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# Springs at Waterview East
# Preliminary Plan
# Traffic Impact and Access Analysis
# PCD File No: SP-17-010

(LSC #184360)

June 22, 2018

(August 24, 2018 Revision)

**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.

8/23/18

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June 22, 2018
(Rev. August 24, 2018)

Mr. Charles Cothern, P.E
Dakota Springs Engineering
31 North Tejon, Suite 311
Colorado Springs, CO 80903

RE: The Springs at Waterview East Preliminary Plan
Traffic Impact and Access Analysis
El Paso County, Colorado
LSC #184360

Dear Mr. Cothern:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact and access analysis for The Springs at Waterview East Preliminary Plan. 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 *Waterview Sketch Plan Updated Master Traffic Impact Study* dated January 9, 2018. This report contains the following:

- This August 24, 2018 minor revision contains updated Figures 2, 3, and 4; no other revisions.
- 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 Springs at Waterview East development.
- 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 Springs at Waterview East.
- The required Countywide Road Impact Fees.

## LAND USE AND ACCESS

### Land Use

Figure 2 shows the currently proposed Springs at Waterview East Preliminary Plan. This area was included in the *Waterview Sketch Plan Updated Master Traffic Impact Study* (Master TIS) dated

January 9, 2018 as Parcels P-17 and P18. A 26-acre parcel located on the northwest area of the site is to be developed for commercial uses. This is consistent with the land use assumed for Parcel P-17 in the Master TIS. The remaining site is planned to be developed with about 714 lots for single-family homes. The Master TIS assumed this area would be developed with about 865 lots for single family homes plus a potential community recreation center and school site.

**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 Master TIS and deviations to the El Paso County *Engineering Criteria Manual (ECM)* for these access points have been approved. The approved deviation forms have been attached.

Internal access for the proposed land uses within the site are proposed to a north/south Non-Residential Urban Collector ("A" Street) and an east/west Non-Residential Urban Collector ("K" Street west of "A" Street and "C" Street east of "A" Street). Access for the commercial portion of the development is proposed via two full-movement access points to "K" Street west of "A" Street and one full-movement access point east of "A" Street. The location and spacing of the proposed commercial access points are shown in Figure 2.

**Commercial Access Intersection Sight Distance**

The commercial access for the east-side commercial area would have adequate horizontal intersection sight distance in both directions.

The design of the westernmost commercial site will need to allow for acceptable stopping sight distance and intersection sight distance to the north from the intersection of the Non-Residential Collector and the north/south local street on the west side of the project. This access will be designed with the commercial site plan and final plat for that parcel. The submitted plans should include a sight distance evaluation.

The commercial access in the center of the west-side commercial area would have adequate horizontal intersection sight distance in both directions. With the commercial site plan a "sight distance" easement may be needed along the site frontage to "K" street west of this access due to the horizontal curve to the west. However, the intersection sight distance could be based on a reduced approach vehicle speed due to the curve radius and the proximity of the beginning of the street.

**Roundabout Design**

The intersection of the two Non-Residential Urban Collector Streets ("A" Street and "K" Street) is planned to be constructed a modern one-lane roundabout. The approximate recommended size for the roundabout's inscribed circle diameter is 150 feet, however the final dimensions and

other roundabout details will be determined with the roundabout design – which will likely be with the first final plat. A roundabout design report will be prepared and submitted at that time. Figure 3 depicts a roundabout concept of approximately the appropriate size to accommodate truck traffic demonstrating that sufficient space is being provided for the roundabout. Minor lot line adjustments may be needed on the corners at the roundabout design stage and platting.

**Currently Approved Deviations**

- Full-movement, future public street signalized intersection with Bradley Road approximately 1,030 feet east of Powers Boulevard (DSD File No. SKP 16-002 approved 3/28/2018).
- Right-in/right-out access point to both the westbound and eastbound directions of Bradley Road approximately 2,340 feet east of Powers Boulevard (DSD File No. SKP 16-002 approved 3/28/2018).

**New Deviation Requests**

The following new deviation requests are shown on Figure 4.

1. Intersection spacing along a Non-Residential Collector for “A” Street between Bradley Road and the roundabout and for proposed commercial access to “C” street just east of “A” Street.
2. Intersection spacing along an Urban Local Streets “L”, “O”, “U”, “E”, “F”, and “N” to the first local street intersection back from a Collector don't meet criteria - 2.2.5.E On an urban local roadway, the closest intersection to a collector roadway shall be at least 200 feet (centerline to centerline).
3. Centerline radius on “K” street less than the 565-foot minimum for a Non-Residential Collector
4. Reduction in auxiliary lane lengths for the northbound left-turn lane on “A” Street approaching Bradley Road
5. Reduction in auxiliary lane lengths for the eastbound left-turn lane on “C” Street at the proposed commercial access east of the roundabout.

**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 a raised median, left-turn lanes, and rural paved shoulders.

**Existing Traffic Conditions**

Figure 5 shows the existing traffic volumes at the intersection of Powers Boulevard/Bradley Road. The traffic volumes are based on the attached traffic counts conducted by LSC in April 2018. Figure 5 also shows the 2016 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. Figure 5 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.

**Table 1**
**Intersection Levels of Service Delay Ranges**

| Level of Service | Signalized Intersections | | Unsignalized Intersections |
|---|---|---|---|
| | Average Control Delay (seconds per vehicle) | V/C[1] | Average Control Delay (seconds per vehicle)[2] |
| A | 10.0 sec or less | less than 0.60 | 10.0 sec or less |
| B | 10.1-20.0 sec | 0.60-0.69 | 10.1-15.0 sec |
| C | 20.1-35.0 sec | 0.70-0.79 | 15.1-25.0 sec |
| D | 35.1-55.0 sec | 0.80-0.89 | 25.1-35.0 sec |
| E | 55.1-80.0 sec | 0.90-0.99 | 35.1-50.0 sec |
| F | 80.1 sec or more | 1.00 and greater | 50.1 sec or more |

(1) Source: *Transportation Research Circular 212*
(2) 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.

The signalized intersection of Powers/Bradley has been analyzed to determine the existing levels of service using Synchro. All movements at this intersection are currently operating at LOS C or better during the peak hours.

**2040 BACKGROUND TRAFFIC**

The background traffic volumes for the year 2040 are shown on Figure 6. The 2040 background traffic volumes were based on the *Waterview Sketch Plan Updated Master Traffic Impact Study* dated January 9, 2018

**TRIP GENERATION**

The traffic volumes to be generated by the land uses within the currently proposed preliminary 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 Master TIS for comparison.

The total number of vehicle-trips generated by the commercial parcels was reduced to account for the pass-by phenomenon. A pass-by trip is made by a motorist who would already be on the roadway system regardless of the development, but who stops in at the site while passing by. The motorist would then continue on his or her way to a final destination in the original direction. The pass-by percentages for each use were taken from *Trip Generation Handbook, 3rd Edition*, June 2004, by ITE.

The site is projected to generate about 11,660 new external vehicle-trips on the average weekday, with about half entering and half exiting the site during a 24-hour period. This is about 2,357 fewer trips than was estimated in the Master TIS. During the morning peak hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 267 vehicles would enter and 477 vehicles would exit the site. During the afternoon peak hour, which generally occurs for one hour between 4:15 and 6:15 p.m., about 779 vehicles would enter and 624 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 7 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. Figure 8 shows the short-term and long-term directional distribution of the primary commercial generated traffic. Figure 9 shows the directional distribution of the commercial pass-by generated trips. Pass-by trips were assigned based primarily on the existing traffic volumes on the major streets adjacent to the site

When the distribution percentages (from Figures 7 through 9) are applied to the trip generation estimates (from Table 2), the resulting site-generated traffic volumes can be determined. Figures 10 and 11 show the projected short-term and long-term site-generated traffic volume due to the residential portion of the site. Figures 12 and 13 show the projected short-term and long-term site-generated traffic volume due to the commercial portion of the site

**TOTAL TRAFFIC**

Figure 14 shows the sum of the existing traffic volumes from Figure 5 plus the short-term residential site-generated traffic volumes from Figure 10. These figures represent the short-term impacts following buildout of the residential portion of the site only.

Figure 15 shows the sum of the existing traffic volumes from Figure 5 plus the short-term residential site-generated traffic volumes from Figure 10 plus the short-term commercial generated traffic volumes from Figure 12. These figures represent the short-term impacts following buildout of the entire Springs at Waterview East Preliminary Plan.

Figure 16 shows the sum of the 2040 background traffic volumes from Figure 6 plus the long-term residential site-generated traffic volumes from Figure 11 plus the long-term commercial generated traffic volumes from Figure 13.

**PROJECTED LEVELS OF SERVICE**

The site access points are key area intersections have been analyzed to determine the projected levels of service for the 2040 background, existing plus residential generated traffic volumes, existing plus buildout site-generated traffic volumes, 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 6, 14, 15, and 16 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 with the addition of the residential generated traffic. It was assumed that Powers Boulevard would be restriped to provide dual southbound left-turn lanes approaching Bradley Road and Bradley Road would be restriped to provide dual westbound left-turn lanes approaching Powers Boulevard with development of the retail portion of the Springs at Waterview East. Based on the short-term total traffic volumes and the lane geometry shown in Figure 15 all movements at the intersection of Powers/Bradley are projected to operate at LOS D or better with the addition of both the residential and commercial generated trips.

By 2040 it was assumed that the section of Bradley Road between Goldfield Drive and Powers Boulevard would be constructed. It was also assumed that Powers Boulevard would be widened

to provide three through lanes in each direction by 2040. Based on the 2040 total traffic volumes shown and the lane geometry shown in Figure 16, some of the minor movements are projected to operate at LOS E during the peak hours. It is common for left-turn and side-street through movements to have projected delays in the LOS E 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 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.

**Full-Movement Site Access/Bradley**

The northbound left-turn movement at the full-movement intersection to Bradley Road 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 plus residential generated traffic, existing plus buildout site-generated traffic, and 2040 total traffic volumes.

**Right-in/Right-out Site Access/Bradley**

All movements at the proposed right-in/right-out site access to Bradley Road are projected to operate at LOS C or better during the peak hours based on the projected existing plus residential generated traffic, existing plus buildout site-generated traffic, and 2040 total traffic volumes.

**“A” Street/”K” Street**

The intersection of the north/south Non-Residential Urban Collector (“A” Street) and the east/ west Non-Residential Urban Collector (“K” Street) is proposed to be constructed as a modern one-lane roundabout. All movements at this intersection are projected to operate at LOS A during the peak hours based on the projected existing plus residential generated traffic, existing plus buildout site-generated traffic, and 2040 total traffic volumes.

**Commercial Site Access Points**

The commercial site access points to the Urban Non-Residential Collector streets within the Springs at Waterview East Preliminary Plan area are projected to operate at LOS B or better for all movements during the peak hours as stop-sign-controlled intersections.

**VEHICLE QUEUING ANALYSIS**

A queuing analysis was performed using Synchro/SimTraffic to determine if the proposed intersection spacing will be sufficient to accommodate the projected queues based on the total traffic volumes. The 2040 total afternoon peak-hour traffic volumes were entered into the Synchro model. The simulation was run five times. The queuing reports are attached.

Figure 3 shows the preliminary lane concept for the street segments north and east of the proposed roundabout. This figure identifies the preliminary stacking lengths for the northbound left-turn lanes on "A" Street approaching Bradley Road and on eastbound "C" Street approaching the retail access.

The projected maximum northbound left-turn queue on "A" Street approaching Bradley Road is 204 feet during the afternoon peak hour.

The projected maximum eastbound left-turn queue on "C" Street approaching the retail access just east of "A" Street is 31 feet during the afternoon peak hour.

**TRAFFIC SIGNAL WARRANT ANALYSIS**

The full-movement intersection to Bradley Road 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. 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.

Table 2 shows the existing and the projected site-generated traffic volumes. 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 site-generated volumes were based on the short-term site-generated traffic volumes shown in Figures 10 and 12 and the hourly variation data found in *Trip Generation, 10th Edition* by the Institute of Transportation Engineers (ITE).

Detailed analyses are presented in Table 3. Table 3 shows that a Four-Hour Vehicular Volume Traffic Signal Warrant is projected to be met once about 34 percent of the residential portion of the site is developed (about 242 dwelling units). If the retail portion of the site is developed first an Eight-Hour Vehicular Volume Traffic Signal Warrant is projected to be met once about 23 percent of the commercial area is built out. A traffic signal warrant may be met earlier if the residential and commercial parcels are developed concurrently. 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.

**TRAFFIC SIGNAL ESCROW PERCENTAGES/AMOUNTS**

Table 4 shows the projected total traffic volumes on the minor approach volumes at the intersection of "A" Street and Bradley Road by development based on the 2040 total traffic volumes (from Figure 16). The minor approach volumes were assumed to include the northbound and southbound left-turn and through movements. As shown in Table 4, the residential portion of the Springs at Waterview East development is projected to contribute about 32.8 percent of the traffic on the northbound and southbound approaches at this intersection. The commercial portion of the Springs at Waterview East development is projected to contribute about 23.2 percent of the traffic on the northbound and southbound approaches at this intersection. Assuming a total signal cost of $500,000, a fair share contribution towards a future signal at this intersection would be $163,883.09 for the residential portion ($230.17 per dwelling unit) and $114,866.39 for the commercial portion. Table 5presents a template that should be used with each final plat for keeping track of the running escrow amount. If an IGA is established between the County and the Waterview II Metro District, whereby the district is responsible for signal installation once warranted/directed by the County Public Works Department, escrow of funds may not be necessary. It is our understanding that the intent is to have the district responsible for the collecting fees and mils and the signal installation.

Should a traffic signal be installed prior to the development of the parcel north of Bradley Road the Springs at Waterview East would be responsible for the entire cost of the signal. Table 4 shows the fair share contribution for the commercial and residential portions of The Springs at Waterview assuming no development north of Bradley Road. The developers could potentially then file for cost recovery with the County against that parcel(s) to the north, so they would provide fair share reimbursement for their relative impact on the intersection and benefit from the signal. If an IGA is established between the County and the Waterview II Metro District, whereby the district is responsible for signal installation once warranted/directed by the County Public Works Department, cost recovery may not apply as the property on the north side of Bradley Road would be in the district as well.

**ROADWAY CLASSIFICATIONS**

Figure 17 shows the recommended street classification for all streets within the Springs at Waterview East Preliminary Plan based on the projected 2040 weekday traffic volumes shown in Figure 16.

**RECOMMENDED IMPROVEMENTS**

- Table 6 contains a summary of the needed improvements.

- Table 7 contains a summary of the auxiliary turn lanes required at the intersections of Powers/Bradley and "A" Street/Bradley based on the criteria contained in the ECM and the *Colorado State Highway Access Code.* Deviations to the ECM will be submitted for the shortened continuous right-turn acceleration lane on Bradley Road between Powers

Boulevard and "A" Street and for shortened northbound left-turn lanes on "A" Street approaching Bradley Road. Deviation requests will likely be needed for the back-to-back left-turn lanes between Powers Boulevard and Bradley Road and for a continuous westbound right-turn acceleration/deceleration lane between these two intersections with the development of the parcel(s) to the north. Improvements that may be needed to Powers Boulevard/Bradley Road to be in compliance with the ECM include widening to provide dual southbound left-turn lanes.

- Figures 18 and 19 present to-scale conceptual lane exhibits for Bradley Road adjacent to the site. These exhibits have been prepared to depict the recommended short- and long-term auxiliary turn lane and center median configuration at the full-movement access point and between this access and Powers.

- Figure 3 shows the preliminary lane concept for the street segments north and east of the proposed roundabout. This figure identifies the preliminary stacking lengths for the northbound left-turn lanes on "A" Street approaching Bradley Road and on eastbound "C" Street approaching the retail access.

- Based on the criteria contained in the ECM, an eastbound right-turn deceleration lane would be required on Bradley Road approaching the full-movement site access point with the addition of the site-generated traffic due to the residential portion of the Springs at Waterview East. The northbound right-turn lane on Powers at Bradley Road is currently a channelized right-turn lane into an acceleration lane on eastbound Bradley Road. Figure 18 shows no changes to this current configuration except the right-turn acceleration lane would end as an eastbound right-turn lane at the proposed site access instead of the current transition taper.

- Based on the criteria contained in the ECM, an eastbound right-turn deceleration lane would be required on Bradley Road approaching the right-in/right-out site access point with the addition of the site-generated traffic due to the residential portion of the Springs at Waterview East. Although the ECM generally does not require right-turn acceleration lanes on Minor Arterial, LSC recommends a continuous right-turn acceleration/deceleration lane be constructed on Bradley Road between the full-movement and right-in/right-out site access points.

- Based on the criteria contained in the ECM a westbound left-turn lane would be required on Bradley Road approaching the full-movement site access point with the addition of the site-generated traffic due to the residential portion of the Springs at Waterview East. Based on the posted speed limit of 50 miles per hour and the projected 2040 total traffic volumes, this lane should be 495 feet (235 feet of deceleration length plus 260 feet of storage) plus a 200-foot taper.

- **Commercial Site Access Auxiliary Turn Lane Requirements:** Left-turn lanes at the commercial access points will be provided as the Non-Residential Collector cross section includes a

striped, center, two-way left-turn lane (TWLTL). The taper for the eastbound left-turn lane for the east commercial access on "C" Street would be shorter than the ECM standard length. This taper is proposed to be a reverse-curve-type taper of approximately 90 feet. The stacking distance would be included within the standard 155-foot deceleration distance. A deviation is being submitted for this. A right-turn lane will be required at the central/main commercial access west of the roundabout. A right-turn lane will not be required at the commercial access east of the roundabout.

- **County Road Impact Fee Program:** This residential portion of this project will be required to participate in the El Paso County Road Improvement Fee Program. The Springs at Waterview East is likely to join the ten-mil PID, however this has yet to be determined. A final determination will be at the final plat stage the ten-mil PID building permit fee portion associated with this option is $923 per single-family dwelling unit. Based on 714 lots, the total building permit fee would be $659,022.

- **Improvements Relative to the current MTCP:** The 2040 MTCP does not call for any improvement projects in the immediate vicinity of the site except for the Bradley Road extension west of Powers Boulevard. Although this project would not be responsible for that improvement, this is addressed in the improvements table. No improvements identified herein would be reimbursable through the MTCP-based Roadway Improvements program.

- **Special Districts:** This project will be part of the Waterview II Metropolitan District

* * * * * *

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

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By_____
Jeffrey C. Hodsdon, P.E., PTOE
Principal

JCH:KDF:bjwb

Enclosures: Tables 2-7
Figures 1-19
Approved Deviation Forms
Traffic Count Reports
Level of Service Reports

**Table 2**
**Trip Generation Estimate**
**Springs at Waterview East Preliminary Plan**

| 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 | Internal Trips | Total External 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trip Generation Estimate Based on The Currently Proposed Preliminary Plan** | | | | | | | | | | | | | | | | | | | | | |
| 820 | Shopping Center | 148 | KSF[3] | 53.03 | 0.95 | 0.58 | 2.36 | 2.55 | 7,849 | 140 | 86 | 349 | 378 | 2% | 7,692 | 137 | 84 | 342 | 370 | 34% | 5,077 |
| 210 | Single-Family Detached Housing | 714 | DU[4] | 9.44 | 0.19 | 0.56 | 0.62 | 0.37 | 6,740 | 132 | 396 | 445 | 262 | 2% | 6,583 | 130 | 393 | 437 | 255 | 0% | 6,583 |
| | | | | | | | | | **14,589** | **272** | **482** | **794** | **639** | | **14,275** | **267** | **477** | **779** | **624** | | **11,660** |
| **Trip Generation Estimate From The *Waterview Sketch Plan Updated Master Traffic Impact Study* by LSC January 9, 2018** | | | | | | | | | | | | | | | | | | | | | |
| 820 | Shopping Center | 148 | KSF | 59.20 | 0.83 | 0.51 | 2.53 | 2.85 | 8,762 | 123 | 75 | 374 | 422 | 0% | 8,762 | 123 | 75 | 374 | 422 | 34% | 5,783 |
| 495 | Recreational Community Center | 33 | KSF | 33.82 | 1.35 | 0.70 | 1.34 | 1.40 | 1,116 | 45 | 23 | 44 | 46 | 50% | 558 | 23 | 11 | 22 | 23 | 0% | 558 |
| 210 | Single-Family Detached Housing | 865 | DU | 9.52 | 0.19 | 0.56 | 0.63 | 0.37 | 8,235 | 162 | 487 | 545 | 320 | [5] | 7,354 | 99 | 403 | 503 | 280 | 0% | 7,354 |
| 520 | Elementary School | 500 | Students | 1.29 | 0.25 | 0.20 | 0.07 | 0.08 | 645 | 124 | 101 | 37 | 38 | 50% | 322 | 62 | 50 | 19 | 19 | 0% | 322 |
| | | | | | | | | | **18,758** | **453** | **686** | **1,000** | **826** | | **16,996** | **306** | **539** | **918** | **744** | | **14,017** |
| | | | | **Change In Trip Generation Estimate** | | | | | **-4,169** | **-181** | **-204** | **-206** | **-187** | | **-2,721** | **-39** | **-62** | **-139** | **-120** | | **-2,357** |

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

(5) Residential were balanced with estimated internal trips to and from the school and recreation center

*Source: LSC Transportation Consultants, Inc.*

**Table 3**
**Waterview Sketch Plan**
**Traffic Signal Warrant Analysis of Full-Movement Site Access to 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 Threshold Met? | | | | | | | |
| | | | | | | | | | | | | | | | Warrant Thresholds | | | | Existing + 34% Buildout of Residential | | Existing + 23% Buildout of Retail | | Existing + 34% Buildout of Residential | | Existing + 23% Buildout of Retail | |
| | Existing [1] | | Added by 100% Buildout of Residential | | Added by 34% Buildout of Residential | | Added by 100% Buildout of Retail | | Added by 23% Buildout Retail | | Existing + 34% Buildout of Residential | | Existing + 23% Buildout of Retail | | Condition A 70% | | Condition B 70% | | | | | | Minor Street Minimum | | Minor Street Minimum | |
| 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% | | Met? | | Met? |
| **6:00 AM** | 1002 | 0 | 67 | 147 | 23 | 50 | 16 | 9 | 4 | 2 | 1025 | 50 | 1006 | 2 | 420 | 105 | 630 | 53 | No | No | No | No | 60 | No | 60 | No |
| **7:00 AM** | 1237 | 0 | 118 | 260 | 40 | 88 | 90 | 49 | 21 | 11 | 1277 | 88 | 1258 | 11 | 420 | 105 | 630 | 53 | No | **Yes** | No | No | 60 | **Yes** | 60 | No |
| **8:00 AM** | 1098 | 0 | 110 | 240 | 37 | 82 | 163 | 89 | 37 | 20 | 1135 | 82 | 1135 | 20 | 420 | 105 | 630 | 53 | No | **Yes** | No | No | 60 | **Yes** | 60 | No |
| **9:00 AM** | 866 | 0 | 76 | 167 | 26 | 57 | 293 | 159 | 67 | 37 | 892 | 57 | 933 | 37 | 420 | 105 | 630 | 53 | No | **Yes** | No | No | 66 | No | 63 | No |
| **10:00 AM** | 884 | 0 | 85 | 186 | 29 | 63 | 456 | 248 | 105 | 57 | 913 | 63 | 989 | 57 | 420 | 105 | 630 | 53 | No | **Yes** | No | **Yes** | 64 | No | 61 | No |
| **11:00 AM** | 1039 | 0 | 92 | 202 | 31 | 69 | 676 | 368 | 155 | 85 | 1070 | 69 | 1194 | 85 | 420 | 105 | 630 | 53 | No | **Yes** | No | **Yes** | 60 | **Yes** | 60 | **Yes** |
| **12:00 Noon** | 824 | 0 | 266 | 111 | 90 | 38 | 290 | 287 | 67 | 66 | 914 | 38 | 891 | 66 | 420 | 105 | 630 | 53 | No | No | No | **Yes** | 64 | No | 66 | No |
| **1:00 PM** | 789 | 0 | 291 | 121 | 99 | 41 | 270 | 267 | 62 | 61 | 888 | 41 | 851 | 61 | 420 | 105 | 630 | 53 | No | No | No | **Yes** | 67 | No | 72 | No |
| **2:00 PM** | 792 | 0 | 320 | 133 | 109 | 45 | 261 | 258 | 60 | 59 | 901 | 45 | 852 | 59 | 420 | 105 | 630 | 53 | No | No | No | **Yes** | 65 | No | 72 | No |
| **3:00 PM** | 949 | 0 | 349 | 145 | 119 | 49 | 255 | 253 | 59 | 58 | 1068 | 49 | 1008 | 58 | 420 | 105 | 630 | 53 | No | No | No | **Yes** | 60 | No | 60 | No |
| **4:00 PM** | 1165 | 0 | 436 | 181 | 148 | 62 | 267 | 264 | 61 | 61 | 1313 | 62 | 1226 | 61 | 420 | 105 | 630 | 53 | No | **Yes** | No | **Yes** | 60 | **Yes** | 60 | **Yes** |
| **5:00 PM** | 1222 | 0 | 426 | 177 | 145 | 60 | 270 | 267 | 62 | 61 | 1367 | 60 | 1284 | 61 | 420 | 105 | 630 | 53 | No | **Yes** | No | **Yes** | 60 | No | 60 | **Yes** |
| **6:00 PM** | 995 | 0 | 349 | 145 | 119 | 49 | 232 | 230 | 53 | 53 | 1114 | 49 | 1048 | 53 | 420 | 105 | 630 | 53 | No | No | No | No | 60 | No | 60 | No |
| | | | | | | | | | | | | | | | | | | | 0 | 7 | 0 | 8 | | 4 | | 3 |
| | | | | | | | | | | | | | | | | | | | No | No | No | **Yes** | | **Yes** | | No |

