Add PCD File No. SP201

TRANSPORTATION IMPACT STUDY

Solace Apartments
El Paso County, CO

Please provide a location for the licensed engineer to sign and date per the standard County signature block.

Prepared for:

Jackson Dearborn Partners
404 S Wells Street, Suite 400
Chicago, IL 60607

Prepared by:

Felsburg Holt & Ullevig
6300 South Syracuse Way, Suite 600
Centennial, CO 80111
303.721.1440

Project Manager: Lyle DeVries, PE, PTOE
Project Engineer: Clay Gattey

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

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

Mr. Dane Olmstead
Jackson Dearborn Partners
404 S Wells Street, Suite 400
Chicago, IL 60607

Signature: _____

FHU Reference No. 116504-01
January 2020

TABLE OF CONTENTS

Appendices

List of Figures

List of Tables

I. INTRODUCTION

The proposed Solace Apartments development is located within the northeast quadrant of the Powers Boulevard (Blvd) and Galley Road (Rd) intersection in El Paso County, Colorado. The project is expected to consist of 348 multifamily dwelling units. The roadway network adjacent to the site can be seen on **Figure 1**.

As part of this project, Paonia Street (St) is anticipated to be extended from Galley Rd north to connect with the existing Paonia St terminus located south of Omaha Blvd. The proposed development would have two accesses located along the Paonia St extension.

The anticipated magnitude of site trip generation requires that a full Transportation Impact Study (TIS) be prepared according to El Paso County's *Appendix B Transportation Impact Study Guidelines to the County's Engineering Criteria Manual*. Accordingly, this report assesses the traffic impacts on the adjacent roadways related to the proposed residential development. The report includes information on existing traffic conditions, estimated vehicle-trips associated with the planned development, total traffic volume projections, and recommendations on roadway improvements. Two future scenarios have been analyzed for this report:

- **Short Term Future** – Time period for the completion of the residential development, currently anticipated as the Year 2021.
- **Long Term Future** – The Long Term Future scenario reflects projected Year 2040 traffic conditions.

NORTH

FIGURE 1
Vicinity Map

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Paonia shall be classified as a urban non-residential collector road through the site.

II. EXISTING CONDITIONS

II.A. Surrounding Land Use

Much of the area adjacent to the project site has been developed. The land uses surrounding the site are primarily commercial and light industrial.

II.B. Roadway Network

The existing roadway network adjacent to the vicinity of the site includes Galley Rd, Powers Blvd, Paonia St, Conrad St and Omaha Blvd. The roadway network is as follows:

Powers Boulevard: Powers Blvd (Colorado State Highway 21) is a six-lane north-south expressway that runs adjacent to the west property boundary. The posted speed limit is 55 miles per hour (mph).

Galley Road: Galley Rd is a three-lane east-west arterial that runs adjacent to the south property boundary. The posted speed limit is 40 mph.

Paonia Street: Paonia St is a two-lane north-south local road that runs through the eastern side of the project site. As previously mentioned, Paonia St is expected to be extended to connect Galley Rd to Omaha Blvd as part of the project. Illustrated on **Figure 2**, the extension of Paonia St is anticipated to divide the project site. All residential development within the site is expected to be constructed west of the Paonia St extension and the portion of land to the east of Paonia St is expected to be natural marshland and a dog park. The posted speed limit is 25 mph.

Conrad Street: Conrad St is a two-lane local road that serves development located south of Galley Rd. Conrad St runs on a north-south alignment between the Powers Blvd and Paonia St alignments. The posted speed limit is 25 mph.

Omaha Boulevard: Omaha Blvd is a four-lane east-west arterial that intersects Paonia St and Powers Blvd approximately ¼ mile north of the property. The Powers Blvd/Omaha St intersection serves right-turn movements to/from the west along Omaha Blvd only.

II.C. Traffic Volumes

Weekday AM and PM peak hour turning movement counts (TMCs) were collected on Tuesday, October 15, 2019, at the following intersections:

- Powers Blvd/Galley Rd
- Galley Rd/Paonia St
- Conrad St/Galley Rd
- Paonia St/Omaha Blvd
- Omaha Blvd/Powers Blvd

The peak hour traffic counts were collected in 15-minute intervals between the hours of 7:00 to 9:00 AM and 4:00 to 6:00 PM. **Appendix A** contains the TMCs, and traffic volumes are shown on **Figure 3**.

NORTH

FIGURE 2
Site Plan

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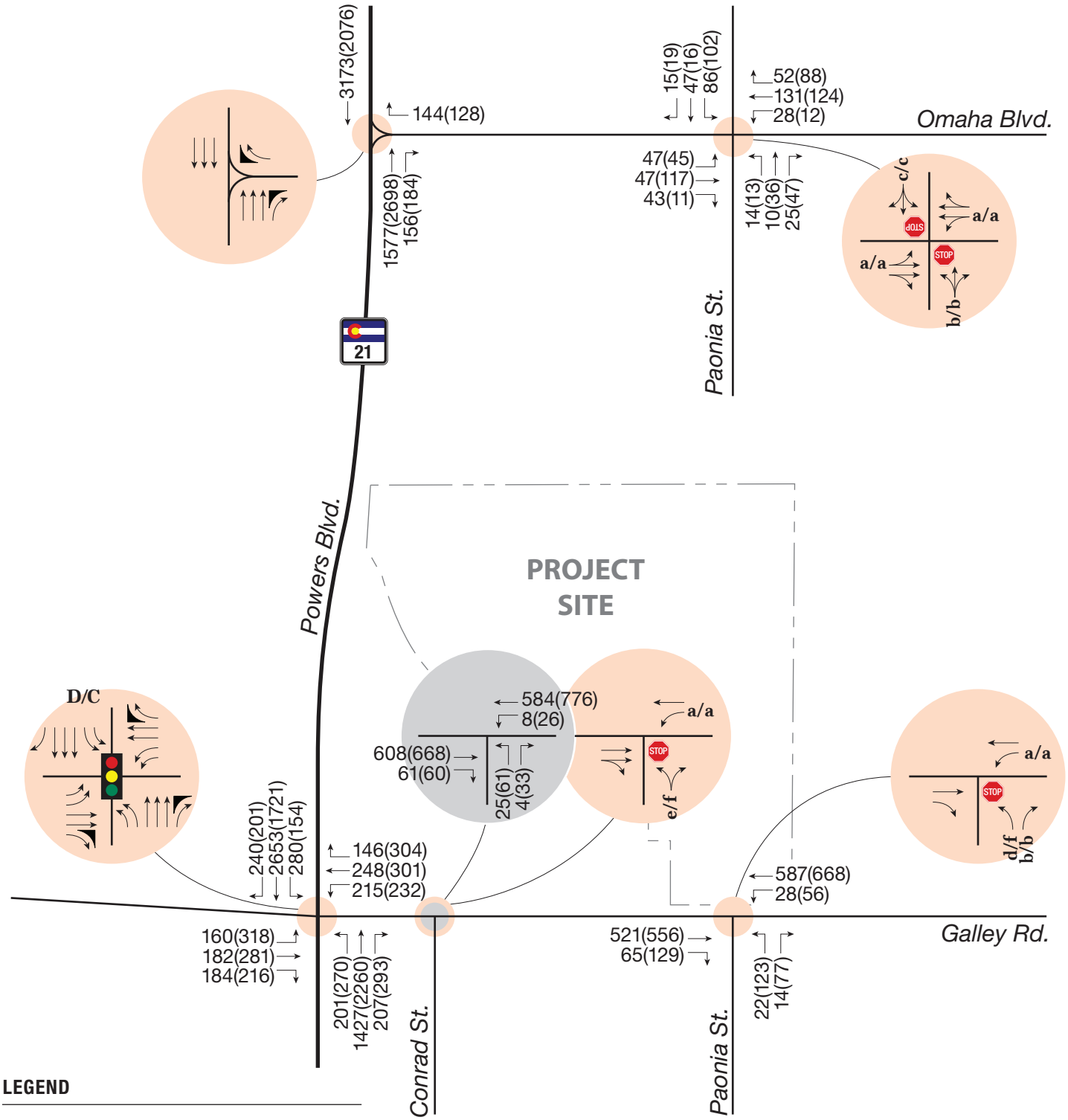

LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
X/X	=	AM/PM Peak Hour Signalized Intersection Level of Service
x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
STOP	=	Stop Sign
	=	Traffic Signal

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NORTH

FIGURE 3

Existing Traffic Conditions

Solace Apartments 19-504 1/27/20

II.D. Traffic Operations

Existing operational conditions were analyzed at each study intersection. The analysis is based on procedures documented in the *Highway Capacity Manual (6th Edition)*. This analysis procedure provides a Level of Service (LOS), a qualitative measure of traffic operational conditions, based on intersection capacity and vehicle delay. LOS is described by a letter designation ranging from A to F, with LOS A representing almost free-flow conditions, while LOS F represents congested conditions. For unsignalized intersections, the LOS is calculated for movements which must yield right-of-way to other traffic movements. The El Paso County standards cite a goal of LOS D conditions for vehicles passing through intersections during peak hours. The existing conditions analysis used the current traffic signal timing data for each intersection.

Figure 3 shows the results of the existing conditions analysis, including existing traffic control and current intersection geometry and **Appendix B** contains the LOS worksheets. As shown, the signalized intersection of Powers Blvd and Galley Rd currently operates at LOS D during the AM peak and LOS D during the PM peak.

The controlled movements at all stop-controlled intersections operate at LOS D or better during the peak hours with the following exceptions:

- The northbound left turn at Paonia St and Galley Rd operates at a LOS D during the AM peak hour and LOS F during the PM peak hour.
- The northbound approach at Conrad St and Galley Rd operates at LOS E in the AM peak hour and LOS F during the PM peak hour.

II.E. Traffic Safety

The crash history for the period of 1/1/2014 through 12/31/2018 was examined and summarized for the intersection of Galley Rd and Paonia St. During the five-year period, there were a total of 21 crashes. Of the 21 crashes, 7 were Property Damage Only (PDO) and 14 crashes caused injury. **Figure 4** shows the breakdown of crash types. Broadside crashes (14) are the most predominant type observed.

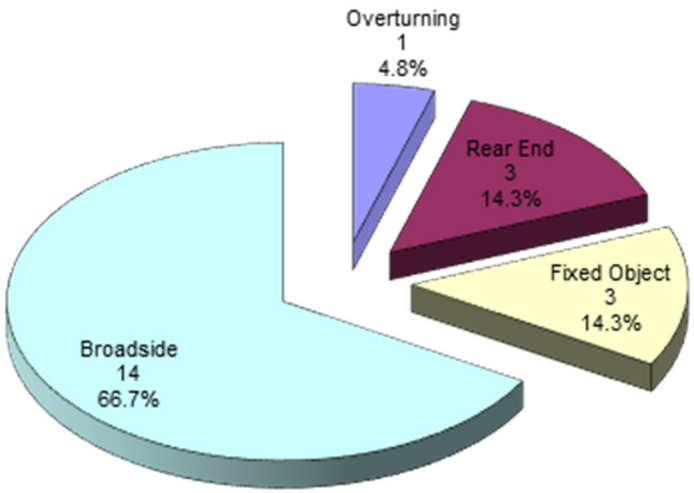


Figure 4. Galley Road/Paonia Street Crash by Type

If turning left from Paonia onto Galley then you would be traveling west.

As many as 5 broadside crashes occurred in a single year at the intersection (2015) and all of the broadside crashes occurred during daylight hours. Of the 14 broadside crashes, 11 occurred between northbound vehicles seeking to turn left onto eastbound Galley Rd and vehicles traveling eastbound on Galley Rd. Potential actions to correct the prevalence of broadside crashes could include providing additional sight distance for left-turns entering Galley Rd, providing improved stop sign visibility, or installing a traffic signal at the intersection upon meeting signalization warrants.

II.F. Traffic Control Needs

Current traffic control at the study intersections is shown in **Table 1**.

Table 1. Current Traffic Control

Intersection	Traffic Control Type
Powers Blvd/Galley Rd	Signalized
Galley Rd/Paonia St	Unsignalized (Stop Control for Paonia St approach)
Conrad St/Galley Rd	Unsignalized (Stop Control for Conrad St approach)
Paonia St/Omaha Blvd	Unsignalized (Stop Control for Paonia St approach)
Omaha Blvd/Powers Blvd	Unsignalized (Stop Control for Omaha St approaches)

As shown, all of the study intersections are currently unsignalized with the exception of the Powers Blvd/Galley Rd intersection. It is appropriate to gauge current and projected traffic conditions to determine whether the conditions at any of the current unsignalized intersections would warrant the need for signalization.

The *Manual on Uniform Traffic Control Devices* (MUTCD, 2009 Edition) outlines 9 warrants that may be used to justify installing a traffic signal at an intersection. The warrants are listed as follows:

1. Eight-Hour Vehicular Volume
2. Four-Hour Vehicular Volume
3. Peak Hour
4. Pedestrian Volume
5. School Crossing
6. Coordinated Signal System
7. Crash Experience
8. Roadway Network
9. Intersection Near a Grade Crossing

The link provided does not work or is no longer available. Please update the link.

Of these nine, warrants 1, 2, and 7 are applicable to conditions at the study intersections. A cursory evaluation of current traffic levels at the study intersections indicated that only the Galley Rd/Paonia St intersection shows potential to meet warrants. In addition, the history of crash experience at the intersection shows potential to meet Warrant 7 criteria. Existing traffic volumes were compared with warrant criteria to assess this potential. Because the intersection traffic counts only covered peak periods, a scaling factor was used to estimate the fourth and eighth highest hour volumes using information from the Missouri Department of Transportation (MoDOT) (http://www.modot.org/design/ppdm/files/802.pdf). Based on this information, it is estimated that the eighth highest hour comprises approximately 65 percent of the peak recorded hour. Each of the eight highest hours are estimated by scaling in linear fashion.

The evaluation of traffic-volume based warrants (1 and 2) indicates that existing traffic volumes do not meet warrant criteria. However, the occurrence of 5 broadside crashes during 2015 indicates potential

Please indicate if these are criteria B & C of warrant 7 that are being met. Warrant 7 indicates that a traffic signal shall be considered if all criteria (A,B,C) are met. Please clearly state whether all criteria has been met.

to meet Warrant 7. Traffic volumes at the intersection also exceed the reduced minimum levels specified for Warrant 7. Though Warrant 7 criteria are technically met by existing conditions, it is recommended that further evaluation occur before signalization is implemented. Evaluation should focus on possible alternative treatments (to signalization) to address crash experience, and coordination with County Staff should occur to understand what, if any safety countermeasures have been implemented at the location to reduce crashes as more recent history indicates fewer broadside collisions.

Signal warrant analyses completed for the Galley Rd/Paonia St intersection are provided in **Appendix F**.

Please contact the El Paso County Department of Public Works (Chris Bland, Traffic Engineer 719-520-7851) to determine whether any alternatives as indicated in criteria A of warrant 7 have been implemented and include it in your report. If no alternatives or countermeasures have been done please provide recommendations to be implemented.

Appendix G has the analysis. Please revise.

III. PROJECTED CONDITIONS

III.A. Background Traffic Conditions

Background traffic was estimated for the short term and long term timeframes and accounts for existing traffic already using the transportation system, plus a general upward factoring of current traffic levels to capture the effects of anticipated future growth in the area. The background traffic is unrelated to the proposed development that is projected to utilize the adjacent roadway system. The background traffic volume used in this analysis reflects the year 2040.

Short Term Background Traffic Operations

Year 2040 traffic projections were developed assuming two percent growth per year until the year 2040, translating to a 21 year growth factor of 1.52. These growth assumptions were developed based on traffic forecasts contained in the Pikes Peak Area Council of Governments (PPACG) travel demand model. Short term (Year 2021) background traffic volumes were interpolated assuming linear growth between existing and projected Year 2040. It is important to note that the growth factor was applied to all through and turning movements on Powers Blvd but only to the through movements on Galley Rd and Omaha Blvd.

Figure 5 depicts short term background AM and PM peak hour turning movement projections for the study area intersections and **Appendix C** contains the LOS worksheets. The intersection of Powers Blvd with Galley Rd is forecasted to operate at LOS F during both peak hours in the future.

The yielding movements at all stop controlled intersections would operate at LOS C or better during the peak hours with the following exceptions:

- The northbound left turn at Paonia St and Galley Rd operates at a LOS E during the AM peak hour and LOS F during the PM peak hour.
- The northbound approach at Conrad St and Galley Rd operates at LOS E in the AM peak hour and LOS F during the PM peak hour.

Long Term Background Traffic Operations

Long term background traffic volumes were developed with an assumption of a two percent growth per year until the year 2040 – a 21 year growth factor of 1.52. This growth rate was developed based on traffic forecasts in the Pikes Peak Area Council of Government travel demand model. **Figure 6** shows the long term peak hour turning movement projections for the study area intersections and **Appendix D** contains the LOS worksheets. It is important to note that the growth factor was applied to all through and turning movements on Powers Blvd but only to the east-west through movements on Galley Rd and Omaha Blvd.

Intersections that were shown under existing conditions as being unproblematic present operational challenges in the long term scenario without the influence of traffic from the project development. The intersection of Powers Blvd with Galley Rd is forecasted to operate at LOS F during both peak hours in the future.

The yielding movements at all stop controlled intersections operate at LOS C or better during the peak hours with the following exceptions:

- The northbound left turn at Paonia St and Galley Rd operates at a LOS D during the AM peak hour and LOS F during the PM peak hour.

Figure 6 shows both AM & PM left turn movement as LOS F. Please revise.

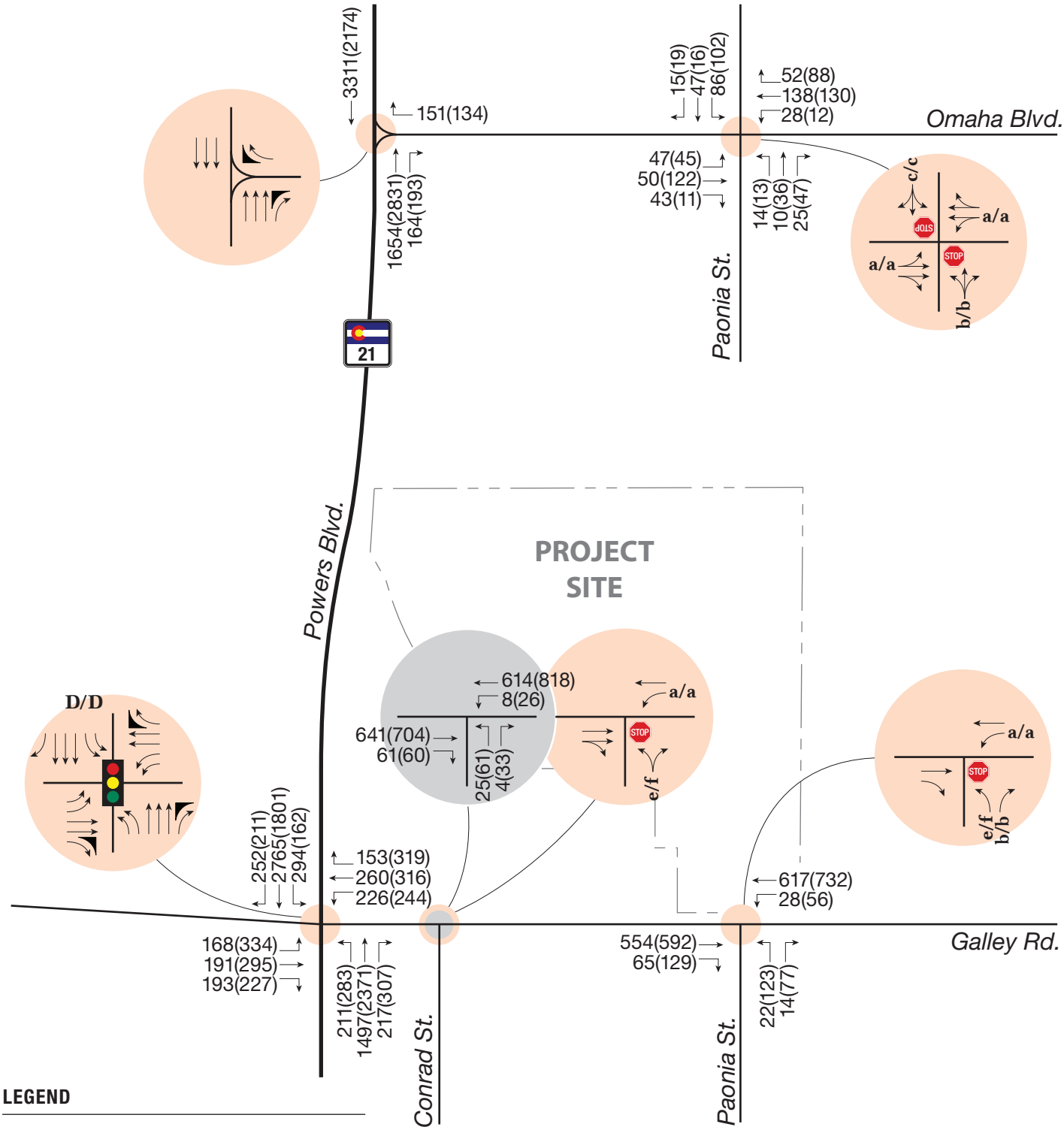
- The northbound approach at Conrad St and Galley Rd operates at LOS E in the AM peak hour and LOS F during the PM peak hour.

