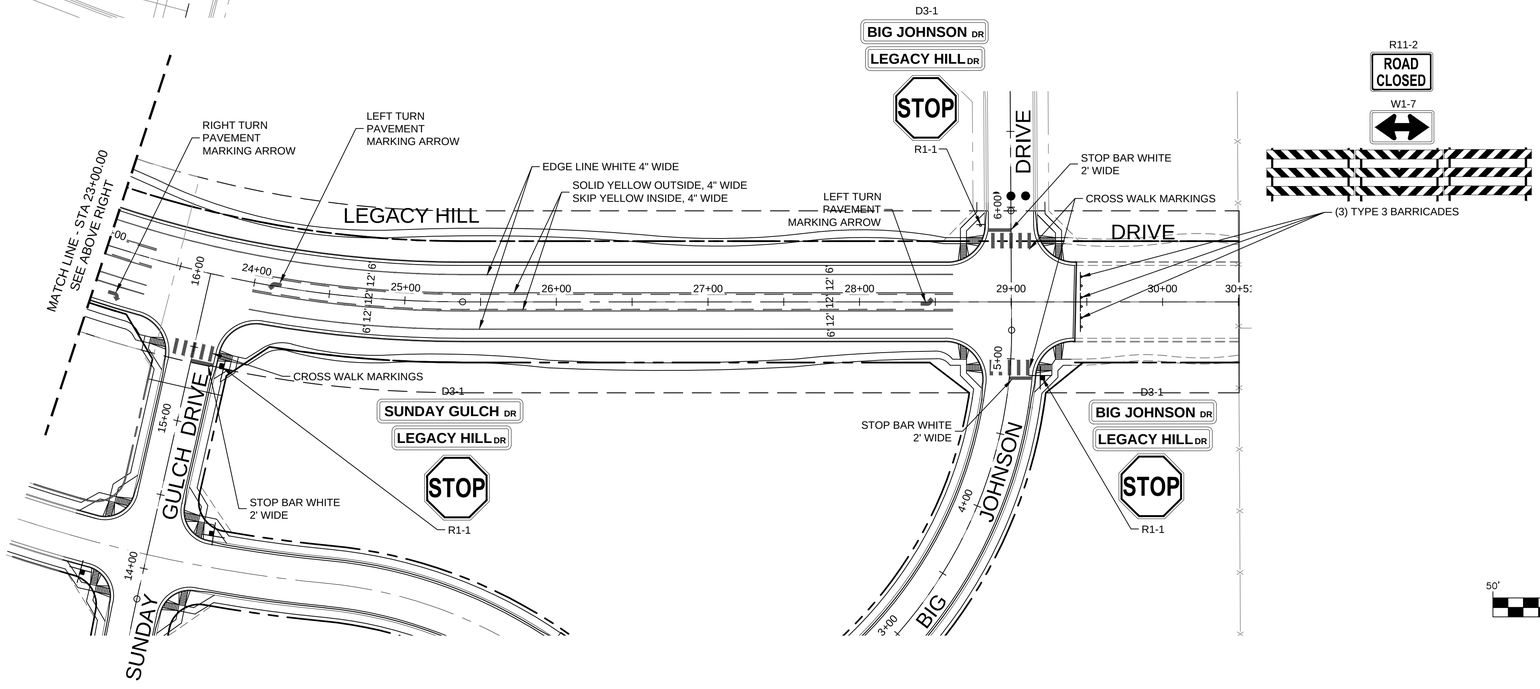
FILING NO. 1
ROADWAY & STORM IMPROVEMENT PLANS

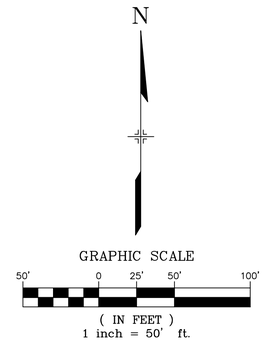
LEGACY HILL DRIVE SIGNING & STRIPING

DESIGNED BY:	NMS	SCALE	DATE ISSUED:	SEPTEMBER, 2019	DRAWING No.
DRAWN BY:	TJC	HORIZ. 1" = 50'			
CHECKED BY:	NMS	VERT. N.A.	SHEET	18 OF 71	SN01-L