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

*Source: LSC Transportation Consultants, Inc.*

**Table 4**
**"A" Street and Bradley Road Signal Escrow Analysis**
**Springs at Waterview East**

| Development | Minor Approach Volume[1] AM | PM | Fair Share | Signal Escrow Amounts: Escrow of $500,000 | Portion of Total Escrow Per DU[2] |
|---|---|---|---|---|---|
| **Based on Projected 2040 Total Traffic Volumes** | | | | | |
| Springs at Waterview East Residential | 189 | 125 | 32.8% | $163,883.09 | $230.17 |
| Springs at Waterview East Commercial | 46 | 176 | 23.2% | $115,866.39 | - - - |
| Background | 90 | 332 | 44.1% | $220,250.52 | - - - |
| | | | | **$500,000** | |
| **Based on 2040 Total Traffic Assuming No Development of the Parcel(s) North of Bradley** | | | | | |
| Springs at Waterview East Residential | 189 | 125 | 58.6% | $292,910.45 | $411.39 |
| Springs at Waterview East Commercial | 46 | 176 | 41.4% | $207,089.55 | - - - |
| | | | | **$500,000** | |

Notes:
(1) Minor approach volume includes northbound and southbound left-turn and through movements
(2) DU = dwelling unit

*Source: LSC Transportation Consultants, Inc.*

**Table 5**
**Running Escrow Analysis Template**
**Bradley Road and "A" Street**
**Springs at Waterview East**

| Subdivisions Currently Proposed | | | Signal Escrow Amounts (Portion of Total Escrow of $279,749.48[(1)]) | |
|---|---|---|---|---|
| **Subdivision Name** | **Number of Residential Lots or Acres of Commercial Development** | **Status** | **Escrow Per Lot or Acre** | **Total Escrow** |
| **Residential** | | | | |
| Residential Filing 1 | 100 | Example only | $230.17 | $23,017.29 |
| Future Residential | 614 | Future | $230.17 | $141,326.15 |
| | | | **Total Residential Escrow** | **$164,343.44** |
| **Commercial** | | | | |
| Commercial Filing 1 | 10 | Example only | $4,456.40 | $44,564.00 |
| Future Commercial | 16 | Future | $4,456.40 | $71,302.39 |
| | | | **Total Commercial Escrow** | **$115,866.39** |
| | | | **Total Springs at Waterview East Escrow** | **$280,209.83** |

**Notes:**
(1) See Table 4

*Source: LSC Transportation Consultants, Inc., May 19,2018*

**Table 6**
**Improvements Table**
**Springs at Waterview East**
**Preliminary Plan**

| Improvement | Timing /"Trigger Point(s)" | Responsibility[1] |
|---|---|---|
| **Access Points to Bradley Road** | | |
| Full-movement access to Bradley Road 1,030 feet east of Powers Boulevard | With development of either the residential or commercial portion of the Springs at Waterview East | Applicant |
| Right-in/right-out access 1,300 feet east of the full-movement access | 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. | Applicant |
| **Traffic Signal** | | |
| Traffic Signal Escrow - Prorated escrow amount with each final plat toward the planned traffic signal at the full-movement access to Bradley Road 1,030 feet east of Powers Boulevard | Not necessary if an IGA between the County and the Waterview 2 Metro District is established and the district becomes responsible for signal installation when warranted/directed by the County PWD. Otherwise, an escrow amount would be payable with each residential and commercial final plat | Waterview II Metropolitan District |
| Traffic Signal Installation - Installation of the traffic signal at the full-movement access to Bradley Road 1,030 feet east of Powers Boulevard. Any funds held in escrow would be returned to the applicant. | 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 34% of the residential portion of Springs at Waterview East (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. | Waterview II Metropolitan District. |
| **Auxiliary Turn Lanes** | | |
| Eastbound right-turn deceleration lane on Bradley Road approaching "A Street"- the full-movement site access | 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. | Applicant |
| Westbound left-turn lane on Bradley Road approaching the full-movement site access | 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 10 vehicles per hour. | Applicant |
| Eastbound right-turn acceleration lanes on Bradley Road in the form of continuous accel/decel lanes between "A Street" 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). The threshold is a northbound right-turn volume of 50 vehicles per hour. | 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 25 vehicles per hour. | Applicant |
| Westbound left-turn lane on Bradley Road approaching the full-movement site access | 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 10 vehicles per hour. | Applicant |
| Restripe Bradley Road for dual westbound left-turn lanes approaching Powers Boulevard | With development of the commercial portion of Springs at Waterview East | Applicant |
| Restripe Powers Boulevard for dual southbound left-turn lanes approaching Bradley Road | 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. | Likely the commercial portion of Springs at Waterview East if not completed by other development(s) or CDOT. |
| **Street Widening/Construction** | | |
| 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. | 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*

**Table 7**
**Auxiliary Turn Lanes/Speed Change Lanes**
**Springs at Waterview East**

| Intersection / Turn Lane | | CDOT/ECM Standard (ft) Taper Length | Accleration/ Deceleration Distance | Stacking Distance | Total Distance | Existing/Proposed (ft) Taper Length | Accleration/ Deceleration Distance | Stacking Distance[1] | Total Distance | Difference From Standard (ft) Taper Length | Accleration/ Deceleration Distance | Stacking Distance | Total Distance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Powers Boulevard/Bradley Road (CDOT)** | | | | | | | | | | | | | |
| Southbound Left-Turn Decel. Lane | Single Lane | 300 | 700 | 670 | 1670 | 300 | 700 | 0 | 1000 | 0 | 0 | -670 | -670 |
| | Dual Lanes | 600 | 700 | 335 | 1635 | 600 | 700 | 335 | 1635 | 0 | 0 | 0 | 0 |
| Northbound Right-Turn Decel. Lane | | 300 | 700 | - - - | 1000 | 300 | 600 | - - - | 900 | 0 | -100 | - - - | -100 |
| Northbound Right-Turn Accel. Lane | | 300 | 1170 | - - - | 1470 | 300 | 430 | - - - | 730 | 0 | -740 | - - - | -740 |
| Westbound Left-Turn Decel. Lane(s) | | 200 | 235 | 265 | 700 | 200 | 235 | 390 | 825 | 0 | 0 | 125 | 125 |
| Westbound Right-Turn Decel. Lane | | 200 | 235 | - - - | 435 | See Section Below | | | | See Section Below | | | |
| **Bradley Road** | | | | | | | | | | | | | |
| **Westbound Right-Turn Deceleration and Acceleration Lanes** | | | | | | | | | | | | | |
| Westbound Right-Turn Acceleration Lane from "A" Street | | 180 | 760 | - - - | 1375 | 200 | 480 | - - - | 915 | 0 | -280 | - - - | -460 |
| Westbound Right-Turn Deceleration Lane approaching Powers Boulevard | | 200 | 235 | - - - | | | 235 | - - - | | | 0 | - - - | |
| **Eastbound Right-Turn Deceleration and Acceleration Lanes** | | | | | | | | | | | | | |
| Eastbound Right-Turn Acceleration Lane from Powers Boulevard | | 200 | 760 | - - - | 1195 | 200 | 480 | - - - | 915 | 0 | -280 | - - - | -280 |
| Eastbound Right-Turn Deceleration Lane approaching "A" Street | | | 235 | - - - | | | 235 | - - - | | 0 | 0 | - - - | |
| Eastbound Right-Turn Acceleration Lane from "A" Street | | 200 | 760 | - - - | 1195 | 200 | 740 | - - - | 1175 | 0 | -20 | - - - | -20 |
| Eastbound Right-Turn Deceleration Lane approaching Right-in/Right-out Access | | | 235 | - - - | | | 235 | - - - | | 0 | 0 | - - - | |
| **Left Turn Lane** | | | | | | | | | | | | | |
| Westbound Left-Turn Decel. Lane approaching "A" Street | | 200 | 235 | 260 | 695 | 200 | 235 | 260 | 695 | 0 | 0 | 0 | 0 |
| **"A" Street** | | | | | | | | | | | | | |
| Northbound Right-Turn Lane | | 160 | 155 | - - - | 315 | 160 | 155 | - - - | 315 | 0 | 0 | - - - | 0 |
| Northbound Left-Turn Lanes (dual) | | 160 | 155 | 155 | 470 | 90 | 220 | | 310 | -70 | -90 | | -160 |
| **"C" Street** | | | | | | | | | | | | | |
| Eastbound Left-Turn Lane at the Commercial Access[2] | | 96[3] | 155 | 31 | 282 | 90 | 155 | | 230-240' | -6 | -31 | | -37 |

Notes:

(1) During off-peak periods, any unused stacking length will function as additional deceleration distance.

(2) The final dimensions of the eastbound left-turn lane on "C" street will be determined with the roundabout design.

(3) Based on a minimum taper ratio of 8:1 allowed for by the ECM for tangent bay tapers in constrained locations.

*Source: LSC Transportation Consultants, Inc.*


Figure 1

# Vicinity Map

Springs at Waterview East (LSC #184360)

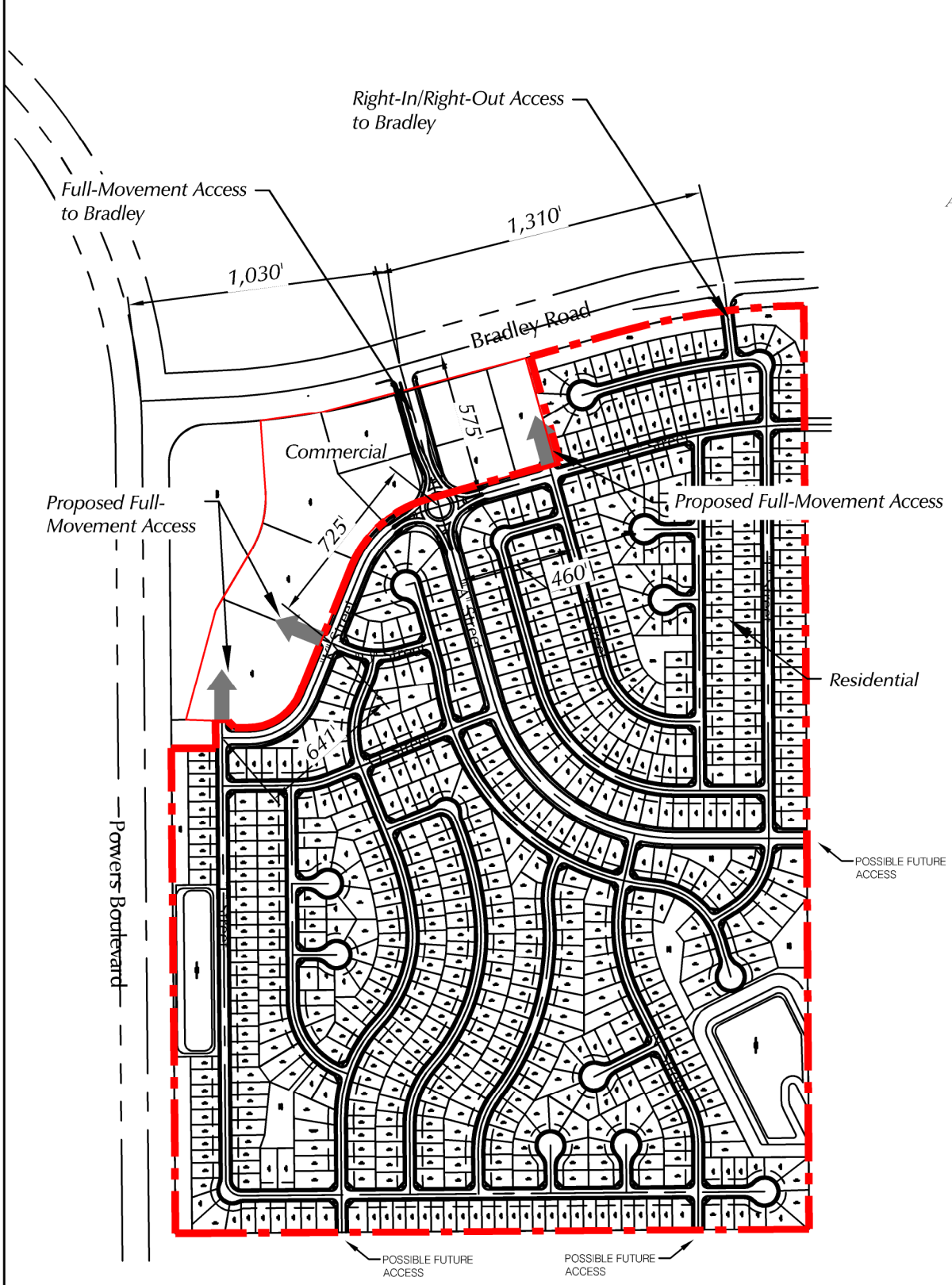



*Figure 2*

# *Site Plan*

Springs at Waterview East (LSC #184360)

LSC TRANSPORTATION CONSULTANTS, INC.

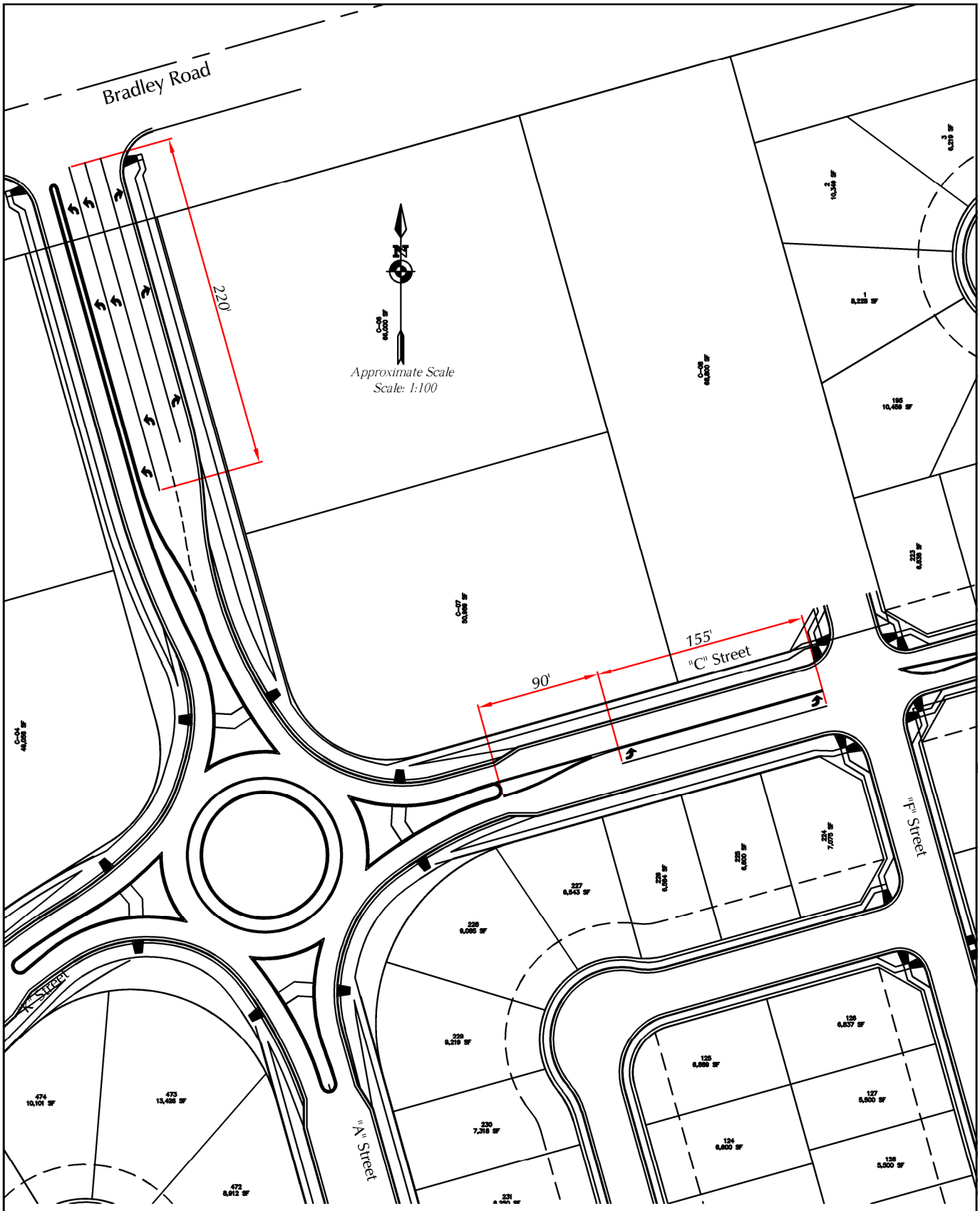



Figure 3

# Conceptual 150'* ICD Roundabout

Springs at Waterview East (LSC #184360)

* ICD = Inscribed Circle Diameter

LSC TRANSPORTATION CONSULTANTS, INC.

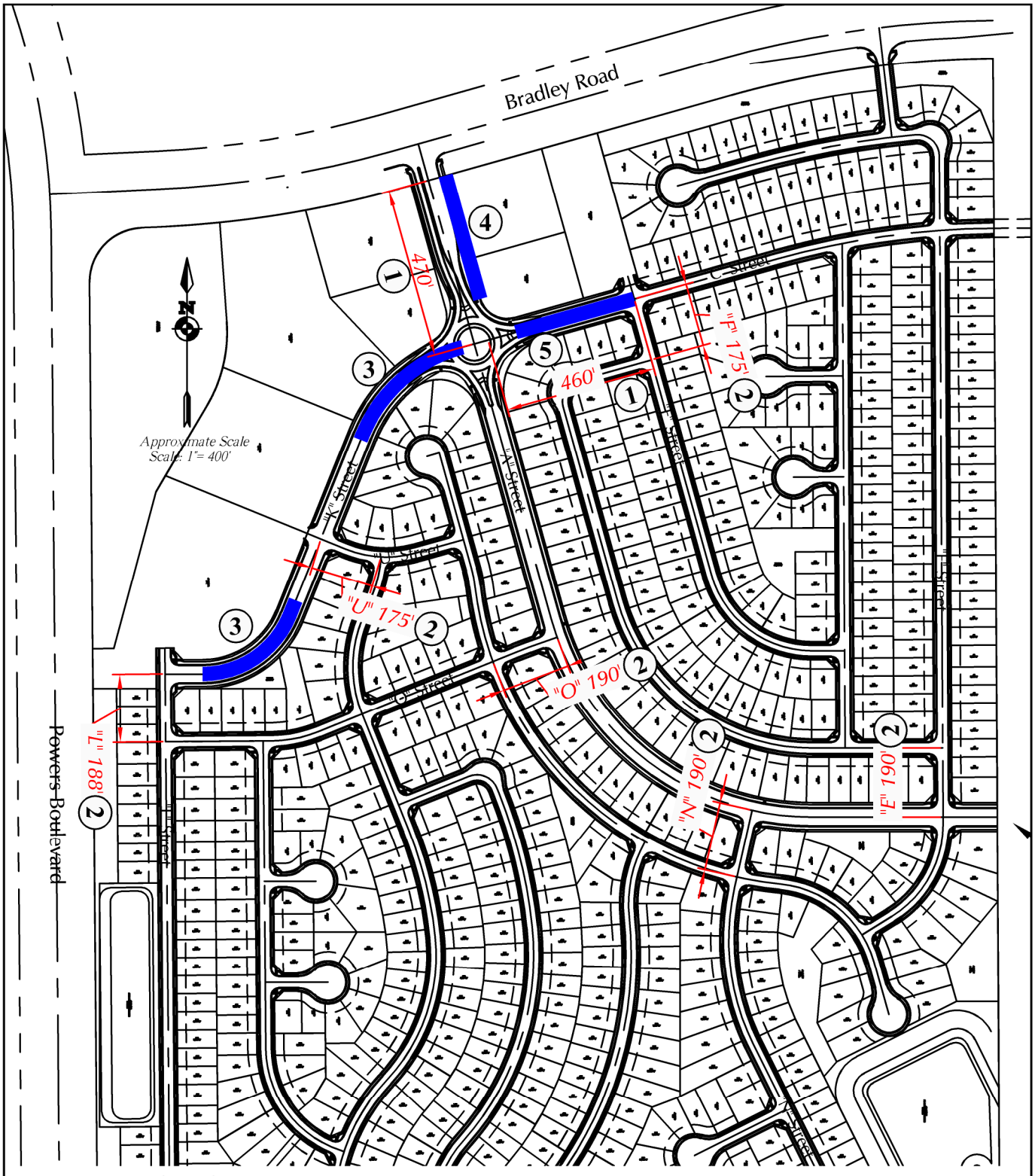
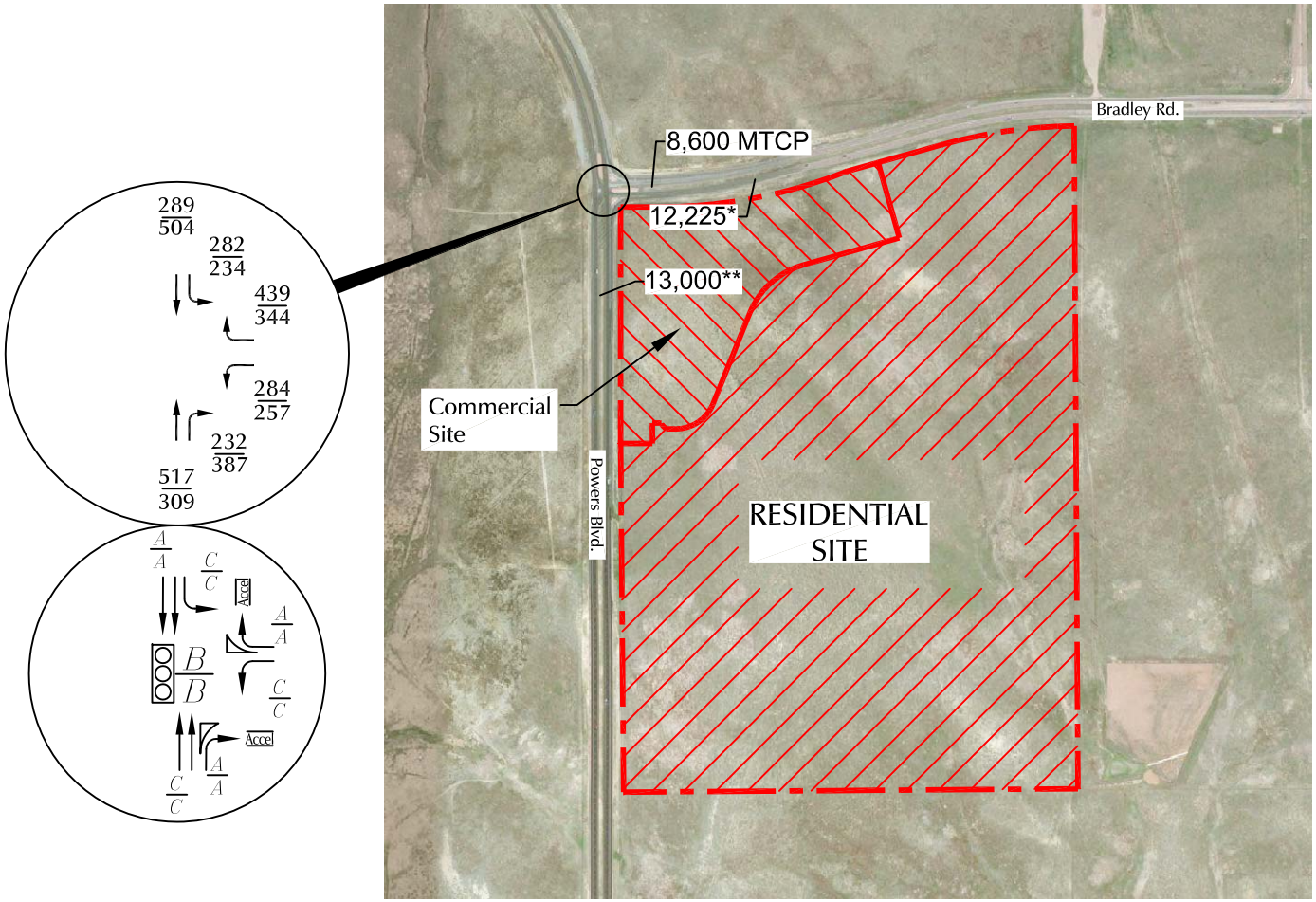



*Figure 4*

# *Deviation Requests*

Springs at Waterview East (LSC #184360)

LSC TRANSPORTATION CONSULTANTS, INC.