Figure 6 shows both AM & PM left turn movement as LOS F. Please revise.

III.B. Traffic Control

Using the Missouri DOT signal warrant criteria mentioned in **Section II.F**, the short term background condition at the stop controlled intersection of Galley Rd with Paonia St does not meet traffic volume-based signal warrant criteria. Long term future background projected traffic volumes do meet signalization criteria. If signalized in the long term future, the intersection would operate at LOS C during peak hours.

Signal warrant analyses are attached in **Appendix G**.



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

X/X = AM/PM Peak Hour Signalized Intersection Level of Service

x/x = AM/PM Peak Hour Unsignalized Intersection Level of Service

STOP = Stop Sign

= Traffic Signal

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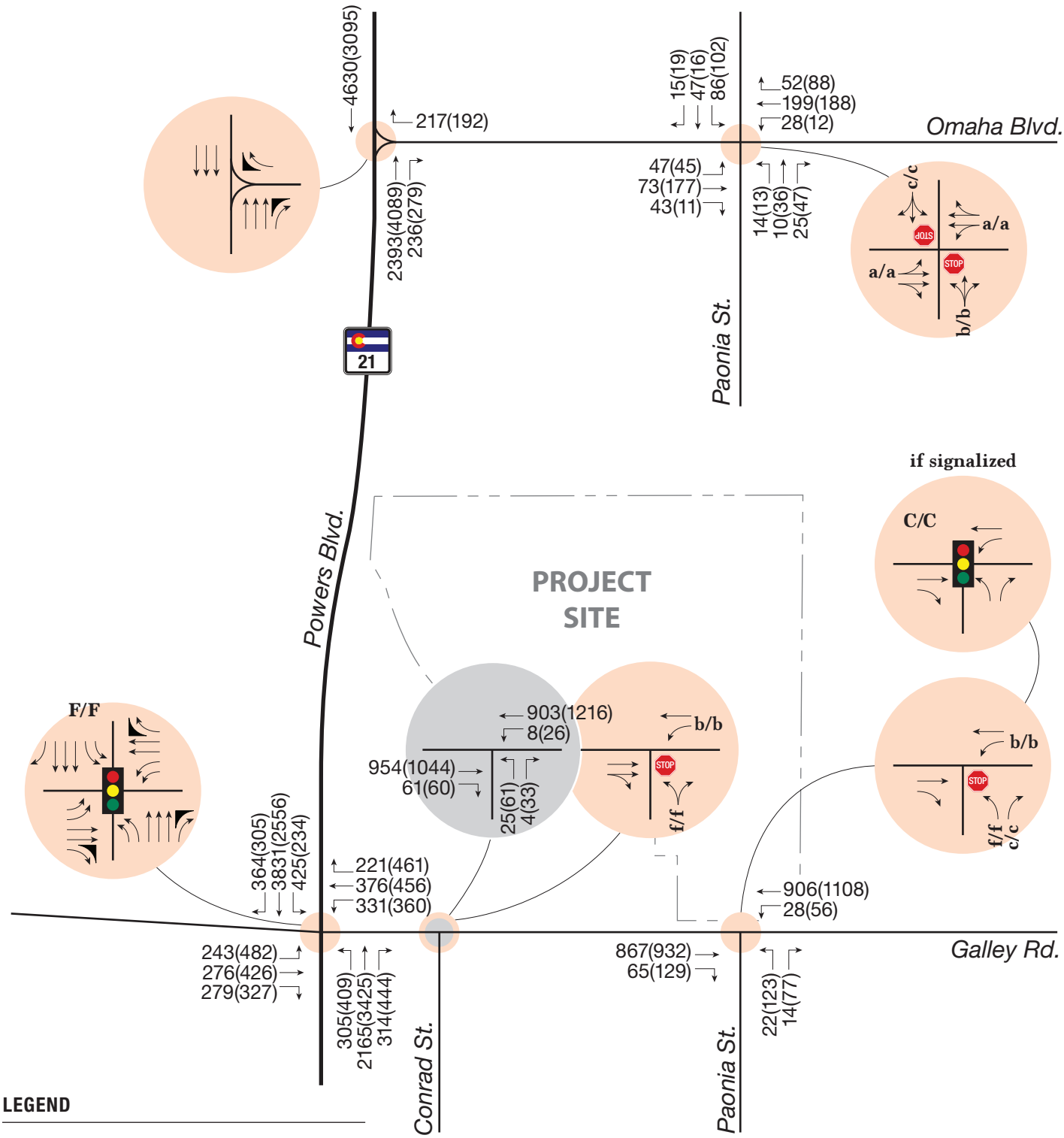
FIGURE 5

Short Term Background Traffic Conditions

Solace Apartments 19-504 1/27/20



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NORTH

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FIGURE 6

Long Term Background Traffic Conditions

Solace Apartments 19-504 1/28/20

IV. PROPOSED PROJECT

IV.A. Site Access

Site access is proposed to be provided via two full movement accesses to the extension of Paonia St east of the residential development within the project site.

IV.B. Site Trip Generation

Table 2 provides the trip generation estimates. Trip generation rates and equations for the specific land use planned to be developed on the site are documented in the ITE *Trip Generation Manual, 10th Edition* (2017). Trip generation information corresponding to the ITE Land Use Code (LUC) 220 – Multifamily Centerload (Low-Rise) was used to calculate the trip generation estimates for the site.

Trip Distribution percentages do not match Figure 7. Revise accordingly.

Table 2. Trip Generation Summary

Land Use Type	Size	ITE Code	Daily	AM			PM		
				In	Out	Total	In	Out	Total
Apartments	348 DU	220	2547	37	123	160	123	72	195

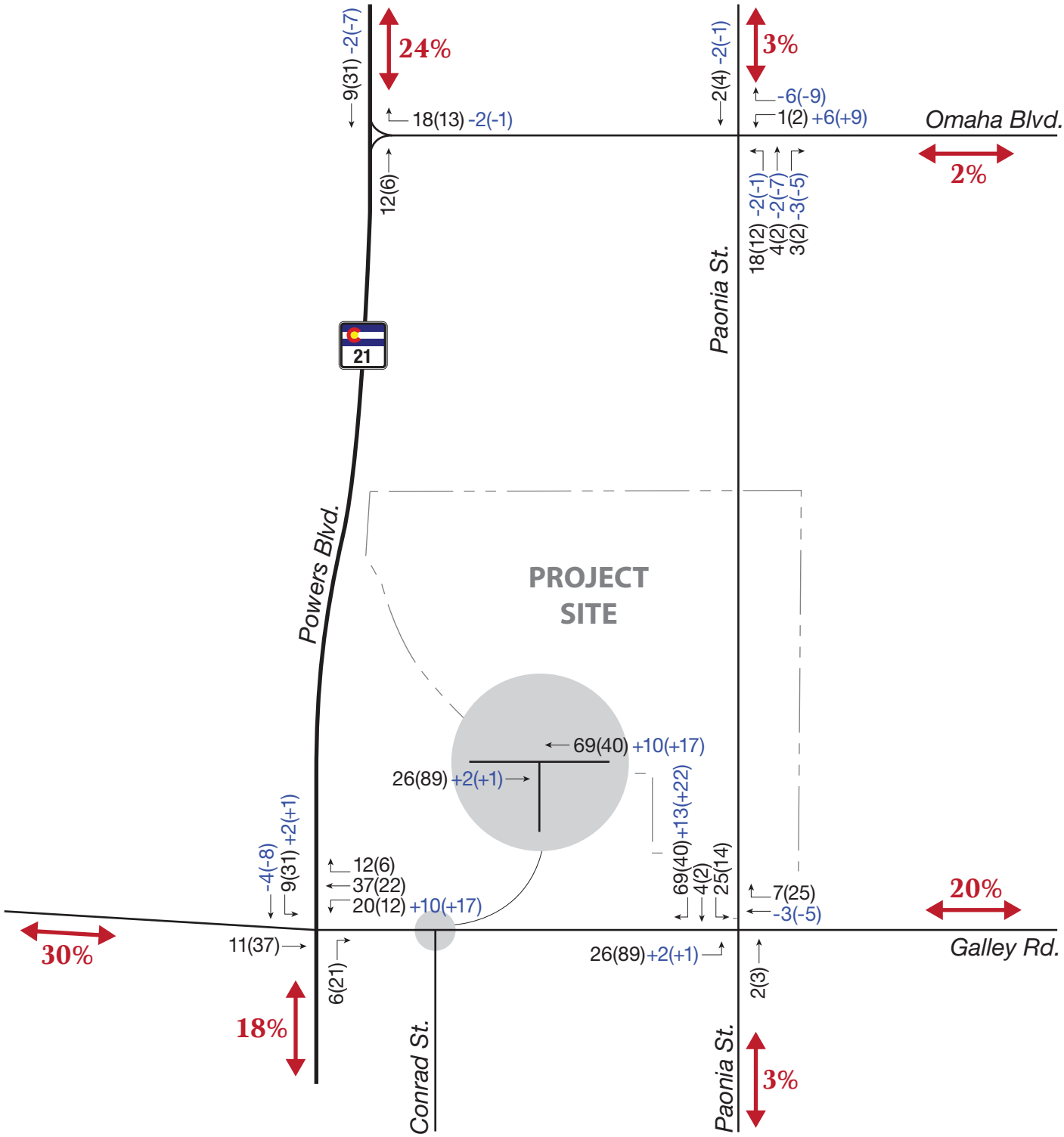
As shown in **Table 2**, the Solace Apartments Development site is anticipated to generate an estimated total of approximately 160 trips during the AM peak hour and 195 trips during the PM peak hour. The estimated new weekday daily trip generation potential is 2547 vehicle-trips per day.

IV.C. Trip Distribution and Traffic Assignment

The site trip distribution assumptions for the analysis periods are shown on **Figure 7**. The distribution percentages were developed from the existing travel patterns on the roadways in the vicinity of the site. The trip distribution allocates 35 percent of the trips from Powers Blvd, 17 percent to/from the south and 18 percent to/from the north. Most of the site generated traffic would travel to/from Galley Rd, with 30 percent to/from the west, 20 percent to/from the east. The remaining distribution includes 3 percent from north and south on Paonia St, 2 percent to/from east of Omaha Blvd and 7 percent to/from west of Omaha Blvd. Trips to and from the site were assigned to the roadway system based on the above trip distribution percentages. The site generated traffic is shown on **Figure 7**.

In addition to site generated vehicle-trips, **Figure 7** depicts anticipated adjustments to existing turning movements due to the extension of Paonia St, anticipated to occur with the proposed development. This extension would provide an alternate travel route for existing development north of the site, and additional traffic is anticipated to utilize the extension to connect to Galley Rd and Powers Blvd, particularly in light of the limited movements (Right-turns only) currently available at the Omaha Blvd/Powers Blvd intersection.

Please elaborate on your explanation on how your trip distribution percentages were determined. For example why was was Powers split 24% on the north and 18% on the south etc.



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXX(XXX) = AM(PM) Vehicle-Trip Adjustments due to Paonia St. Extension

XX% = Site Trip Distribution

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FIGURE 7

Trip Distribution and Site Generated Traffic

Solace Apartments 19-504 1/27/20

LOS F is shown in figure 8. Please revise.

Figure 9 indicates that southbound right turn/through movement has LOS of E/F (am/pm) and the north bound right turn has LOS of E for pm peak hour. Please include those in the narrative.

V. TRAFFIC IMPACT ANALYSIS

V.A. Short Term Total Traffic

The inclusion of the proposed development traffic is anticipated to have some impact to the operation of the study intersections. **Figure 8** Illustrates the geometry, traffic control, and capacity analyses for the short term future total condition, and **Appendix D** contains LOS worksheets.

As shown on **Figure 8**, the signalized intersection of Powers Blvd with Galley Rd is projected to operate at LOS D during both peak hours.

The yielding movements at all stop controlled intersections operate at LOS C or better during the peak hours with the following exceptions:

- The northbound and southbound left turns at Paonia St and Galley Rd would operate at a LOS F during the AM and PM peak hours.
- The northbound approach at Conrad St and Galley Rd operates at LOS E in the AM peak hour and LOS F during the PM peak hour.

Section V.C below elaborates on the potential for signalization at the intersection of Paonia St and Galley Rd for the short term total scenario. If this intersection was to be signalized it would operate at LOS C during peak hours. The signalized LOS can be seen on **Figure 8**.

V.B. Long Term Total Traffic

Operational analyses were conducted to quantify the impact of site traffic on Long Term Future traffic operations at the study area intersections. **Figure 9** illustrates the geometry, traffic control, and capacity analyses for the long term future total condition. **Appendix E** contains the total traffic LOS worksheets.

As shown on **Figure 9**, consistent with the long term future background condition the signalized intersection of Powers Blvd with Galley Rd is projected to operate at LOS F during both peak hours. Though expansion of the intersection could assist in improving LOS, major widening is unlikely to occur given the current maximized condition of the intersection (dual left turn lanes on all approaches and six travel lanes along Powers Blvd).

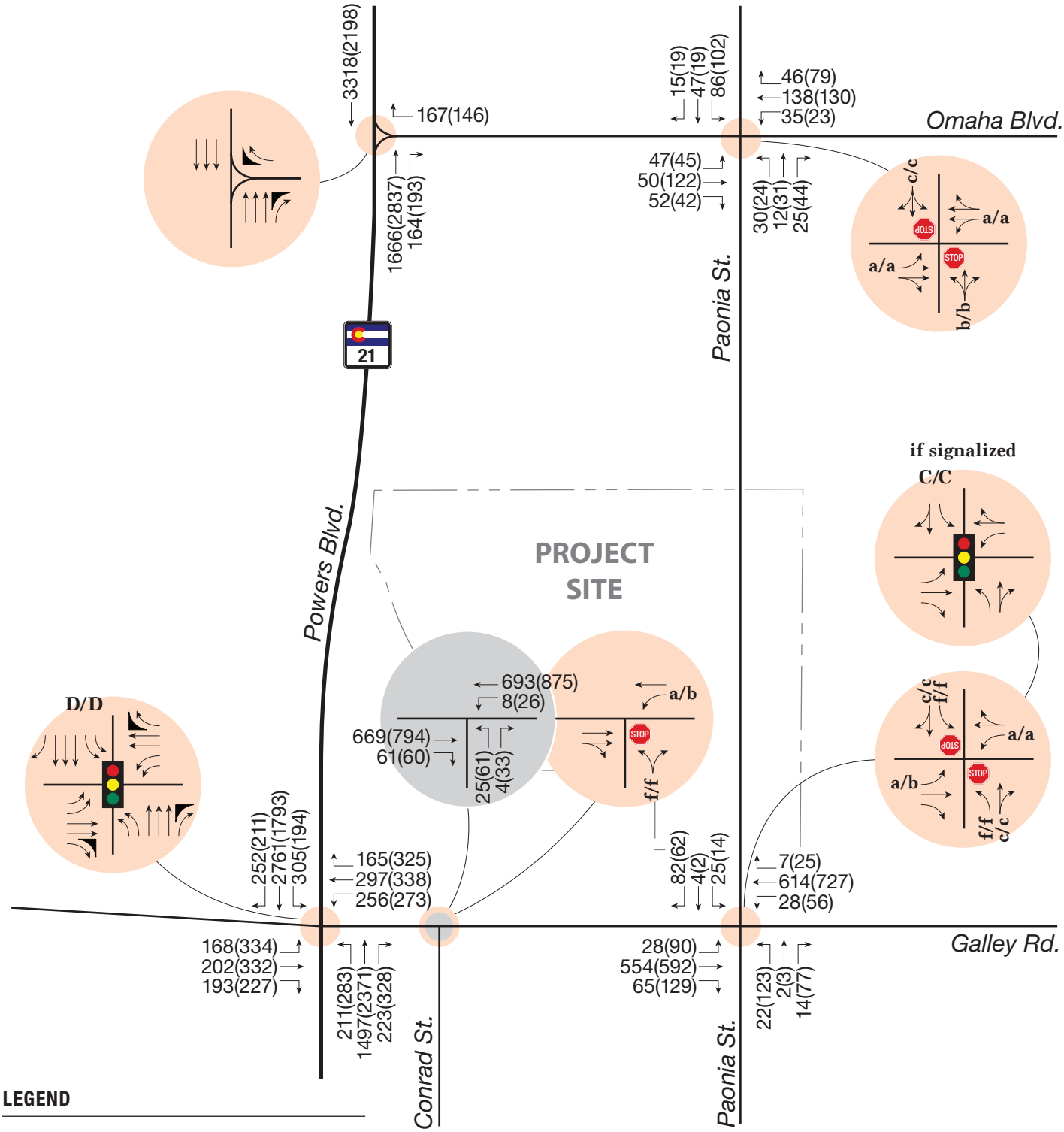
The yielding movements at all stop controlled intersections operate at LOS D or better during the peak hours with the following exceptions:

- The northbound and southbound left turns at Paonia St and Galley Rd would operate at LOS F during peak hours.
- The northbound approach at Conrad St and Galley Rd would operate at LOS F in the AM peak hour and LOS F during the PM peak hour.

Section V.C elaborates on the potential for signalization of the intersection of Paonia St and Galley Rd for the long term total scenario. If this intersection was to be signalized it would operate at LOS D in the AM peak hour and LOS C during the PM peak hour. The PM peak hour result of LOS C would require the addition of a second through travel lane through the intersection in both the eastbound and westbound directions. This condition can be seen on **Figure 9**.

Please provide recommendations for bringing the intersections that do not meet a LOS D or better to a satisfactory level.

Please also indicate what the LOS is if the second lane isn't added.



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STOP	=	Stop Sign
	=	Traffic Signal

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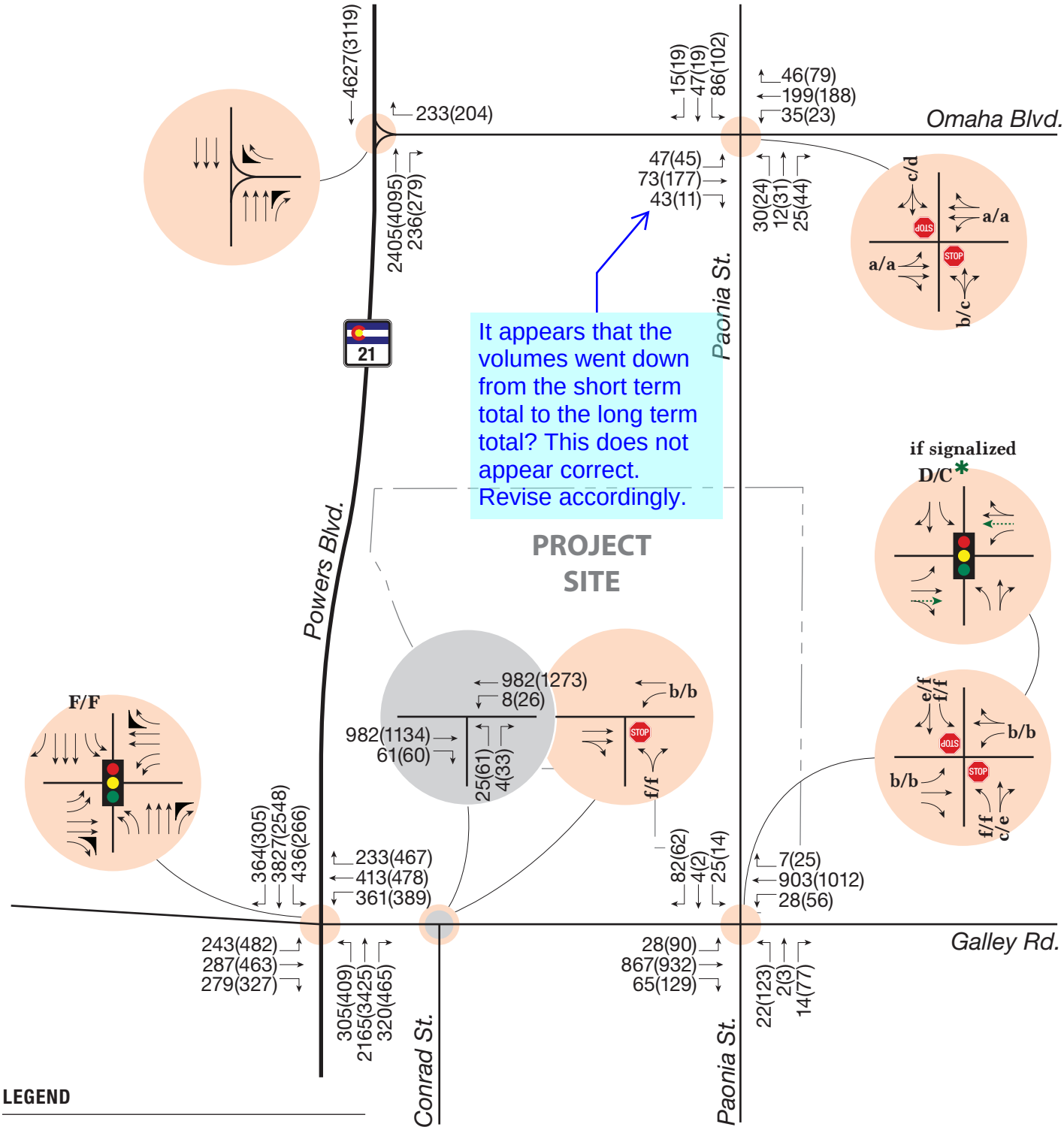
FIGURE 8

Short Term Total Traffic Conditions

Solace Apartments 19-504 1/27/20



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x/x	=	AM/PM Peak Hour Unsignalized Intersection Level of Service
STOP	=	Stop Sign
	=	Traffic Signal

*Dashed green improvements needed to provide shown PM Peak Hour LOS.