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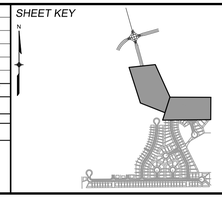

BENCHMARK

COLORADO SPRINGS UTILITIES (FIMS) MONUMENT F206
A BERNTSEN TOP SECURITY MONUMENT SYSTEM WITH A 3.5-INCH DIAMETER ALUMINUM CAP IN A ROAD BOX, LOCATED ON THE NORTHWEST CORNER OF FONTAINE BOULEVARD AND POWERS BOULEVARD,
ELEVATION - 5897.89' U.S. SURVEY FT

BASIS OF BEARING

BEARINGS ARE BASED ON THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 9, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH P.M. SAID LINE BEARS S89°51'23"E FROM THE NORTHWEST CORNER OF SAID SECTION 9 (2 ½" AULM. CAP PLS 17664) TO THE N ¼ CORNER OF SAID SECTION 9 (3 ¼" AULM. CAP PLS 10377)

PREPARED BY:

Matrix DESIGN GROUP

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FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC.
PROJECT No. 19.886.011

TRAILS AT ASPEN RIDGE

FILING NO. 1
ROADWAY & STORM IMPROVEMENT PLANS

LEGACY DRIVE
SIGNING & STRIPING

DESIGNED BY:	NMS	SCALE	
DRAWN BY:	TJC	HORIZ. 1" = 50'	DATE ISSUED: SEPTEMBER, 2019
CHECKED BY:	NMS	VERT. N.A.	SHEET 19 OF 71

DRAWING No. SN02-L

Appendix Table

TRANSPORTATION
CONSULTANTS, INC.

Appendix Table 1
Background Traffic Trip Generation Estimate
Aspen Ridge Filing No. 1 and PUD

Land Use Code	Land Use Description	Trip Generation Units		Trip Generation Rates [1] Average Weekday Traffic	Morning Peak-Hour In	Morning Peak-Hour Out	Afternoon Peak-Hour In	Afternoon Peak-Hour Out	Total Future Trips Generated Average Weekday Traffic	Morning Peak-Hour In	Morning Peak-Hour Out	Afternoon Peak-Hour In	Afternoon Peak-Hour Out	Pass-by Trip Percent[2]	Total Future "External" Trips Generated Average Weekday
Waterview East Preliminary Plan															
820	Shopping Center	148	KSF[3]	53.03	0.95	0.58	2.36	2.55	7,849	140	86	349	378	34%	5,180
210	Single-Family Detached Housing	786	DU[4]	9.44	0.19	0.56	0.62	0.37	7,420	145	436	490	288	0%	7,420
					Total Waterview East Preliminary Plan				**15,269**	**285**	**522**	**839**	**666**		**12,600**
Waterview North of Bradley Road															
770	Business Park	720	KSF	11.61	1.14	0.20	0.31	0.89	8,362	818	144	225	641	0%	8,362
220	Multifamily Housing Low-Rise	288	DU	7.32	0.11	0.35	0.35	0.21	2,108	30	102	102	60	0%	2,108
210	Single-Family Detached Housing	312	DU	9.44	0.19	0.56	0.62	0.37	2,945	58	173	195	114	0%	2,945
									13,415	**907**	**420**	**522**	**815**		**13,415**
								Grand Total	**28,684**	**1,192**	**942**	**1,360**	**1,481**		**26,015**

Notes:

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

(2) Source: "Trip Generation Handbook - An ITE Proposed Recommended Practice 3rd Edition, September 2017" by ITE

(3) KSF = 1,000 square feet

(4) DU = dwelling unit

Source: LSC Transportation Consultants, Inc.