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 2018

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

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

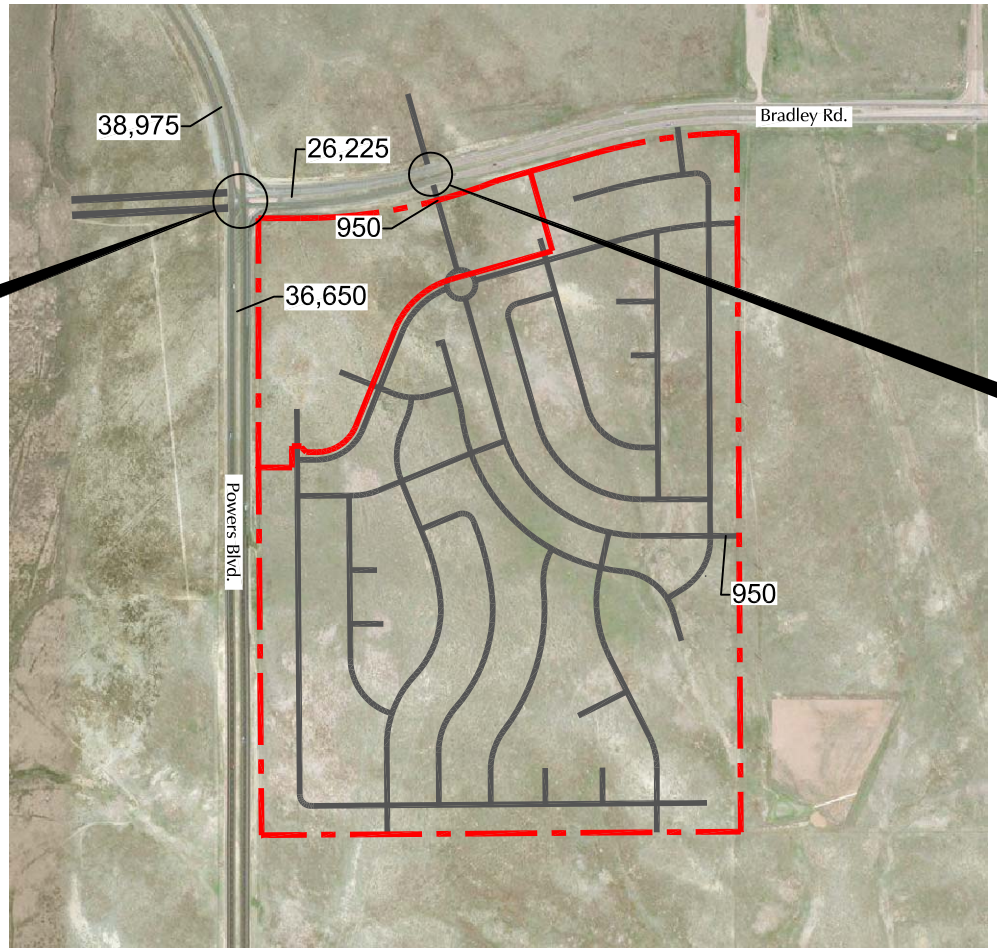
X,XXX= Average Daily Traffic (vehicles per day)

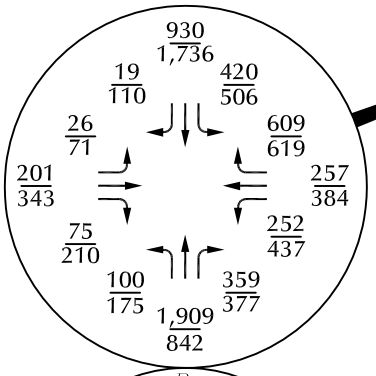
* Estimate by LSC
** 2016 AADT CDOT

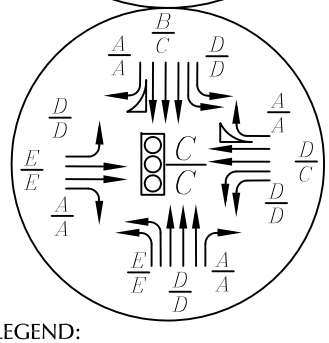
Figure 5

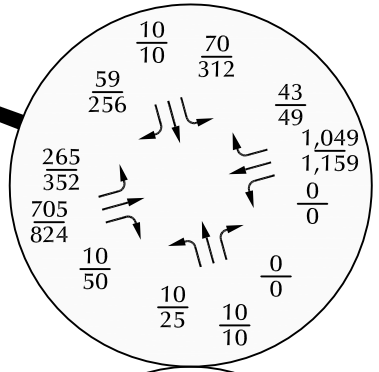
# Existing Traffic, Lane Geometry, Traffic Control and Level of Service

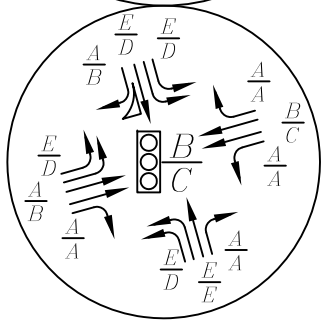
Springs at Waterview East (LSC #184360)






*Approximate Scale*
*Scale: 1"= 1,000'*

LEGEND:

= Stop Sign

= 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

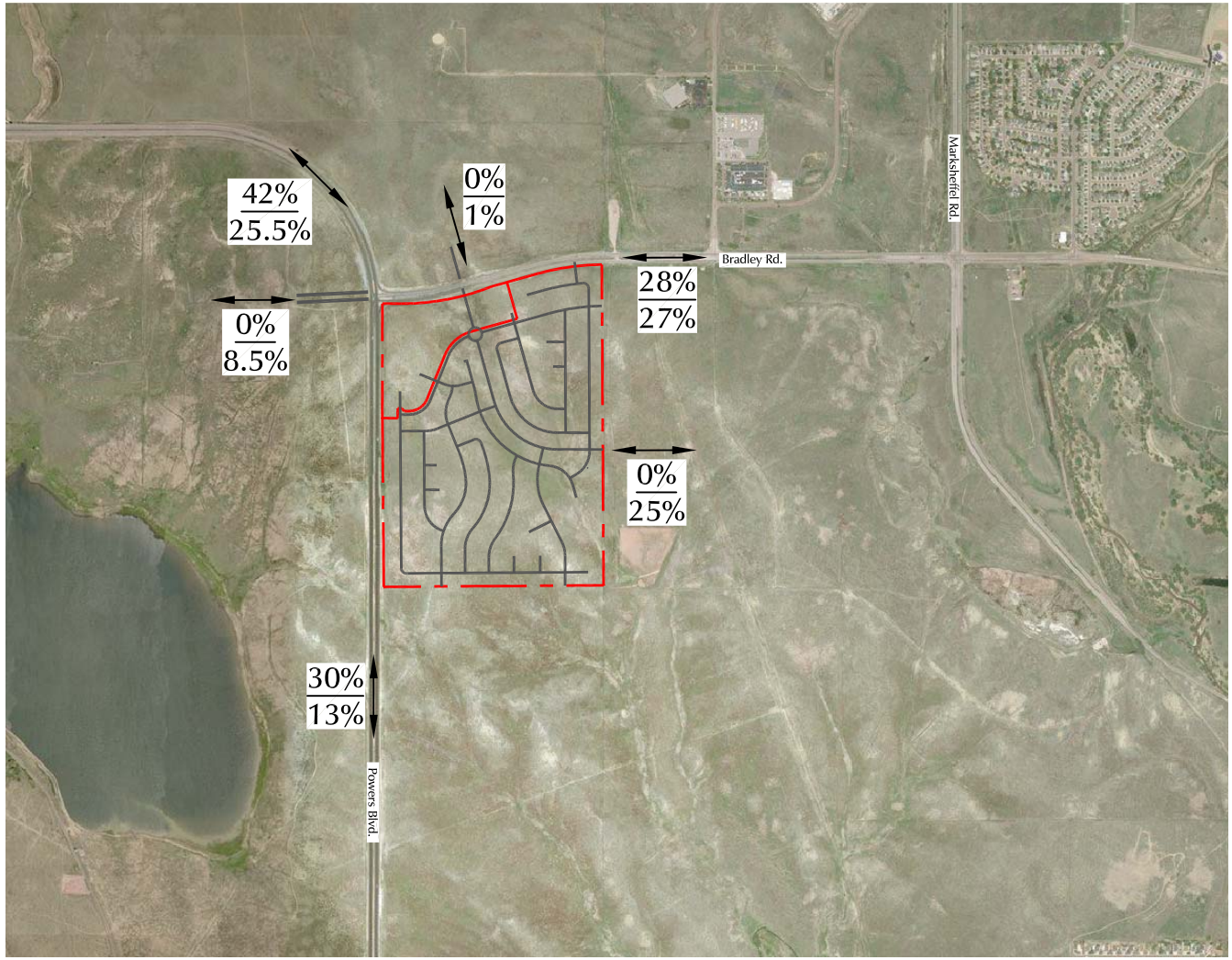
$\frac{C}{C}$ = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service

X,XXX= Average Daily Traffic (vehicles per day) Estimates by LSC unless otherwise noted.

Figure 6

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

Springs at Waterview East (LSC #184360)




N

*Approximate Scale*
*Scale: 1"= 2,000'*

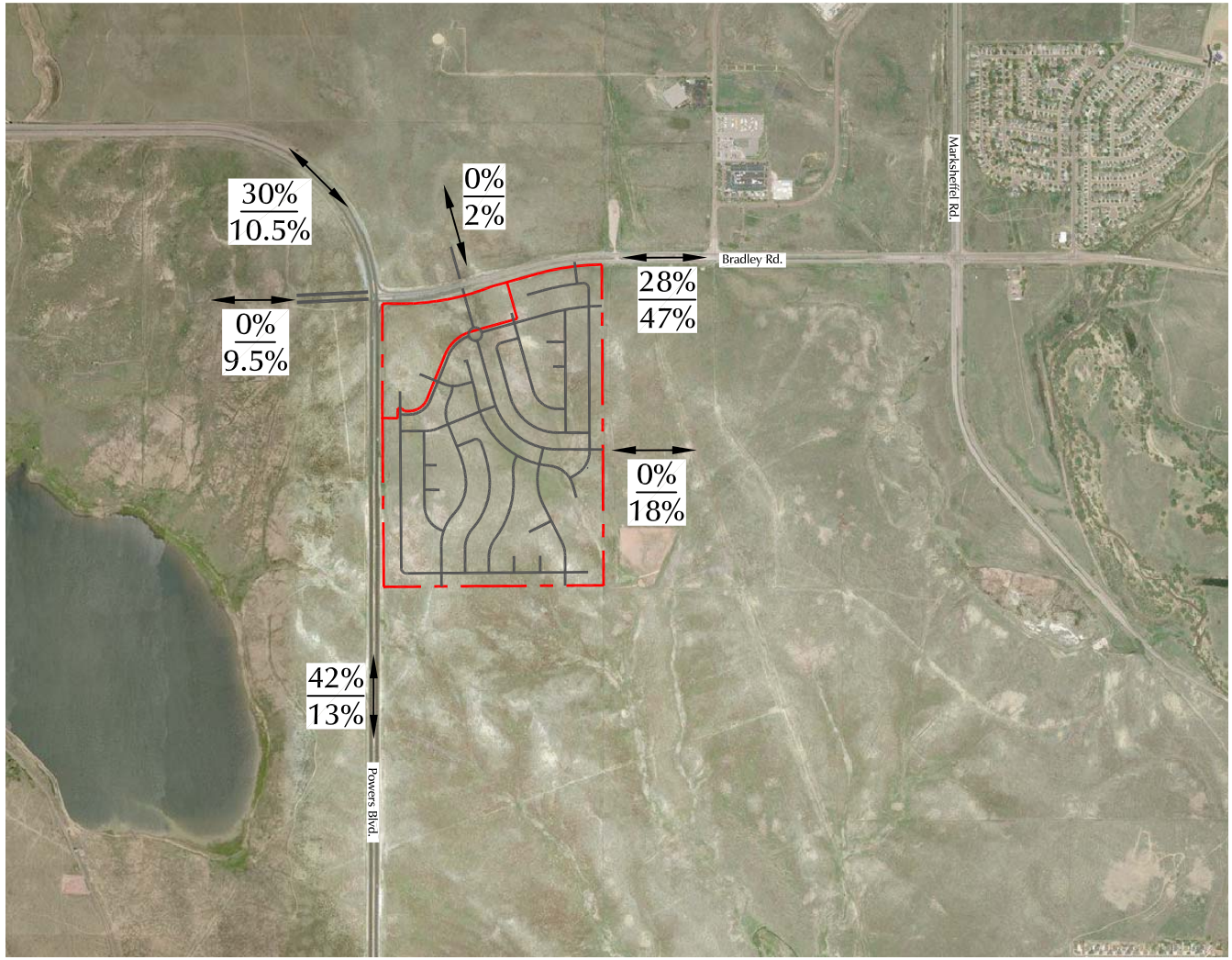
Figure 7

# Directional Distribution of Residential Generated Traffic

Springs at Waterview East (LSC #184360)

LEGEND:

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




N

*Approximate Scale*
*Scale: 1"= 2,000'*

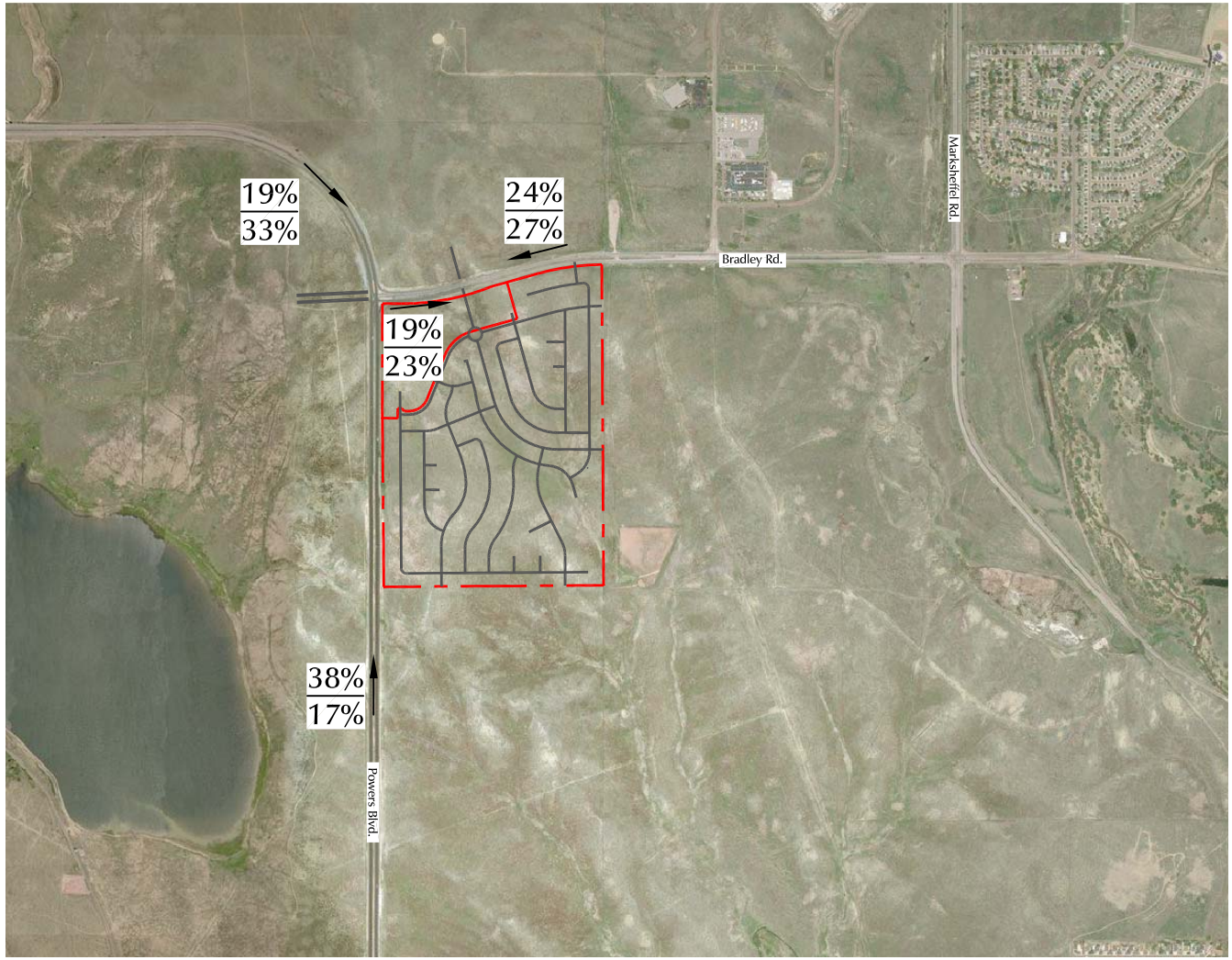
Figure 8

# Directional Distribution of Primary Commercial Generated Traffic

Springs at Waterview East (LSC #184360)

LEGEND:

$\frac{XX\%}{XX\%}$ = $\frac{\text{Short-Term Percent Directional Distribution}}{\text{Long-Term Percent Directional Distribution}}$




N

*Approximate Scale*
*Scale: 1"= 2,000'*

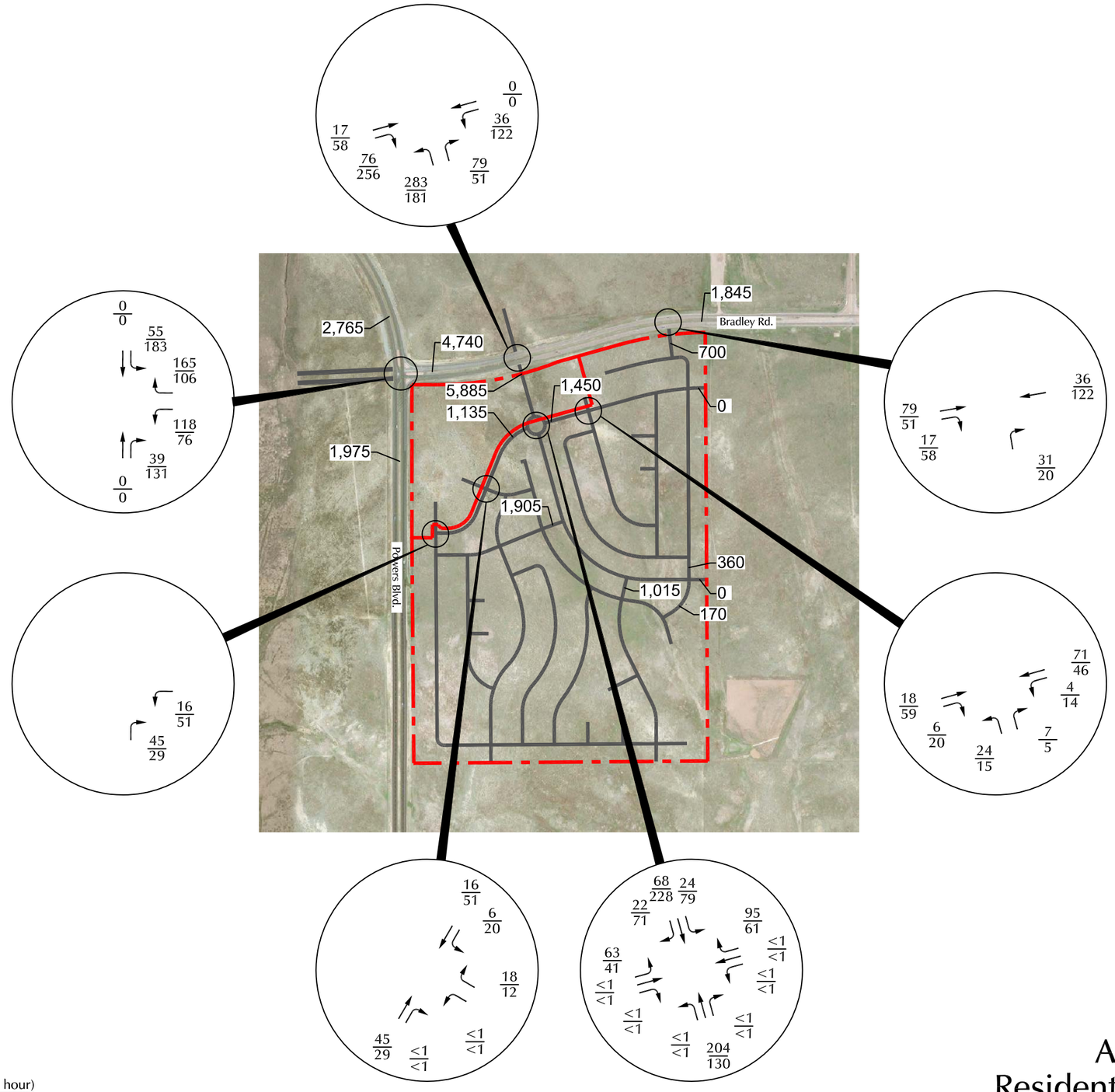
Figure 9

# Directional Distribution of Passby Commercial Generated Traffic

Springs at Waterview East (LSC #184360)

LEGEND:

$\frac{XX\%}{XX\%}$ = $\frac{\text{AM Percent Directional Distribution}}{\text{PM Percent Directional Distribution}}$




Approximate Scale
Scale: 1"= 1,000'

LEGEND:

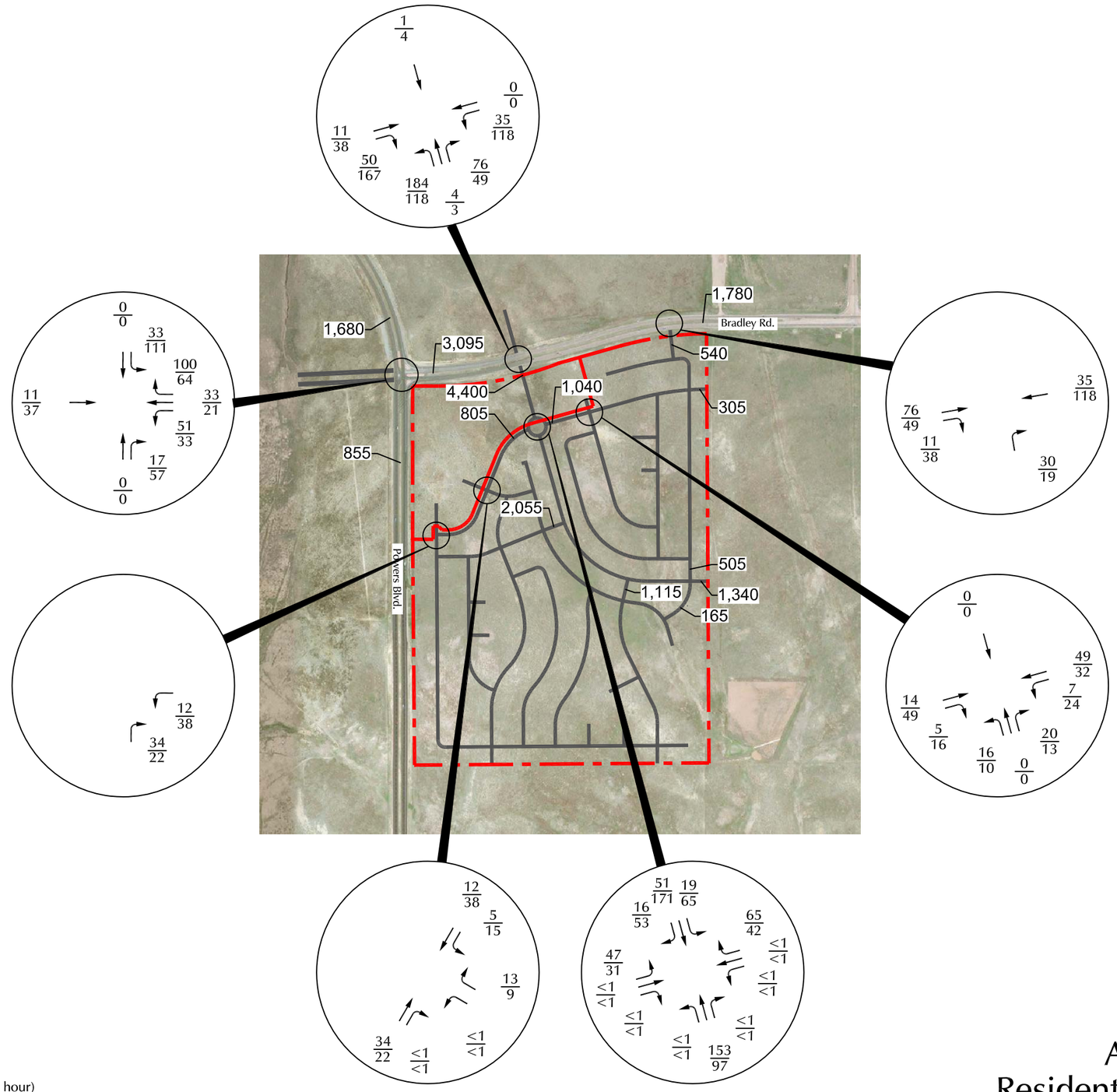
XX/XX = AM Weekday Peak-Hour Traffic (vehicles per hour) / PM Weekday Peak-Hour Traffic (vehicles per hour)

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

Figure 10

# Assignment of Short-Term Residential Site-Generated Traffic

Springs at Waterview East (LSC #184360)




N

*Approximate Scale*
*Scale: 1"= 1,000'*

LEGEND:

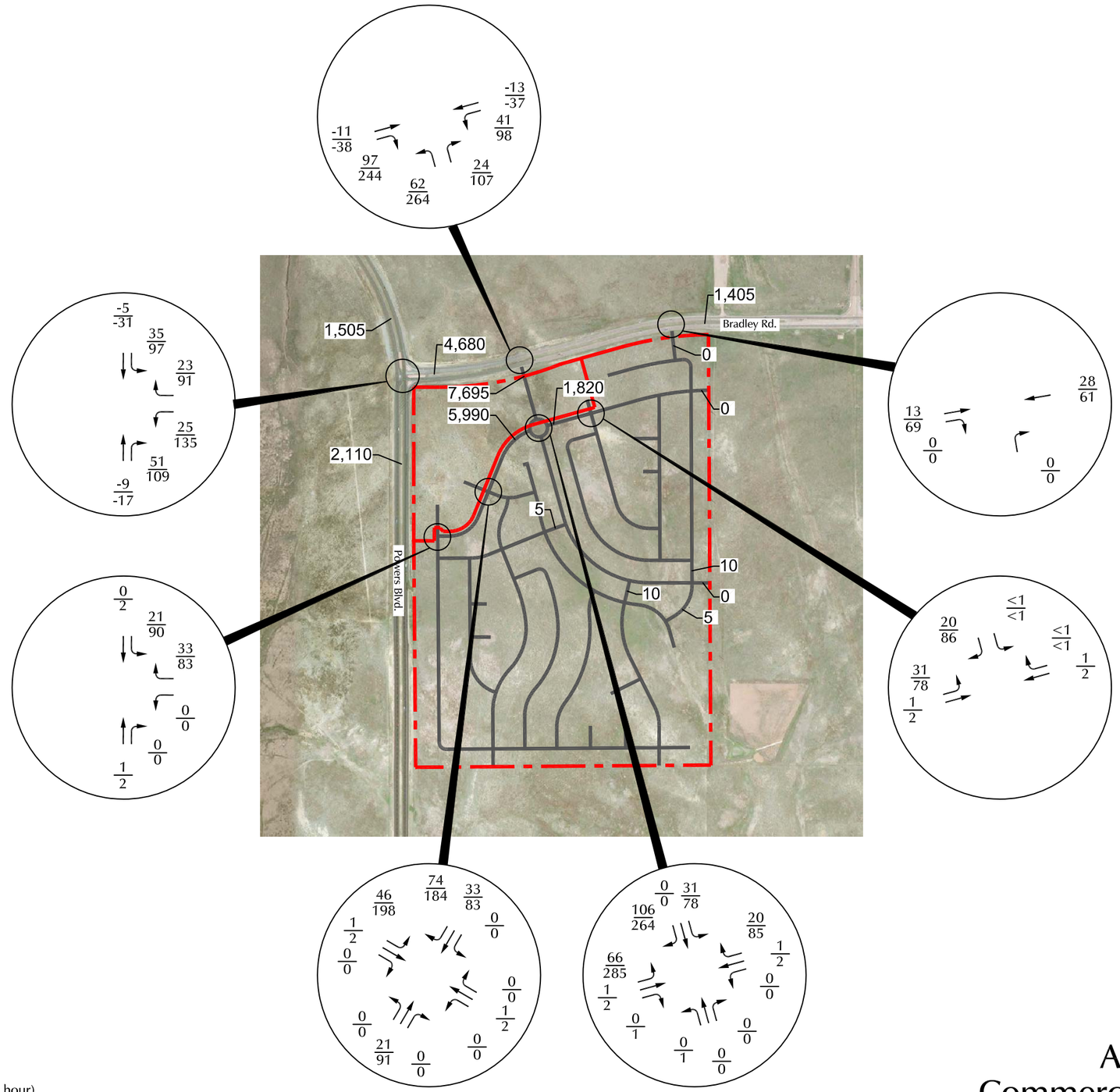
$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$