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FIGURE 9

Long Term Total Traffic Conditions

Solace Apartments 19-504 1/28/20

Indicate what the ECM criteria (spacing, sight distance etc.) is for the access points and indicate whether they meet the criteria.

V.C. Traffic Control

Both the short term and long term future total conditions demonstrate the ability to meet signal warrant thresholds at the Paonia St/Galley Rd intersection. **Appendix G** provides signal warrant summaries and **Figure 8** and **Figure 9** illustrate the Galley Rd and Paonia St intersection for both signalized and unsignalized conditions. **Table 3** depicts the results of warrant reviews for each of the unsignalized full movement intersections within the study area.

Table 3. Galley Rd/Paonia St Summary of Traffic Control

Intersection	Existing	Background		Total	
		Short Term	Long Term	Short Term	Long Term
Galley Rd/Paonia St	No	No	Yes	Yes	Yes
Galley Rd/Conrad St	No	No	No	No	No
Omaha Blvd/Paonia St	No	No	No	No	No

As shown, signal warrants are only met at the Galley Rd/Paonia St intersection in the Short term future total and Long term future background and total conditions.

V.D. Internal Circulation

The proposed residential development will have two site accesses onto Paonia St with full access to the entire site from each access point. There are not expected to be any issues in internal circulation or safety based on the current design of the site.

V.E. Pedestrian and Bicyclist Safety

Pedestrian and bicyclist counts by direction were taken at each intersection within the study area. Pedestrian and bicyclist volumes were generally low with no more than 5 crossings at any location during the peak hours. There is currently a separated sidewalk along Galley Road's south edge from Powers Blvd to beyond Paonia St.

Due to the low volume of pedestrians and cyclists in this area, the lack of sidewalks, crosswalks, and bicycle lanes may not be an issue. However, McAuliffe Elementary School is less than a mile from the project site; therefore, it is essential to have adequate sidewalks to the school access. It is recommended that a six-foot sidewalk be constructed on the north side of Galley Rd from Powers Blvd to the east of Paonia St. Consider striping a crosswalk on the north and west legs of the Galley Rd/Paonia St intersection when it is signalized. Other recommendations include adding sharrow markings to indicate that motorists and cyclists share the travel lane along Galley Rd.

V.F. Transit Services

Mountain Metropolitan Transit provides bus service in El Paso County. Currently there are existing bus stops located adjacent to the project site. Route #23 runs east/west on Galley Rd and have frequent stops that are less than 0.2 mile apart.

Provide recommendations for crosswalk without a signal at this intersection. It appears that a cross walk across Paonia would be needed. Note that a cross walk is shown on the preliminary plan at this location.

This turn lanes are required at 25 vph and 50 vph or greater. Please revise the narrative.

As the signal warrants are met in the short term and long term, signal plans shall be provided with the final plat. Provide a trigger point for when to begin monitoring the intersection (after X amount of buildings or X dwelling units, or ...). Provide recommendations for how to monitor this intersection. Will traffic counts be provided on a yearly basis? every 6 months? It shall be the applicants responsibility to monitor the intersection.

VI. IMPROVEMENT ANALYSIS

VI.A. Galley Road/Paonia Street Intersection

The only study intersection in need of intersection modifications is the Galley Rd/Paonia St intersection. Left turns entering Galley Rd currently experience poor LOS, a condition anticipated to persist into the future regardless of the proposed development. Crash history indicates numerous recent crash types that could be improved with installation of a traffic signal. Forecasts indicate that the intersection would warrant signalization with the addition of site traffic in the short term future. In the long term future with site development, additional travel lanes along Galley Rd are necessary to provide acceptable signalized LOS. It is recommended that the Galley Rd/Paonia St intersection be monitored and signalized when field conditions satisfy signal warrants.

Provide analysis/statement regarding whether exclusive right turns per ECM are required at the site access points based on the traffic.

Indicate the required storage lengths as well.

VI.B. Auxiliary Turn Lanes

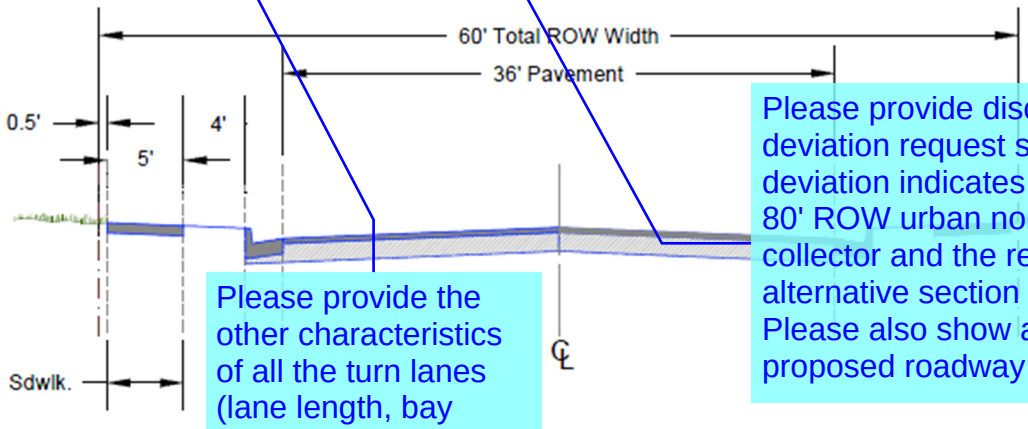
Galley Rd is classified as a minor arterial. With this access classification County standard require a left-turn lane deceleration lane when peak hour left turn volumes exceed 25 vehicles per hour (vph) and a right turn deceleration lane when peak hour right turn volumes exceed 50 vph. According to long term traffic volumes, the westbound left turn and eastbound right turn will meet this requirement. Galley Rd currently has a two way left-turn lane. It is recommended that the center lane be modified to a full left turn with new striping. The speed limit on Galley Rd is 40 mph, per County Standards, the required lane length for a 12-foot lane is 155 ft with taper length of 160 ft and total length of 315 ft.

It is recommended that an exclusive left turn lane be provided along Paonia St providing 100 feet of storage length approaching Galley Rd. It is also recommended that the site accesses to Paonia St be provided with northbound left turn lanes striped into a center painted median. These lanes should provide a minimum of 100 feet of storage length.

Per the peak hour volumes provided a right turn lane along Paonia approaching Galley is needed. Provide the turn lane elements/characteristics of this right turn lane.

VI.C. Paonia Street Extension

As mentioned, Paonia St is anticipated to be extended and is classified as a collector. Road extension should follow the County Standards. **Figure 10** and **Figure 11** show the typical standards for an urban residential collector. The classification should be reviewed and approved by the County engineer.



Please provide the other characteristics of all the turn lanes (lane length, bay taper, total length.)

Please provide discussion on the deviation request submitted. The deviation indicates the standard as an 80' ROW urban non-residential collector and the request is for an alternative section with an 80' ROW. Please also show a section of the proposed roadway.

Figure 10. Typical Urban Residential Collector Cross Section

VI.D. Striping/Sidewalks

There is missing sidewalk along the north edge of Galley Rd between Paonia St and Powers Blvd. The sidewalk should be constructed and sharrows should be striped along the roadway.

Criteria	Collectors		Local	
	Non-Residential	Residential	Local	Local[4] (low volume)
Design Speed / Posted Speed (MPH)	40 / 35	40 / 35	25 / 25	20 / 20
Clear Zone	14'	14'	12'	7'
Minimum Centerline Curve Radius	565'	565'	200'	100'
Number of Through Lanes	2	2	2	2
Lane Width	12'	12'	12'	12'
Right-of-Way	80'	60'	60'[3]	60'[3]
Paved Width (Excluding Gutter Pan)	48'	36'	30'	24'
Median Width (Including Curb & Gutter)	12'	n/a	n/a	n/a
Shoulder Width (Ext., Excluding Gutter)	6'	6'	n/a	n/a
Shoulder Width (Int., Excluding Gutter)	n/a	n/a	n/a	n/a
Required Curb/ Gutter Type (Vertical)	6"	6"	6" (or ramp)	6" (or ramp)
Sidewalk Width (@ FL)	5' detached	5' detached	5' attached	5' attached
Design ADT	20,000	10,000	3,000	300
Design Vehicle	WB-50	WB-50	WB-50	SU-30
Bike Lanes Permitted	No	Yes	No	No
Access Permitted	No[5]	No[5]	Yes	Yes
Access Spacing	See Table 2-36	See Table 2-36	Frontage	Frontage
Intersection Spacing	660'[2]	660'[2]	175'	150'
Parking Permitted	No	No	Yes	Yes
Minimum Flowline Grade of Curb	.50%	.50%	.50%	.50%
Centerline Grade (Min.-Max,)	0.5-6%[1]	0.5-8%[1]	0.5-8%[1]	0.5-8%[1]
Intersection Grades (Min.-Max.)	0.5-4%	0.5-4%	0.5-4%	0.5-4%

[1] 10% maximum grade permitted at the discretion of the ECM Administrator
[2] 330 feet when intersecting local roadways
[3] 50-foot right-of-way plus two 5-foot Public Improvements Easements granted to El Paso County
[4] Section can be used for cul-de-sacs, or roads with two ways out having a maximum of 300 ADT and a maximum length of 1,200 feet
[5] Where no local public or private roadway can provide access, temporary or partial turn movement parcel access may be permitted

Figure 11. Roadway Design Standards for Urban Collectors

VII. SUMMARY AND RECOMMENDATIONS

The proposed residential development of 348 multifamily apartments would be constructed within the northeast quadrant of the Powers Blvd and Galley Rd intersection in El Paso County, Colorado. Surrounding areas are primarily commercial spaces. The project would include an extension of Paonia St, which will provide access to the new residential development.

Coordination with the Engineering Manager and/or County Engineer may be required to determine further responsibility of the developer.

Two future scenarios were analyzed for this report:

- **Short Term Future** – Time period for the completion of the residential development, estimated as the Year 2021.
- **Long Term Future** – The year 2040 was used to assess traffic impacts of the development in the long term future.

Is it your intent to also include an exclusive right turn from Galley onto Paonia? Please clarify.

The following is a summary of the findings and recommendations related to the analysis for this development:

- When constructed, this development would generate an estimated 2,547 vehicle-trips during the day with 160 of these trips occurring during the AM peak and 195 trips occurring during the PM peak.
- Safety improvements should be evaluated for the Galley Rd/Paonia St intersection based on recent history of broadside-type crashes
- Based on the results of this analysis, it is projected the intersection of Galley Rd and Paonia St would meet signal warrants in the future. This intersection is expected to meet warrants with the proposed development in the short term future and both with and without the development in the long term future. This intersection should be monitored to determine when signalization is necessary. The proposed development is expected to generate approximately 9 percent of the traffic traveling through the intersection in the short term and 7 percent in the long term.
- Auxiliary turn lanes should be installed along all approaches to the Galley Rd/Paonia St intersection and left turn lanes should be provided at the site accesses to Paonia St.
- When the intersection of Galley Rd and Paonia St is signalized, crosswalks should be striped on the north and west legs of the intersection.
- McAuliffe Elementary School is within 2 miles of the project site; therefore, missing sidewalk gaps and improvements to existing sidewalks should be made for better access. A six-foot sidewalk will need to be constructed on the north side of Galley Rd between Powers Blvd and east of Paonia St.

Please also include the construction of Paonia St. through the site as part of the improvements.

Revise to only Developer. Contact the road impact fee advisory committee regarding the possibility of this signal being reimbursable.

Provide in your table the timing/trigger points of these improvements.

developer

Table 4 summarizes traffic mitigation measures for this development.

Table 4. Improvements

Intersection/Location	Improvement	Responsibility
Galley Rd/Paonia St	Safety Improvements	County
	Signalization	County/Developer
	Turn Lanes	Developer
Site Accesses to Paonia St	Turn Lanes	Developer
Galley Rd	Sidewalk along north edge	County/Developer

-Please clearly state in the narrative and the supporting documents (your figures provided) what the ADT is on the roads, currently, at full development, and long term.
-State whether or not any improvements affected by the project are reimbursable under the current MTCP.
-State whether the MTCP or other corridor study calls for the construction of improvements in the immediate area.

Comments continued on the following page.

APPENDIX A. EXISTING TRAFFIC COUNTS

Comments continued:

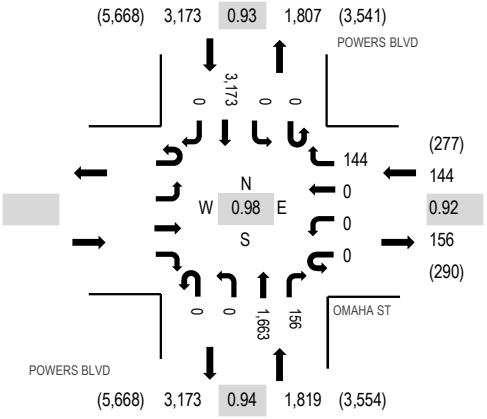
-State what the current applicable Transportation Impact fees are and what option the developer will be selecting for payment.
-List the other traffic studies by the consultant in the area of study within the past 5 years, in addition to any reports that the applicant is aware of. State whether the current study is consistent with those studies and explain any discrepancies.
-List any other deviations from the ECM that the applicant will be making. Include the necessary supporting information.
-Please state whether or not any improvements are required to existing Paonia St. north of the site due to the traffic impact of the proposed development.

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

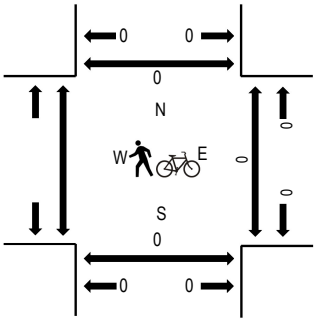
Location: 1 POWERS BLVD & OMAHA ST AM
Date and Start Time: Tuesday, October 15, 2019
Peak Hour: 06:45 AM - 07:45 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	Eastbound				OMAHA ST Westbound				POWERS BLVD Northbound				POWERS BLVD Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
6:30 AM					0	0	0	30	0	0	328	38	0	0	727	0	1,123	4,997	0	0	0	0
6:45 AM					0	0	0	39	0	0	412	54	0	0	799	0	1,304	5,136	0	0	0	0
7:00 AM					0	0	0	38	0	0	406	37	0	0	773	0	1,254	5,032	0	0	0	0
7:15 AM					0	0	0	30	0	0	394	37	0	0	855	0	1,316	4,804	0	0	0	0
7:30 AM					0	0	0	37	0	0	451	28	0	0	746	0	1,262	4,502	0	0	0	0
7:45 AM					0	0	0	33	0	0	450	44	0	0	673	0	1,200		0	0	0	0
8:00 AM					0	0	0	36	0	0	408	29	0	0	553	0	1,026		0	0	0	0
8:15 AM					0	0	0	34	0	0	415	23	0	0	542	0	1,014		0	0	0	0
Count Total					0	0	0	277	0	0	3,264	290	0	0	5,668	0	9,499		0	0	0	0
Peak Hour					0	0	0	144	0	0	1,663	156	0	0	3,173	0	5,136		0	0	0	0

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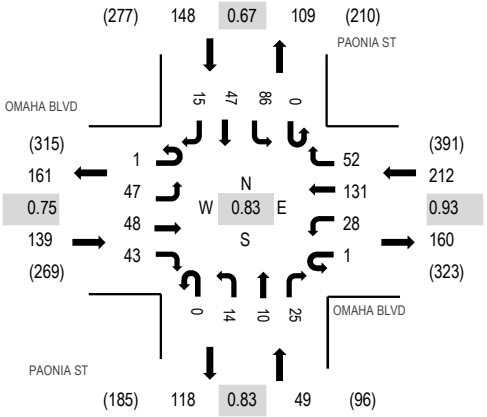
www.alltrafficdata.net

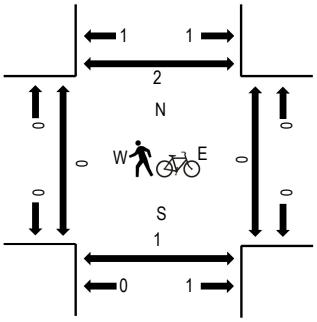
Location: 2 PAONIA ST & OMAHA BLVD AM
Date and Start Time: Tuesday, October 15, 2019
Peak Hour: 06:45 AM - 07:45 AM
Peak 15-Minutes: 06:45 AM - 07:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	OMAHA BLVD Eastbound				OMAHA BLVD Westbound				PAONIA ST Northbound				PAONIA ST Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
6:30 AM	0	15	7	9	0	6	24	9	0	3	0	1	0	21	5	5	105	516	0	0	0	0
6:45 AM	1	19	15	12	0	14	33	7	0	1	2	6	0	32	20	3	165	548	0	0	1	0
7:00 AM	0	10	8	11	0	4	37	16	0	3	1	3	0	19	10	3	125	526	0	0	0	1
7:15 AM	0	8	11	15	0	5	28	11	0	5	3	6	0	14	10	5	121	546	0	0	0	0
7:30 AM	0	10	14	5	1	5	33	18	0	5	4	10	0	21	7	4	137	517	0	0	0	1
7:45 AM	0	10	19	7	0	3	31	15	0	4	3	6	0	27	9	9	143		0	0	0	1
8:00 AM	0	15	16	8	0	2	38	15	0	5	4	8	0	25	5	4	145		0	0	0	7
8:15 AM	0	7	13	4	0	4	25	7	0	5	1	7	0	13	5	1	92		0	0	0	2
Count Total	1	94	103	71	1	43	249	98	0	31	18	47	0	172	71	34	1,033		0	0	1	12
Peak Hour	1	47	48	43	1	28	131	52	0	14	10	25	0	86	47	15	548		0	0	1	2

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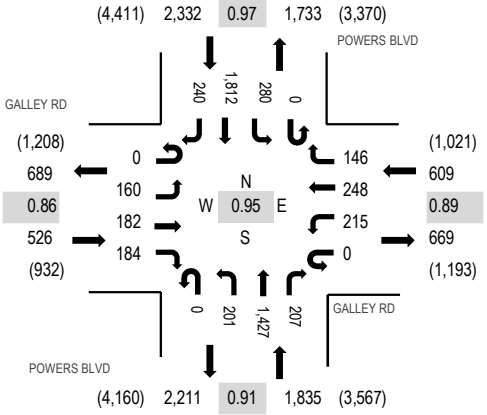
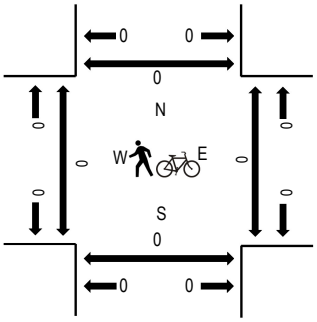
Location: 3 POWERS BLVD & GALLEY RD AM
Date and Start Time: Tuesday, October 15, 2019
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	GALLEY RD Eastbound				GALLEY RD Westbound				POWERS BLVD Northbound				POWERS BLVD Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
6:30 AM	0	30	29	48	0	32	32	21	0	28	299	44	0	47	542	36	1,188	5,076	0	0	0	0
6:45 AM	0	28	45	43	0	25	36	29	0	42	396	70	0	56	456	63	1,289	5,277	0	0	0	0
7:00 AM	0	36	38	52	0	53	34	30	0	52	321	48	0	66	482	52	1,264	5,302	0	0	0	0
7:15 AM	0	30	51	43	0	53	69	41	0	51	332	49	0	61	505	50	1,335	5,165	0	0	0	0
7:30 AM	0	43	43	37	0	59	76	39	0	46	374	53	0	74	482	63	1,389	4,855	0	0	0	0
7:45 AM	0	51	50	52	0	50	69	36	0	52	400	57	0	79	343	75	1,314		0	0	0	0
8:00 AM	0	35	39	30	0	43	48	39	0	32	364	44	1	51	350	51	1,127		0	0	0	0
8:15 AM	0	26	27	26	0	26	37	44	0	50	325	38	0	34	328	64	1,025		0	0	0	0
Count Total	0	279	322	331	0	341	401	279	0	353	2,811	403	1	468	3,488	454	9,931		0	0	0	0
Peak Hour	0	160	182	184	0	215	248	146	0	201	1,427	207	0	280	1,812	240	5,302		0	0	0	0