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

Figure 11

# Assignment of Long-Term Residential Site-Generated Traffic

Springs at Waterview East (LSC #184360)




Approximate Scale
Scale: 1"= 1,000'

LEGEND:

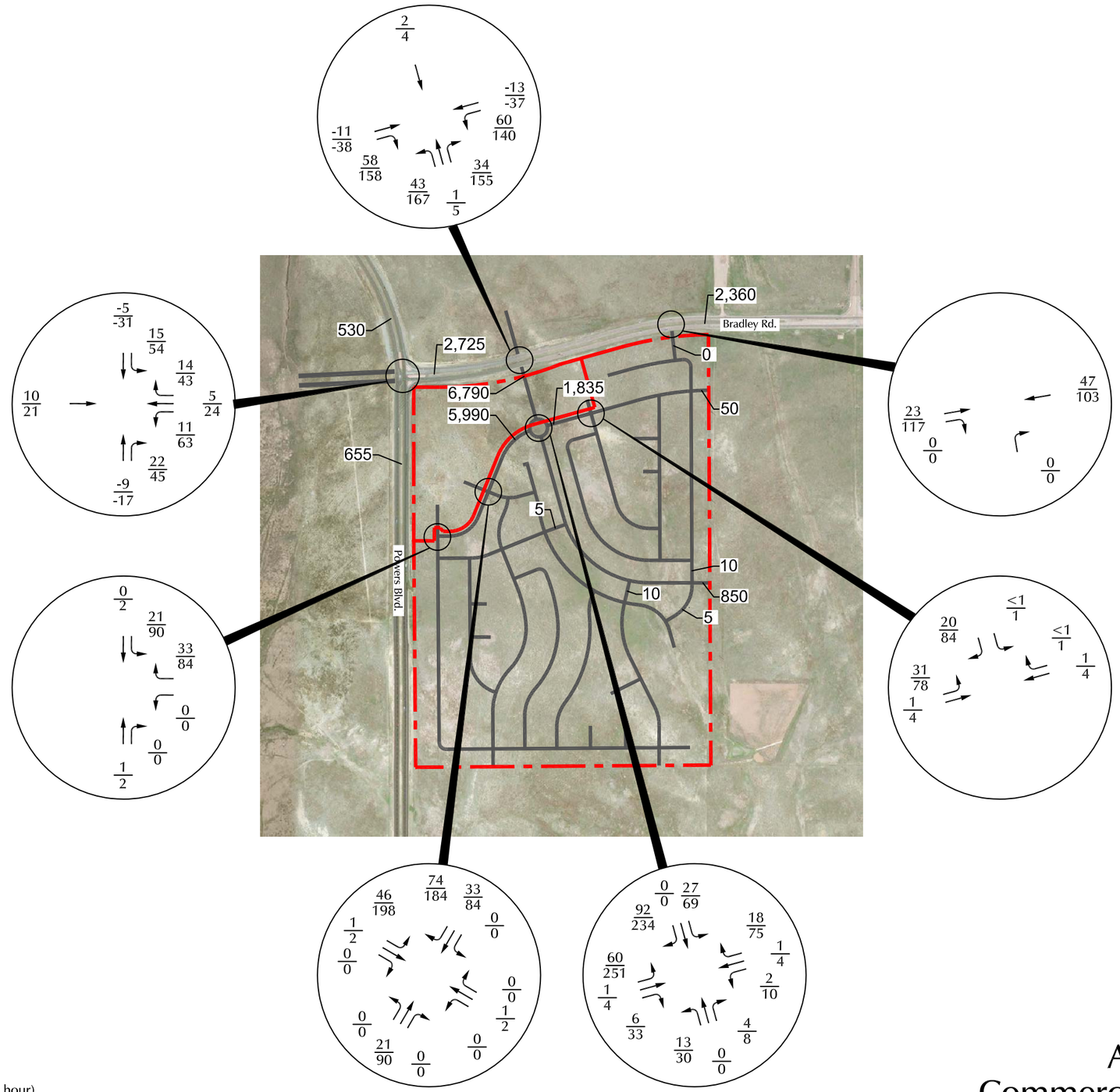
$\frac{XX}{XX}$ = $\frac{\text{AM Weekday Peak-Hour Traffic (vehicles per hour)}}{\text{PM Weekday Peak-Hour Traffic (vehicles per hour)}}$

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

Figure 12

# Assignment of Short-Term Commercial Site-Generated Traffic

Springs at Waterview East (LSC #184360)




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)

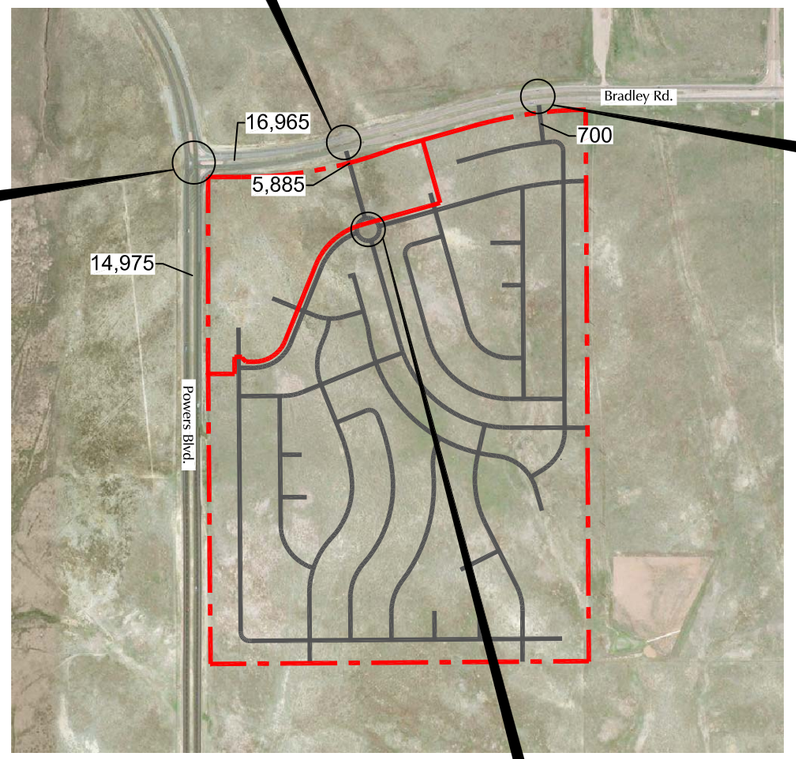
Figure 13

# Assignment of Long-Term Commercial Site-Generated Traffic

Springs at Waterview East (LSC #184360)

Signal Controlled

Stop Sign Controlled




Approximate Scale
Scale: 1"= 1,000'

LEGEND:

= Stop Sign

= Traffic Signal

= Modern Roundabout

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

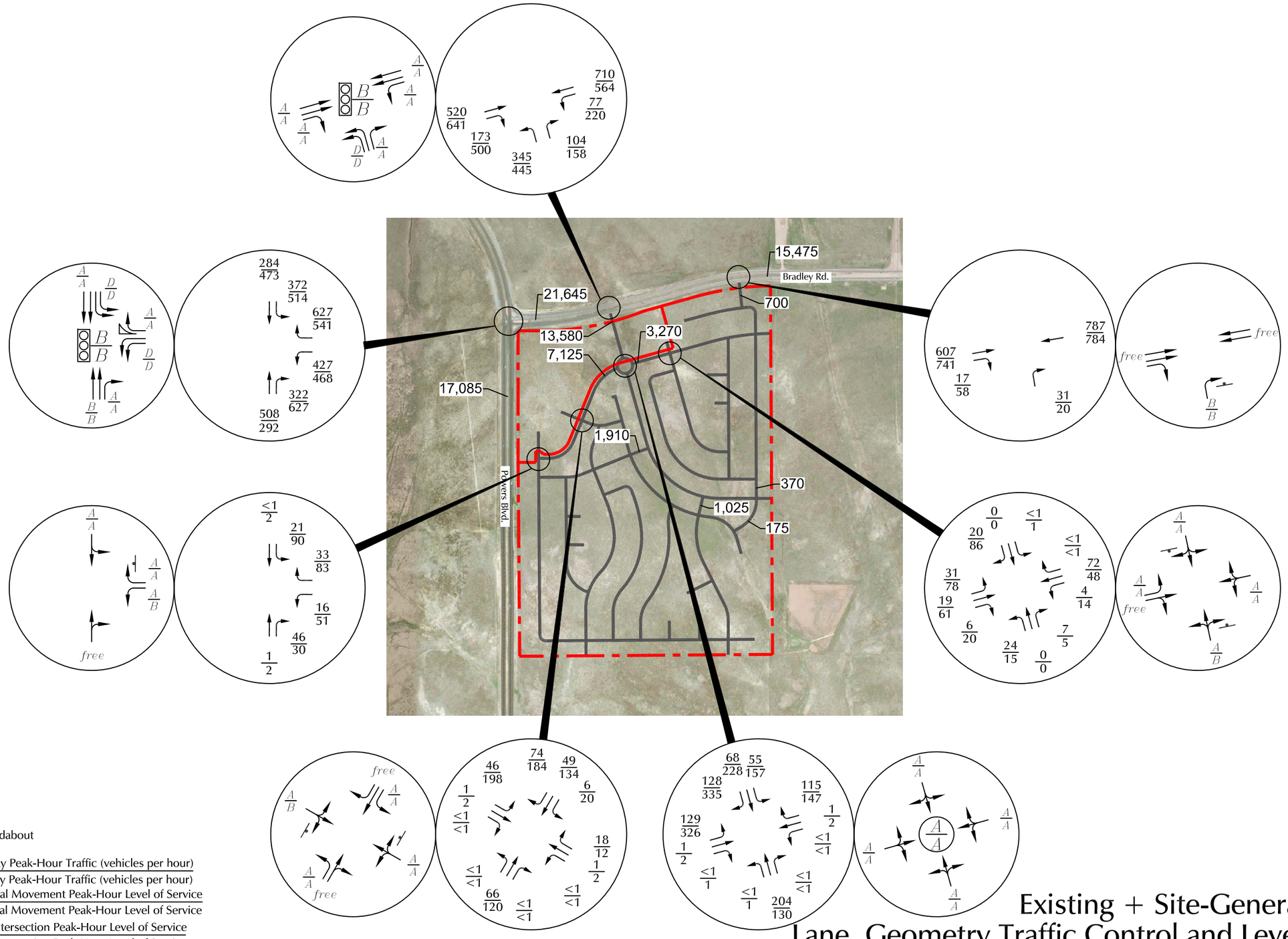
C/C = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service

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

Figure 14

# Existing + Residential Traffic, Lane Geometry,Traffic Control and Level of Service

Springs at Waterview East (LSC #184360)




LEGEND:

= Stop Sign

= Traffic Signal

= Modern Roundabout

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

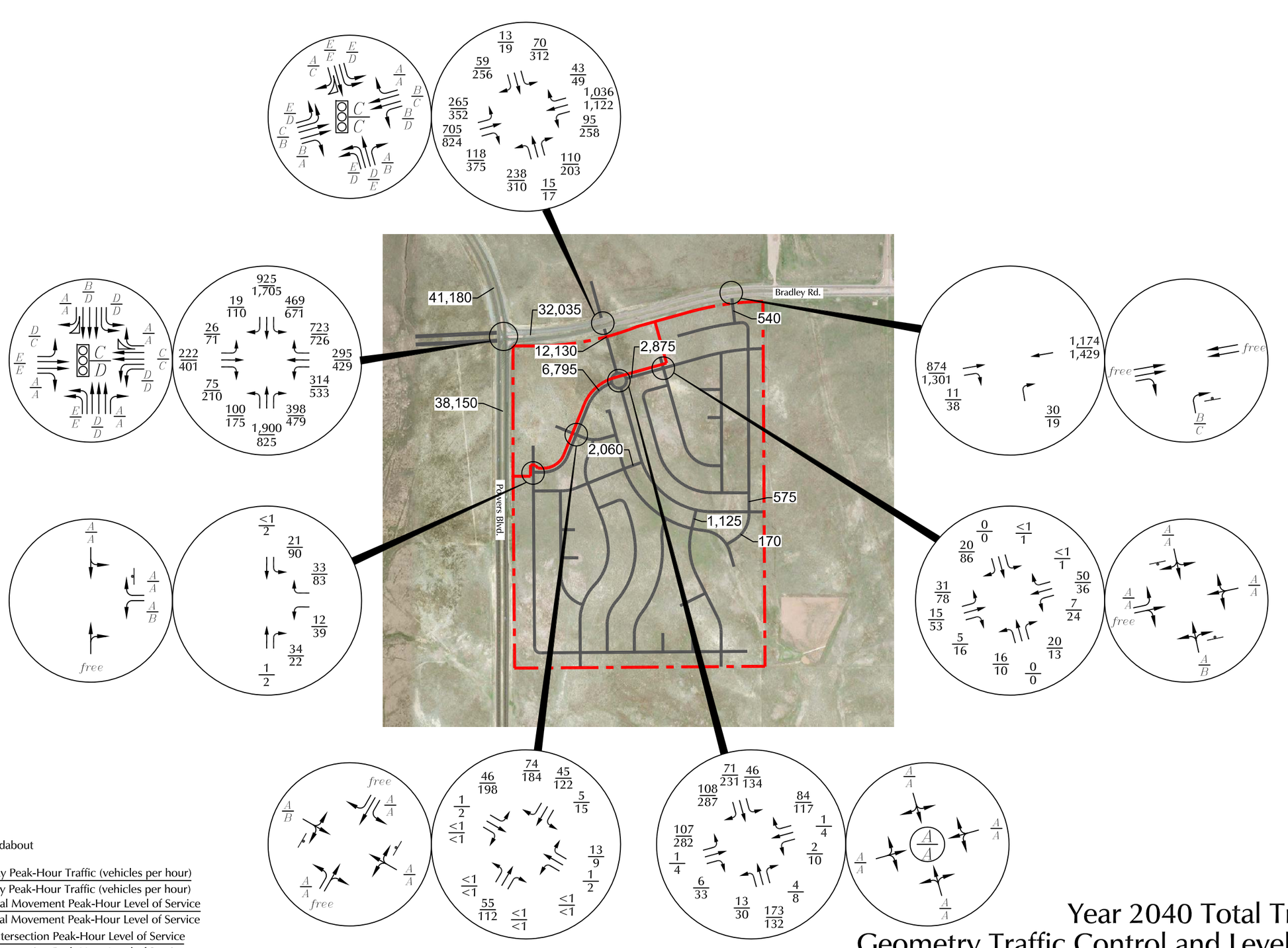
C/C = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service

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

Figure 15

# Existing + Site-Generated Traffic, Lane Geometry,Traffic Control and Level of Service

Springs at Waterview East (LSC #184360)




*Approximate Scale*
*Scale: 1"= 1,000'*

LEGEND:

= Stop Sign

= Traffic Signal

= Modern Roundabout

$\frac{XX}{XX}$ = 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

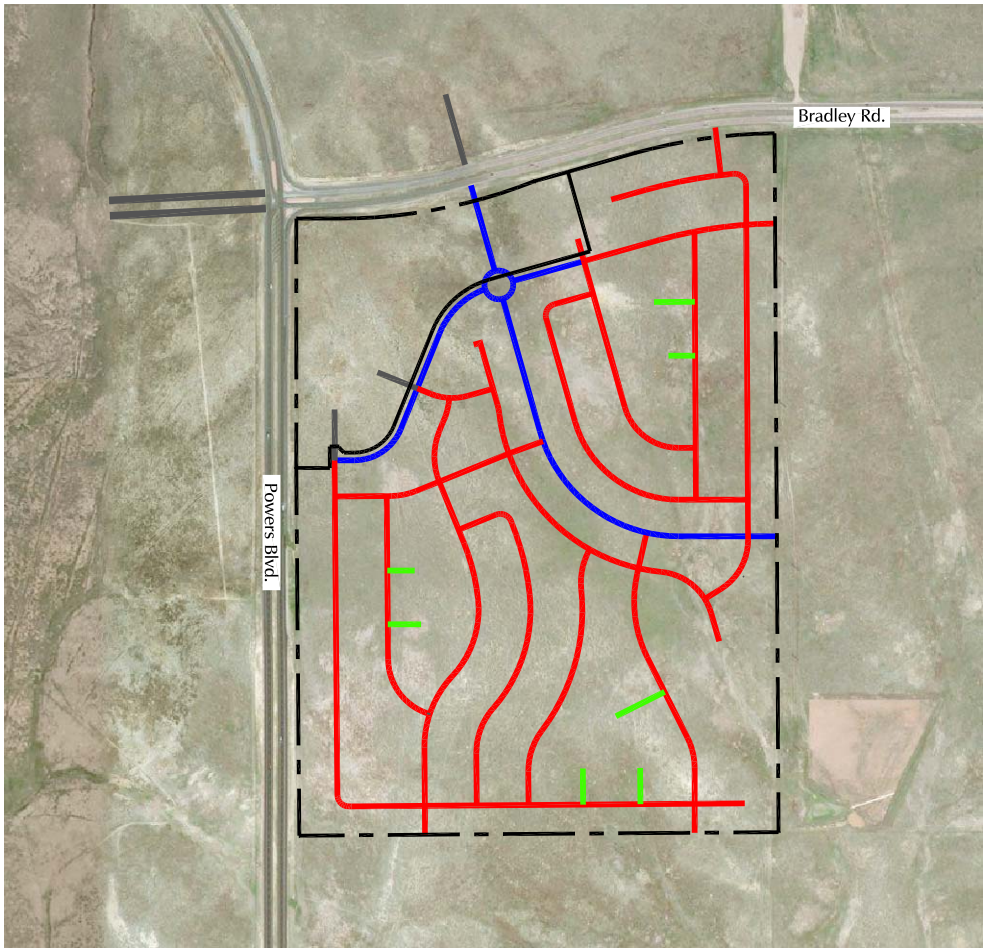
$\frac{C}{C}$ = AM Entire Intersection Peak-Hour Level of Service / PM Entire Intersection Peak-Hour Level of Service

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

Figure 16

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

Springs at Waterview East (LSC #184360)





*Approximate Scale*
*Scale: 1"= 1,000'*

LEGEND:

= Urban Non-Residential Collector

= Urban Local

= Urban Local (Low Volume)

Figure 17

# Recommended Classifications

Springs at Waterview East (LSC #184360)

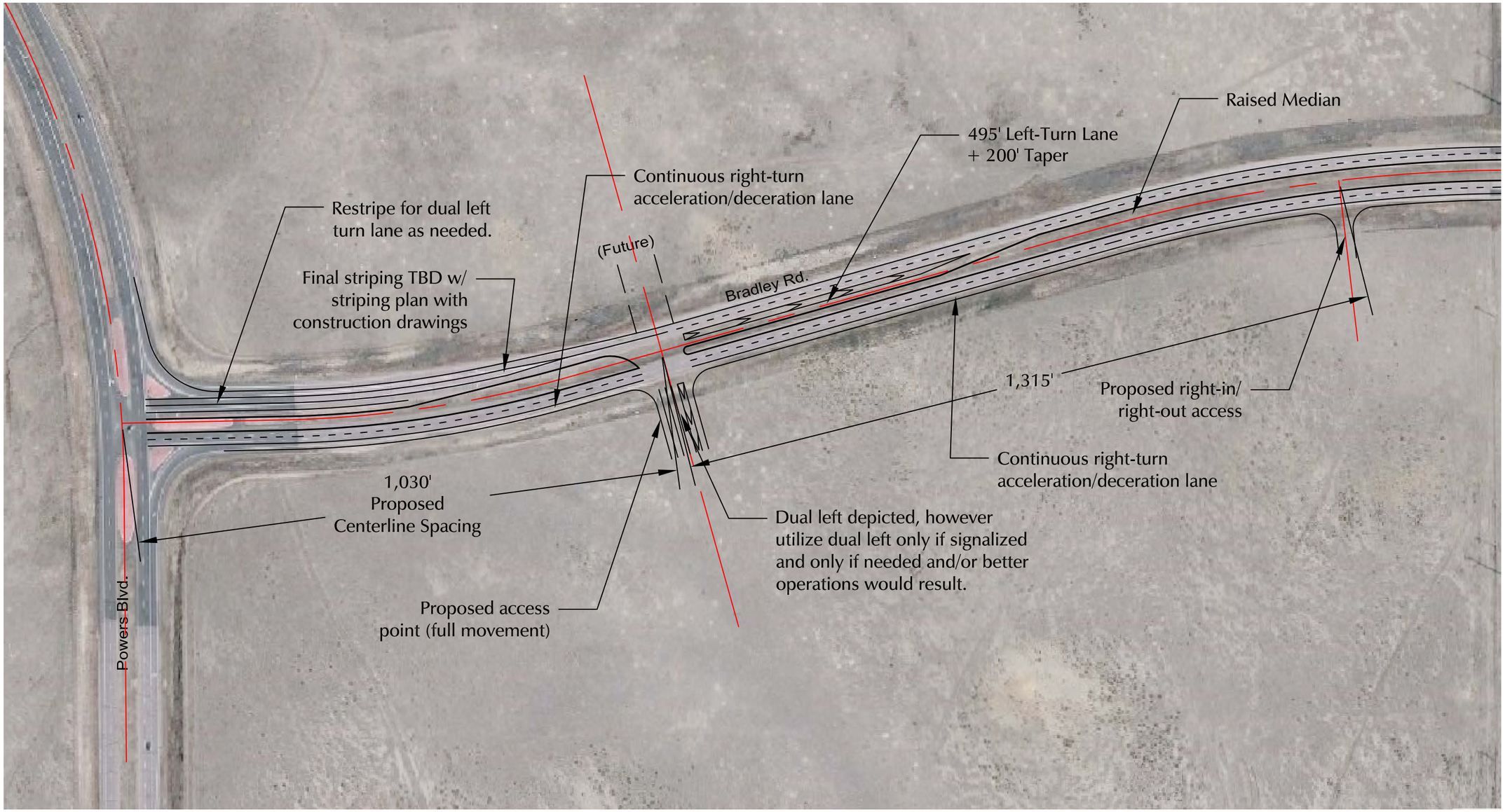



Figure 18

# Short-Term
# Bradley Road Lane Recommendations

Springs at Waterview East (LSC #184360)

LSC TRANSPORTATION CONSULTANTS, INC.

Approximate Scale
Scale: 1"= 200'

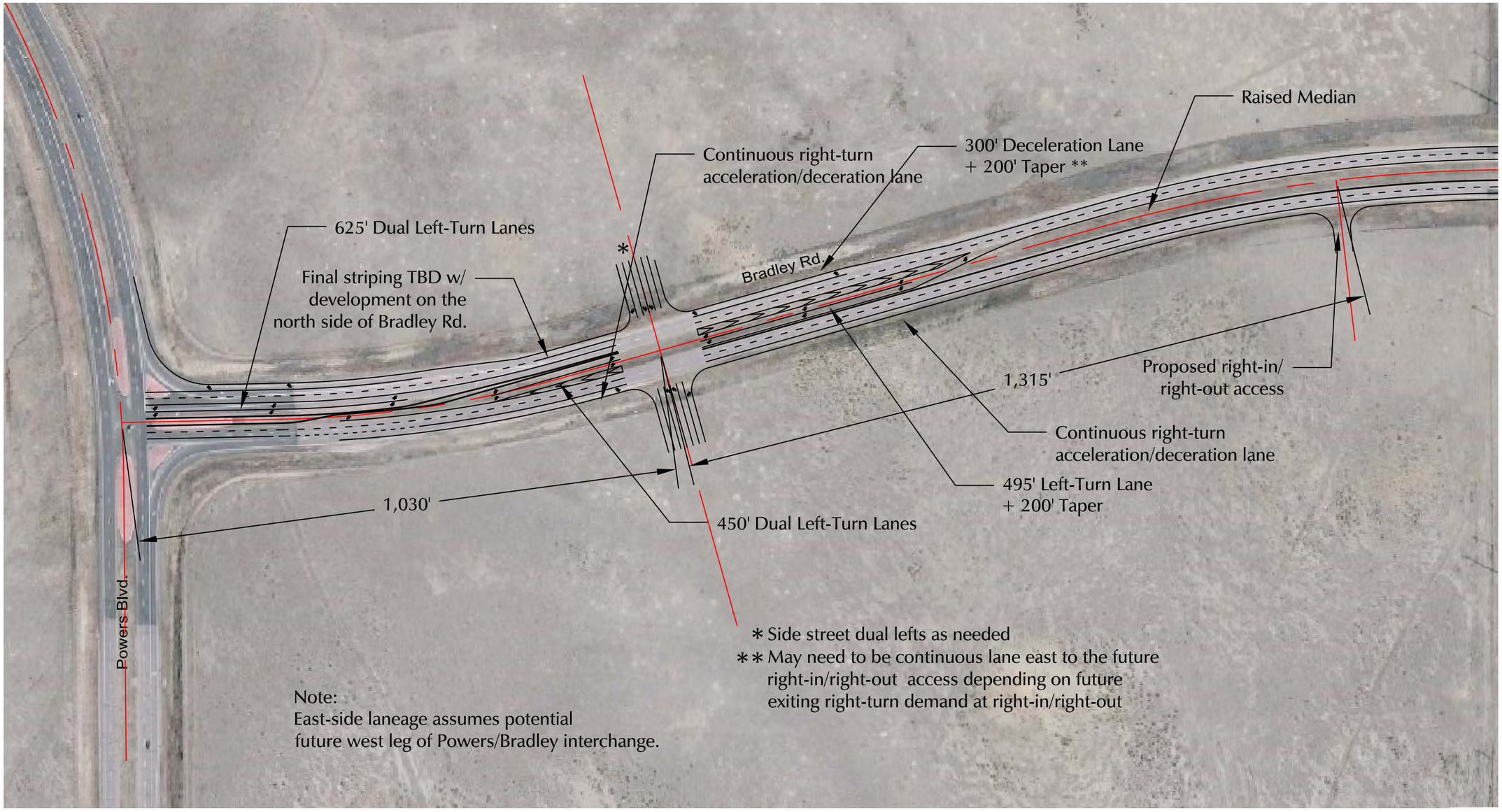



Figure 19

# Long-Term
# Bradley Road Lane Recommendations

Springs at Waterview East (LSC #184360)

LSC TRANSPORTATION CONSULTANTS, INC.

**Development Services Department**
**2880 International Circle**
**Colorado Springs, Colorado 80910**

Phone: 719.520.6300
Fax: 719.520.6695
Website www.elpasoco.com

# DEVIATION REVIEW AND DECISION FORM

Procedure # R-FM-051-07
Issue Date: 12/31/07
Revision Issued: 00/00/00
**DSD FILE NO.:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

**General Property Information:**
Address of Subject Property (Street Number/Name): N/A
Tax Schedule ID(s) #: 5500000135
Legal Description of Property: W2 SEC 9-15-65, EX PT TO RDS

Subdivision or Project Name: Waterview Sketch Plan

Section of ECM from Which Deviation is Sought: 2.2.5.B.1

Specific Criteria from Which a Deviation is Sought: Intersection spacing along a Principal Arterial

Proposed Nature and Extent of Deviation: Request for right-in/right-out access point to both the westbound and eastbound directions of Bradley Road approximately 2,340 feet east of Powers Boulevard to serve the proposed residential (south side of Bradley) and non-residential (north side of Bradley) Sketch Plan land uses east of Powers.

**Applicant Information:**
Applicant: CPR Entitlements, LLC Email Address: dse.pak7@gmail.com
Applicant is: _____ Owner __X___ Consultant _____ Contractor
Mailing Address: 31 North Tejon St., Suite 500, Colorado Springs State: CO Postal Code: 80903
Telephone Number: 719-227-7388 Fax Number: 719-227-7392

**Engineer Information:**
Engineer: Jeffrey C. Hodsdon, P.E., PTOE Email Address: jchodsdon@lsccs.com
Company Name: LSC Transportation Consultants, Inc.
Mailing Address: 516 North Tejon Street State: CO Postal Code: 80903
Registration Number: 31684 State of Registration: Colorado
Telephone Number: (719) 633-2868 Fax Number: (719) 633-5430

**Explanation of Request (Attached diagrams, figures and other documentation to clarify request):**
Section of ECM from Which Deviation is Sought: 2.2.5.B.1
Specific Criteria from Which a Deviation is Sought: Access spacing along a Principal Arterial

Proposed Nature and Extent of Deviation: Request for right-in/right-out access point to both the westbound and eastbound directions of Bradley Road approximately 2,340 feet east of Powers Boulevard to serve the proposed residential (south side of Bradley) and non-residential (north side of Bradley) Sketch Plan land uses east of Powers.

Reason for the Requested Deviation: The deviation is requested to provide second points of access to the proposed sketch plan land uses located north and south of Bradley Road and east of Powers Boulevard. The primary access would be at the currently proposed full-movement access approximately 1,030 feet east of Powers (please refer to separate deviation request). The deviation is requested as the property only has public roadway frontage to Bradley Road and Powers Boulevard and no access will be allowed to Powers. Bradley is the only roadway to which these parcels could have direct access. The right-in/right-out access point would provide a second point of access for these development areas and would improve circulation for these areas. Given the limited access opportunities to these



EPC file no. SKP 16-002

sketch plan areas, the right-in/right-out access point would distribute the site-generated right-turn movements to/from Bradley Road at two locations instead of one. This will reduce the turning movements at the proposed full-movement access to the west.

Comparison of Proposed Deviation to ECM Standard: The requested accesses would be approximately 1,560 feet west of Foreign Trade Zone Boulevard, 2,340 feet east of Powers Boulevard, and about 1,315 feet east of the proposed full-movement intersection location. The south side right-in/right out would be1,135 feet west of a future right-in/right-out access to the Bradley Heights development (City of Colorado Springs).

Applicable Regional or National Standards used as Basis: _____

**Application Consideration:**

| **CHECK IF APPLICATION MEETS CRITERIA FOR CONSIDERATION** | **JUSTIFICATION** |
|---|---|
| ☐ The ECM standard is inapplicable to a particular situation. | _____ |
| ▣ Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship on the applicant, and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility. | The parcels northeast and northwest of Powers Boulevard/ Bradley Road have no access without either the proposed full-movement access (separate deviation form) or this proposed access. This proposed access is requested for purposes of providing a second access. A future minor connection is planned between Waterview and Bradley Heights to the east but currently, however, this has been planned for connectivity between developments and is not intended to provide other than a minor connection. Given the master-planned uses, the size of the land area to be served, and essentially access to Bradley Road only, a second point of access (right-in/right-out) to Bradley is needed. |
| ☐ A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public. | _____ |

**If at least one of the criteria listed above is not met, this application for deviation cannot be considered.**

**Criteria for Approval:**

| **PLEASE EXPLAIN HOW EACH OF THE FOLLOWING CRITERIA HAVE BEEN SATISFIED BY THIS REQUEST** | |
|---|---|
| The request for a deviation is not based exclusively on financial considerations. | The request is not based on financial considerations. The request is based on the need to provide a second access to serve the parcels northeast and northwest of Powers Boulevard that would have no access without access to Bradley Road. The first/primary access would be the proposed full-movement to Bradley Road (separate deviation). See the above justification paragraph under "Application Consideration" for additional detail. |
| The deviation will achieve the intended result with a comparable or superior design and quality of improvement. | The intersection spacing would be sufficient to achieve auxiliary right-turn lanes on Bradley Road. The deviation is requested as the property only has public roadway frontage to Bradley Road and Powers Boulevard and no access will be allowed to Powers. Bradley is the only roadway to which these parcels could have direct access. The right-in/right-out access points would provide a second point of |

| | |
|---|---|
| | access for these development areas and would improve circulation for these areas. Given the limited access opportunities to these parcels, these right-in/right-out access points would distribute the site-generated right-turn movements to/from Bradley Road at two locations instead of one. This will reduce the turning movements at the proposed full-movement access to the west and potentially at the Foreign Trade Zone/Bradley intersection to the east if a future connection is created between Waterview and Foreign Trade Zone Blvd (right-of-way is not currently available, but a connection could potentially be established with the development of the private property to the east of Waterview). |
| The deviation will not adversely affect safety or operations. | The intersection would operate at a satisfactory level of service based on short-term and long-term traffic volume projections. The intersection spacing would be sufficient to achieve auxiliary right-turn lanes. The center median on Bradley Road would physically prevent left-turn movements. Future traffic signals at the Bradley/ Foreign Trade Zone intersection and at the proposed Waterview full-movement intersection to the west would generate gaps in through traffic on Bradley Road which would be utilized by exiting right-turn movements to turn onto Bradley Road. Please refer to the attached LSC Traffic Technical Memorandum for additional technical detail and analysis results. |
| The deviation will not adversely affect maintenance and its associated cost. | N/A |
| The deviation will not adversely affect aesthetic appearance. | N/A |

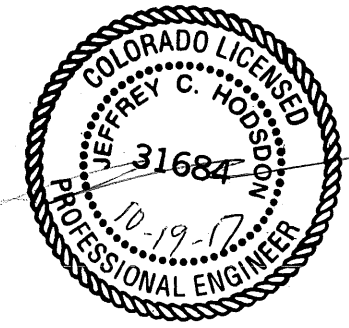
**Owner, Applicant and Engineer Declaration:**
To the best of my knowledge, the information on this application and all additional or supplemental documentation is true, factual and complete. I am fully aware that any misrepresentation of any information on this application may be grounds for denial. I have familiarized myself with the rules, regulations and procedures with respect to preparing and filing this application. I also understand that an incorrect submittal will be cause to have the project removed from the agenda of the Planning Commission, Board of County Commissioners and/or Board of Adjustment or delay review, and that any approval of this application is based on the representations made in the application and may be revoked on any breach of representation or condition(s) of approval.

Signature of owner (or authorized representative) — Date

Signature of applicant (if different from owner) — MANAGER — Date 10/15/17
CDR ENTITLEMENTS, LLC

Signature of Engineer — Date 10/19/17

Engineer's Seal



**Review and Recommendation:**
**APPROVED by the ECM Administrator**

**Approved**
by Elizabeth Nijkamp
El Paso County Planning and Community Development
on behalf of Jennifer Irvine, County Engineer, ECM Administrator
03/28/2018 4:04:26 PM

_____ Date_____

This request has been determined to have met the criteria for approval. A deviation from Section
2.2.5.B.1 of ECM is hereby granted based on the justification provided. Comments:

The approved RIRO may be closed after a second access has been established to the subdivision.

____ Additional comments or information are attached.

**DENIED by the ECM Administrator**

_____ Date_____

This request has been determined not to have met criteria for approval. A deviation from Section
_____of ECM is hereby denied. Comments:

____ Additional comments or information are attached.

**Development Services Department**
**2880 International Circle**
**Colorado Springs, Colorado 80910**

Phone: 719.520.6300
Fax: 719.520.6695
Website www.elpasoco.com

# DEVIATION REVIEW AND DECISION FORM

Procedure # R-FM-051-07
Issue Date: 12/31/07
Revision Issued: 00/00/00
**DSD FILE NO.:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

**General Property Information:**
Address of Subject Property (Street Number/Name): N/A
Tax Schedule ID(s) #: 5500000135
Legal Description of Property: W2 SEC 9-15-65, EX PT TO RDS

Subdivision or Project Name: Waterview Sketch Plan

Section of ECM from Which Deviation is Sought: 2.2.5.B.1

Specific Criteria from Which a Deviation is Sought: Intersection spacing along a Principal Arterial
Proposed Nature and Extent of Deviation: Request for a full-movement, future public street signalized intersection with Bradley Road approximately 1,030 feet east of Powers Boulevard to serve the proposed residential and non-residential Sketch Plan land uses north and south of Bradley Road and east of Powers.

**Applicant Information:**
Applicant: CPR Entitlements, LLC Email Address: dse.pak7@gmail.com
Applicant is: _____ Owner __X___ Consultant _____ Contractor
Mailing Address: 31 North Tejon Street, Suite 500, Colorado Springs State: CO Postal Code: 80903
Telephone Number: 719-227-7388 Fax Number: 719-227-7392

**Engineer Information:**
Engineer: Jeffrey C. Hodsdon, P.E., PTOE Email Address: jchodsdon@lsccs.com
Company Name: LSC Transportation Consultants, Inc.
Mailing Address: 516 North Tejon Street State: CO Postal Code: 80903
Registration Number: 31684 State of Registration: Colorado
Telephone Number: (719) 633-2868 Fax Number: (719) 633-5430

**Explanation of Request (Attached diagrams, figures and other documentation to clarify request):**
Section of ECM from Which Deviation is Sought: 2.2.5.B.1
Specific Criteria from Which a Deviation is Sought: Access spacing along a Principal Arterial

Proposed Nature and Extent of Deviation: Request for a full-movement, future public street signalized intersection with Bradley Road approximately 1,030 feet east of Powers Boulevard to serve the proposed residential and non-residential Sketch Plan land uses north and south of Bradley Road and east of Powers.

Reason for the Requested Deviation: The deviation is requested to provide a future public street intersection and the major access for the proposed Sketch Plan land uses located north and south of Bradley Road and east of Powers Boulevard. The deviation is needed regardless of the exact location of the access because the access would be either less than 1/2-mile from the Powers/Bradley intersection or less than 1/2-mile from the Foreign Trade Zone intersection. The deviation is requested as the property only has public roadway frontage to Bradley Road and Powers Boulevard and no access will be allowed to Powers. Bradley is the only roadway to which these parcels could have direct access.



EPC file no. SKP 16-002

Also, a full-movement access to Bradley Road was shown on the older approved Sketch Plan.

Comparison of Proposed Deviation to ECM Standard: The requested access would be approximately 2,870 feet west of Foreign Trade Zone Boulevard (exceeds 1/2-mile spacing) and approximately 1,030 feet east of Powers Boulevard, whereas 2,640 feet is the ECM standard.

Applicable Regional or National Standards used as Basis: _____

**Application Consideration:**

| **CHECK IF APPLICATION MEETS CRITERIA FOR CONSIDERATION** | **JUSTIFICATION** |
|---|---|
| ☐ The ECM standard is inapplicable to a particular situation. | _____ |
| ▣ Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship on the applicant, and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility. | The parcels northeast and northwest of Powers Boulevard have no access without the proposed access. A future minor connection is planned between Waterview and Bradley Heights to the east; however, this has been planned for connectivity between developments and would not be sufficient access. Also, given the master-planned uses and size of the land area to be served by the access to Bradley, a right-in/right-out access would not suffice. A full-movement access is necessary. A full-movement access between Powers and Foreign Trade Zone Boulevard has been shown on the Waterview Sketch Plan for a number of years. The currently proposed location would be superior to that location previously shown 2,000 feet east of Powers. |
| ☐ A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public. | _____ |

**If at least one of the criteria listed above is not met, this application for deviation cannot be considered.**

**Criteria for Approval:**

**PLEASE EXPLAIN HOW EACH OF THE FOLLOWING CRITERIA HAVE BEEN SATISFIED BY THIS REQUEST**

| | |
|---|---|
| The request for a deviation is not based exclusively on financial considerations. | The request is not based on financial considerations. The request is based on the need to provide a future public street intersection on Bradley Road to serve the parcels northeast and northwest of Powers Boulevard that would have no access without access to Bradley Road. See the above justification paragraph under "Application Consideration" for additional detail. |
| The deviation will achieve the intended result with a comparable or superior design and quality of improvement. | The intersection spacing would be sufficient to achieve auxiliary left-turn lanes on Bradley Road. The spacing to Powers (west) and Foreign Trade Zone Boulevard (east) will be sufficient to allow this intersection to be signalized. Given the location of land uses to be served in relation to the Powers/Bradley intersection the proposed intersection location would be optimal. Also, the proposed intersection location would be near the north/south dividing line between the proposed commercial and residential development (established as a result of the airport APZ line). This would result in a north/south public street which would serve both the commercial and residential development well. It would provide a buffer between the commercial and residential areas and it would much better serve the |

commercial site and make it more viable by moving the full-movement, future signalized intersection to the adjacent northeast corner of the commercial area. The proposed location would be far superior from this perspective. The previous plan showed the first full-movement east of Powers located nearly a quarter-mile to the east of the commercial development area. This, arguably, would not work for commercial development. Commercial/retail development would be most viable when located adjacent to the intersection of Powers and Bradley with a pre-established full-movement, future signalized intersection on Bradley Road at the proposed location. The intersection should be shown at the best location outside the CDOT A-line now.

The deviation will not adversely affect safety or operations.

The intersection would operate at a satisfactory level of service based on short-term and long-term traffic volume projections. The intersection spacing would be sufficient to achieve auxiliary turn lanes and these lanes would accommodate the projected vehicle queues. Good Bradley Road corridor traffic signal progression could be achieved with a future traffic signal at this intersection. The intersection at the proposed location would also provide the option for coordinating the signal at this intersection with the future signal at the Powers/Bradley intersection. Please refer to the attached LSC Traffic Technical Memorandum for additional technical detail and analysis results. The memorandum also addresses the turning movements from Powers onto eastbound Bradley with the relatively short distances to the entry points to the eastbound auxiliary turn lanes at the proposed Waterview intersection.

The deviation will not adversely affect maintenance and its associated cost.

N/A

The deviation will not adversely affect aesthetic appearance.

N/A

**Owner, Applicant and Engineer Declaration:**

To the best of my knowledge, the information on this application and all additional or supplemental documentation is true, factual and complete. I am fully aware that any misrepresentation of any information on this application may be grounds for denial. I have familiarized myself with the rules, regulations and procedures with respect to preparing and filing this application. I also understand that an incorrect submittal will be cause to have the project removed from the agenda of the Planning Commission, Board of County Commissioners and/or Board of Adjustment or delay review, and that any approval of this application is based on the representations made in the application and may be revoked on any breach of representation or condition(s) of approval.

Signature of owner (or authorized representative) — Date

Signature of applicant (if different from owner) MANAGER — Date 10/15/17

CPR ENTITLEMENTS, LLC

Signature of Engineer — Date 10/19/17

Engineer's Seal

COLORADO LICENSED
JEFFREY C. HODSDON
31684
10-19-17
PROFESSIONAL ENGINEER

**Review and Recommendation:**
**APPROVED by the ECM Administrator**

**Approved**
by Elizabeth Nijkamp
El Paso County Planning and Community Development
on behalf of Jennifer Irvine, County Engineer, ECM Administrator
03/28/2018 4:03:43 PM

_____ Date_____

This request has been determined to have met the criteria for approval. A deviation from Section 2.2.5.B.1 of ECM is hereby granted based on the justification provided. Comments:

_____
_____
_____
_____

____ Additional comments or information are attached.

**DENIED by the ECM Administrator**

_____ Date_____

This request has been determined not to have met criteria for approval. A deviation from Section _____of ECM is hereby denied. Comments:

_____
_____
_____
_____

____ Additional comments or information are attached.

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

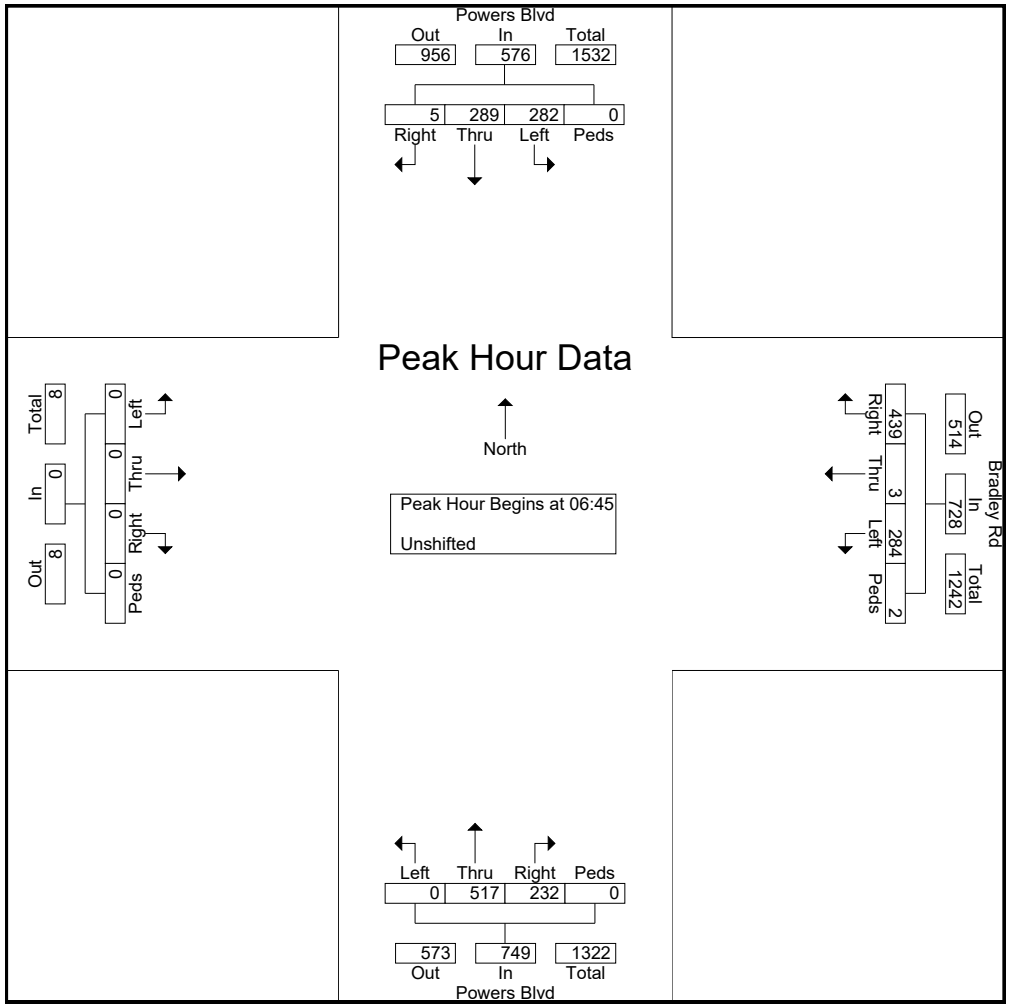
Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

**Groups Printed- Unshifted**

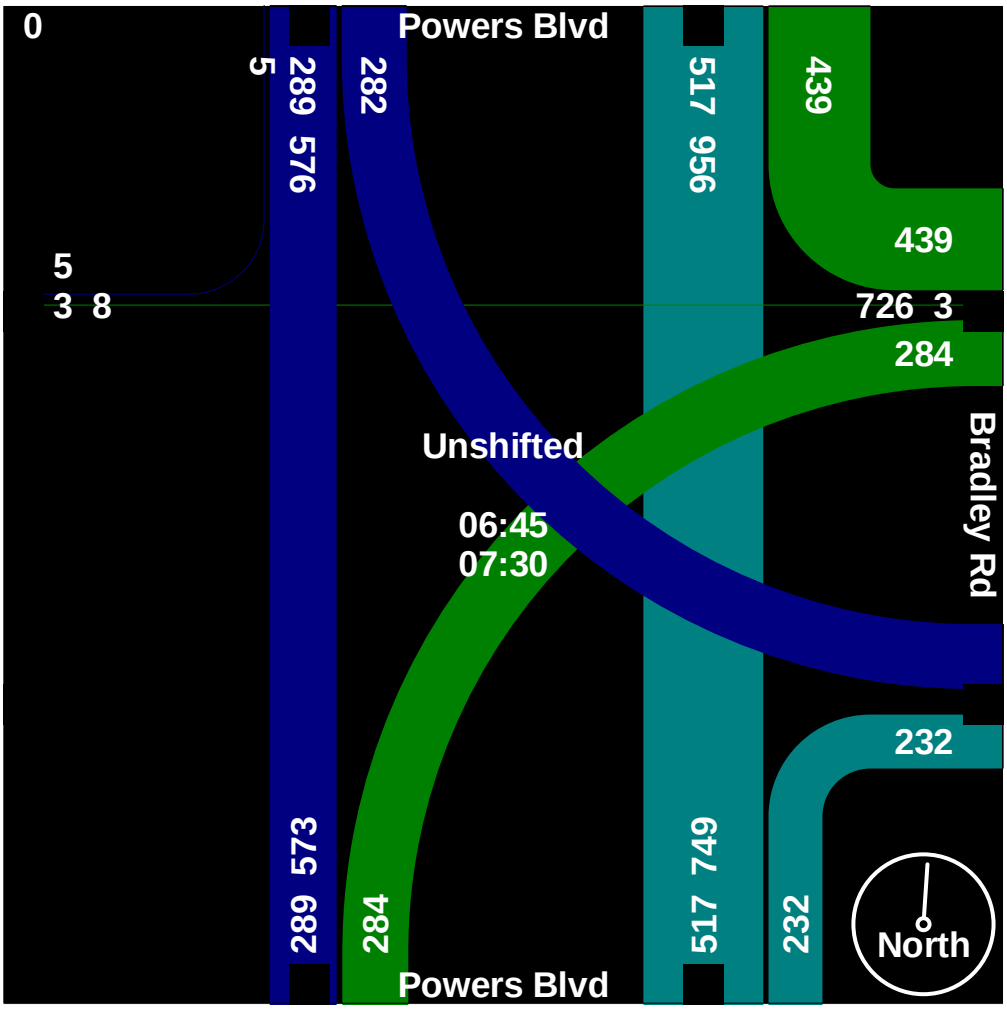
| | Powers Blvd Southbound | | | | | Bradley Rd Westbound | | | | | Powers Blvd Northbound | | | | | Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. 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 |

**LSC Transportation Consultants, Inc.**
Colorado Springs, CO 80905
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 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 |



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



**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 |
| 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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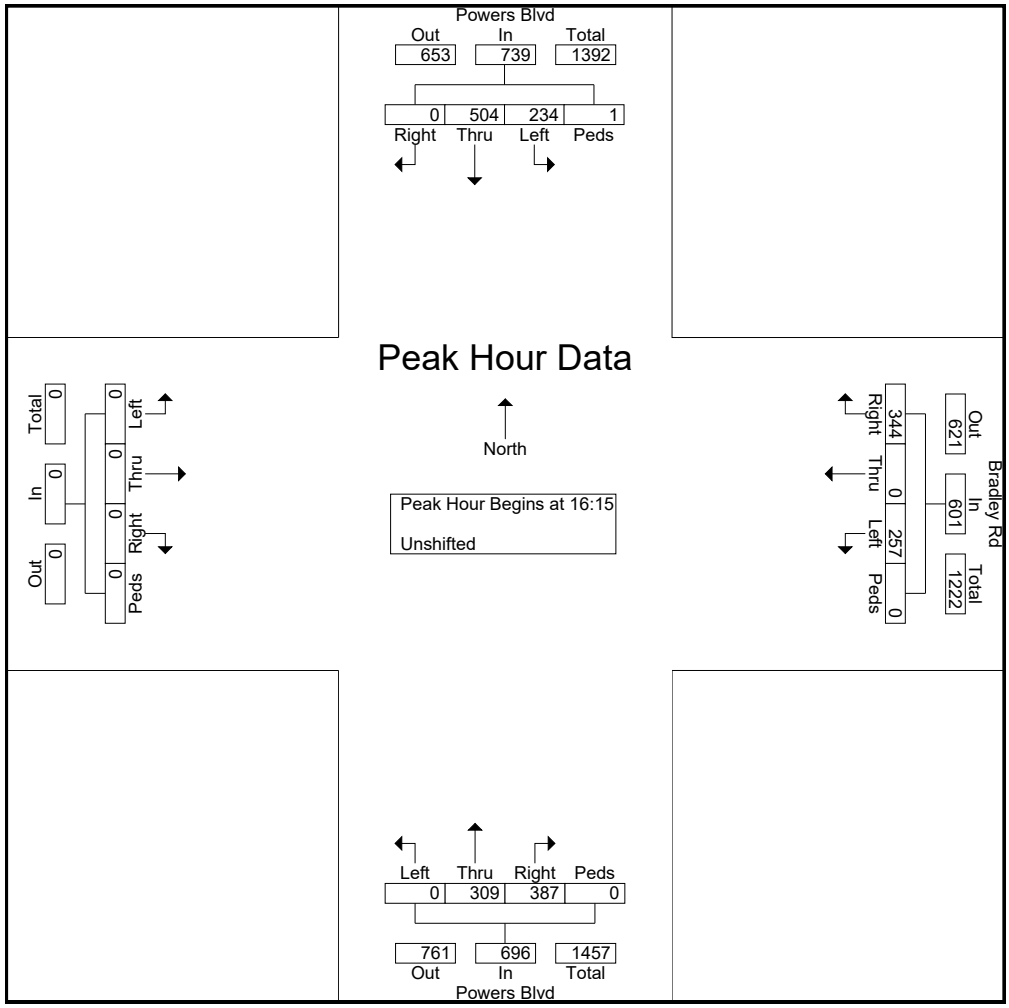
| | Powers Blvd Southbound | | | | | Bradley Rd Westbound | | | | | Powers Blvd Northbound | | | | | Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. 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 |