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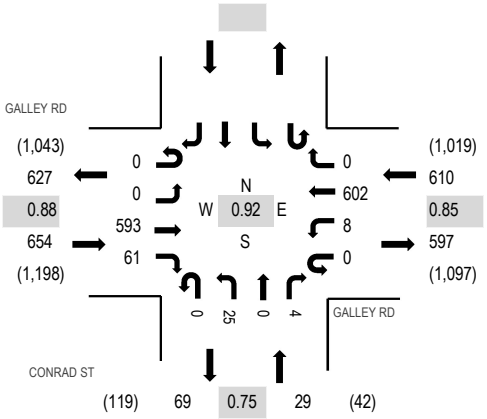
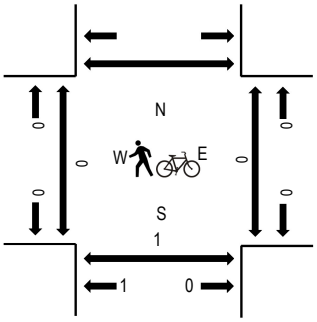
Location: 4 CONRAD ST & GALLEY RD AM
Date and Start Time: Tuesday, October 15, 2019
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	GALLEY RD Eastbound				GALLEY RD Westbound				CONRAD ST Northbound				Southbound				Total	Rolling Hour	Pedestrain Crossings		
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South North
6:30 AM	0	0	116	3	0	0	91	0	0	0	0	0					210	1,071	0	0	0
6:45 AM	0	0	156	19	0	3	97	0	0	2	0	0					277	1,212	0	0	0
7:00 AM	0	0	140	9	0	0	105	0	0	3	0	0					257	1,283	0	0	0
7:15 AM	0	0	153	11	0	1	155	0	0	7	0	0					327	1,293	0	0	0
7:30 AM	0	0	151	16	0	2	178	0	0	2	0	2					351	1,188	0	0	0
7:45 AM	0	0	167	22	0	3	148	0	0	7	0	1					348		0	0	1
8:00 AM	0	0	122	12	0	2	121	0	0	9	0	1					267		0	0	0
8:15 AM	0	0	87	14	0	2	111	0	0	7	0	1					222		0	0	0
Count Total	0	0	1,092	106	0	13	1,006	0	0	37	0	5					2,259		0	0	1
Peak Hour	0	0	593	61	0	8	602	0	0	25	0	4					1,293		0	0	1

All Traffic Data Services Inc.
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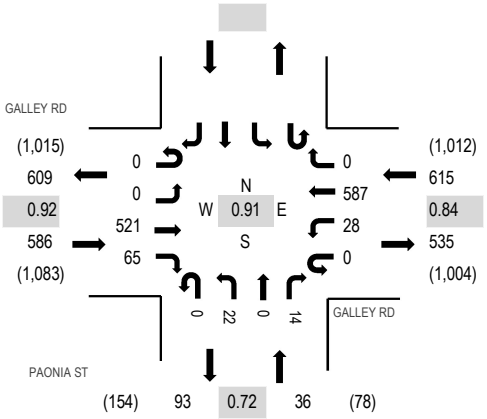
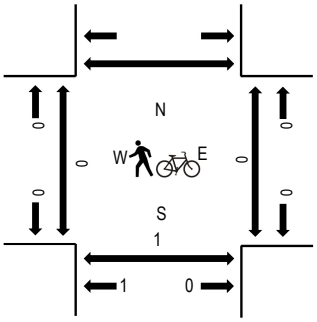
Location: 5 PAONIA ST & GALLEY RD AM
Date and Start Time: Tuesday, October 15, 2019
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	GALLEY RD Eastbound				GALLEY RD Westbound				PAONIA ST Northbound				Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:30 AM	0	0	107	11	0	2	84	0	0	5	0	5					214	1,044	0	0	0	
6:45 AM	0	0	138	14	0	5	98	0	0	2	0	2					259	1,169	0	0	0	
7:00 AM	0	0	131	10	0	4	97	0	0	10	0	6					258	1,235	0	0	0	
7:15 AM	0	0	133	14	0	7	147	0	0	7	0	5					313	1,237	0	0	0	
7:30 AM	0	0	136	11	0	7	175	0	0	6	0	4					339	1,129	0	0	1	
7:45 AM	0	0	139	24	0	8	146	0	0	6	0	2					325		0	0	0	
8:00 AM	0	0	113	16	0	6	119	0	0	3	0	3					260		0	0	0	
8:15 AM	0	0	76	10	0	5	102	0	0	8	0	4					205		0	0	0	
Count Total	0	0	973	110	0	44	968	0	0	47	0	31					2,173		0	0	1	
Peak Hour	0	0	521	65	0	28	587	0	0	22	0	14					1,237		0	0	1	

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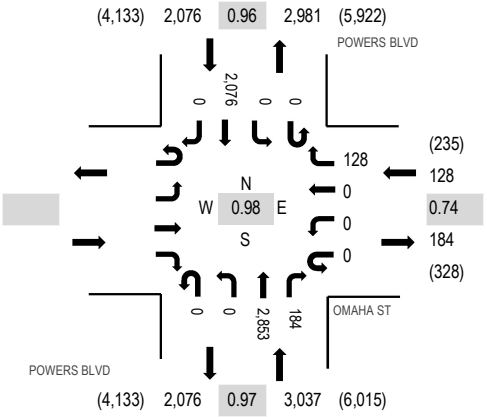
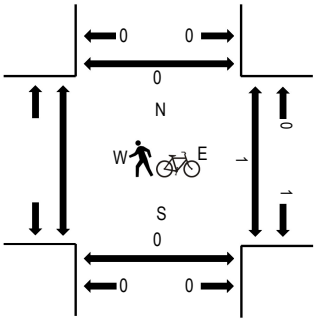
Location: 1 POWERS BLVD & OMAHA ST PM
Date and Start Time: Tuesday, October 15, 2019
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	Eastbound				OMAHA ST Westbound				POWERS BLVD Northbound				POWERS BLVD Southbound					Rolling Hour	Pedestrain Crossings		
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM					0	0	0	34	0	0	758	38	0	0	508	0	1,338	5,200		0	0	0
4:15 PM					0	0	0	21	0	0	733	31	0	0	477	0	1,262	5,202		0	0	0
4:30 PM					0	0	0	31	0	0	722	40	0	0	520	0	1,313	5,241		0	0	0
4:45 PM					0	0	0	31	0	0	711	40	0	0	505	0	1,287	5,228		0	0	0
5:00 PM					0	0	0	43	0	0	702	60	0	0	535	0	1,340	5,183		0	0	0
5:15 PM					0	0	0	23	0	0	718	44	0	0	516	0	1,301			1	0	0
5:30 PM					0	0	0	24	0	0	680	42	0	0	554	0	1,300			0	0	0
5:45 PM					0	0	0	28	0	0	663	33	0	0	518	0	1,242			0	0	0
Count Total					0	0	0	235	0	0	5,687	328	0	0	4,133	0	10,383			1	0	0
Peak Hour					0	0	0	128	0	0	2,853	184	0	0	2,076	0	5,241			1	0	0

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(303) 216-2439
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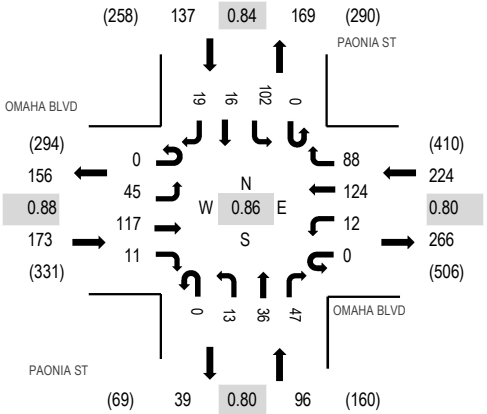
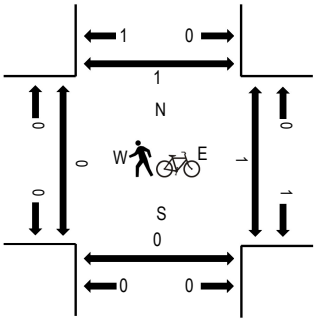
Location: 2 PAONIA ST & OMAHA BLVD PM
Date and Start Time: Tuesday, October 15, 2019
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



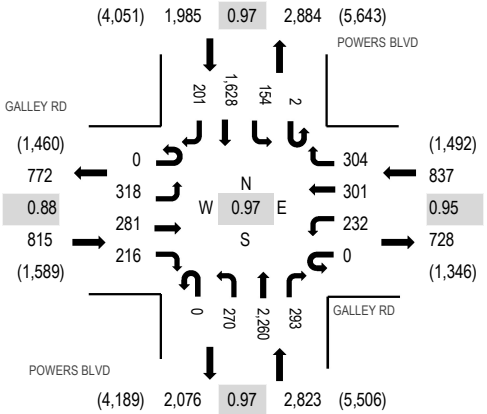
Traffic Counts

Interval Start Time	OMAHA BLVD Eastbound				OMAHA BLVD Westbound				PAONIA ST Northbound				PAONIA ST Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	4	26	7	0	1	32	20	0	6	4	14	0	25	5	2	146	592	0	0	0	0
4:15 PM	0	2	29	5	0	4	19	19	0	3	4	12	0	21	6	5	129	630	0	0	0	0
4:30 PM	0	16	27	2	0	5	31	27	0	3	9	14	0	25	2	4	165	626	0	0	0	0
4:45 PM	0	12	28	2	0	3	32	13	0	2	10	9	0	31	4	6	152	605	0	0	0	1
5:00 PM	0	15	33	2	0	0	42	29	0	5	13	12	0	25	4	4	184	567	0	1	0	0
5:15 PM	0	11	23	1	0	1	26	19	0	4	6	6	0	26	1	1	125		0	0	0	0
5:30 PM	0	12	29	8	0	1	28	17	0	3	7	7	0	27	1	4	144		0	0	0	0
5:45 PM	0	5	32	0	0	2	26	13	0	3	3	1	0	24	2	3	114		0	0	0	0
Count Total	0	77	227	27	0	17	236	157	0	29	56	75	0	204	25	29	1,159		0	1	0	1
Peak Hour	0	45	117	11	0	12	124	88	0	13	36	47	0	102	16	19	630		0	1	0	1

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

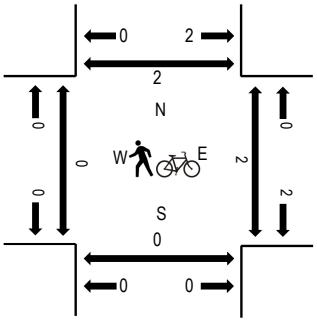
Location: 3 POWERS BLVD & GALLEY RD PM
Date and Start Time: Tuesday, October 15, 2019
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



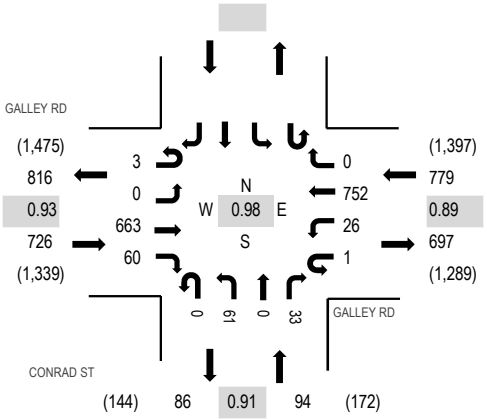
Traffic Counts

Interval Start Time	GALLEY RD Eastbound				GALLEY RD Westbound				POWERS BLVD Northbound				POWERS BLVD Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	70	62	66	0	38	81	101	0	85	589	57	2	43	413	41	1,648	6,437	0	0	0	0
4:15 PM	0	95	65	56	0	63	69	79	0	65	575	82	1	35	357	61	1,603	6,460	0	0	0	0
4:30 PM	0	58	78	45	0	54	79	77	0	54	547	69	0	45	409	55	1,570	6,455	0	0	0	0
4:45 PM	0	74	69	42	0	46	77	76	0	80	577	83	1	42	406	43	1,616	6,427	0	2	0	2
5:00 PM	0	91	69	73	0	69	76	72	0	71	561	59	0	32	456	42	1,671	6,201	0	0	0	0
5:15 PM	0	71	68	64	0	35	59	55	0	50	584	67	0	28	466	51	1,598		0	0	0	0
5:30 PM	0	74	69	57	0	35	53	51	0	79	526	56	2	35	458	47	1,542		0	0	0	0
5:45 PM	0	70	59	44	0	38	50	59	0	49	504	37	1	37	399	43	1,390		0	0	0	0
Count Total	0	603	539	447	0	378	544	570	0	533	4,463	510	7	297	3,364	383	12,638		0	2	0	2
Peak Hour	0	318	281	216	0	232	301	304	0	270	2,260	293	2	154	1,628	201	6,460		0	2	0	2

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

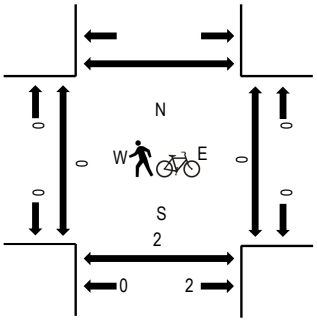
Location: 4 CONRAD ST & GALLEY RD PM
Date and Start Time: Tuesday, October 15, 2019
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



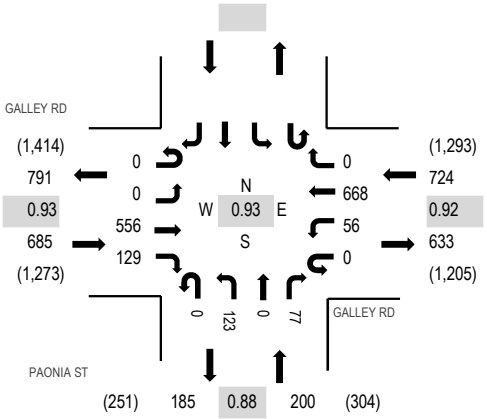
Traffic Counts

Interval Start Time	GALLEY RD Eastbound				GALLEY RD Westbound				CONRAD ST Northbound				Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	147	12	0	7	211	0	0	16	0	12					405	1,599	0	0	0	
4:15 PM	0	0	160	18	1	7	178	0	0	15	0	5					384	1,591	0	0	0	
4:30 PM	1	0	180	14	0	4	188	0	0	13	0	10					410	1,531	0	0	0	
4:45 PM	2	0	176	16	0	8	175	0	0	17	0	6					400	1,429	0	0	2	
5:00 PM	0	0	153	8	0	4	205	0	1	19	0	7					397	1,309	0	0	1	
5:15 PM	1	0	152	10	0	5	131	0	0	18	0	7					324		0	0	0	
5:30 PM	0	0	149	13	0	3	133	0	0	7	0	3					308		0	0	0	
5:45 PM	0	0	117	10	0	4	133	0	0	12	0	4					280		0	0	0	
Count Total	4	0	1,234	101	1	42	1,354	0	1	117	0	54					2,908		0	0	3	
Peak Hour	3	0	663	60	1	26	752	0	0	61	0	33					1,599		0	0	2	

All Traffic Data
Services Inc.
(303) 216-2439
www.alltrafficdata.net

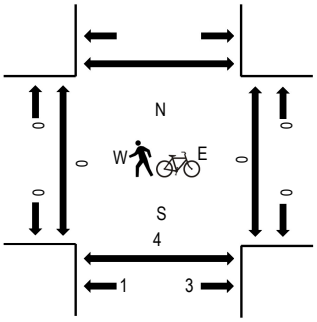
Location: 5 PAONIA ST & GALLEY RD PM
Date and Start Time: Tuesday, October 15, 2019
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

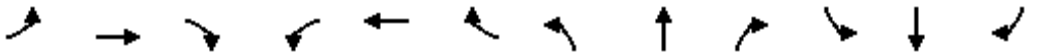
Interval Start Time	GALLEY RD Eastbound				GALLEY RD Westbound				PAONIA ST Northbound				Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	129	29	0	10	170	0	0	44	0	13					395	1,609	0	0	2	
4:15 PM	0	0	128	34	0	15	161	0	0	29	0	14					381	1,599	0	0	0	
4:30 PM	0	0	146	34	0	17	179	0	0	22	0	33					431	1,520	0	0	0	
4:45 PM	0	0	153	32	0	14	158	0	0	28	0	17					402	1,387	0	0	2	
5:00 PM	0	0	146	14	0	7	173	0	0	35	0	10					385	1,261	0	0	0	
5:15 PM	0	0	146	14	0	2	121	0	0	14	0	5					302		0	0	1	
5:30 PM	0	0	137	11	0	5	120	0	0	15	0	10					298		0	0	0	
5:45 PM	0	0	112	8	0	5	136	0	0	9	0	6					276		0	0	0	
Count Total	0	0	1,097	176	0	75	1,218	0	0	196	0	108					2,870		0	0	5	
Peak Hour	0	0	556	129	0	56	668	0	0	123	0	77					1,609		0	0	4	

APPENDIX B. EXISTING LEVEL OF SERVICE WORKSHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	182	184	215	248	146	201	1427	207	280	2653	240
Future Volume (vph)	160	182	184	215	248	146	201	1427	207	280	2653	240
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	20.0	20.0	4.0	20.0	20.0
Minimum Split (s)	10.5	44.5	44.5	10.5	44.5	44.5	11.5	42.5	42.5	10.5	42.5	42.5
Total Split (s)	21.0	33.0	33.0	21.0	33.0	33.0	21.0	71.0	71.0	21.0	71.0	71.0
Total Split (%)	14.4%	22.6%	22.6%	14.4%	22.6%	22.6%	14.4%	48.6%	48.6%	14.4%	48.6%	48.6%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	5.5	5.5	5.5	3.0	5.5	5.5
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	6.5	6.5	5.0	6.5	6.5	7.5	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	13.0	15.7	15.7	14.5	17.2	17.2	14.5	74.4	74.4	17.4	74.8	74.8
Actuated g/C Ratio	0.09	0.11	0.11	0.10	0.12	0.12	0.10	0.51	0.51	0.12	0.51	0.51
v/c Ratio	0.61	0.56	0.67	0.71	0.67	0.50	0.65	0.60	0.25	0.71	1.05	0.27
Control Delay	72.3	67.0	26.0	75.3	69.6	13.1	72.0	27.8	5.7	71.6	67.4	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	72.3	67.0	26.0	75.3	69.6	13.1	72.0	27.8	5.7	71.6	67.4	3.4
LOS	E	E	C	E	E	B	E	C	A	E	E	A
Approach Delay		54.3			58.1			30.2			62.9	
Approach LOS		D			E			C			E	

Intersection Summary	
Cycle Length: 146	
Actuated Cycle Length: 146	
Offset: 54 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 51.6	Intersection LOS: D
Intersection Capacity Utilization 90.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Powers & Galley



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	182	184	215	248	146	201	1427	207	280	2653	240
Future Volume (veh/h)	160	182	184	215	248	146	201	1427	207	280	2653	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	212	0	242	279	0	221	1568	0	289	2735	247
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.91	0.91	0.91	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	237	298		292	355		269	2908		337	2921	907
Arrive On Green	0.07	0.08	0.00	0.08	0.10	0.00	0.08	0.57	0.00	0.10	0.57	0.57
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	186	212	0	242	279	0	221	1568	0	289	2735	247
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	7.7	8.5	0.0	10.1	11.2	0.0	9.2	27.9	0.0	12.0	72.1	11.5
Cycle Q Clear(g_c), s	7.7	8.5	0.0	10.1	11.2	0.0	9.2	27.9	0.0	12.0	72.1	11.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	237	298		292	355		269	2908		337	2921	907
V/C Ratio(X)	0.78	0.71		0.83	0.79		0.82	0.54		0.86	0.94	0.27
Avail Cap(c_a), veh/h	379	645		379	645		320	2908		379	2921	907
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.9	65.1	0.0	65.8	64.2	0.0	66.3	19.5	0.0	64.9	28.8	15.8
Incr Delay (d2), s/veh	5.6	3.1	0.0	11.2	3.9	0.0	13.6	0.7	0.0	16.2	7.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	4.0	0.0	4.9	5.3	0.0	4.6	11.2	0.0	6.1	30.3	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.5	68.3	0.0	77.0	68.0	0.0	80.0	20.2	0.0	81.1	36.0	16.6
LnGrp LOS	E	E		E	E		E	C		F	D	B
Approach Vol, veh/h		398	A		521	A		1789	A		3271	
Approach Delay, s/veh		70.3			72.2			27.6			38.5	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.2	90.7	17.4	18.8	18.9	91.0	15.0	21.1
Change Period (Y+Rc), s	5.0	7.5	5.0	6.5	7.5	7.5	5.0	6.5
Max Green Setting (Gmax), s	16.0	63.5	16.0	26.5	13.5	63.5	16.0	26.5
Max Q Clear Time (g_c+I1), s	14.0	29.9	12.1	10.5	11.2	74.1	9.7	13.2
Green Ext Time (p_c), s	0.2	15.6	0.3	1.1	0.2	0.0	0.3	1.4