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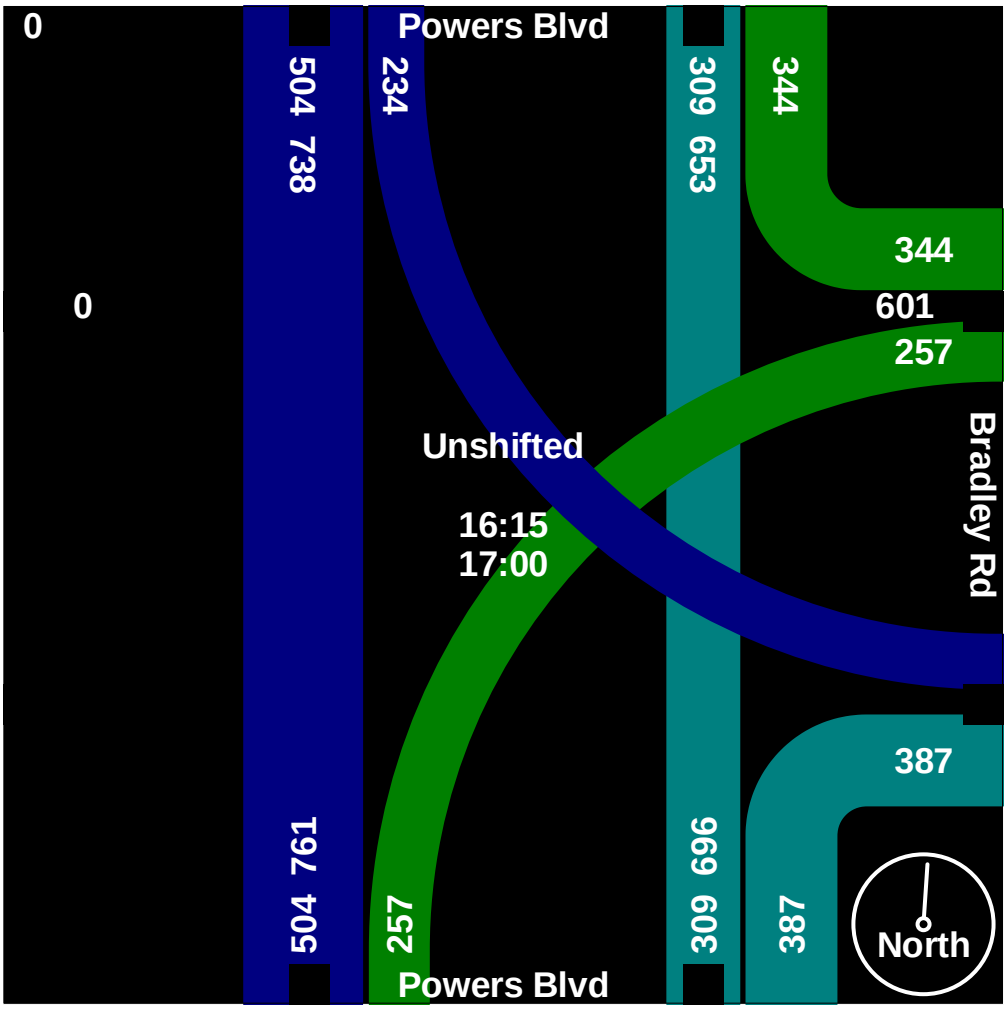


| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 175 | 363 | 530 | 251 | 301 | 267 |
| Future Volume (vph) | 175 | 363 | 530 | 251 | 301 | 267 |
| Turn Type | Prot | Perm | NA | Perm | Prot | NA |
| Protected 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 | 50.0 | 50.0 | 20.0 | 70.0 |
| Total Split (%) | 22.2% | 22.2% | 55.6% | 55.6% | 22.2% | 77.8% |
| 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) | 10.8 | 10.8 | 16.4 | 16.4 | 15.2 | 36.7 |
| Actuated g/C Ratio | 0.19 | 0.19 | 0.28 | 0.28 | 0.26 | 0.64 |
| v/c Ratio | 0.53 | 0.61 | 0.61 | 0.44 | 0.72 | 0.13 |
| Control Delay | 28.2 | 8.0 | 20.8 | 4.8 | 32.7 | 4.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 28.2 | 8.0 | 20.8 | 4.8 | 32.7 | 4.6 |
| LOS | C | A | C | A | C | A |
| Approach Delay | 14.6 | | 15.7 | | | 19.5 |
| Approach LOS | B | | B | | | B |

| Intersection Summary | |
|---|---|
| Cycle Length: 90 | |
| Actuated Cycle Length: 57.6 | |
| Natural Cycle: 50 | |
| Control Type: Actuated-Uncoordinated | |
| Maximum v/c Ratio: 0.72 | |
| Intersection Signal Delay: 16.5 | Intersection LOS: B |
| Intersection Capacity Utilization 53.5% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 37: Powers & 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 | 51.0 | 51.0 | 20.0 | 71.0 |
| Total Split (%) | 22.0% | 22.0% | 56.0% | 56.0% | 22.0% | 78.0% |
| 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) | 13.8 | 13.8 | 11.4 | 11.4 | 13.4 | 29.9 |
| Actuated g/C Ratio | 0.26 | 0.26 | 0.21 | 0.21 | 0.25 | 0.56 |
| v/c Ratio | 0.57 | 0.52 | 0.46 | 0.64 | 0.56 | 0.27 |
| Control Delay | 24.1 | 5.9 | 21.1 | 7.4 | 24.3 | 6.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 24.1 | 5.9 | 21.1 | 7.4 | 24.3 | 6.7 |
| LOS | C | A | C | A | C | A |
| Approach Delay | 13.7 | | 13.5 | | | 12.3 |
| Approach LOS | B | | B | | | B |

| Intersection Summary | |
|---|---|
| Cycle Length: 91 | |
| Actuated Cycle Length: 53.8 | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Uncoordinated | |
| Maximum v/c Ratio: 0.64 | |
| Intersection Signal Delay: 13.1 | Intersection LOS: B |
| Intersection Capacity Utilization 48.2% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Powers & Bradley Rd.

| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 427 | 627 | 508 | 322 | 372 | 284 |
| Future Volume (vph) | 427 | 627 | 508 | 322 | 372 | 284 |
| 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) | 30.0 | | 45.0 | 45.0 | 25.0 | 70.0 |
| Total Split (%) | 30.0% | | 45.0% | 45.0% | 25.0% | 70.0% |
| 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 | | C-Max | C-Max | None | C-Max |
| Act Effct Green (s) | 18.3 | 100.0 | 49.9 | 49.9 | 16.8 | 71.7 |
| Actuated g/C Ratio | 0.18 | 1.00 | 0.50 | 0.50 | 0.17 | 0.72 |
| v/c Ratio | 0.72 | 0.42 | 0.29 | 0.34 | 0.69 | 0.12 |
| Control Delay | 42.9 | 1.5 | 16.4 | 3.2 | 45.5 | 4.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 42.9 | 1.5 | 16.4 | 3.2 | 45.5 | 4.9 |
| LOS | D | A | B | A | D | A |
| Approach Delay | 18.3 | | 11.3 | | | 27.9 |
| Approach LOS | B | | B | | | C |

| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 100 | |
| Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green | |
| Natural Cycle: 40 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.72 | |
| Intersection Signal Delay: 18.6 | Intersection LOS: B |
| Intersection Capacity Utilization 49.3% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Powers & Bradley Rd.

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 520 | 173 | 77 | 710 | 345 | 104 |
| Future Volume (vph) | 520 | 173 | 77 | 710 | 345 | 104 |
| Turn Type | NA | Perm | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | 2 | 6 | | | 8 |
| Detector Phase | 2 | 2 | 1 | 6 | 8 | 8 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 21.0 | 21.0 | 9.0 | 21.0 | 21.0 | 21.0 |
| Total Split (s) | 65.0 | 65.0 | 10.0 | 75.0 | 25.0 | 25.0 |
| Total Split (%) | 65.0% | 65.0% | 10.0% | 75.0% | 25.0% | 25.0% |
| 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 | C-Max | C-Max | None | C-Max | None | None |
| Act Effct Green (s) | 64.9 | 64.9 | 74.0 | 74.0 | 16.0 | 16.0 |
| Actuated g/C Ratio | 0.65 | 0.65 | 0.74 | 0.74 | 0.16 | 0.16 |
| v/c Ratio | 0.25 | 0.17 | 0.14 | 0.29 | 0.68 | 0.32 |
| Control Delay | 3.6 | 0.3 | 4.6 | 4.9 | 45.9 | 9.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 3.6 | 0.3 | 4.6 | 4.9 | 45.9 | 9.4 |
| LOS | A | A | A | A | D | A |
| Approach Delay | 2.8 | | | 4.9 | 37.4 | |
| Approach LOS | A | | | A | D | |

| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 100 | |
| Offset: 67 (67%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.68 | |
| Intersection Signal Delay: 11.7 | Intersection LOS: B |
| Intersection Capacity Utilization 41.0% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Waterview Full Access & Bradley Rd.

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.2 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 607 | 17 | 0 | 787 | 0 | 31 |
| Future Vol, veh/h | 607 | 17 | 0 | 787 | 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 | - | 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 | 660 | 18 | 0 | 855 | 0 | 34 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | - | - | - | 330 |
| 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 | 666 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 666 |
| 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) | 666 | - | - | - |
| HCM Lane V/C Ratio | 0.051 | - | - | - |
| HCM Control Delay (s) | 10.7 | - | - | - |
| 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 | 141 | 126 | 222 | 273 |
| Demand Flow Rate, veh/h | 144 | 127 | 226 | 278 |
| Vehicles Circulating, veh/h | 136 | 369 | 205 | 1 |
| Vehicles Exiting, veh/h | 143 | 62 | 75 | 495 |
| 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 | 5.1 | 5.1 | 4.3 |
| 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 | 144 | 127 | 226 | 278 |
| Cap Entry Lane, veh/h | 1201 | 947 | 1120 | 1378 |
| Entry HV Adj Factor | 0.979 | 0.992 | 0.980 | 0.980 |
| Flow Entry, veh/h | 141 | 126 | 222 | 273 |
| Cap Entry, veh/h | 1176 | 939 | 1098 | 1351 |
| V/C Ratio | 0.120 | 0.134 | 0.202 | 0.202 |
| Control Delay, s/veh | 4.1 | 5.1 | 5.1 | 4.3 |
| LOS | A | A | A | A |
| 95th %tile Queue, veh | 0 | 0 | 1 | 1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 16 | 33 | 1 | 46 | 21 | 0 |
| Future Vol, veh/h | 16 | 33 | 1 | 46 | 21 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 200 | 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 | 17 | 36 | 1 | 50 | 23 | 0 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 72 | 26 | 0 | 0 | 51 | 0 |
| Stage 1 | 26 | - | - | - | - | - |
| Stage 2 | 46 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 932 | 1050 | - | - | 1555 | - |
| Stage 1 | 997 | - | - | - | - | - |
| Stage 2 | 976 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 918 | 1050 | - | - | 1555 | - |
| Mov Cap-2 Maneuver | 918 | - | - | - | - | - |
| Stage 1 | 982 | - | - | - | - | - |
| Stage 2 | 976 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 8.7 | 0 | 7.4 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 918 | 1050 | 1555 | - |
| HCM Lane V/C Ratio | - | - | 0.019 | 0.034 | 0.015 | - |
| HCM Control Delay (s) | - | - | 9 | 8.6 | 7.4 | 0 |
| HCM Lane LOS | - | - | A | A | A | A |
| HCM 95th %tile Q(veh) | - | - | 0.1 | 0.1 | 0 | - |

| 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 | 46 | 1 | 0 | 0 | 1 | 18 | 0 | 66 | 0 | 6 | 49 | 74 |
| Future Vol, veh/h | 46 | 1 | 0 | 0 | 1 | 18 | 0 | 66 | 0 | 6 | 49 | 74 |
| 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 | 50 | 1 | 0 | 0 | 1 | 20 | 0 | 72 | 0 | 7 | 53 | 80 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 150 | 139 | 53 | 180 | 219 | 72 | 133 | 0 | 0 | 72 | 0 | 0 |
| Stage 1 | 67 | 67 | - | 72 | 72 | - | - | - | - | - | - | - |
| Stage 2 | 83 | 72 | - | 108 | 147 | - | - | - | - | - | - | - |
| 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 | 818 | 752 | 1014 | 782 | 679 | 990 | 1452 | - | - | 1528 | - | - |
| Stage 1 | 943 | 839 | - | 938 | 835 | - | - | - | - | - | - | - |
| Stage 2 | 925 | 835 | - | 897 | 775 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 798 | 748 | 1014 | 778 | 676 | 990 | 1452 | - | - | 1528 | - | - |
| Mov Cap-2 Maneuver | 798 | 748 | - | 778 | 676 | - | - | - | - | - | - | - |
| Stage 1 | 943 | 835 | - | 938 | 835 | - | - | - | - | - | - | - |
| Stage 2 | 906 | 835 | - | 892 | 771 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 9.8 | 8.8 | 0 | 0.3 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1452 | - | - | 797 | 966 | 1528 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.064 | 0.021 | 0.004 | - | - |
| HCM Control Delay (s) | 0 | - | - | 9.8 | 8.8 | 7.4 | - | - |
| HCM Lane LOS | A | - | - | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.2 | 0.1 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 31 | 19 | 6 | 4 | 72 | 0 | 24 | 0 | 7 | 0 | 0 | 20 |
| Future Vol, veh/h | 31 | 19 | 6 | 4 | 72 | 0 | 24 | 0 | 7 | 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 | 100 | - | - | - | - | - | - | - | - | - | - | - |
| 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 | 34 | 21 | 7 | 4 | 78 | 0 | 26 | 0 | 8 | 0 | 0 | 22 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 78 | 0 | 0 | 28 | 0 | 0 | 190 | 179 | 25 | 183 | 182 | 78 |
| Stage 1 | - | - | - | - | - | - | 93 | 93 | - | 86 | 86 | - |
| Stage 2 | - | - | - | - | - | - | 97 | 86 | - | 97 | 96 | - |
| 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 | 1520 | - | - | 1585 | - | - | 770 | 715 | 1051 | 778 | 712 | 983 |
| Stage 1 | - | - | - | - | - | - | 914 | 818 | - | 922 | 824 | - |
| Stage 2 | - | - | - | - | - | - | 910 | 824 | - | 910 | 815 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1520 | - | - | 1585 | - | - | 738 | 697 | 1051 | 758 | 694 | 983 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 738 | 697 | - | 758 | 694 | - |
| Stage 1 | - | - | - | - | - | - | 894 | 800 | - | 902 | 822 | - |
| Stage 2 | - | - | - | - | - | - | 887 | 822 | - | 883 | 797 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 4.1 | 0.4 | 9.8 | 8.7 |
| HCM LOS | | | A | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 791 | 1520 | - | - | 1585 | - | - | 983 |
| HCM Lane V/C Ratio | 0.043 | 0.022 | - | - | 0.003 | - | - | 0.022 |
| HCM Control Delay (s) | 9.8 | 7.4 | - | - | 7.3 | 0 | - | 8.7 |
| HCM Lane LOS | A | A | - | - | A | A | - | A |
| HCM 95th %tile Q(veh) | 0.1 | 0.1 | - | - | 0 | - | - | 0.1 |

| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 468 | 541 | 292 | 627 | 514 | 473 |
| Future Volume (vph) | 468 | 541 | 292 | 627 | 514 | 473 |
| 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) | 30.0 | | 45.0 | 45.0 | 25.0 | 70.0 |
| Total Split (%) | 30.0% | | 45.0% | 45.0% | 25.0% | 70.0% |
| 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 | | C-Max | C-Max | None | C-Max |
| Act Effct Green (s) | 20.0 | 100.0 | 45.1 | 45.1 | 19.9 | 70.0 |
| Actuated g/C Ratio | 0.20 | 1.00 | 0.45 | 0.45 | 0.20 | 0.70 |
| v/c Ratio | 0.74 | 0.37 | 0.21 | 0.67 | 0.80 | 0.20 |
| Control Delay | 37.0 | 1.2 | 18.1 | 7.0 | 47.8 | 5.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 37.0 | 1.2 | 18.1 | 7.0 | 47.8 | 5.8 |
| LOS | D | A | B | A | D | A |
| Approach Delay | 17.8 | | 10.5 | | | 27.7 |
| Approach LOS | B | | B | | | C |

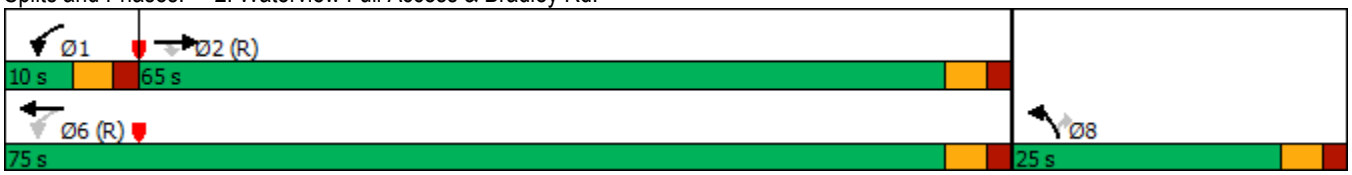
| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 100 | |
| Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green | |
| Natural Cycle: 50 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.80 | |
| Intersection Signal Delay: 18.7 | Intersection LOS: B |
| Intersection Capacity Utilization 61.8% | ICU Level of Service B |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Powers & Bradley Rd.

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 641 | 500 | 220 | 564 | 445 | 158 |
| Future Volume (vph) | 641 | 500 | 220 | 564 | 445 | 158 |
| Turn Type | NA | Perm | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | 2 | 6 | | | 8 |
| Detector Phase | 2 | 2 | 1 | 6 | 8 | 8 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum Split (s) | 21.0 | 21.0 | 9.0 | 21.0 | 21.0 | 21.0 |
| Total Split (s) | 65.0 | 65.0 | 10.0 | 75.0 | 25.0 | 25.0 |
| Total Split (%) | 65.0% | 65.0% | 10.0% | 75.0% | 25.0% | 25.0% |
| 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 | C-Max | C-Max | None | C-Max | None | None |
| Act Effct Green (s) | 60.7 | 60.7 | 71.8 | 71.8 | 18.2 | 18.2 |
| Actuated g/C Ratio | 0.61 | 0.61 | 0.72 | 0.72 | 0.18 | 0.18 |
| v/c Ratio | 0.32 | 0.46 | 0.47 | 0.24 | 0.78 | 0.40 |
| Control Delay | 5.8 | 1.6 | 8.2 | 5.3 | 48.1 | 8.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 5.8 | 1.6 | 8.2 | 5.3 | 48.1 | 8.4 |
| LOS | A | A | A | A | D | A |
| Approach Delay | 4.0 | | | 6.1 | 37.7 | |
| Approach LOS | A | | | A | D | |

| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 100 | |
| Offset: 67 (67%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.78 | |
| Intersection Signal Delay: 12.7 | Intersection LOS: B |
| Intersection Capacity Utilization 55.1% | ICU Level of Service B |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Waterview Full Access & Bradley Rd.



| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 741 | 58 | 0 | 784 | 0 | 20 |
| Future Vol, veh/h | 741 | 58 | 0 | 784 | 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 | - | 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 | 805 | 63 | 0 | 852 | 0 | 22 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | - | - | - | 403 |
| 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 | 597 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 597 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 11.3 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT |
|---|---|---|---|---|
| Capacity (veh/h) | 597 | - | - | - |
| HCM Lane V/C Ratio | 0.036 | - | - | - |
| HCM Control Delay (s) | 11.3 | - | - | - |
| HCM Lane LOS | B | - | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 8.5 |
| 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 | 162 | 142 | 783 |
| Demand Flow Rate, veh/h | 364 | 164 | 145 | 797 |
| Vehicles Circulating, veh/h | 426 | 506 | 536 | 3 |
| Vehicles Exiting, veh/h | 374 | 175 | 254 | 667 |
| Ped Vol Crossing Leg, #/h | 0 | 0 | 0 | 0 |
| Ped Cap Adj | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | 8.9 | 6.5 | 6.5 | 9.2 |
| 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 | 164 | 145 | 797 |
| Cap Entry Lane, veh/h | 894 | 824 | 799 | 1376 |
| Entry HV Adj Factor | 0.981 | 0.988 | 0.981 | 0.982 |
| Flow Entry, veh/h | 357 | 162 | 142 | 783 |
| Cap Entry, veh/h | 876 | 813 | 783 | 1352 |
| V/C Ratio | 0.407 | 0.199 | 0.182 | 0.579 |
| Control Delay, s/veh | 8.9 | 6.5 | 6.5 | 9.2 |
| LOS | A | A | A | A |
| 95th %tile Queue, veh | 2 | 1 | 1 | 4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.4 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 51 | 83 | 2 | 30 | 90 | 2 |
| Future Vol, veh/h | 51 | 83 | 2 | 30 | 90 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 200 | 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 | 90 | 2 | 33 | 98 | 2 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 217 | 19 | 0 | 0 | 35 | 0 |
| Stage 1 | 19 | - | - | - | - | - |
| Stage 2 | 198 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 771 | 1059 | - | - | 1576 | - |
| Stage 1 | 1004 | - | - | - | - | - |
| Stage 2 | 835 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 723 | 1059 | - | - | 1576 | - |
| Mov Cap-2 Maneuver | 723 | - | - | - | - | - |
| Stage 1 | 942 | - | - | - | - | - |
| Stage 2 | 835 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 9.3 | 0 | 7.3 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 723 | 1059 | 1576 | - |
| HCM Lane V/C Ratio | - | - | 0.077 | 0.085 | 0.062 | - |
| HCM Control Delay (s) | - | - | 10.4 | 8.7 | 7.4 | 0 |
| HCM Lane LOS | - | - | B | A | A | A |
| HCM 95th %tile Q(veh) | - | - | 0.2 | 0.3 | 0.2 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 198 | 2 | 0 | 0 | 2 | 12 | 0 | 120 | 0 | 20 | 134 | 184 |
| Future Vol, veh/h | 198 | 2 | 0 | 0 | 2 | 12 | 0 | 120 | 0 | 20 | 134 | 184 |
| 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 | 215 | 2 | 0 | 0 | 2 | 13 | 0 | 130 | 0 | 22 | 146 | 200 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 328 | 320 | 146 | 421 | 520 | 130 | 346 | 0 | 0 | 130 | 0 | 0 |
| Stage 1 | 190 | 190 | - | 130 | 130 | - | - | - | - | - | - | - |
| Stage 2 | 138 | 130 | - | 291 | 390 | - | - | - | - | - | - | - |
| 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 | 625 | 597 | 901 | 543 | 461 | 920 | 1213 | - | - | 1455 | - | - |
| Stage 1 | 812 | 743 | - | 874 | 789 | - | - | - | - | - | - | - |
| Stage 2 | 865 | 789 | - | 717 | 608 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 607 | 588 | 901 | 535 | 454 | 920 | 1213 | - | - | 1455 | - | - |
| Mov Cap-2 Maneuver | 607 | 588 | - | 535 | 454 | - | - | - | - | - | - | - |
| Stage 1 | 812 | 732 | - | 874 | 789 | - | - | - | - | - | - | - |
| Stage 2 | 850 | 789 | - | 704 | 599 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 14.2 | 9.6 | 0 | 0.4 |
| HCM LOS | B | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1213 | - | - | 607 | 802 | 1455 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.358 | 0.019 | 0.015 | - | - |
| HCM Control Delay (s) | 0 | - | - | 14.2 | 9.6 | 7.5 | - | - |
| HCM Lane LOS | A | - | - | B | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 1.6 | 0.1 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 78 | 61 | 20 | 14 | 48 | 0 | 15 | 0 | 5 | 1 | 0 | 86 |
| Future Vol, veh/h | 78 | 61 | 20 | 14 | 48 | 0 | 15 | 0 | 5 | 1 | 0 | 86 |
| 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 | 150 | - | - | - | - | - | - | - | - | - | - | - |
| 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 | 85 | 66 | 22 | 15 | 52 | 0 | 16 | 0 | 5 | 1 | 0 | 93 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 52 | 0 | 0 | 88 | 0 | 0 | 376 | 329 | 77 | 332 | 340 | 52 |
| Stage 1 | - | - | - | - | - | - | 247 | 247 | - | 82 | 82 | - |
| Stage 2 | - | - | - | - | - | - | 129 | 82 | - | 250 | 258 | - |
| 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 | 1554 | - | - | 1508 | - | - | 581 | 590 | 984 | 621 | 582 | 1016 |
| Stage 1 | - | - | - | - | - | - | 757 | 702 | - | 926 | 827 | - |
| Stage 2 | - | - | - | - | - | - | 875 | 827 | - | 754 | 694 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1554 | - | - | 1508 | - | - | 501 | 552 | 984 | 587 | 545 | 1016 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 501 | 552 | - | 587 | 545 | - |
| Stage 1 | - | - | - | - | - | - | 715 | 663 | - | 875 | 819 | - |
| Stage 2 | - | - | - | - | - | - | 787 | 819 | - | 709 | 656 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 3.7 | 1.7 | 11.6 | 8.9 |
| HCM LOS | | | B | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 571 | 1554 | - | - | 1508 | - | - | 1008 |
| HCM Lane V/C Ratio | 0.038 | 0.055 | - | - | 0.01 | - | - | 0.094 |
| HCM Control Delay (s) | 11.6 | 7.5 | - | - | 7.4 | 0 | - | 8.9 |
| HCM Lane LOS | B | A | - | - | A | A | - | A |
| HCM 95th %tile Q(veh) | 0.1 | 0.2 | - | - | 0 | - | - | 0.3 |

| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 402 | 604 | 517 | 271 | 337 | 289 |
| Future Volume (vph) | 402 | 604 | 517 | 271 | 337 | 289 |
| Turn Type | Prot | Free | NA | Perm | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | Free | | 2 | 6 | |
| 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) | 35.0 | | 45.0 | 45.0 | 20.0 | 65.0 |
| Total Split (%) | 35.0% | | 45.0% | 45.0% | 20.0% | 65.0% |
| 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 | | C-Max | C-Max | None | C-Max |
| Act Effct Green (s) | 27.3 | 100.0 | 44.1 | 44.1 | 62.7 | 62.7 |
| Actuated g/C Ratio | 0.27 | 1.00 | 0.44 | 0.44 | 0.63 | 0.63 |
| v/c Ratio | 0.88 | 0.40 | 0.37 | 0.35 | 0.66 | 0.14 |
| Control Delay | 50.1 | 1.3 | 20.6 | 3.6 | 15.7 | 8.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 50.1 | 1.3 | 20.6 | 3.6 | 15.7 | 8.3 |
| LOS | D | A | C | A | B | A |
| Approach Delay | 20.8 | | 14.7 | | | 12.3 |
| Approach LOS | C | | B | | | B |

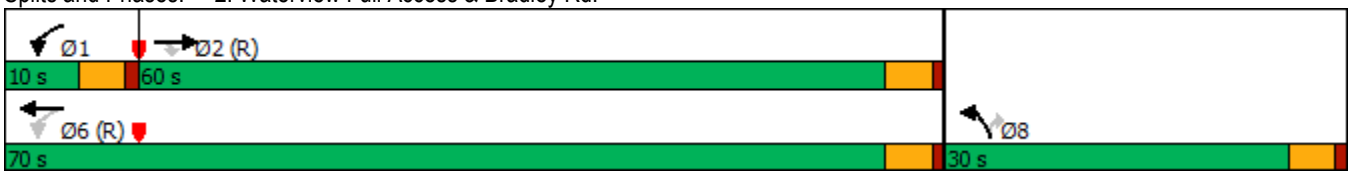
| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 100 | |
| Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.88 | |
| Intersection Signal Delay: 16.6 | Intersection LOS: B |
| Intersection Capacity Utilization 67.7% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Powers & Bradley Rd.

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 531 | 76 | 36 | 723 | 283 | 79 |
| Future Volume (vph) | 531 | 76 | 36 | 723 | 283 | 79 |
| Turn Type | NA | Perm | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | 2 | 6 | | | 8 |
| Detector Phase | 2 | 2 | 1 | 6 | 8 | 8 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Minimum Split (s) | 22.5 | 22.5 | 9.5 | 22.5 | 22.5 | 22.5 |
| Total Split (s) | 60.0 | 60.0 | 10.0 | 70.0 | 30.0 | 30.0 |
| Total Split (%) | 60.0% | 60.0% | 10.0% | 70.0% | 30.0% | 30.0% |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lead/Lag | Lag | Lag | Lead | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | | | |
| Recall Mode | C-Max | C-Max | None | C-Max | None | None |
| Act Effct Green (s) | 70.2 | 70.2 | 76.7 | 76.7 | 14.3 | 14.3 |
| Actuated g/C Ratio | 0.70 | 0.70 | 0.77 | 0.77 | 0.14 | 0.14 |
| v/c Ratio | 0.23 | 0.07 | 0.06 | 0.29 | 0.63 | 0.29 |
| Control Delay | 10.2 | 5.5 | 3.5 | 4.0 | 46.0 | 10.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 10.2 | 5.5 | 3.5 | 4.0 | 46.0 | 10.7 |
| LOS | B | A | A | A | D | B |
| Approach Delay | 9.6 | | | 4.0 | 38.3 | |
| Approach LOS | A | | | A | D | |

| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 100 | |
| Offset: 47 (47%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.63 | |
| Intersection Signal Delay: 13.2 | Intersection LOS: B |
| Intersection Capacity Utilization 38.2% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Waterview Full Access & Bradley Rd.



| Intersection | |
|---|---|
| Int Delay, s/veh | 43.9 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 531 | 76 | 36 | 723 | 283 | 79 |
| Future Vol, veh/h | 531 | 76 | 36 | 723 | 283 | 79 |
| 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 | 577 | 83 | 39 | 786 | 308 | 86 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 660 | 0 | 1048 | 289 |
| Stage 1 | - | - | - | - | 577 | - |
| Stage 2 | - | - | - | - | 471 | - |
| 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 | - | - | 924 | - | ~ 223 | 708 |
| Stage 1 | - | - | - | - | 525 | - |
| Stage 2 | - | - | - | - | 594 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 924 | - | ~ 214 | 708 |
| Mov Cap-2 Maneuver | - | - | - | - | ~ 214 | - |
| Stage 1 | - | - | - | - | 503 | - |
| Stage 2 | - | - | - | - | 594 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0.4 | 208.5 |
| HCM LOS | | | F |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 214 | 708 | - | - | 924 | - |
| HCM Lane V/C Ratio | 1.437 | 0.121 | - | - | 0.042 | - |
| HCM Control Delay (s) | 263.7 | 10.8 | - | - | 9.1 | - |
| HCM Lane LOS | F | B | - | - | A | - |
| HCM 95th %tile Q(veh) | 18.1 | 0.4 | - | - | 0.1 | - |

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

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.2 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | ↑↑ | ↱ | | ↑↑ | | ↱ |
| Traffic Vol, veh/h | 593 | 17 | 0 | 759 | 0 | 31 |
| Future Vol, veh/h | 593 | 17 | 0 | 759 | 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 | - | 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 | 645 | 18 | 0 | 825 | 0 | 34 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | - | - | - | 323 |
| 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 | 673 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 673 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 10.6 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT |
|---|---|---|---|---|
| Capacity (veh/h) | 673 | - | - | - |
| HCM Lane V/C Ratio | 0.05 | - | - | - |
| HCM Control Delay (s) | 10.6 | - | - | - |
| HCM Lane LOS | B | - | - | - |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 4.1 |
| 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 | 68 | 103 | 222 | 124 |
| Demand Flow Rate, veh/h | 69 | 104 | 226 | 125 |
| Vehicles Circulating, veh/h | 101 | 295 | 95 | 0 |
| Vehicles Exiting, veh/h | 24 | 26 | 75 | 399 |
| Ped Vol Crossing Leg, #/h | 0 | 0 | 0 | 0 |
| Ped Cap Adj | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | 3.4 | 4.5 | 4.5 | 3.4 |
| 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 | 69 | 104 | 226 | 125 |
| Cap Entry Lane, veh/h | 1245 | 1021 | 1252 | 1380 |
| Entry HV Adj Factor | 0.986 | 0.990 | 0.980 | 0.988 |
| Flow Entry, veh/h | 68 | 103 | 222 | 124 |
| Cap Entry, veh/h | 1227 | 1012 | 1228 | 1364 |
| V/C Ratio | 0.055 | 0.102 | 0.180 | 0.091 |
| Control Delay, s/veh | 3.4 | 4.5 | 4.5 | 3.4 |
| LOS | A | A | A | A |
| 95th %tile Queue, veh | 0 | 0 | 1 | 0 |

| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 333 | 450 | 309 | 518 | 417 | 504 |
| Future Volume (vph) | 333 | 450 | 309 | 518 | 417 | 504 |
| Turn Type | Prot | Free | NA | Perm | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | Free | | 2 | 6 | |
| 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) | 35.0 | | 45.0 | 45.0 | 20.0 | 65.0 |
| Total Split (%) | 35.0% | | 45.0% | 45.0% | 20.0% | 65.0% |
| 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 | | C-Max | C-Max | None | C-Max |
| Act Effct Green (s) | 24.4 | 100.0 | 45.9 | 45.9 | 65.6 | 65.6 |
| Actuated g/C Ratio | 0.24 | 1.00 | 0.46 | 0.46 | 0.66 | 0.66 |
| v/c Ratio | 0.81 | 0.30 | 0.21 | 0.56 | 0.62 | 0.23 |
| Control Delay | 47.1 | 0.7 | 18.1 | 4.1 | 13.3 | 7.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.1 | 0.7 | 18.1 | 4.1 | 13.3 | 7.9 |
| LOS | D | A | B | A | B | A |
| Approach Delay | 20.5 | | 9.3 | | | 10.3 |
| Approach LOS | C | | A | | | B |

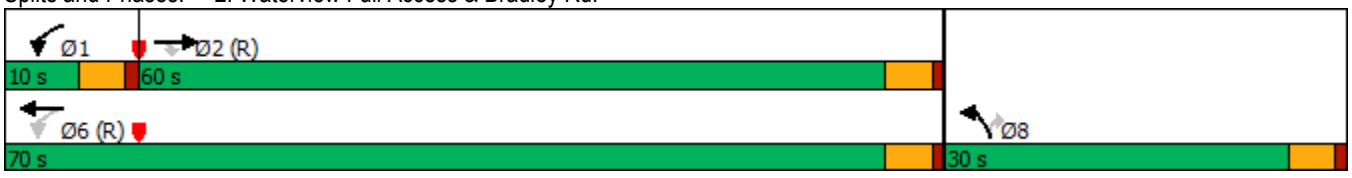
| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 100 | |
| Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.81 | |
| Intersection Signal Delay: 13.0 | Intersection LOS: B |
| Intersection Capacity Utilization 63.5% | ICU Level of Service B |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Powers & Bradley Rd.

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 679 | 256 | 122 | 601 | 181 | 51 |
| Future Volume (vph) | 679 | 256 | 122 | 601 | 181 | 51 |
| Turn Type | NA | Perm | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | 2 | 6 | | | 8 |
| Detector Phase | 2 | 2 | 1 | 6 | 8 | 8 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Minimum Split (s) | 22.5 | 22.5 | 9.5 | 22.5 | 22.5 | 22.5 |
| Total Split (s) | 60.0 | 60.0 | 10.0 | 70.0 | 30.0 | 30.0 |
| Total Split (%) | 60.0% | 60.0% | 10.0% | 70.0% | 30.0% | 30.0% |
| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lead/Lag | Lag | Lag | Lead | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | | | |
| Recall Mode | C-Max | C-Max | None | C-Max | None | None |
| Act Effct Green (s) | 68.2 | 68.2 | 79.9 | 79.9 | 11.1 | 11.1 |
| Actuated g/C Ratio | 0.68 | 0.68 | 0.80 | 0.80 | 0.11 | 0.11 |
| v/c Ratio | 0.31 | 0.24 | 0.23 | 0.23 | 0.52 | 0.25 |
| Control Delay | 9.7 | 3.5 | 3.4 | 2.8 | 46.5 | 13.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 9.7 | 3.5 | 3.4 | 2.8 | 46.5 | 13.7 |
| LOS | A | A | A | A | D | B |
| Approach Delay | 8.0 | | | 2.9 | 39.4 | |
| Approach LOS | A | | | A | D | |

| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 100 | |
| Offset: 47 (47%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.52 | |
| Intersection Signal Delay: 9.9 | Intersection LOS: A |
| Intersection Capacity Utilization 41.9% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Waterview Full Access & Bradley Rd.



| Intersection | |
|---|---|
| Int Delay, s/veh | 39.9 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 679 | 256 | 122 | 601 | 181 | 51 |
| Future Vol, veh/h | 679 | 256 | 122 | 601 | 181 | 51 |
| 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 | 738 | 278 | 133 | 653 | 197 | 55 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 1016 | 0 | 1331 | 369 |
| Stage 1 | - | - | - | - | 738 | - |
| Stage 2 | - | - | - | - | 593 | - |
| 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 | - | - | 678 | - | ~ 146 | 628 |
| Stage 1 | - | - | - | - | 434 | - |
| Stage 2 | - | - | - | - | 515 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 678 | - | ~ 117 | 628 |
| Mov Cap-2 Maneuver | - | - | - | - | ~ 117 | - |
| Stage 1 | - | - | - | - | 349 | - |
| Stage 2 | - | - | - | - | 515 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 2 | $ 318.8 |
| HCM LOS | | | F |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 117 | 628 | - | - | 678 | - |
| HCM Lane V/C Ratio | 1.682 | 0.088 | - | - | 0.196 | - |
| HCM Control Delay (s) | $ 405.4 | 11.3 | - | - | 11.6 | - |
| HCM Lane LOS | F | B | - | - | B | - |
| HCM 95th %tile Q(veh) | 14.9 | 0.3 | - | - | 0.7 | - |

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

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 672 | 58 | 0 | 723 | 0 | 20 |
| Future Vol, veh/h | 672 | 58 | 0 | 723 | 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 | - | 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 | 730 | 63 | 0 | 786 | 0 | 22 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | - | - | - | 365 |
| 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 | 632 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 632 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 10.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT |
|---|---|---|---|---|
| Capacity (veh/h) | 632 | - | - | - |
| HCM Lane V/C Ratio | 0.034 | - | - | - |
| HCM Control Delay (s) | 10.9 | - | - | - |
| HCM Lane LOS | B | - | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 4.8 |
| 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 | 45 | 66 | 141 | 411 |
| Demand Flow Rate, veh/h | 46 | 67 | 144 | 419 |
| Vehicles Circulating, veh/h | 340 | 190 | 133 | 0 |
| Vehicles Exiting, veh/h | 79 | 87 | 253 | 257 |
| Ped Vol Crossing Leg, #/h | 0 | 0 | 0 | 0 |
| Ped Cap Adj | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | 4.2 | 3.7 | 4.1 | 5.3 |
| 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 | 46 | 67 | 144 | 419 |
| Cap Entry Lane, veh/h | 976 | 1137 | 1205 | 1380 |
| Entry HV Adj Factor | 0.978 | 0.985 | 0.980 | 0.981 |
| Flow Entry, veh/h | 45 | 66 | 141 | 411 |
| Cap Entry, veh/h | 954 | 1120 | 1181 | 1354 |
| V/C Ratio | 0.047 | 0.059 | 0.120 | 0.304 |
| Control Delay, s/veh | 4.2 | 3.7 | 4.1 | 5.3 |
| LOS | A | A | A | A |
| 95th %tile Queue, veh | 0 | 0 | 0 | 1 |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 26 | 201 | 75 | 252 | 257 | 609 | 100 | 1909 | 359 | 420 | 930 | 19 |
| Future Volume (vph) | 26 | 201 | 75 | 252 | 257 | 609 | 100 | 1909 | 359 | 420 | 930 | 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) | 10.0 | 17.0 | | 25.0 | 32.0 | | 17.0 | 57.0 | | 31.0 | 71.0 | 71.0 |
| Total Split (%) | 7.7% | 13.1% | | 19.2% | 24.6% | | 13.1% | 43.8% | | 23.8% | 54.6% | 54.6% |
| 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) | 0.0 | 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 | 5.0 |
| 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) | 17.4 | 12.4 | 130.0 | 15.1 | 26.5 | 130.0 | 9.3 | 52.0 | 130.0 | 30.5 | 73.2 | 73.2 |
| Actuated g/C Ratio | 0.13 | 0.10 | 1.00 | 0.12 | 0.20 | 1.00 | 0.07 | 0.40 | 1.00 | 0.23 | 0.56 | 0.56 |
| v/c Ratio | 0.16 | 0.63 | 0.05 | 0.65 | 0.37 | 0.40 | 0.42 | 0.97 | 0.23 | 0.54 | 0.33 | 0.02 |
| Control Delay | 38.4 | 65.1 | 0.1 | 51.1 | 35.3 | 2.3 | 62.7 | 52.0 | 0.3 | 47.4 | 16.4 | 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 | 38.4 | 65.1 | 0.1 | 51.1 | 35.3 | 2.3 | 62.7 | 52.0 | 0.3 | 47.4 | 16.4 | 0.1 |
| LOS | D | E | A | D | D | A | E | D | A | D | B | A |
| Approach Delay | | 46.7 | | | 20.9 | | | 44.6 | | | 25.7 | |
| Approach LOS | | D | | | C | | | D | | | C | |

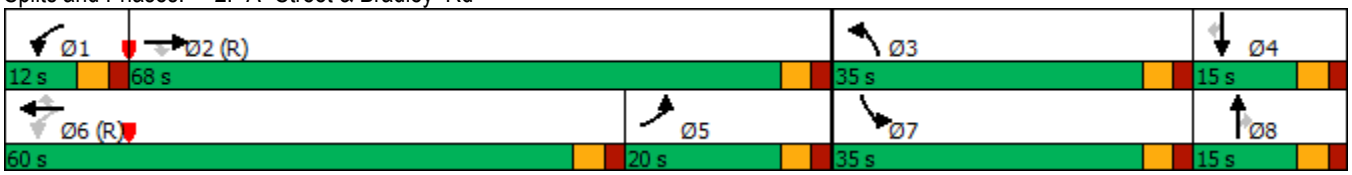
| Intersection Summary | |
|---|---|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 125 (96%), Referenced to phase 1:SBL, Start of Green | |
| Natural Cycle: 80 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.97 | |
| Intersection Signal Delay: 34.6 | Intersection LOS: C |
| Intersection Capacity Utilization 81.1% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Powers & Bradley Rd

| Lane Group | EBL | EBT | EBR | WBT | WBR | NBL | NBT | SBL | SBT | SBR | Ø1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 265 | 705 | 10 | 1049 | 43 | 10 | 10 | 70 | 10 | 59 | |
| Future Volume (vph) | 265 | 705 | 10 | 1049 | 43 | 10 | 10 | 70 | 10 | 59 | |
| Turn Type | Prot | NA | Perm | NA | Perm | Prot | NA | Prot | NA | Perm | |
| Protected Phases | 5 | 2 | | 6 | | 3 | 8 | 7 | 4 | | 1 |
| Permitted Phases | | | 2 | | 6 | | | | | 4 | |
| Detector Phase | 5 | 2 | 2 | 6 | 6 | 3 | 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 |
| 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 |
| Total Split (s) | 20.0 | 68.0 | 68.0 | 60.0 | 60.0 | 35.0 | 15.0 | 35.0 | 15.0 | 15.0 | 12.0 |
| Total Split (%) | 15.4% | 52.3% | 52.3% | 46.2% | 46.2% | 26.9% | 11.5% | 26.9% | 11.5% | 11.5% | 9% |
| 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 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Lead/Lag | Lag | Lag | Lag | Lead | Lead | Lead | Lag | Lead | Lag | Lag | Lead |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | C-Max | C-Max | None | None | None | None | None | None |
| Act Effct Green (s) | 15.0 | 110.1 | 110.1 | 89.1 | 89.1 | 6.0 | 6.4 | 8.2 | 8.4 | 8.4 | |
| Actuated g/C Ratio | 0.12 | 0.85 | 0.85 | 0.69 | 0.69 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | |
| v/c Ratio | 0.70 | 0.25 | 0.01 | 0.46 | 0.04 | 0.07 | 0.12 | 0.34 | 0.09 | 0.26 | |
| Control Delay | 69.5 | 9.2 | 0.0 | 11.6 | 0.1 | 60.0 | 61.6 | 62.2 | 57.4 | 2.7 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 69.5 | 9.2 | 0.0 | 11.6 | 0.1 | 60.0 | 61.6 | 62.2 | 57.4 | 2.7 | |
| LOS | E | A | A | B | A | E | E | E | E | A | |
| Approach Delay | | 25.4 | | 11.1 | | | 60.8 | | 36.7 | | |
| Approach LOS | | C | | B | | | E | | D | | |

| Intersection Summary | |
|---|---|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 74 (57%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.70 | |
| Intersection Signal Delay: 19.5 | Intersection LOS: B |
| Intersection Capacity Utilization 57.7% | ICU Level of Service B |
| Analysis Period (min) 15 | |

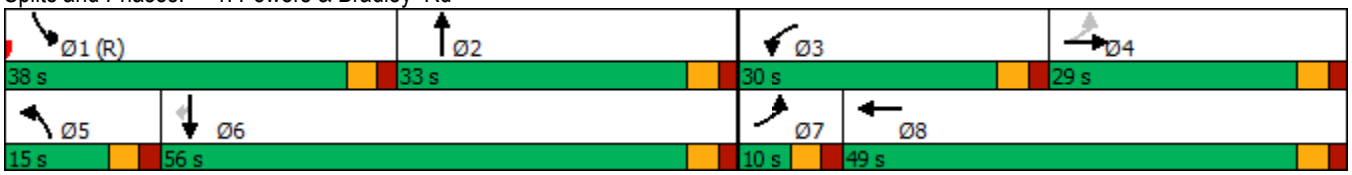
Splits and Phases: 2: "A" Street & Bradley Rd



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 71 | 343 | 210 | 437 | 384 | 619 | 175 | 842 | 377 | 506 | 1736 | 110 |
| Future Volume (vph) | 71 | 343 | 210 | 437 | 384 | 619 | 175 | 842 | 377 | 506 | 1736 | 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 | 29.0 | | 30.0 | 49.0 | | 15.0 | 33.0 | | 38.0 | 56.0 | 56.0 |
| Total Split (%) | 7.7% | 22.3% | | 23.1% | 37.7% | | 11.5% | 25.4% | | 29.2% | 43.1% | 43.1% |
| 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) | 0.0 | 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 | 5.0 |
| 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) | 23.5 | 18.5 | 130.0 | 21.7 | 37.1 | 130.0 | 11.3 | 28.0 | 130.0 | 41.9 | 58.6 | 58.6 |
| Actuated g/C Ratio | 0.18 | 0.14 | 1.00 | 0.17 | 0.29 | 1.00 | 0.09 | 0.22 | 1.00 | 0.32 | 0.45 | 0.45 |
| v/c Ratio | 0.37 | 0.72 | 0.14 | 0.79 | 0.39 | 0.40 | 0.61 | 0.79 | 0.25 | 0.47 | 0.78 | 0.14 |
| Control Delay | 35.8 | 61.5 | 0.2 | 45.3 | 25.7 | 1.1 | 66.2 | 54.4 | 0.4 | 38.3 | 34.5 | 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 | 35.8 | 61.5 | 0.2 | 45.3 | 25.7 | 1.1 | 66.2 | 54.4 | 0.4 | 38.3 | 34.5 | 2.2 |
| LOS | D | E | A | D | C | A | E | D | A | D | C | A |
| Approach Delay | | 37.9 | | | 21.1 | | | 41.3 | | | 33.8 | |
| Approach LOS | | D | | | C | | | D | | | C | |

| Intersection Summary | |
|---|---|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 1 (1%), Referenced to phase 1:SBL, Start of Green | |
| Natural Cycle: 70 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.79 | |
| Intersection Signal Delay: 32.9 | Intersection LOS: C |
| Intersection Capacity Utilization 77.1% | ICU Level of Service D |
| Analysis Period (min) 15 | |

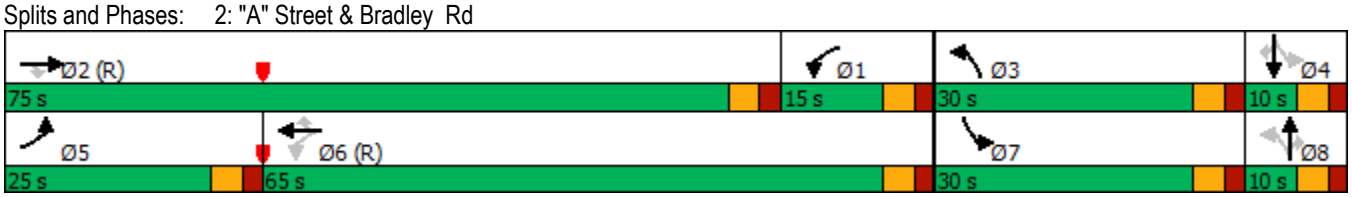
Splits and Phases: 1: Powers & Bradley Rd



| Lane Group | EBL | EBT | EBR | WBT | WBR | NBL | NBT | SBL | SBT | SBR | Ø1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 352 | 824 | 50 | 1159 | 49 | 25 | 10 | 312 | 10 | 256 | |
| Future Volume (vph) | 352 | 824 | 50 | 1159 | 49 | 25 | 10 | 312 | 10 | 256 | |
| Turn Type | Prot | NA | Perm | NA | Perm | pm+pt | NA | pm+pt | NA | Perm | |
| Protected Phases | 5 | 2 | | 6 | | 3 | 8 | 7 | 4 | | 1 |
| Permitted Phases | | | 2 | | 6 | 8 | | 4 | | 4 | |
| Detector Phase | 5 | 2 | 2 | 6 | 6 | 3 | 8 | 7 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 10.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Minimum Split (s) | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 15.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Total Split (s) | 25.0 | 75.0 | 75.0 | 65.0 | 65.0 | 30.0 | 10.0 | 30.0 | 10.0 | 10.0 | 15.0 |
| Total Split (%) | 19.2% | 57.7% | 57.7% | 50.0% | 50.0% | 23.1% | 7.7% | 23.1% | 7.7% | 7.7% | 12% |
| 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 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Lead/Lag | Lead | Lead | Lead | Lag | Lag | Lead | Lag | Lead | Lag | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | C-Max | C-Max | None | None | None | None | None | None |
| Act Effct Green (s) | 18.8 | 97.1 | 97.1 | 73.3 | 73.3 | 12.9 | 6.4 | 22.9 | 13.9 | 13.9 | |
| Actuated g/C Ratio | 0.14 | 0.75 | 0.75 | 0.56 | 0.56 | 0.10 | 0.05 | 0.18 | 0.11 | 0.11 | |
| v/c Ratio | 0.75 | 0.33 | 0.04 | 0.61 | 0.06 | 0.08 | 0.12 | 0.60 | 0.06 | 0.66 | |
| Control Delay | 42.7 | 10.1 | 2.2 | 22.6 | 0.1 | 43.6 | 61.6 | 52.3 | 51.8 | 14.1 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 42.7 | 10.1 | 2.2 | 22.6 | 0.1 | 43.6 | 61.6 | 52.3 | 51.8 | 14.1 | |
| LOS | D | B | A | C | A | D | E | D | D | B | |
| Approach Delay | | 19.2 | | 21.6 | | | 49.0 | | 35.4 | | |
| Approach LOS | | B | | C | | | D | | D | | |

| Intersection Summary | |
|---|---|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 39 (30%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | |
| Natural Cycle: 70 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.75 | |
| Intersection Signal Delay: 23.6 | Intersection LOS: C |
| Intersection Capacity Utilization 70.1% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 2: "A" Street & Bradley Rd