Intersection Summary	
HCM 6th Ctrl Delay	40.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	521	65	28	587	22	14
Future Vol, veh/h	521	65	28	587	22	14
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	100	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	84	84	72	72
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	566	71	33	699	31	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	637	0	1331	566
Stage 1	-	-	-	-	566	-
Stage 2	-	-	-	-	765	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	947	-	170	524
Stage 1	-	-	-	-	568	-
Stage 2	-	-	-	-	459	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	947	-	164	524
Mov Cap-2 Maneuver	-	-	-	-	164	-
Stage 1	-	-	-	-	568	-
Stage 2	-	-	-	-	443	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	24.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	164	524	-	-	947	-
HCM Lane V/C Ratio	0.186	0.037	-	-	0.035	-
HCM Control Delay (s)	31.9	12.1	-	-	8.9	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	48	43	28	131	52	14	10	25	86	47	15
Future Vol, veh/h	47	48	43	28	131	52	14	10	25	86	47	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	93	93	93	83	83	83	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	63	64	57	30	141	56	17	12	30	128	70	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	197	0	0	121	0	0	385	476	61	393	476	99
Stage 1	-	-	-	-	-	-	219	219	-	229	229	-
Stage 2	-	-	-	-	-	-	166	257	-	164	247	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1373	-	-	1464	-	-	548	486	991	541	486	937
Stage 1	-	-	-	-	-	-	763	721	-	753	713	-
Stage 2	-	-	-	-	-	-	820	694	-	822	701	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1373	-	-	1464	-	-	446	451	991	486	451	937
Mov Cap-2 Maneuver	-	-	-	-	-	-	446	451	-	486	451	-
Stage 1	-	-	-	-	-	-	725	685	-	715	697	-
Stage 2	-	-	-	-	-	-	703	678	-	744	666	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	1.1	11.4	17.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	622	1373	-	-	1464	-	-	498
HCM Lane V/C Ratio	0.095	0.046	-	-	0.021	-	-	0.444
HCM Control Delay (s)	11.4	7.7	0.1	-	7.5	0.1	-	17.9
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	2.2

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	608	61	8	584	25	4
Future Vol, veh/h	608	61	8	584	25	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	85	85	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	691	69	9	687	33	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	760	0	1431	380
Stage 1	-	-	-	-	726	-
Stage 2	-	-	-	-	705	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	850	-	136	619
Stage 1	-	-	-	-	441	-
Stage 2	-	-	-	-	489	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	850	-	135	619
Mov Cap-2 Maneuver	-	-	-	-	135	-
Stage 1	-	-	-	-	441	-
Stage 2	-	-	-	-	484	-

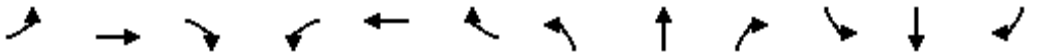
Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	36.9
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	151	-	-	850	-
HCM Lane V/C Ratio	0.256	-	-	0.011	-
HCM Control Delay (s)	36.9	-	-	9.3	-
HCM Lane LOS	E	-	-	A	-
HCM 95th %tile Q(veh)	1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	281	216	232	301	304	270	2260	293	154	1721	201
Future Volume (vph)	318	281	216	232	301	304	270	2260	293	154	1721	201
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	20.0	20.0	4.0	20.0	20.0
Minimum Split (s)	10.5	44.5	44.5	10.5	44.5	44.5	11.5	42.5	42.5	10.5	42.5	42.5
Total Split (s)	21.0	33.0	33.0	21.0	33.0	33.0	21.0	71.0	71.0	21.0	71.0	71.0
Total Split (%)	14.4%	22.6%	22.6%	14.4%	22.6%	22.6%	14.4%	48.6%	48.6%	14.4%	48.6%	48.6%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	5.5	5.5	5.5	3.0	5.5	5.5
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	6.5	6.5	5.0	6.5	6.5	7.5	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	16.0	23.1	23.1	14.6	21.7	21.7	14.6	72.2	72.2	12.1	67.2	67.2
Actuated g/C Ratio	0.11	0.16	0.16	0.10	0.15	0.15	0.10	0.49	0.49	0.08	0.46	0.46
v/c Ratio	0.96	0.57	0.62	0.71	0.60	0.86	0.81	0.93	0.35	0.56	0.76	0.25
Control Delay	101.3	60.6	25.1	75.5	62.4	51.3	82.5	42.5	11.6	71.8	36.0	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.3	60.6	25.1	75.5	62.4	51.3	82.5	42.5	11.6	71.8	36.0	3.8
LOS	F	E	C	E	E	D	F	D	B	E	D	A
Approach Delay		67.1			62.0			43.1			35.5	
Approach LOS		E			E			D			D	

Intersection Summary	
Cycle Length: 146	
Actuated Cycle Length: 146	
Offset: 54 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 46.4	Intersection LOS: D
Intersection Capacity Utilization 87.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Powers & Galley



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	318	281	216	232	301	304	270	2260	293	154	1721	201
Future Volume (veh/h)	318	281	216	232	301	304	270	2260	293	154	1721	201
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	361	319	0	244	317	0	278	2330	0	159	1774	207
Peak Hour Factor	0.88	0.88	0.88	0.95	0.95	0.95	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	482		294	395		320	2830		210	2580	801
Arrive On Green	0.11	0.14	0.00	0.09	0.11	0.00	0.09	0.55	0.00	0.06	0.51	0.51
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	361	319	0	244	317	0	278	2330	0	159	1774	207
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	15.2	12.4	0.0	10.1	12.7	0.0	11.6	54.6	0.0	6.6	38.5	10.8
Cycle Q Clear(g_c), s	15.2	12.4	0.0	10.1	12.7	0.0	11.6	54.6	0.0	6.6	38.5	10.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	379	482		294	395		320	2830		210	2580	801
V/C Ratio(X)	0.95	0.66		0.83	0.80		0.87	0.82		0.76	0.69	0.26
Avail Cap(c_a), veh/h	379	645		379	645		320	2830		379	2580	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.6	59.9	0.0	65.7	63.3	0.0	65.4	26.7	0.0	67.5	27.4	20.6
Incr Delay (d2), s/veh	34.2	1.6	0.0	11.4	3.8	0.0	21.9	2.9	0.0	5.5	1.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	5.7	0.0	5.0	6.0	0.0	6.1	22.5	0.0	3.1	15.9	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	98.8	61.5	0.0	77.1	67.2	0.0	87.2	29.6	0.0	73.0	28.9	21.3
LnGrp LOS	F	E		E	E		F	C		E	C	C
Approach Vol, veh/h		680	A		561	A		2608	A		2140	
Approach Delay, s/veh		81.3			71.5			35.7			31.4	
Approach LOS		F			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	88.4	17.4	26.3	21.0	81.3	21.0	22.7
Change Period (Y+Rc), s	5.0	7.5	5.0	6.5	7.5	7.5	5.0	6.5
Max Green Setting (Gmax), s	16.0	63.5	16.0	26.5	13.5	63.5	16.0	26.5
Max Q Clear Time (g_c+I1), s	8.6	56.6	12.1	14.4	13.6	40.5	17.2	14.7
Green Ext Time (p_c), s	0.3	6.3	0.3	1.5	0.0	15.4	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	42.7
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	13.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	556	129	56	668	123	77
Future Vol, veh/h	556	129	56	668	123	77
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	100	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	92	92	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	598	139	61	726	140	88

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	737	0	1446	598
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	848	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	869	-	145	502
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	420	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	869	-	~ 135	502
Mov Cap-2 Maneuver	-	-	-	-	~ 135	-
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	391	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	98.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	135	502	-	-	869	-
HCM Lane V/C Ratio	1.035	0.174	-	-	0.07	-
HCM Control Delay (s)	151.4	13.7	-	-	9.5	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	7.5	0.6	-	-	0.2	-

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

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	117	11	12	124	88	13	36	47	102	16	19
Future Vol, veh/h	45	117	11	12	124	88	13	36	47	102	16	19
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	80	80	80	80	80	80	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	51	133	13	15	155	110	16	45	59	121	19	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	265	0	0	146	0	0	359	537	73	431	488	133
Stage 1	-	-	-	-	-	-	242	242	-	240	240	-
Stage 2	-	-	-	-	-	-	117	295	-	191	248	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1296	-	-	1434	-	-	572	449	974	508	479	892
Stage 1	-	-	-	-	-	-	740	704	-	742	706	-
Stage 2	-	-	-	-	-	-	875	668	-	792	700	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1296	-	-	1434	-	-	517	425	974	421	453	892
Mov Cap-2 Maneuver	-	-	-	-	-	-	517	425	-	421	453	-
Stage 1	-	-	-	-	-	-	708	674	-	710	698	-
Stage 2	-	-	-	-	-	-	820	660	-	665	670	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0.4	12.4	17.1
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	607	1296	-	-	1434	-	-	458
HCM Lane V/C Ratio	0.198	0.039	-	-	0.01	-	-	0.356
HCM Control Delay (s)	12.4	7.9	0.1	-	7.5	0	-	17.1
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	1.6

Intersection	
Int Delay, s/veh	5.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	668	60	26	776	61	33
Future Vol, veh/h	668	60	26	776	61	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	89	89	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	718	65	29	872	67	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	783	0	1681	392
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	930	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	833	-	94	608
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	383	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	833	-	91	608
Mov Cap-2 Maneuver	-	-	-	-	91	-
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	370	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	96.2
HCM LOS			F

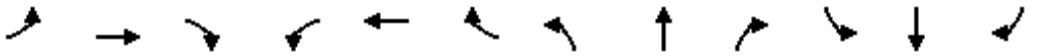
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	130	-	-	833	-
HCM Lane V/C Ratio	0.795	-	-	0.035	-
HCM Control Delay (s)	96.2	-	-	9.5	-
HCM Lane LOS	F	-	-	A	-
HCM 95th %tile Q(veh)	4.8	-	-	0.1	-

APPENDIX C. SHORT TERM BACKGROUND LEVEL OF SERVICE WORKSHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	191	193	226	260	153	211	1497	217	294	2765	252
Future Volume (vph)	168	191	193	226	260	153	211	1497	217	294	2765	252
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	20.0	20.0	4.0	20.0	20.0
Minimum Split (s)	10.5	44.5	44.5	10.5	44.5	44.5	11.5	42.5	42.5	10.5	42.5	42.5
Total Split (s)	21.0	33.0	33.0	21.0	33.0	33.0	21.0	71.0	71.0	21.0	71.0	71.0
Total Split (%)	14.4%	22.6%	22.6%	14.4%	22.6%	22.6%	14.4%	48.6%	48.6%	14.4%	48.6%	48.6%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	5.5	5.5	5.5	3.0	5.5	5.5
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	6.5	6.5	5.0	6.5	6.5	7.5	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	13.3	16.4	16.4	14.8	17.8	17.8	14.7	73.2	73.2	17.7	73.6	73.6
Actuated g/C Ratio	0.09	0.11	0.11	0.10	0.12	0.12	0.10	0.50	0.50	0.12	0.50	0.50
v/c Ratio	0.62	0.56	0.69	0.73	0.68	0.50	0.67	0.65	0.27	0.73	1.11	0.28
Control Delay	72.6	66.2	28.3	76.2	69.0	12.6	73.2	29.5	6.6	72.6	90.9	3.5
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	72.6	66.2	28.3	76.2	69.0	12.6	73.2	29.5	6.6	72.6	90.9	3.5
LOS	E	E	C	E	E	B	E	C	A	E	F	A
Approach Delay		54.9			58.0			31.8			82.6	
Approach LOS		D			E			C			F	

Intersection Summary	
Cycle Length: 146	
Actuated Cycle Length: 146	
Offset: 54 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 61.9	Intersection LOS: E
Intersection Capacity Utilization 93.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 1: Powers & Galley



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	191	193	226	260	153	211	1497	217	294	2765	252
Future Volume (veh/h)	168	191	193	226	260	153	211	1497	217	294	2765	252
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	195	222	0	254	292	0	232	1645	0	303	2851	260
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.91	0.91	0.91	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	246	309		304	369		279	2856		350	2873	892
Arrive On Green	0.07	0.09	0.00	0.09	0.10	0.00	0.08	0.56	0.00	0.10	0.56	0.56
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	195	222	0	254	292	0	232	1645	0	303	2851	260
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	8.1	8.9	0.0	10.6	11.7	0.0	9.7	30.6	0.0	12.6	80.7	12.5
Cycle Q Clear(g_c), s	8.1	8.9	0.0	10.6	11.7	0.0	9.7	30.6	0.0	12.6	80.7	12.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	309		304	369		279	2856		350	2873	892
V/C Ratio(X)	0.79	0.72		0.84	0.79		0.83	0.58		0.87	0.99	0.29
Avail Cap(c_a), veh/h	379	645		379	645		320	2856		379	2873	892
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.7	64.9	0.0	65.5	63.9	0.0	66.1	20.9	0.0	64.6	31.6	16.7
Incr Delay (d2), s/veh	6.2	3.1	0.0	12.4	3.8	0.0	15.1	0.9	0.0	17.7	15.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.2	0.0	5.2	5.5	0.0	4.9	12.3	0.0	6.4	36.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.0	68.0	0.0	78.0	67.7	0.0	81.2	21.8	0.0	82.4	46.7	17.5
LnGrp LOS	E	E		E	E		F	C		F	D	B
Approach Vol, veh/h		417	A		546	A		1877	A		3414	
Approach Delay, s/veh		70.3			72.5			29.1			47.7	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.8	89.2	17.8	19.2	19.3	89.6	15.4	21.7
Change Period (Y+Rc), s	5.0	7.5	5.0	6.5	7.5	7.5	5.0	6.5
Max Green Setting (Gmax), s	16.0	63.5	16.0	26.5	13.5	63.5	16.0	26.5
Max Q Clear Time (g_c+I1), s	14.6	32.6	12.6	10.9	11.7	82.7	10.1	13.7
Green Ext Time (p_c), s	0.2	16.0	0.3	1.1	0.1	0.0	0.3	1.4

Intersection Summary	
HCM 6th Ctrl Delay	45.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	554	65	28	617	22	14
Future Vol, veh/h	554	65	28	617	22	14
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	100	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	84	84	72	72
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	602	71	33	735	31	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	673	0	1403	602
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	801	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	918	-	154	500
Stage 1	-	-	-	-	547	-
Stage 2	-	-	-	-	442	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	918	-	148	500
Mov Cap-2 Maneuver	-	-	-	-	148	-
Stage 1	-	-	-	-	547	-
Stage 2	-	-	-	-	426	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	26.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	148	500	-	-	918	-
HCM Lane V/C Ratio	0.206	0.039	-	-	0.036	-
HCM Control Delay (s)	35.5	12.5	-	-	9.1	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	50	43	28	138	52	14	10	25	86	47	15
Future Vol, veh/h	47	50	43	28	138	52	14	10	25	86	47	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	93	93	93	83	83	83	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	63	67	57	30	148	56	17	12	30	128	70	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	204	0	0	124	0	0	391	486	62	402	486	102
Stage 1	-	-	-	-	-	-	222	222	-	236	236	-
Stage 2	-	-	-	-	-	-	169	264	-	166	250	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1365	-	-	1461	-	-	543	480	990	533	480	933
Stage 1	-	-	-	-	-	-	760	718	-	746	708	-
Stage 2	-	-	-	-	-	-	816	689	-	820	699	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1365	-	-	1461	-	-	441	445	990	479	445	933
Mov Cap-2 Maneuver	-	-	-	-	-	-	441	445	-	479	445	-
Stage 1	-	-	-	-	-	-	722	682	-	709	692	-
Stage 2	-	-	-	-	-	-	699	673	-	742	664	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.6	1	11.5	18.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	617	1365	-	-	1461	-	-	491
HCM Lane V/C Ratio	0.096	0.046	-	-	0.021	-	-	0.45
HCM Control Delay (s)	11.5	7.8	0.1	-	7.5	0.1	-	18.2
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	2.3

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	641	61	8	614	25	4
Future Vol, veh/h	641	61	8	614	25	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	85	85	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	728	69	9	722	33	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	797	0	1503	399
Stage 1	-	-	-	-	763	-
Stage 2	-	-	-	-	740	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	823	-	123	601
Stage 1	-	-	-	-	422	-
Stage 2	-	-	-	-	471	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	823	-	122	601
Mov Cap-2 Maneuver	-	-	-	-	122	-
Stage 1	-	-	-	-	422	-
Stage 2	-	-	-	-	466	-

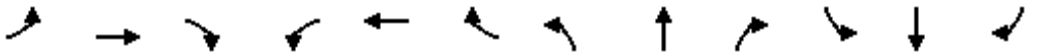
Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	41.3
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	137	-	-	823	-
HCM Lane V/C Ratio	0.282	-	-	0.011	-
HCM Control Delay (s)	41.3	-	-	9.4	-
HCM Lane LOS	E	-	-	A	-
HCM 95th %tile Q(veh)	1.1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	334	295	227	244	316	319	283	2371	307	162	1801	211
Future Volume (vph)	334	295	227	244	316	319	283	2371	307	162	1801	211
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	20.0	20.0	4.0	20.0	20.0
Minimum Split (s)	10.5	44.5	44.5	10.5	44.5	44.5	11.5	42.5	42.5	10.5	42.5	42.5
Total Split (s)	21.0	33.0	33.0	21.0	33.0	33.0	21.0	71.0	71.0	21.0	71.0	71.0
Total Split (%)	14.4%	22.6%	22.6%	14.4%	22.6%	22.6%	14.4%	48.6%	48.6%	14.4%	48.6%	48.6%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	5.5	5.5	5.5	3.0	5.5	5.5
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	6.5	6.5	5.0	6.5	6.5	7.5	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	16.0	23.8	23.8	14.9	22.7	22.7	14.7	70.9	70.9	12.4	66.2	66.2
Actuated g/C Ratio	0.11	0.16	0.16	0.10	0.16	0.16	0.10	0.49	0.49	0.08	0.45	0.45
v/c Ratio	1.01	0.58	0.65	0.74	0.61	0.88	0.85	0.99	0.37	0.57	0.81	0.26
Control Delay	112.4	60.4	27.6	76.7	61.8	55.2	86.0	52.9	12.7	71.8	38.4	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.4	60.4	27.6	76.7	61.8	55.2	86.0	52.9	12.7	71.8	38.4	3.8
LOS	F	E	C	E	E	E	F	D	B	E	D	A
Approach Delay		72.0			63.5			51.9			37.5	
Approach LOS		E			E			D			D	

Intersection Summary	
Cycle Length: 146	
Actuated Cycle Length: 146	
Offset: 54 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 51.6	Intersection LOS: D
Intersection Capacity Utilization 90.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Powers & Galley



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	334	295	227	244	316	319	283	2371	307	162	1801	211
Future Volume (veh/h)	334	295	227	244	316	319	283	2371	307	162	1801	211
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	380	335	0	257	333	0	292	2444	0	167	1857	218
Peak Hour Factor	0.88	0.88	0.88	0.95	0.95	0.95	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	485		307	412		320	2794		218	2556	794
Arrive On Green	0.11	0.14	0.00	0.09	0.12	0.00	0.09	0.55	0.00	0.06	0.50	0.50
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	380	335	0	257	333	0	292	2444	0	167	1857	218
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	16.0	13.1	0.0	10.7	13.3	0.0	12.2	60.7	0.0	6.9	41.7	11.6
Cycle Q Clear(g_c), s	16.0	13.1	0.0	10.7	13.3	0.0	12.2	60.7	0.0	6.9	41.7	11.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	379	485		307	412		320	2794		218	2556	794
V/C Ratio(X)	1.00	0.69		0.84	0.81		0.91	0.87		0.77	0.73	0.27
Avail Cap(c_a), veh/h	379	645		379	645		320	2794		379	2556	794
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	60.1	0.0	65.5	63.0	0.0	65.7	28.7	0.0	67.3	28.6	21.1
Incr Delay (d2), s/veh	47.1	2.0	0.0	12.8	4.3	0.0	29.4	4.2	0.0	5.5	1.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	6.1	0.0	5.3	6.3	0.0	6.7	25.3	0.0	3.2	17.3	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	112.1	62.1	0.0	78.2	67.2	0.0	95.1	32.9	0.0	72.9	30.5	22.0
LnGrp LOS	F	E		E	E		F	C		E	C	C
Approach Vol, veh/h		715	A		590	A		2736	A		2242	
Approach Delay, s/veh		88.7			72.0			39.5			32.8	
Approach LOS		F			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.2	87.4	18.0	26.4	21.0	80.6	21.0	23.4
Change Period (Y+Rc), s	5.0	7.5	5.0	6.5	7.5	7.5	5.0	6.5
Max Green Setting (Gmax), s	16.0	63.5	16.0	26.5	13.5	63.5	16.0	26.5
Max Q Clear Time (g_c+I1), s	8.9	62.7	12.7	15.1	14.2	43.7	18.0	15.3
Green Ext Time (p_c), s	0.3	0.8	0.3	1.6	0.0	14.4	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	45.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	17.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	592	129	56	732	123	77
Future Vol, veh/h	592	129	56	732	123	77
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	100	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	92	92	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	637	139	61	796	140	88

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	776	0	1555	637
Stage 1	-	-	-	-	637	-
Stage 2	-	-	-	-	918	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	840	-	~ 124	477
Stage 1	-	-	-	-	527	-
Stage 2	-	-	-	-	389	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	840	-	~ 115	477
Mov Cap-2 Maneuver	-	-	-	-	~ 115	-
Stage 1	-	-	-	-	527	-
Stage 2	-	-	-	-	361	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	143.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	115	477	-	-	840	-
HCM Lane V/C Ratio	1.215	0.183	-	-	0.072	-
HCM Control Delay (s)	224.3	14.2	-	-	9.6	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	9	0.7	-	-	0.2	-

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

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	122	11	12	130	88	13	36	47	102	16	19
Future Vol, veh/h	45	122	11	12	130	88	13	36	47	102	16	19
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	80	80	80	80	80	80	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	51	139	13	15	163	110	16	45	59	121	19	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	273	0	0	152	0	0	369	551	76	442	502	137
Stage 1	-	-	-	-	-	-	248	248	-	248	248	-
Stage 2	-	-	-	-	-	-	121	303	-	194	254	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1287	-	-	1426	-	-	562	441	970	499	470	886
Stage 1	-	-	-	-	-	-	734	700	-	734	700	-
Stage 2	-	-	-	-	-	-	870	662	-	789	696	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1287	-	-	1426	-	-	507	417	970	412	444	886
Mov Cap-2 Maneuver	-	-	-	-	-	-	507	417	-	412	444	-
Stage 1	-	-	-	-	-	-	702	670	-	702	691	-
Stage 2	-	-	-	-	-	-	814	653	-	662	666	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0.4	12.5	17.5
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	598	1287	-	-	1426	-	-	449
HCM Lane V/C Ratio	0.201	0.04	-	-	0.011	-	-	0.363
HCM Control Delay (s)	12.5	7.9	0.1	-	7.6	0	-	17.5
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	1.6

Intersection	
Int Delay, s/veh	7.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	704	60	26	818	61	33
Future Vol, veh/h	704	60	26	818	61	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	89	89	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	757	65	29	919	67	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	822	0	1767	411
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	977	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	805	-	83	591
Stage 1	-	-	-	-	409	-
Stage 2	-	-	-	-	364	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	805	-	80	591
Mov Cap-2 Maneuver	-	-	-	-	80	-
Stage 1	-	-	-	-	409	-
Stage 2	-	-	-	-	351	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	128.2
HCM LOS			F

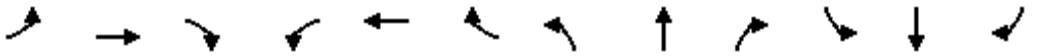
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	115	-	-	805	-
HCM Lane V/C Ratio	0.898	-	-	0.036	-
HCM Control Delay (s)	128.2	-	-	9.6	-
HCM Lane LOS	F	-	-	A	-
HCM 95th %tile Q(veh)	5.5	-	-	0.1	-

APPENDIX D. LONG TERM BACKGROUND LEVEL OF SERVICE WORKSHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	276	279	331	376	221	305	2165	314	425	3831	364
Future Volume (vph)	243	276	279	331	376	221	305	2165	314	425	3831	364
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	20.0	20.0	4.0	20.0	20.0
Minimum Split (s)	10.5	44.5	44.5	10.5	44.5	44.5	11.5	42.5	42.5	10.5	42.5	42.5
Total Split (s)	21.0	33.0	33.0	21.0	33.0	33.0	21.0	71.0	71.0	21.0	71.0	71.0
Total Split (%)	14.4%	22.6%	22.6%	14.4%	22.6%	22.6%	14.4%	48.6%	48.6%	14.4%	48.6%	48.6%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	5.5	5.5	5.5	3.0	5.5	5.5
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	6.5	6.5	5.0	6.5	6.5	7.5	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	15.3	22.5	22.5	16.0	23.2	23.2	16.9	63.5	63.5	20.0	64.2	64.2
Actuated g/C Ratio	0.10	0.15	0.15	0.11	0.16	0.16	0.12	0.43	0.43	0.14	0.44	0.44
v/c Ratio	0.79	0.59	0.85	0.99	0.75	0.64	0.85	1.08	0.43	0.93	1.77	0.44
Control Delay	79.7	61.5	50.9	107.8	67.3	27.1	82.1	82.7	14.0	88.8	375.1	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.7	61.5	50.9	107.8	67.3	27.1	82.1	82.7	14.0	88.8	375.1	9.4
LOS	E	E	D	F	E	C	F	F	B	F	F	A
Approach Delay		63.3			72.2			74.9			320.0	
Approach LOS		E			E			E			F	

Intersection Summary	
Cycle Length: 146	
Actuated Cycle Length: 146	
Offset: 54 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.77	
Intersection Signal Delay: 192.7	Intersection LOS: F
Intersection Capacity Utilization 122.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 1: Powers & Galley



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	243	276	279	331	376	221	305	2165	314	425	3831	364
Future Volume (veh/h)	243	276	279	331	376	221	305	2165	314	425	3831	364
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	283	321	0	372	422	0	335	2379	0	438	3949	375
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.91	0.91	0.91	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	331	451		379	500		320	2500		379	2500	776
Arrive On Green	0.10	0.13	0.00	0.11	0.14	0.00	0.09	0.49	0.00	0.11	0.49	0.49
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	283	321	0	372	422	0	335	2379	0	438	3949	375
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	11.8	12.7	0.0	15.7	16.9	0.0	13.5	65.0	0.0	16.0	71.5	23.1
Cycle Q Clear(g_c), s	11.8	12.7	0.0	15.7	16.9	0.0	13.5	65.0	0.0	16.0	71.5	23.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	331	451		379	500		320	2500		379	2500	776
V/C Ratio(X)	0.85	0.71		0.98	0.84		1.05	0.95		1.16	1.58	0.48
Avail Cap(c_a), veh/h	379	645		379	645		320	2500		379	2500	776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	61.2	0.0	64.9	61.2	0.0	66.3	35.6	0.0	65.0	37.3	24.9
Incr Delay (d2), s/veh	15.5	2.1	0.0	41.4	8.1	0.0	63.6	9.8	0.0	96.2	262.8	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	5.9	0.0	9.1	8.2	0.0	8.8	28.7	0.0	12.1	89.9	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.5	63.3	0.0	106.2	69.2	0.0	129.8	45.4	0.0	161.2	300.1	27.1
LnGrp LOS	F	E		F	E		F	D		F	F	C
Approach Vol, veh/h		604	A		794	A		2714	A		4762	
Approach Delay, s/veh		71.4			86.6			55.8			265.8	
Approach LOS		E			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	79.0	21.0	25.0	21.0	79.0	19.0	27.0
Change Period (Y+Rc), s	5.0	7.5	5.0	6.5	7.5	7.5	5.0	6.5
Max Green Setting (Gmax), s	16.0	63.5	16.0	26.5	13.5	63.5	16.0	26.5
Max Q Clear Time (g_c+I1), s	18.0	67.0	17.7	14.7	15.5	73.5	13.8	18.9
Green Ext Time (p_c), s	0.0	0.0	0.0	1.5	0.0	0.0	0.2	1.6

Intersection Summary	
HCM 6th Ctrl Delay	172.3
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	867	65	28	906	22	14
Future Vol, veh/h	867	65	28	906	22	14
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	100	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	84	84	72	72
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	942	71	33	1079	31	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1013	0	2087	942
Stage 1	-	-	-	-	942	-
Stage 2	-	-	-	-	1145	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	684	-	58	319
Stage 1	-	-	-	-	379	-
Stage 2	-	-	-	-	303	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	684	-	55	319
Mov Cap-2 Maneuver	-	-	-	-	55	-
Stage 1	-	-	-	-	379	-
Stage 2	-	-	-	-	288	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	87.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	55	319	-	-	684	-
HCM Lane V/C Ratio	0.556	0.061	-	-	0.049	-
HCM Control Delay (s)	132.8	17	-	-	10.5	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	2.2	0.2	-	-	0.2	-

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	73	43	28	199	52	14	10	25	86	47	15
Future Vol, veh/h	47	73	43	28	199	52	14	10	25	86	47	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	93	93	93	83	83	83	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	63	97	57	30	214	56	17	12	30	128	70	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	270	0	0	154	0	0	454	582	77	483	582	135
Stage 1	-	-	-	-	-	-	252	252	-	302	302	-
Stage 2	-	-	-	-	-	-	202	330	-	181	280	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1290	-	-	1424	-	-	489	423	968	467	423	889
Stage 1	-	-	-	-	-	-	730	697	-	682	663	-
Stage 2	-	-	-	-	-	-	781	644	-	803	678	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1290	-	-	1424	-	-	387	390	968	416	390	889
Mov Cap-2 Maneuver	-	-	-	-	-	-	387	390	-	416	390	-
Stage 1	-	-	-	-	-	-	691	659	-	645	646	-
Stage 2	-	-	-	-	-	-	662	628	-	723	641	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.3	0.8	12.2	21.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	559	1290	-	-	1424	-	-	430
HCM Lane V/C Ratio	0.106	0.049	-	-	0.021	-	-	0.514
HCM Control Delay (s)	12.2	7.9	0.1	-	7.6	0.1	-	21.9
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0.1	-	-	2.9

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	954	61	8	903	25	4
Future Vol, veh/h	954	61	8	903	25	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	85	85	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1084	69	9	1062	33	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1153	0	2199	577
Stage 1	-	-	-	-	1119	-
Stage 2	-	-	-	-	1080	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	604	-	43	461
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	325	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	604	-	42	461
Mov Cap-2 Maneuver	-	-	-	-	42	-
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	320	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	206.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	48	-	-	604	-
HCM Lane V/C Ratio	0.806	-	-	0.016	-
HCM Control Delay (s)	206.8	-	-	11.1	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	3.3	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	867	65	28	906	22	14
Future Volume (vph)	867	65	28	906	22	14
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases		4	8			2
Detector Phase	4	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	23.5	23.5	23.5
Total Split (s)	52.0	52.0	52.0	52.0	23.5	23.5
Total Split (%)	68.9%	68.9%	68.9%	68.9%	31.1%	31.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
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)	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	46.1	46.1	46.1	46.1	18.4	18.4
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.24	0.24
v/c Ratio	0.83	0.07	0.22	0.95	0.07	0.05
Control Delay	19.7	1.8	10.8	32.5	23.0	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.7	1.8	10.8	32.5	23.0	10.9
LOS	B	A	B	C	C	B
Approach Delay	18.5			31.9	18.4	
Approach LOS	B			C	B	

Intersection Summary	
Cycle Length: 75.5	
Actuated Cycle Length: 75.5	
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 25.3	Intersection LOS: C
Intersection Capacity Utilization 61.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Paonia & Galley

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	867	65	28	906	22	14
Future Volume (veh/h)	867	65	28	906	22	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	942	71	33	1079	31	19
Peak Hour Factor	0.92	0.92	0.84	0.84	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1123	952	203	1123	454	404
Arrive On Green	0.60	0.60	0.60	0.60	0.25	0.25
Sat Flow, veh/h	1870	1585	556	1870	1781	1585
Grp Volume(v), veh/h	942	71	33	1079	31	19
Grp Sat Flow(s),veh/h/ln	1870	1585	556	1870	1781	1585
Q Serve(g_s), s	30.8	1.4	3.9	41.4	1.0	0.7
Cycle Q Clear(g_c), s	30.8	1.4	34.7	41.4	1.0	0.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1123	952	203	1123	454	404
V/C Ratio(X)	0.84	0.07	0.16	0.96	0.07	0.05
Avail Cap(c_a), veh/h	1144	970	210	1144	454	404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.2	6.3	26.2	14.3	21.5	21.4
Incr Delay (d2), s/veh	5.6	0.0	0.4	17.8	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.3	0.4	0.5	19.7	0.4	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.8	6.4	26.5	32.1	21.8	21.6
LnGrp LOS	B	A	C	C	C	C
Approach Vol, veh/h	1013			1112	50	
Approach Delay, s/veh	17.0			31.9	21.7	
Approach LOS	B			C	C	

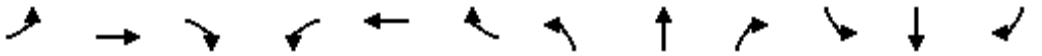
Timer - Assigned Phs		2		4		8
Phs Duration (G+Y+Rc), s		24.9		51.1		51.1
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		18.0		46.5		46.5
Max Q Clear Time (g_c+I1), s		3.0		32.8		43.4
Green Ext Time (p_c), s		0.1		6.4		2.2

Intersection Summary		
HCM 6th Ctrl Delay		24.8
HCM 6th LOS		C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	426	327	360	456	461	409	3425	444	234	2556	305
Future Volume (vph)	482	426	327	360	456	461	409	3425	444	234	2556	305
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	20.0	20.0	4.0	20.0	20.0
Minimum Split (s)	10.5	44.5	44.5	10.5	44.5	44.5	11.5	42.5	42.5	10.5	42.5	42.5
Total Split (s)	21.0	33.0	33.0	21.0	33.0	33.0	21.0	71.0	71.0	21.0	71.0	71.0
Total Split (%)	14.4%	22.6%	22.6%	14.4%	22.6%	22.6%	14.4%	48.6%	48.6%	14.4%	48.6%	48.6%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	5.5	5.5	5.5	3.0	5.5	5.5
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	6.5	6.5	5.0	6.5	6.5	7.5	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	16.0	26.5	26.5	16.0	26.5	26.5	13.5	65.0	65.0	14.5	63.5	63.5
Actuated g/C Ratio	0.11	0.18	0.18	0.11	0.18	0.18	0.09	0.45	0.45	0.10	0.43	0.43
v/c Ratio	1.46	0.75	0.89	1.01	0.75	1.16	1.33	1.56	0.57	0.70	1.19	0.36
Control Delay	263.6	65.0	56.6	111.9	64.7	131.1	217.6	285.1	21.6	75.2	128.2	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	263.6	65.0	56.6	111.9	64.7	131.1	217.6	285.1	21.6	75.2	128.2	3.7
LOS	F	E	E	F	E	F	F	F	C	E	F	A
Approach Delay		140.3			102.0			251.3			112.0	
Approach LOS		F			F			F			F	

Intersection Summary	
Cycle Length: 146	
Actuated Cycle Length: 146	
Offset: 54 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.56	
Intersection Signal Delay: 173.9	Intersection LOS: F
Intersection Capacity Utilization 124.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 1: Powers & Galley



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	482	426	327	360	456	461	409	3425	444	234	2556	305
Future Volume (veh/h)	482	426	327	360	456	461	409	3425	444	234	2556	305
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	548	484	0	379	480	0	422	3531	0	241	2635	314
Peak Hour Factor	0.88	0.88	0.88	0.95	0.95	0.95	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	556		379	556		320	2478		292	2349	729
Arrive On Green	0.11	0.16	0.00	0.11	0.16	0.00	0.09	0.49	0.00	0.08	0.46	0.46
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	548	484	0	379	480	0	422	3531	0	241	2635	314
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	16.0	19.4	0.0	16.0	19.2	0.0	13.5	70.9	0.0	10.0	67.2	19.5
Cycle Q Clear(g_c), s	16.0	19.4	0.0	16.0	19.2	0.0	13.5	70.9	0.0	10.0	67.2	19.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	379	556		379	556		320	2478		292	2349	729
V/C Ratio(X)	1.45	0.87		1.00	0.86		1.32	1.42		0.83	1.12	0.43
Avail Cap(c_a), veh/h	379	645		379	645		320	2478		379	2349	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	60.2	0.0	65.0	60.1	0.0	66.3	37.6	0.0	65.8	39.4	26.5
Incr Delay (d2), s/veh	215.5	11.2	0.0	46.4	10.5	0.0	164.6	193.6	0.0	11.1	61.1	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.4	9.6	0.0	9.5	9.5	0.0	13.3	73.3	0.0	4.9	40.9	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	280.5	71.3	0.0	111.4	70.6	0.0	230.9	231.2	0.0	76.9	100.5	28.4
LnGrp LOS	F	E		F	E		F	F		E	F	C
Approach Vol, veh/h		1032	A		859	A		3953	A		3190	
Approach Delay, s/veh		182.4			88.6			231.1			91.6	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.3	78.4	21.0	29.3	21.0	74.7	21.0	29.3
Change Period (Y+Rc), s	5.0	7.5	5.0	6.5	7.5	7.5	5.0	6.5
Max Green Setting (Gmax), s	16.0	63.5	16.0	26.5	13.5	63.5	16.0	26.5
Max Q Clear Time (g_c+I1), s	12.0	72.9	18.0	21.4	15.5	69.2	18.0	21.2
Green Ext Time (p_c), s	0.3	0.0	0.0	1.4	0.0	0.0	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	162.7
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	79.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	932	129	56	1108	123	77
Future Vol, veh/h	932	129	56	1108	123	77
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	100	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	92	92	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1002	139	61	1204	140	88

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1141	0	2328	1002
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	1326	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	612	-	~ 41	294
Stage 1	-	-	-	-	355	-
Stage 2	-	-	-	-	248	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	612	-	~ 37	294
Mov Cap-2 Maneuver	-	-	-	-	~ 37	-
Stage 1	-	-	-	-	355	-
Stage 2	-	-	-	-	223	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	$ 914.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	37	294	-	-	612	-
HCM Lane V/C Ratio	3.778	0.298	-	-	0.099	-
HCM Control Delay (s)	$ 1472.9	22.4	-	-	11.5	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	16.1	1.2	-	-	0.3	-

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

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	177	11	12	188	88	13	36	47	102	16	19
Future Vol, veh/h	45	177	11	12	188	88	13	36	47	102	16	19
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	80	80	80	80	80	80	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	51	201	13	15	235	110	16	45	59	121	19	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	345	0	0	214	0	0	467	685	107	545	636	173
Stage 1	-	-	-	-	-	-	310	310	-	320	320	-
Stage 2	-	-	-	-	-	-	157	375	-	225	316	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1211	-	-	1353	-	-	479	369	926	421	394	840
Stage 1	-	-	-	-	-	-	675	658	-	666	651	-
Stage 2	-	-	-	-	-	-	829	615	-	757	654	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1211	-	-	1353	-	-	427	346	926	339	370	840
Mov Cap-2 Maneuver	-	-	-	-	-	-	427	346	-	339	370	-
Stage 1	-	-	-	-	-	-	643	626	-	634	642	-
Stage 2	-	-	-	-	-	-	772	606	-	626	623	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	0.3	14	21.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	518	1211	-	-	1353	-	-	374
HCM Lane V/C Ratio	0.232	0.042	-	-	0.011	-	-	0.436
HCM Control Delay (s)	14	8.1	0.1	-	7.7	0	-	21.9
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0	-	-	2.1

Intersection	
Int Delay, s/veh	44.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1044	60	26	1216	61	33
Future Vol, veh/h	1044	60	26	1216	61	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	89	89	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1123	65	29	1366	67	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1188	0	2580	594
Stage 1	-	-	-	-	1156	-
Stage 2	-	-	-	-	1424	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	586	-	~ 24	449
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	221	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	586	-	~ 23	449
Mov Cap-2 Maneuver	-	-	-	-	~ 23	-
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	210	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	$ 1165.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	34	-	-	586	-
HCM Lane V/C Ratio	3.038	-	-	0.05	-
HCM Control Delay (s)	$ 1165.3	-	-	11.5	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	11.9	-	-	0.2	-