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 26 | 222 | 75 | 314 | 295 | 723 | 100 | 1900 | 398 | 469 | 925 | 19 |
| Future Volume (vph) | 26 | 222 | 75 | 314 | 295 | 723 | 100 | 1900 | 398 | 469 | 925 | 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) | 10.0 | 17.0 | | 25.0 | 32.0 | | 17.0 | 57.0 | | 31.0 | 71.0 | 71.0 |
| Total Split (%) | 7.7% | 13.1% | | 19.2% | 24.6% | | 13.1% | 43.8% | | 23.8% | 54.6% | 54.6% |
| 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) | 0.0 | 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 | 5.0 |
| 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) | 17.3 | 12.3 | 130.0 | 17.1 | 28.3 | 130.0 | 9.3 | 52.0 | 130.0 | 28.7 | 71.4 | 71.4 |
| Actuated g/C Ratio | 0.13 | 0.09 | 1.00 | 0.13 | 0.22 | 1.00 | 0.07 | 0.40 | 1.00 | 0.22 | 0.55 | 0.55 |
| v/c Ratio | 0.16 | 0.70 | 0.05 | 0.72 | 0.39 | 0.47 | 0.42 | 0.96 | 0.26 | 0.64 | 0.34 | 0.02 |
| Control Delay | 38.0 | 69.0 | 0.1 | 49.1 | 35.0 | 2.8 | 62.7 | 51.2 | 0.4 | 51.2 | 17.3 | 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 | 38.0 | 69.0 | 0.1 | 49.1 | 35.0 | 2.8 | 62.7 | 51.2 | 0.4 | 51.2 | 17.3 | 0.1 |
| LOS | D | E | A | D | C | A | E | D | A | D | B | A |
| Approach Delay | | 50.5 | | | 20.9 | | | 43.2 | | | 28.3 | |
| Approach LOS | | D | | | C | | | D | | | C | |

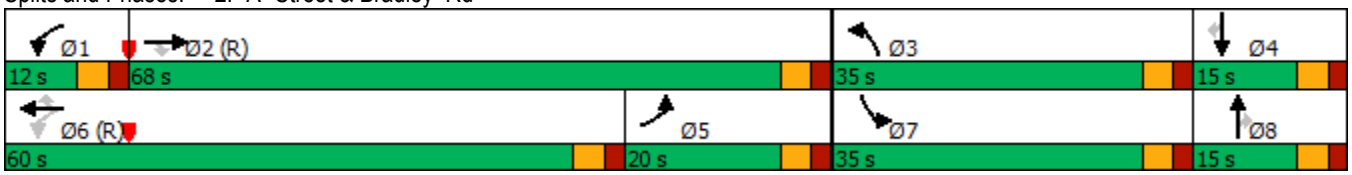
| Intersection Summary | |
|---|---|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 125 (96%), Referenced to phase 1:SBL, Start of Green | |
| Natural Cycle: 90 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.96 | |
| Intersection Signal Delay: 34.4 | Intersection LOS: C |
| Intersection Capacity Utilization 84.0% | 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) | 265 | 705 | 118 | 95 | 1036 | 43 | 238 | 15 | 110 | 70 | 13 | 59 |
| Future Volume (vph) | 265 | 705 | 118 | 95 | 1036 | 43 | 238 | 15 | 110 | 70 | 13 | 59 |
| 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) | 20.0 | 68.0 | 68.0 | 12.0 | 60.0 | 60.0 | 35.0 | 15.0 | 15.0 | 35.0 | 15.0 | 15.0 |
| Total Split (%) | 15.4% | 52.3% | 52.3% | 9.2% | 46.2% | 46.2% | 26.9% | 11.5% | 11.5% | 26.9% | 11.5% | 11.5% |
| 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) | 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 Lost Time (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 |
| 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) | 15.0 | 81.8 | 81.8 | 75.7 | 75.7 | 75.7 | 14.8 | 13.3 | 13.3 | 8.2 | 6.6 | 6.6 |
| Actuated g/C Ratio | 0.12 | 0.63 | 0.63 | 0.58 | 0.58 | 0.58 | 0.11 | 0.10 | 0.10 | 0.06 | 0.05 | 0.05 |
| v/c Ratio | 0.70 | 0.33 | 0.12 | 0.25 | 0.53 | 0.05 | 0.64 | 0.08 | 0.40 | 0.34 | 0.15 | 0.29 |
| Control Delay | 72.7 | 23.7 | 12.1 | 15.2 | 18.6 | 0.1 | 62.4 | 52.5 | 8.4 | 62.2 | 62.1 | 3.4 |
| 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 | 72.7 | 23.7 | 12.1 | 15.2 | 18.6 | 0.1 | 62.4 | 52.5 | 8.4 | 62.2 | 62.1 | 3.4 |
| LOS | E | C | B | B | B | A | E | D | A | E | E | A |
| Approach Delay | | 34.4 | | | 17.7 | | | 45.7 | | | 37.8 | |
| Approach LOS | | C | | | B | | | D | | | D | |

| Intersection Summary | |
|---|---|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 74 (57%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | |
| Natural Cycle: 60 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.70 | |
| Intersection Signal Delay: 29.0 | Intersection LOS: C |
| Intersection Capacity Utilization 62.2% | ICU Level of Service B |
| Analysis Period (min) 15 | |

Splits and Phases: 2: "A" Street & Bradley Rd



| Intersection | |
|---|---|
| Int Delay, s/veh | 0.2 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 874 | 11 | 0 | 1174 | 0 | 30 |
| Future Vol, veh/h | 874 | 11 | 0 | 1174 | 0 | 30 |
| 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 | 892 | 12 | 0 | 1198 | 0 | 32 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | - | - | - | 446 |
| 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 | 560 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 560 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 11.8 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT |
|---|---|---|---|---|
| Capacity (veh/h) | 560 | - | - | - |
| HCM Lane V/C Ratio | 0.056 | - | - | - |
| HCM Control Delay (s) | 11.8 | - | - | - |
| HCM Lane LOS | B | - | - | - |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 4.4 |
| 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 | 124 | 94 | 206 | 244 |
| Demand Flow Rate, veh/h | 126 | 96 | 210 | 249 |
| Vehicles Circulating, veh/h | 132 | 324 | 170 | 17 |
| Vehicles Exiting, veh/h | 134 | 56 | 88 | 403 |
| Ped Vol Crossing Leg, #/h | 0 | 0 | 0 | 0 |
| Ped Cap Adj | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | 3.9 | 4.6 | 4.8 | 4.2 |
| 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 | 126 | 96 | 210 | 249 |
| Cap Entry Lane, veh/h | 1206 | 992 | 1160 | 1356 |
| Entry HV Adj Factor | 0.984 | 0.979 | 0.982 | 0.982 |
| Flow Entry, veh/h | 124 | 94 | 206 | 244 |
| Cap Entry, veh/h | 1187 | 971 | 1139 | 1331 |
| V/C Ratio | 0.104 | 0.097 | 0.181 | 0.184 |
| Control Delay, s/veh | 3.9 | 4.6 | 4.8 | 4.2 |
| LOS | A | A | A | A |
| 95th %tile Queue, veh | 0 | 0 | 1 | 1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.3 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 12 | 33 | 1 | 34 | 21 | 0 |
| Future Vol, veh/h | 12 | 33 | 1 | 34 | 21 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 200 | 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 | 13 | 36 | 1 | 37 | 23 | 0 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 66 | 20 | 0 | 0 | 38 | 0 |
| Stage 1 | 20 | - | - | - | - | - |
| Stage 2 | 46 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 939 | 1058 | - | - | 1572 | - |
| Stage 1 | 1003 | - | - | - | - | - |
| Stage 2 | 976 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 925 | 1058 | - | - | 1572 | - |
| Mov Cap-2 Maneuver | 925 | - | - | - | - | - |
| Stage 1 | 988 | - | - | - | - | - |
| Stage 2 | 976 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 8.6 | 0 | 7.3 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 925 | 1058 | 1572 | - |
| HCM Lane V/C Ratio | - | - | 0.014 | 0.034 | 0.015 | - |
| HCM Control Delay (s) | - | - | 8.9 | 8.5 | 7.3 | 0 |
| HCM Lane LOS | - | - | A | A | A | A |
| HCM 95th %tile Q(veh) | - | - | 0 | 0.1 | 0 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 46 | 1 | 0 | 0 | 1 | 13 | 0 | 55 | 0 | 5 | 45 | 74 |
| Future Vol, veh/h | 46 | 1 | 0 | 0 | 1 | 13 | 0 | 55 | 0 | 5 | 45 | 74 |
| 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, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 50 | 1 | 0 | 0 | 1 | 14 | 0 | 60 | 0 | 5 | 49 | 80 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 127 | 119 | 49 | 160 | 199 | 60 | 129 | 0 | 0 | 60 | 0 | 0 |
| Stage 1 | 59 | 59 | - | 60 | 60 | - | - | - | - | - | - | - |
| Stage 2 | 68 | 60 | - | 100 | 139 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.11 | 6.51 | 6.21 | 7.11 | 6.51 | 6.21 | 4.11 | - | - | 4.11 | - | - |
| Critical Hdwy Stg 1 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.509 | 4.009 | 3.309 | 3.509 | 4.009 | 3.309 | 2.209 | - | - | 2.209 | - | - |
| Pot Cap-1 Maneuver | 849 | 773 | 1022 | 808 | 699 | 1008 | 1463 | - | - | 1550 | - | - |
| Stage 1 | 955 | 848 | - | 954 | 847 | - | - | - | - | - | - | - |
| Stage 2 | 945 | 847 | - | 909 | 784 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 834 | 771 | 1022 | 805 | 697 | 1008 | 1463 | - | - | 1550 | - | - |
| Mov Cap-2 Maneuver | 834 | 771 | - | 805 | 697 | - | - | - | - | - | - | - |
| Stage 1 | 955 | 845 | - | 954 | 847 | - | - | - | - | - | - | - |
| Stage 2 | 931 | 847 | - | 905 | 782 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 9.6 | 8.7 | 0 | 0.3 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1463 | - | - | 833 | 977 | 1550 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.061 | 0.016 | 0.004 | - | - |
| HCM Control Delay (s) | 0 | - | - | 9.6 | 8.7 | 7.3 | - | - |
| HCM Lane LOS | A | - | - | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.2 | 0 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 22 | 20 | 0 | 0 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| Future Vol, veh/h | 22 | 20 | 0 | 0 | 67 | 0 | 0 | 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 | 150 | - | - | - | - | - | - | - | - | - | - | - |
| 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 | 24 | 22 | 0 | 0 | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 73 | 0 | 0 | 22 | 0 | 0 | 150 | 143 | 22 | 143 | 143 | 73 |
| Stage 1 | - | - | - | - | - | - | 70 | 70 | - | 73 | 73 | - |
| Stage 2 | - | - | - | - | - | - | 80 | 73 | - | 70 | 70 | - |
| 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 | 1527 | - | - | 1593 | - | - | 818 | 748 | 1055 | 826 | 748 | 989 |
| Stage 1 | - | - | - | - | - | - | 940 | 837 | - | 937 | 834 | - |
| Stage 2 | - | - | - | - | - | - | 929 | 834 | - | 940 | 837 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1527 | - | - | 1593 | - | - | 797 | 736 | 1055 | 816 | 736 | 989 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 797 | 736 | - | 816 | 736 | - |
| Stage 1 | - | - | - | - | - | - | 925 | 824 | - | 922 | 834 | - |
| Stage 2 | - | - | - | - | - | - | 916 | 834 | - | 925 | 824 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 3.9 | 0 | 0 | 8.7 |
| HCM LOS | | | A | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | 1527 | - | - | 1593 | - | - | 989 |
| HCM Lane V/C Ratio | - | 0.016 | - | - | - | - | - | 0.014 |
| HCM Control Delay (s) | 0 | 7.4 | - | - | 0 | - | - | 8.7 |
| HCM Lane LOS | A | A | - | - | A | - | - | A |
| HCM 95th %tile Q(veh) | - | 0 | - | - | 0 | - | - | 0 |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 71 | 401 | 210 | 533 | 429 | 726 | 175 | 825 | 479 | 671 | 1705 | 110 |
| Future Volume (vph) | 71 | 401 | 210 | 533 | 429 | 726 | 175 | 825 | 479 | 671 | 1705 | 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 | 29.0 | | 30.0 | 49.0 | | 15.0 | 33.0 | | 38.0 | 56.0 | 56.0 |
| Total Split (%) | 7.7% | 22.3% | | 23.1% | 37.7% | | 11.5% | 25.4% | | 29.2% | 43.1% | 43.1% |
| 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) | 0.0 | 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 | 5.0 |
| 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) | 25.3 | 20.3 | 130.0 | 23.8 | 41.2 | 130.0 | 10.6 | 28.0 | 130.0 | 37.8 | 55.2 | 55.2 |
| Actuated g/C Ratio | 0.19 | 0.16 | 1.00 | 0.18 | 0.32 | 1.00 | 0.08 | 0.22 | 1.00 | 0.29 | 0.42 | 0.42 |
| v/c Ratio | 0.35 | 0.76 | 0.14 | 0.87 | 0.39 | 0.47 | 0.64 | 0.78 | 0.31 | 0.69 | 0.81 | 0.15 |
| Control Delay | 33.4 | 61.8 | 0.2 | 55.0 | 28.9 | 1.3 | 68.9 | 53.8 | 0.5 | 46.2 | 37.5 | 2.3 |
| 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 | 33.4 | 61.8 | 0.2 | 55.0 | 28.9 | 1.3 | 68.9 | 53.8 | 0.5 | 46.2 | 37.5 | 2.3 |
| LOS | C | E | A | D | C | A | E | D | A | D | D | A |
| Approach Delay | | 39.9 | | | 25.2 | | | 38.3 | | | 38.3 | |
| Approach LOS | | D | | | C | | | D | | | D | |

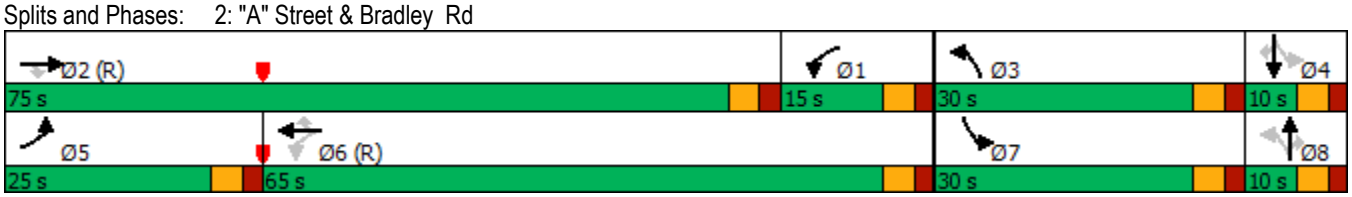
| Intersection Summary | |
|---|---|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 1 (1%), Referenced to phase 1:SBL, Start of Green | |
| Natural Cycle: 80 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.87 | |
| Intersection Signal Delay: 35.0 | Intersection LOS: D |
| Intersection Capacity Utilization 80.9% | 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) | 352 | 824 | 375 | 258 | 1122 | 49 | 310 | 17 | 203 | 312 | 19 | 256 |
| Future Volume (vph) | 352 | 824 | 375 | 258 | 1122 | 49 | 310 | 17 | 203 | 312 | 19 | 256 |
| 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 | 10.0 | 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 | 15.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Total Split (s) | 25.0 | 75.0 | 75.0 | 15.0 | 65.0 | 65.0 | 30.0 | 10.0 | 10.0 | 30.0 | 10.0 | 10.0 |
| Total Split (%) | 19.2% | 57.7% | 57.7% | 11.5% | 50.0% | 50.0% | 23.1% | 7.7% | 7.7% | 23.1% | 7.7% | 7.7% |
| 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) | 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 Lost Time (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 |
| 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) | 18.2 | 74.0 | 74.0 | 65.8 | 65.8 | 65.8 | 27.8 | 10.1 | 10.1 | 24.1 | 8.2 | 8.2 |
| Actuated g/C Ratio | 0.14 | 0.57 | 0.57 | 0.51 | 0.51 | 0.51 | 0.21 | 0.08 | 0.08 | 0.19 | 0.06 | 0.06 |
| v/c Ratio | 0.77 | 0.42 | 0.37 | 0.67 | 0.64 | 0.06 | 0.50 | 0.12 | 0.67 | 0.56 | 0.17 | 0.76 |
| Control Delay | 48.5 | 14.6 | 4.5 | 39.6 | 26.4 | 0.1 | 44.0 | 57.4 | 18.0 | 45.2 | 60.5 | 21.5 |
| 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 | 48.5 | 14.6 | 4.5 | 39.6 | 26.4 | 0.1 | 44.0 | 57.4 | 18.0 | 45.2 | 60.5 | 21.5 |
| LOS | D | B | A | D | C | A | D | E | B | D | E | C |
| Approach Delay | | 19.9 | | | 27.9 | | | 34.5 | | | 35.4 | |
| Approach LOS | | B | | | C | | | C | | | D | |

| Intersection Summary | |
|---|---|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 39 (30%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | |
| Natural Cycle: 65 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.77 | |
| Intersection Signal Delay: 26.8 | Intersection LOS: C |
| Intersection Capacity Utilization 69.1% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 2: "A" Street & Bradley Rd



| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1301 | 38 | 0 | 1429 | 0 | 19 |
| Future Vol, veh/h | 1301 | 38 | 0 | 1429 | 0 | 19 |
| 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 | 1328 | 40 | 0 | 1458 | 0 | 20 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | - | - | - | 664 |
| 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 | 403 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 403 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 14.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT |
|---|---|---|---|---|
| Capacity (veh/h) | 403 | - | - | - |
| HCM Lane V/C Ratio | 0.05 | - | - | - |
| HCM Control Delay (s) | 14.4 | - | - | - |
| HCM Lane LOS | B | - | - | - |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.9 |
| 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 | 336 | 138 | 179 | 686 |
| Demand Flow Rate, veh/h | 343 | 139 | 183 | 698 |
| Vehicles Circulating, veh/h | 401 | 478 | 449 | 48 |
| Vehicles Exiting, veh/h | 345 | 154 | 295 | 569 |
| Ped Vol Crossing Leg, #/h | 0 | 0 | 0 | 0 |
| Ped Cap Adj | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh | 8.3 | 5.9 | 6.4 | 8.6 |
| 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 | 343 | 139 | 183 | 698 |
| Cap Entry Lane, veh/h | 917 | 847 | 873 | 1314 |
| Entry HV Adj Factor | 0.979 | 0.992 | 0.979 | 0.983 |
| Flow Entry, veh/h | 336 | 138 | 179 | 686 |
| Cap Entry, veh/h | 898 | 841 | 855 | 1292 |
| V/C Ratio | 0.374 | 0.164 | 0.210 | 0.531 |
| Control Delay, s/veh | 8.3 | 5.9 | 6.4 | 8.6 |
| LOS | A | A | A | A |
| 95th %tile Queue, veh | 2 | 1 | 1 | 3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.5 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 39 | 83 | 2 | 22 | 90 | 2 |
| Future Vol, veh/h | 39 | 83 | 2 | 22 | 90 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 200 | 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 | 42 | 90 | 2 | 24 | 98 | 2 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 212 | 14 | 0 | 0 | 26 | 0 |
| Stage 1 | 14 | - | - | - | - | - |
| Stage 2 | 198 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 776 | 1066 | - | - | 1588 | - |
| Stage 1 | 1009 | - | - | - | - | - |
| Stage 2 | 835 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 728 | 1066 | - | - | 1588 | - |
| Mov Cap-2 Maneuver | 728 | - | - | - | - | - |
| Stage 1 | 946 | - | - | - | - | - |
| Stage 2 | 835 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 9.2 | 0 | 7.3 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 728 | 1066 | 1588 | - |
| HCM Lane V/C Ratio | - | - | 0.058 | 0.085 | 0.062 | - |
| HCM Control Delay (s) | - | - | 10.3 | 8.7 | 7.4 | 0 |
| HCM Lane LOS | - | - | B | A | A | A |
| HCM 95th %tile Q(veh) | - | - | 0.2 | 0.3 | 0.2 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 198 | 2 | 0 | 0 | 2 | 9 | 0 | 112 | 0 | 15 | 122 | 184 |
| Future Vol, veh/h | 198 | 2 | 0 | 0 | 2 | 9 | 0 | 112 | 0 | 15 | 122 | 184 |
| 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 | 215 | 2 | 0 | 0 | 2 | 10 | 0 | 122 | 0 | 16 | 133 | 200 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 293 | 287 | 133 | 388 | 487 | 122 | 333 | 0 | 0 | 122 | 0 | 0 |
| Stage 1 | 165 | 165 | - | 122 | 122 | - | - | - | - | - | - | - |
| Stage 2 | 128 | 122 | - | 266 | 365 | - | - | - | - | - | - | - |
| 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 | 659 | 623 | 916 | 571 | 481 | 929 | 1226 | - | - | 1465 | - | - |
| Stage 1 | 837 | 762 | - | 882 | 795 | - | - | - | - | - | - | - |
| Stage 2 | 876 | 795 | - | 739 | 623 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 645 | 616 | 916 | 565 | 476 | 929 | 1226 | - | - | 1465 | - | - |
| Mov Cap-2 Maneuver | 645 | 616 | - | 565 | 476 | - | - | - | - | - | - | - |
| Stage 1 | 837 | 754 | - | 882 | 795 | - | - | - | - | - | - | - |
| Stage 2 | 864 | 795 | - | 729 | 616 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 13.4 | 9.6 | 0 | 0.3 |
| HCM LOS | B | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1226 | - | - | 645 | 792 | 1465 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.337 | 0.015 | 0.011 | - | - |
| HCM Control Delay (s) | 0 | - | - | 13.4 | 9.6 | 7.5 | - | - |
| HCM Lane LOS | A | - | - | B | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 1.5 | 0 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 78 | 53 | 16 | 24 | 36 | 1 | 10 | 0 | 13 | 1 | 0 | 86 |
| Future Vol, veh/h | 78 | 53 | 16 | 24 | 36 | 1 | 10 | 0 | 13 | 1 | 0 | 86 |
| 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 | 150 | - | - | - | - | - | - | - | - | - | - | - |
| 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 | 85 | 58 | 17 | 26 | 39 | 1 | 11 | 0 | 14 | 1 | 0 | 93 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 40 | 0 | 0 | 75 | 0 | 0 | 375 | 329 | 67 | 336 | 337 | 40 |
| Stage 1 | - | - | - | - | - | - | 237 | 237 | - | 92 | 92 | - |
| Stage 2 | - | - | - | - | - | - | 138 | 92 | - | 244 | 245 | - |
| 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 | 1570 | - | - | 1524 | - | - | 582 | 590 | 997 | 618 | 584 | 1031 |
| Stage 1 | - | - | - | - | - | - | 766 | 709 | - | 915 | 819 | - |
| Stage 2 | - | - | - | - | - | - | 865 | 819 | - | 760 | 703 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1570 | - | - | 1524 | - | - | 501 | 549 | 997 | 577 | 543 | 1031 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 501 | 549 | - | 577 | 543 | - |
| Stage 1 | - | - | - | - | - | - | 725 | 671 | - | 866 | 805 | - |
| Stage 2 | - | - | - | - | - | - | 773 | 805 | - | 709 | 665 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 3.9 | 2.9 | 10.4 | 8.9 |
| HCM LOS | | | B | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 697 | 1570 | - | - | 1524 | - | - | 1022 |
| HCM Lane V/C Ratio | 0.036 | 0.054 | - | - | 0.017 | - | - | 0.093 |
| HCM Control Delay (s) | 10.4 | 7.4 | - | - | 7.4 | 0 | - | 8.9 |
| HCM Lane LOS | B | A | - | - | A | A | - | A |
| HCM 95th %tile Q(veh) | 0.1 | 0.2 | - | - | 0.1 | - | - | 0.3 |

# Queuing and Blocking Report

## Intersection: 2: "A" Street & Bradley Rd

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | L | T | T | R | L | T | T | R | L | L | T |
| Maximum Queue (ft) | 182 | 206 | 710 | 848 | 369 | 336 | 347 | 434 | 333 | 191 | 204 | 66 |
| Average Queue (ft) | 103 | 123 | 114 | 149 | 42 | 196 | 226 | 262 | 33 | 97 | 122 | 21 |
| 95th Queue (ft) | 165 | 189 | 328 | 399 | 199 | 317 | 328 | 380 | 157 | 162 | 182 | 54 |
| Link Distance (ft) | | | 910 | 910 | 910 | | 1231 | 1231 | | | | 413 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 450 | 450 | | | | 495 | | | 235 | 300 | 300 | |
| Storage Blk Time (%) | | | | | | | | 11 | | | | |
| Queuing Penalty (veh) | | | | | | | | 5 | | | | |

## Intersection: 2: "A" Street & Bradley Rd

| Movement | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|
| Directions Served | R | L | L | T | R |
| Maximum Queue (ft) | 78 | 254 | 214 | 69 | 263 |
| Average Queue (ft) | 46 | 152 | 92 | 19 | 129 |
| 95th Queue (ft) | 70 | 227 | 196 | 52 | 230 |
| Link Distance (ft) | | 276 | 276 | 276 | 276 |
| Upstream Blk Time (%) | | 0 | 0 | | 2 |
| Queuing Penalty (veh) | | 0 | 0 | | 0 |
| Storage Bay Dist (ft) | 300 | | | | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |

## Intersection: 12: 'F' Street/East Retail Access & "C" Street

| Movement | EB | WB | NB | SB |
|---|---|---|---|---|
| Directions Served | L | LTR | LTR | LTR |
| Maximum Queue (ft) | 31 | 24 | 35 | 79 |
| Average Queue (ft) | 3 | 2 | 15 | 33 |
| 95th Queue (ft) | 17 | 15 | 40 | 56 |
| Link Distance (ft) | | 468 | 144 | 191 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (ft) | 150 | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Zone Summary

Zone wide Queuing Penalty: 5