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	932	129	56	1108	123	77
Future Volume (vph)	932	129	56	1108	123	77
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases		4	8			2
Detector Phase	4	4	8	8	2	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	23.5	23.5	23.5
Total Split (s)	66.0	66.0	66.0	66.0	24.0	24.0
Total Split (%)	73.3%	73.3%	73.3%	73.3%	26.7%	26.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
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)	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	60.5	60.5	60.5	60.5	18.5	18.5
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.21	0.21
v/c Ratio	0.80	0.13	0.34	0.96	0.39	0.22
Control Delay	16.8	1.2	12.6	33.3	34.5	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	1.2	12.6	33.3	34.5	8.5
LOS	B	A	B	C	C	A
Approach Delay	14.9			32.3	24.5	
Approach LOS	B			C	C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 24.1	Intersection LOS: C
Intersection Capacity Utilization 74.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Paonia & Galley

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	932	129	56	1108	123	77
Future Volume (veh/h)	932	129	56	1108	123	77
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1002	139	61	1204	140	88
Peak Hour Factor	0.93	0.93	0.92	0.92	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1241	1052	216	1241	382	340
Arrive On Green	0.66	0.66	0.66	0.66	0.21	0.21
Sat Flow, veh/h	1870	1585	493	1870	1781	1585
Grp Volume(v), veh/h	1002	139	61	1204	140	88
Grp Sat Flow(s),veh/h/ln	1870	1585	493	1870	1781	1585
Q Serve(g_s), s	34.9	2.9	9.2	54.7	6.0	4.2
Cycle Q Clear(g_c), s	34.9	2.9	44.1	54.7	6.0	4.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1241	1052	216	1241	382	340
V/C Ratio(X)	0.81	0.13	0.28	0.97	0.37	0.26
Avail Cap(c_a), veh/h	1257	1066	220	1257	382	340
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.0	5.6	27.0	14.3	30.2	29.4
Incr Delay (d2), s/veh	4.0	0.1	0.7	18.5	2.7	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.3	0.9	1.1	25.0	2.8	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.9	5.6	27.7	32.8	32.9	31.3
LnGrp LOS	B	A	C	C	C	C
Approach Vol, veh/h	1141			1265	228	
Approach Delay, s/veh	13.8			32.5	32.2	
Approach LOS	B			C	C	

Timer - Assigned Phs		2		4		8
Phs Duration (G+Y+Rc), s		24.8		65.2		65.2
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		18.5		60.5		60.5
Max Q Clear Time (g_c+I1), s		8.0		36.9		56.7
Green Ext Time (p_c), s		0.5		9.7		3.0

Intersection Summary		
HCM 6th Ctrl Delay		24.4
HCM 6th LOS		C

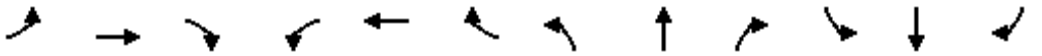
APPENDIX E. SHORT TERM TOTAL LEVEL OF SERVICE WORKSHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	202	193	256	297	165	211	1497	223	305	2761	252
Future Volume (vph)	168	202	193	256	297	165	211	1497	223	305	2761	252
Lane Group Flow (vph)	195	235	224	288	334	185	232	1645	245	314	2846	260
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	20.0	20.0	4.0	20.0	20.0
Minimum Split (s)	10.5	44.5	44.5	10.5	44.5	44.5	11.5	42.5	42.5	10.5	42.5	42.5
Total Split (s)	21.0	33.0	33.0	21.0	33.0	33.0	21.0	71.0	71.0	21.0	71.0	71.0
Total Split (%)	14.4%	22.6%	22.6%	14.4%	22.6%	22.6%	14.4%	48.6%	48.6%	14.4%	48.6%	48.6%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	5.5	5.5	5.5	3.0	5.5	5.5
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	6.5	6.5	5.0	6.5	6.5	7.5	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.62	0.55	0.67	0.80	0.70	0.50	0.69	0.66	0.28	0.75	1.13	0.28
Control Delay	72.6	64.4	27.3	80.2	68.1	12.7	74.8	31.1	6.8	74.0	100.1	3.5
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	72.6	64.4	27.3	80.2	68.1	12.7	74.8	31.1	6.8	74.0	100.1	3.5
Queue Length 50th (ft)	93	112	53	139	162	4	111	436	25	149	~1165	0
Queue Length 95th (ft)	127	142	123	#191	205	70	158	532	85	#215	#1335	53
Internal Link Dist (ft)		926			325			844			2578	
Turn Bay Length (ft)	150			175			600			600		575
Base Capacity (vph)	376	642	421	376	642	434	347	2481	872	423	2512	913
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.37	0.53	0.77	0.52	0.43	0.67	0.66	0.28	0.74	1.13	0.28

Intersection Summary

Cycle Length: 146
Actuated Cycle Length: 146
Offset: 117.5 (80%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Powers & Galley



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	202	193	256	297	165	211	1497	223	305	2761	252
Future Volume (veh/h)	168	202	193	256	297	165	211	1497	223	305	2761	252
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	195	235	0	288	334	0	232	1645	0	314	2846	260
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.91	0.91	0.91	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	246	320		336	413		279	2779		360	2810	872
Arrive On Green	0.07	0.09	0.00	0.10	0.12	0.00	0.08	0.54	0.00	0.10	0.55	0.55
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	195	235	0	288	334	0	232	1645	0	314	2846	260
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	8.1	9.4	0.0	12.0	13.4	0.0	9.7	31.6	0.0	13.1	80.3	12.9
Cycle Q Clear(g_c), s	8.1	9.4	0.0	12.0	13.4	0.0	9.7	31.6	0.0	13.1	80.3	12.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	320		336	413		279	2779		360	2810	872
V/C Ratio(X)	0.79	0.73		0.86	0.81		0.83	0.59		0.87	1.01	0.30
Avail Cap(c_a), veh/h	379	645		379	645		320	2779		379	2810	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.7	64.7	0.0	64.9	63.0	0.0	66.1	22.4	0.0	64.5	32.8	17.7
Incr Delay (d2), s/veh	6.2	3.3	0.0	16.1	4.3	0.0	15.1	0.9	0.0	19.0	20.2	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.4	0.0	6.0	6.3	0.0	4.9	12.9	0.0	6.7	37.2	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.0	68.0	0.0	81.0	67.3	0.0	81.2	23.3	0.0	83.4	53.0	18.5
LnGrp LOS	E	E		F	E		F	C		F	F	B
Approach Vol, veh/h		430	A		622	A		1877	A		3420	
Approach Delay, s/veh		70.2			73.6			30.5			53.2	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.2	87.0	19.2	19.7	19.3	87.8	15.4	23.4
Change Period (Y+Rc), s	5.0	7.5	5.0	6.5	7.5	7.5	5.0	6.5
Max Green Setting (Gmax), s	16.0	63.5	16.0	26.5	13.5	63.5	16.0	26.5
Max Q Clear Time (g_c+I1), s	15.1	33.6	14.0	11.4	11.7	82.3	10.1	15.4
Green Ext Time (p_c), s	0.1	15.7	0.2	1.2	0.1	0.0	0.3	1.6

Intersection Summary	
HCM 6th Ctrl Delay	49.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	554	65	28	614	7	22	2	14	25	4	82
Future Vol, veh/h	28	554	65	28	614	7	22	2	14	25	4	82
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	-	0	100	-	-	0	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	84	84	92	72	92	72	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	602	71	33	731	8	31	2	19	27	4	89

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	739	0	0	673	0	0	1510	1467	602	1509	1534	735
Stage 1	-	-	-	-	-	-	662	662	-	801	801	-
Stage 2	-	-	-	-	-	-	848	805	-	708	733	-
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	867	-	-	918	-	-	99	128	500	99	116	420
Stage 1	-	-	-	-	-	-	451	459	-	378	397	-
Stage 2	-	-	-	-	-	-	356	395	-	426	426	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	867	-	-	918	-	-	72	119	500	89	108	420
Mov Cap-2 Maneuver	-	-	-	-	-	-	72	119	-	89	108	-
Stage 1	-	-	-	-	-	-	435	443	-	365	383	-
Stage 2	-	-	-	-	-	-	267	381	-	393	411	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.4	57.6	28
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	72	378	867	-	-	918	-	-	89	370
HCM Lane V/C Ratio	0.424	0.057	0.035	-	-	0.036	-	-	0.305	0.253
HCM Control Delay (s)	87.7	15.1	9.3	-	-	9.1	-	-	62.3	18
HCM Lane LOS	F	C	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	1.7	0.2	0.1	-	-	0.1	-	-	1.1	1

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	50	52	35	138	46	30	12	25	86	47	15
Future Vol, veh/h	47	50	52	35	138	46	30	12	25	86	47	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	93	93	93	83	83	83	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	63	67	69	38	148	49	36	14	30	128	70	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	197	0	0	136	0	0	413	501	68	416	511	99
Stage 1	-	-	-	-	-	-	228	228	-	249	249	-
Stage 2	-	-	-	-	-	-	185	273	-	167	262	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1373	-	-	1446	-	-	523	471	981	521	464	937
Stage 1	-	-	-	-	-	-	754	714	-	733	699	-
Stage 2	-	-	-	-	-	-	799	683	-	818	690	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1373	-	-	1446	-	-	420	434	981	463	428	937
Mov Cap-2 Maneuver	-	-	-	-	-	-	420	434	-	463	428	-
Stage 1	-	-	-	-	-	-	716	678	-	696	678	-
Stage 2	-	-	-	-	-	-	678	663	-	737	656	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.5	1.3	12.9	19
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	538	1373	-	-	1446	-	-	475
HCM Lane V/C Ratio	0.15	0.046	-	-	0.026	-	-	0.465
HCM Control Delay (s)	12.9	7.7	0.1	-	7.6	0.1	-	19
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.1	-	-	2.4

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	669	61	8	693	25	4
Future Vol, veh/h	669	61	8	693	25	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	85	85	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	760	69	9	815	33	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	829	0	1628	415
Stage 1	-	-	-	-	795	-
Stage 2	-	-	-	-	833	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	800	-	102	587
Stage 1	-	-	-	-	406	-
Stage 2	-	-	-	-	426	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	800	-	101	587
Mov Cap-2 Maneuver	-	-	-	-	101	-
Stage 1	-	-	-	-	406	-
Stage 2	-	-	-	-	421	-

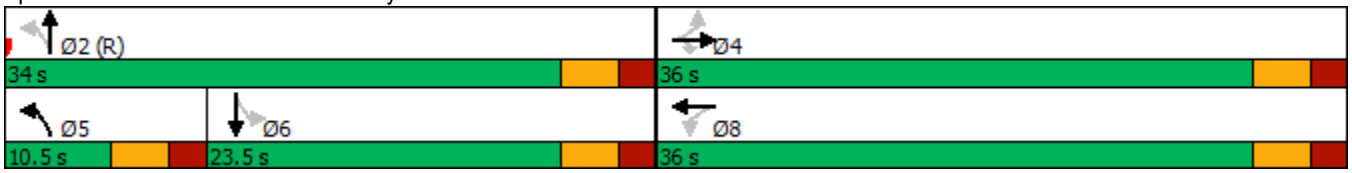
Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	52
HCM LOS			F

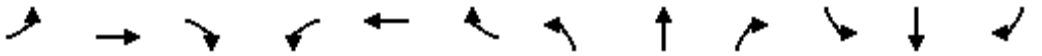
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	114	-	-	800	-
HCM Lane V/C Ratio	0.339	-	-	0.012	-
HCM Control Delay (s)	52	-	-	9.6	-
HCM Lane LOS	F	-	-	A	-
HCM 95th %tile Q(veh)	1.3	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	28	554	65	28	614	22	2	25	4
Future Volume (vph)	28	554	65	28	614	22	2	25	4
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4			8	5	2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	8	8	5	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	23.5	23.5	10.5	23.5	23.5	23.5
Total Split (s)	36.0	36.0	36.0	36.0	36.0	10.5	34.0	23.5	23.5
Total Split (%)	51.4%	51.4%	51.4%	51.4%	51.4%	15.0%	48.6%	33.6%	33.6%
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	Lag
Lead-Lag Optimize?						Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	Max	Max
Act Effct Green (s)	30.1	30.1	30.1	30.1	30.1	29.9	29.9	25.7	25.7
Actuated g/C Ratio	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.37	0.37
v/c Ratio	0.28	0.75	0.10	0.19	0.92	0.06	0.03	0.05	0.15
Control Delay	21.0	23.6	1.5	15.3	38.4	12.6	6.4	18.4	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	23.6	1.5	15.3	38.4	12.6	6.4	18.4	6.3
LOS	C	C	A	B	D	B	A	B	A
Approach Delay		21.3			37.4		10.1		9.0
Approach LOS		C			D		B		A

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 27.6	Intersection LOS: C
Intersection Capacity Utilization 49.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Paonia & Galley





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	554	65	28	614	7	22	2	14	25	4	82
Future Volume (veh/h)	28	554	65	28	614	7	22	2	14	25	4	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	602	71	33	731	8	31	2	19	27	4	89
Peak Hour Factor	0.92	0.92	0.92	0.84	0.84	0.92	0.72	0.92	0.72	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	822	697	236	811	9	514	64	608	540	22	479
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.03	0.42	0.42	0.31	0.31	0.31
Sat Flow, veh/h	720	1870	1585	765	1847	20	1781	153	1455	1391	69	1527
Grp Volume(v), veh/h	30	602	71	33	0	739	31	0	21	27	0	93
Grp Sat Flow(s),veh/h/ln	720	1870	1585	765	0	1867	1781	0	1608	1391	0	1596
Q Serve(g_s), s	2.8	18.6	1.8	2.6	0.0	25.7	0.8	0.0	0.5	1.0	0.0	3.0
Cycle Q Clear(g_c), s	28.5	18.6	1.8	21.2	0.0	25.7	0.8	0.0	0.5	1.0	0.0	3.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.90	1.00		0.96
Lane Grp Cap(c), veh/h	155	822	697	236	0	820	514	0	672	540	0	501
V/C Ratio(X)	0.19	0.73	0.10	0.14	0.00	0.90	0.06	0.00	0.03	0.05	0.00	0.19
Avail Cap(c_a), veh/h	157	828	702	238	0	827	597	0	672	540	0	501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.4	16.2	11.5	25.0	0.0	18.2	14.1	0.0	12.0	16.8	0.0	17.5
Incr Delay (d2), s/veh	0.6	3.3	0.1	0.3	0.0	12.9	0.0	0.0	0.1	0.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	7.9	0.6	0.5	0.0	12.8	0.3	0.0	0.2	0.3	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.0	19.6	11.6	25.3	0.0	31.1	14.2	0.0	12.1	17.0	0.0	18.3
LnGrp LOS	C	B	B	C	A	C	B	A	B	B	A	B
Approach Vol, veh/h		703			772			52			120	
Approach Delay, s/veh		19.3			30.9			13.3			18.0	
Approach LOS		B			C			B			B	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		34.2		35.8	7.3	27.0		35.8				
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s		29.0		31.0	5.5	18.5		31.0				
Max Q Clear Time (g_c+I1), s		2.5		30.5	2.8	5.0		27.7				
Green Ext Time (p_c), s		0.1		0.2	0.0	0.4		1.6				

Intersection Summary												
HCM 6th Ctrl Delay			24.4									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	334	332	227	273	338	325	283	2371	328	194	1793	211
Future Volume (vph)	334	332	227	273	338	325	283	2371	328	194	1793	211
Lane Group Flow (vph)	388	386	264	307	380	365	311	2605	360	200	1848	218
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	20.0	20.0	4.0	20.0	20.0
Minimum Split (s)	10.5	44.5	44.5	10.5	44.5	44.5	11.5	45.5	45.5	10.5	42.5	42.5
Total Split (s)	21.0	33.0	33.0	21.0	33.0	33.0	21.0	71.0	71.0	21.0	71.0	71.0
Total Split (%)	14.4%	22.6%	22.6%	14.4%	22.6%	22.6%	14.4%	48.6%	48.6%	14.4%	48.6%	48.6%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	5.5	5.5	5.5	3.0	5.5	5.5
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	6.5	6.5	5.0	6.5	6.5	7.5	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	1.03	0.64	0.65	0.84	0.65	0.92	0.91	1.10	0.43	0.63	0.82	0.27
Control Delay	116.9	61.7	28.7	83.7	61.9	62.0	94.5	87.7	14.7	72.9	39.7	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.9	61.7	28.7	83.7	61.9	62.0	94.5	87.7	14.7	72.9	39.7	3.8
Queue Length 50th (ft)	~203	180	85	149	176	201	154	~1055	110	95	564	0
Queue Length 95th (ft)	#288	224	168	#216	230	#371	#255	#1166	202	137	630	49
Internal Link Dist (ft)		926			325			844			2578	
Turn Bay Length (ft)	150			175			600			600		575
Base Capacity (vph)	376	642	422	376	642	418	342	2376	835	376	2249	821
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.60	0.63	0.82	0.59	0.87	0.91	1.10	0.43	0.53	0.82	0.27

Intersection Summary

Cycle Length: 146
Actuated Cycle Length: 146
Offset: 54 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Powers & Galley

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	334	332	227	273	338	325	283	2371	328	194	1793	211
Future Volume (veh/h)	334	332	227	273	338	325	283	2371	328	194	1793	211
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	388	386	0	307	380	0	311	2605	0	200	1848	218
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.91	0.91	0.91	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	485		353	459		320	2676		251	2488	772
Arrive On Green	0.11	0.14	0.00	0.10	0.13	0.00	0.09	0.52	0.00	0.07	0.49	0.49
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	388	386	0	307	380	0	311	2605	0	200	1848	218
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	16.0	15.4	0.0	12.8	15.2	0.0	13.1	72.4	0.0	8.3	42.5	11.9
Cycle Q Clear(g_c), s	16.0	15.4	0.0	12.8	15.2	0.0	13.1	72.4	0.0	8.3	42.5	11.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	379	485		353	459		320	2676		251	2488	772
V/C Ratio(X)	1.02	0.80		0.87	0.83		0.97	0.97		0.80	0.74	0.28
Avail Cap(c_a), veh/h	379	645		379	645		320	2676		379	2488	772
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	61.1	0.0	64.6	62.0	0.0	66.1	33.7	0.0	66.6	30.1	22.2
Incr Delay (d2), s/veh	52.7	5.1	0.0	18.2	6.2	0.0	43.0	12.2	0.0	6.8	2.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	7.3	0.0	6.5	7.3	0.0	7.7	32.1	0.0	3.9	17.8	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	117.7	66.1	0.0	82.7	68.2	0.0	109.1	45.9	0.0	73.4	32.1	23.2
LnGrp LOS	F	E		F	E		F	D		E	C	C
Approach Vol, veh/h		774	A		687	A		2916	A		2266	
Approach Delay, s/veh		92.0			74.7			52.7			34.9	
Approach LOS		F			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.6	84.0	19.9	26.4	21.0	78.6	21.0	25.4
Change Period (Y+Rc), s	5.0	7.5	5.0	6.5	7.5	7.5	5.0	6.5
Max Green Setting (Gmax), s	16.0	63.5	16.0	26.5	13.5	63.5	16.0	26.5
Max Q Clear Time (g_c+I1), s	10.3	74.4	14.8	17.4	15.1	44.5	18.0	17.2
Green Ext Time (p_c), s	0.3	0.0	0.1	1.6	0.0	13.9	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	53.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	151.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	90	592	129	56	727	25	123	3	77	14	2	62
Future Vol, veh/h	90	592	129	56	727	25	123	3	77	14	2	62
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	-	0	100	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	84	84	92	72	92	72	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	98	643	140	67	865	27	171	3	107	15	2	67

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	892	0	0	783	0	0	1886	1865	643	1977	1992	879
Stage 1	-	-	-	-	-	-	839	839	-	1013	1013	-
Stage 2	-	-	-	-	-	-	1047	1026	-	964	979	-
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	760	-	-	835	-	-	~ 54	73	473	46	61	347
Stage 1	-	-	-	-	-	-	360	381	-	288	316	-
Stage 2	-	-	-	-	-	-	276	312	-	307	328	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	760	-	-	835	-	-	~ 36	58	473	29	49	347
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 36	58	-	29	49	-
Stage 1	-	-	-	-	-	-	314	332	-	251	291	-
Stage 2	-	-	-	-	-	-	203	287	-	205	286	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.7	$ 1167.3	57.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	36	390	760	-	-	835	-	-	29	292
HCM Lane V/C Ratio	4.745	0.283	0.129	-	-	0.08	-	-	0.525	0.238
HCM Control Delay (s)	$ 1908.8	17.8	10.4	-	-	9.7	-	-	224.1	21.1
HCM Lane LOS	F	C	B	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	20	1.1	0.4	-	-	0.3	-	-	1.7	0.9

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

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	122	42	23	130	79	24	31	44	102	19	19
Future Vol, veh/h	45	122	42	23	130	79	24	31	44	102	19	19
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	93	93	93	83	83	83	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	60	163	56	25	140	85	29	37	53	152	28	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	225	0	0	219	0	0	445	586	110	453	572	113
Stage 1	-	-	-	-	-	-	311	311	-	233	233	-
Stage 2	-	-	-	-	-	-	134	275	-	220	339	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1341	-	-	1348	-	-	497	421	922	490	429	918
Stage 1	-	-	-	-	-	-	674	657	-	749	711	-
Stage 2	-	-	-	-	-	-	855	681	-	762	638	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1341	-	-	1348	-	-	431	391	922	405	399	918
Mov Cap-2 Maneuver	-	-	-	-	-	-	431	391	-	405	399	-
Stage 1	-	-	-	-	-	-	640	623	-	711	696	-
Stage 2	-	-	-	-	-	-	778	667	-	641	605	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0.8	13.5	20.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	542	1341	-	-	1348	-	-	437
HCM Lane V/C Ratio	0.22	0.045	-	-	0.018	-	-	0.478
HCM Control Delay (s)	13.5	7.8	0.1	-	7.7	0.1	-	20.6
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.8	0.1	-	-	0.1	-	-	2.5

Intersection	
Int Delay, s/veh	23.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	794	60	26	875	61	33
Future Vol, veh/h	794	60	26	875	61	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	85	85	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	902	68	31	1029	81	44

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	970	0	2027	485
Stage 1	-	-	-	-	936	-
Stage 2	-	-	-	-	1091	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	708	-	~ 56	529
Stage 1	-	-	-	-	343	-
Stage 2	-	-	-	-	321	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	708	-	~ 54	529
Mov Cap-2 Maneuver	-	-	-	-	~ 54	-
Stage 1	-	-	-	-	343	-
Stage 2	-	-	-	-	307	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	$ 406
HCM LOS			F

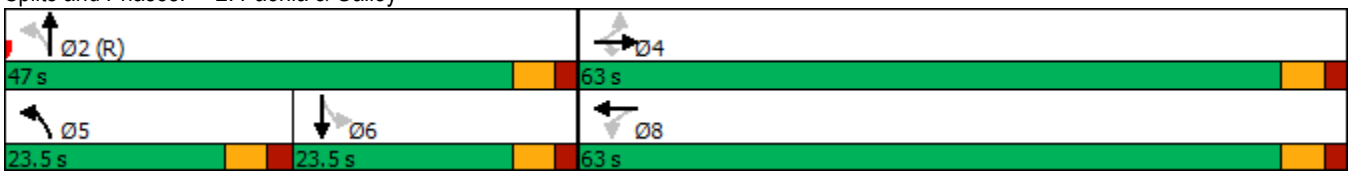
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	79	-	-	708	-
HCM Lane V/C Ratio	1.586	-	-	0.043	-
HCM Control Delay (s)	$ 406	-	-	10.3	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	10.3	-	-	0.1	-

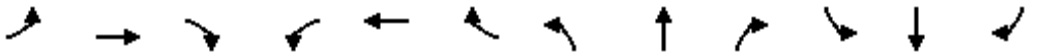
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	90	592	129	56	727	123	3	14	2
Future Volume (vph)	90	592	129	56	727	123	3	14	2
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4			8	5	2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	8	8	5	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
Total Split (s)	63.0	63.0	63.0	63.0	63.0	23.5	47.0	23.5	23.5
Total Split (%)	57.3%	57.3%	57.3%	57.3%	57.3%	21.4%	42.7%	21.4%	21.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag						Lead		Lag	Lag
Lead-Lag Optimize?						Yes		Yes	Yes
Recall Mode	None	None	None	None	None	Max	C-Max	Max	Max
Act Effct Green (s)	57.5	57.5	57.5	57.5	57.5	41.5	41.5	18.0	18.0
Actuated g/C Ratio	0.52	0.52	0.52	0.52	0.52	0.38	0.38	0.16	0.16
v/c Ratio	1.46	0.66	0.16	0.28	0.92	0.34	0.17	0.07	0.22
Control Delay	299.7	23.2	2.7	18.7	40.3	25.8	5.3	40.1	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	299.7	23.2	2.7	18.7	40.3	25.8	5.3	40.1	12.2
LOS	F	C	A	B	D	C	A	D	B
Approach Delay		50.7			38.8		17.8		17.2
Approach LOS		D			D		B		B

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.46	
Intersection Signal Delay: 40.1	Intersection LOS: D
Intersection Capacity Utilization 72.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Paonia & Galley





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	592	129	56	727	25	123	3	77	14	2	62
Future Volume (veh/h)	90	592	129	56	727	25	123	3	77	14	2	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	643	140	67	865	27	171	3	107	15	2	67
Peak Hour Factor	0.92	0.92	0.92	0.84	0.84	0.92	0.72	0.92	0.72	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	978	829	254	943	29	524	16	584	275	8	253
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.16	0.38	0.38	0.16	0.16	0.16
Sat Flow, veh/h	624	1870	1585	691	1804	56	1781	43	1548	1283	46	1546
Grp Volume(v), veh/h	98	643	140	67	0	892	171	0	110	15	0	69
Grp Sat Flow(s),veh/h/ln	624	1870	1585	691	0	1860	1781	0	1592	1283	0	1592
Q Serve(g_s), s	9.1	27.5	5.1	8.6	0.0	48.4	7.6	0.0	5.1	1.1	0.0	4.2
Cycle Q Clear(g_c), s	57.5	27.5	5.1	36.1	0.0	48.4	7.6	0.0	5.1	1.1	0.0	4.2
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.97	1.00		0.97
Lane Grp Cap(c), veh/h	117	978	829	254	0	972	524	0	600	275	0	261
V/C Ratio(X)	0.84	0.66	0.17	0.26	0.00	0.92	0.33	0.00	0.18	0.05	0.00	0.26
Avail Cap(c_a), veh/h	117	978	829	254	0	972	524	0	600	275	0	261
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.6	19.1	13.7	32.2	0.0	24.1	26.3	0.0	22.9	38.9	0.0	40.2
Incr Delay (d2), s/veh	38.3	1.6	0.1	0.5	0.0	13.2	1.7	0.0	0.7	0.4	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	11.9	1.8	1.5	0.0	23.6	3.5	0.0	2.0	0.4	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.9	20.7	13.8	32.8	0.0	37.3	27.9	0.0	23.6	39.3	0.0	42.7
LnGrp LOS	F	C	B	C	A	D	C	A	C	D	A	D
Approach Vol, veh/h		881			959			281			84	
Approach Delay, s/veh		27.4			37.0			26.2			42.1	
Approach LOS		C			D			C			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		47.0		63.0	23.5	23.5		63.0				
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		41.5		57.5	18.0	18.0		57.5				
Max Q Clear Time (g_c+I1), s		7.1		59.5	9.6	6.2		50.4				
Green Ext Time (p_c), s		0.7		0.0	0.3	0.2		3.9				

Intersection Summary												
HCM 6th Ctrl Delay			32.0									
HCM 6th LOS			C									

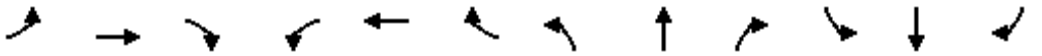
APPENDIX F. LONG TERM TOTAL LEVEL OF SERVICE WORKSHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	287	279	361	413	233	305	2165	320	436	3827	364
Future Volume (vph)	243	287	279	361	413	233	305	2165	320	436	3827	364
Lane Group Flow (vph)	283	334	324	406	464	262	335	2379	352	449	3945	375
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	20.0	20.0	4.0	20.0	20.0
Minimum Split (s)	10.5	44.5	44.5	10.5	44.5	44.5	11.5	42.5	42.5	10.5	42.5	42.5
Total Split (s)	21.0	33.0	33.0	21.0	33.0	33.0	21.0	71.0	71.0	21.0	71.0	71.0
Total Split (%)	14.4%	22.6%	22.6%	14.4%	22.6%	22.6%	14.4%	48.6%	48.6%	14.4%	48.6%	48.6%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	5.5	5.5	5.5	3.0	5.5	5.5
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	6.5	6.5	5.0	6.5	6.5	7.5	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.79	0.58	0.84	1.08	0.79	0.66	0.88	1.08	0.44	1.01	1.78	0.44
Control Delay	79.7	60.6	48.2	128.6	68.6	29.0	87.1	82.7	14.0	106.5	380.0	9.3
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	79.7	60.6	48.2	128.6	68.6	29.0	87.1	82.7	14.0	106.5	380.0	9.3
Queue Length 50th (ft)	137	153	156	~221	222	85	~169	~920	98	~258	~2052	59
Queue Length 95th (ft)	178	194	252	#325	282	181	#282	#1006	183	#378	#2100	142
Internal Link Dist (ft)		926			325			844			2578	
Turn Bay Length (ft)	150			175			600			600		575
Base Capacity (vph)	376	642	417	376	642	421	381	2211	798	445	2218	844
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.52	0.78	1.08	0.72	0.62	0.88	1.08	0.44	1.01	1.78	0.44

Intersection Summary

Cycle Length: 146
Actuated Cycle Length: 146
Offset: 54 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Powers & Galley



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	243	287	279	361	413	233	305	2165	320	436	3827	364
Future Volume (veh/h)	243	287	279	361	413	233	305	2165	320	436	3827	364
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	283	334	0	406	464	0	335	2379	0	449	3945	375
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.91	0.91	0.91	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	331	489		379	538		320	2444		379	2444	759
Arrive On Green	0.10	0.14	0.00	0.11	0.15	0.00	0.09	0.48	0.00	0.11	0.48	0.48
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	283	334	0	406	464	0	335	2379	0	449	3945	375
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	11.8	13.1	0.0	16.0	18.6	0.0	13.5	66.4	0.0	16.0	69.9	23.6
Cycle Q Clear(g_c), s	11.8	13.1	0.0	16.0	18.6	0.0	13.5	66.4	0.0	16.0	69.9	23.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	331	489		379	538		320	2444		379	2444	759
V/C Ratio(X)	0.85	0.68		1.07	0.86		1.05	0.97		1.19	1.61	0.49
Avail Cap(c_a), veh/h	379	645		379	645		320	2444		379	2444	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	59.9	0.0	65.0	60.5	0.0	66.3	37.1	0.0	65.0	38.1	26.0
Incr Delay (d2), s/veh	15.5	1.9	0.0	66.8	10.1	0.0	63.6	12.9	0.0	107.2	278.2	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	6.0	0.0	10.6	9.2	0.0	8.8	30.1	0.0	12.7	91.5	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.5	61.8	0.0	131.8	70.5	0.0	129.8	50.1	0.0	172.2	316.2	28.3
LnGrp LOS	F	E		F	E		F	D		F	F	C
Approach Vol, veh/h		617	A		870	A		2714	A		4769	
Approach Delay, s/veh		70.4			99.1			59.9			280.0	
Approach LOS		E			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	77.4	21.0	26.6	21.0	77.4	19.0	28.6
Change Period (Y+Rc), s	5.0	7.5	5.0	6.5	7.5	7.5	5.0	6.5
Max Green Setting (Gmax), s	16.0	63.5	16.0	26.5	13.5	63.5	16.0	26.5
Max Q Clear Time (g_c+I1), s	18.0	68.4	18.0	15.1	15.5	71.9	13.8	20.6
Green Ext Time (p_c), s	0.0	0.0	0.0	1.6	0.0	0.0	0.2	1.5

Intersection Summary	
HCM 6th Ctrl Delay	181.5
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	17.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑		↖	↳		↖	↳	
Traffic Vol, veh/h	28	867	65	28	903	7	22	2	14	25	4	82
Future Vol, veh/h	28	867	65	28	903	7	22	2	14	25	4	82
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	100	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	84	84	92	72	92	72	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	942	71	33	1075	8	31	2	19	27	4	89

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1083	0	0	1013	0	0	2194	2151	942	2193	2218	1079
Stage 1	-	-	-	-	-	-	1002	1002	-	1145	1145	-
Stage 2	-	-	-	-	-	-	1192	1149	-	1048	1073	-
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	644	-	-	684	-	-	32	48	319	32	44	265
Stage 1	-	-	-	-	-	-	292	320	-	243	274	-
Stage 2	-	-	-	-	-	-	228	273	-	275	297	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	644	-	-	684	-	-	~ 17	41	319	~ 26	37	265
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 17	41	-	~ 26	37	-
Stage 1	-	-	-	-	-	-	260	285	-	217	261	-
Stage 2	-	-	-	-	-	-	142	260	-	229	265	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.3	$ 507.2	120.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	17	190	644	-	-	684	-	-	26	206
HCM Lane V/C Ratio	1.797	0.114	0.047	-	-	0.049	-	-	1.045	0.454
HCM Control Delay (s)	$ 847.3	26.4	10.9	-	-	10.5	-	-	$ 409	36.2
HCM Lane LOS	F	D	B	-	-	B	-	-	F	E
HCM 95th %tile Q(veh)	4.3	0.4	0.1	-	-	0.2	-	-	3.3	2.2

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

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	73	43	35	199	46	30	12	25	86	47	15
Future Vol, veh/h	47	73	43	35	199	46	30	12	25	86	47	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	93	93	93	83	83	83	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	63	97	57	38	214	49	36	14	30	128	70	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	263	0	0	154	0	0	470	591	77	497	595	132
Stage 1	-	-	-	-	-	-	252	252	-	315	315	-
Stage 2	-	-	-	-	-	-	218	339	-	182	280	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1298	-	-	1424	-	-	477	418	968	456	416	893
Stage 1	-	-	-	-	-	-	730	697	-	671	654	-
Stage 2	-	-	-	-	-	-	764	638	-	802	678	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1298	-	-	1424	-	-	375	384	968	402	382	893
Mov Cap-2 Maneuver	-	-	-	-	-	-	375	384	-	402	382	-
Stage 1	-	-	-	-	-	-	691	660	-	635	634	-
Stage 2	-	-	-	-	-	-	642	618	-	720	642	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.3	1	13.8	22.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	489	1298	-	-	1424	-	-	418
HCM Lane V/C Ratio	0.165	0.048	-	-	0.026	-	-	0.528
HCM Control Delay (s)	13.8	7.9	0.1	-	7.6	0.1	-	22.9
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.6	0.2	-	-	0.1	-	-	3

Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	982	61	8	982	25	4
Future Vol, veh/h	982	61	8	982	25	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	85	85	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1116	69	9	1155	33	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1185	0	2324	593
Stage 1	-	-	-	-	1151	-
Stage 2	-	-	-	-	1173	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	587	-	36	450
Stage 1	-	-	-	-	264	-
Stage 2	-	-	-	-	293	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	587	-	35	450
Mov Cap-2 Maneuver	-	-	-	-	35	-
Stage 1	-	-	-	-	264	-
Stage 2	-	-	-	-	289	-

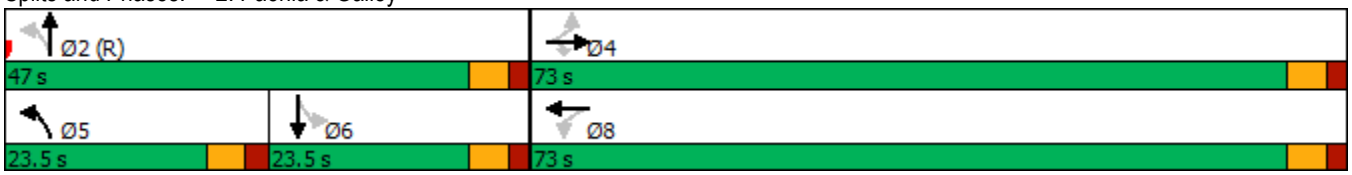
Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	285.5
HCM LOS			F

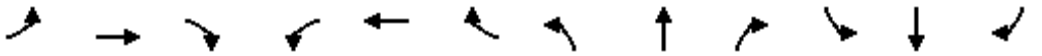
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	40	-	-	587	-
HCM Lane V/C Ratio	0.967	-	-	0.016	-
HCM Control Delay (s)	285.5	-	-	11.2	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	3.7	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	28	867	65	28	903	22	2	25	4
Future Volume (vph)	28	867	65	28	903	22	2	25	4
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4			8	5	2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	8	8	5	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
Total Split (s)	73.0	73.0	73.0	73.0	73.0	23.5	47.0	23.5	23.5
Total Split (%)	60.8%	60.8%	60.8%	60.8%	60.8%	19.6%	39.2%	19.6%	19.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag						Lead		Lag	Lag
Lead-Lag Optimize?						Yes		Yes	Yes
Recall Mode	None	None	None	None	None	Max	C-Max	Max	Max
Act Effct Green (s)	67.5	67.5	67.5	67.5	67.5	41.5	41.5	18.0	18.0
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.56	0.35	0.35	0.15	0.15
v/c Ratio	0.49	0.90	0.08	0.44	1.03	0.07	0.04	0.13	0.30
Control Delay	48.2	36.4	2.8	37.8	63.9	26.7	11.6	46.1	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	36.4	2.8	37.8	63.9	26.7	11.6	46.1	12.9
LOS	D	D	A	D	E	C	B	D	B
Approach Delay		34.4			63.2		20.6		20.3
Approach LOS		C			E		C		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 47.2	Intersection LOS: D
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Paonia & Galley





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	867	65	28	903	7	22	2	14	25	4	82
Future Volume (veh/h)	28	867	65	28	903	7	22	2	14	25	4	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	942	71	33	1075	8	31	2	19	27	4	89
Peak Hour Factor	0.92	0.92	0.92	0.84	0.84	0.92	0.72	0.92	0.72	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	1052	892	126	1043	8	454	53	503	269	10	229
Arrive On Green	0.56	0.56	0.56	0.56	0.56	0.56	0.15	0.35	0.35	0.15	0.15	0.15
Sat Flow, veh/h	521	1870	1585	556	1854	14	1781	153	1455	1391	69	1527
Grp Volume(v), veh/h	30	942	71	33	0	1083	31	0	21	27	0	93
Grp Sat Flow(s),veh/h/ln	521	1870	1585	556	0	1868	1781	0	1608	1391	0	1596
Q Serve(g_s), s	0.0	53.3	2.5	6.7	0.0	67.5	1.5	0.0	1.0	2.0	0.0	6.3
Cycle Q Clear(g_c), s	67.5	53.3	2.5	59.9	0.0	67.5	1.5	0.0	1.0	2.0	0.0	6.3
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.90	1.00		0.96
Lane Grp Cap(c), veh/h	60	1052	892	126	0	1051	454	0	556	269	0	239
V/C Ratio(X)	0.50	0.90	0.08	0.26	0.00	1.03	0.07	0.00	0.04	0.10	0.00	0.39
Avail Cap(c_a), veh/h	60	1052	892	126	0	1051	454	0	556	269	0	239
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.0	23.1	12.0	49.6	0.0	26.3	28.8	0.0	26.0	44.2	0.0	46.0
Incr Delay (d2), s/veh	6.3	10.1	0.0	1.1	0.0	35.9	0.3	0.0	0.1	0.7	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	25.1	0.9	1.0	0.0	38.6	0.7	0.0	0.4	0.8	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.3	33.2	12.1	50.6	0.0	62.2	29.1	0.0	26.1	45.0	0.0	50.7
LnGrp LOS	E	C	B	D	A	F	C	A	C	D	A	D
Approach Vol, veh/h		1043			1116			52			120	
Approach Delay, s/veh		32.7			61.9			27.9			49.4	
Approach LOS		C			E			C			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		47.0		73.0	23.5	23.5		73.0				
Change Period (Y+Rc), s		5.5		5.5	5.5	5.5		5.5				
Max Green Setting (Gmax), s		41.5		67.5	18.0	18.0		67.5				
Max Q Clear Time (g_c+I1), s		3.0		69.5	3.5	8.3		69.5				
Green Ext Time (p_c), s		0.1		0.0	0.0	0.3		0.0				

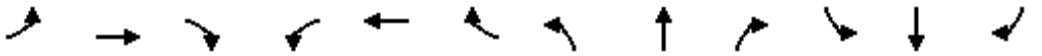
Intersection Summary												
HCM 6th Ctrl Delay			47.4									
HCM 6th LOS			D									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	463	327	389	478	467	409	3425	465	266	2548	305
Future Volume (vph)	482	463	327	389	478	467	409	3425	465	266	2548	305
Lane Group Flow (vph)	560	538	380	437	537	525	449	3764	511	274	2627	314
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	20.0	20.0	4.0	20.0	20.0
Minimum Split (s)	10.5	44.5	44.5	10.5	44.5	44.5	11.5	42.5	42.5	10.5	42.5	42.5
Total Split (s)	21.0	33.0	33.0	21.0	33.0	33.0	21.0	71.0	71.0	21.0	71.0	71.0
Total Split (%)	14.4%	22.6%	22.6%	14.4%	22.6%	22.6%	14.4%	48.6%	48.6%	14.4%	48.6%	48.6%
Yellow Time (s)	3.0	4.5	4.5	3.0	4.5	4.5	5.5	5.5	5.5	3.0	5.5	5.5
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	6.5	6.5	5.0	6.5	6.5	7.5	7.5	7.5	5.0	7.5	7.5
Lead/Lag	Lead	Lag	Lag	Lead	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	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	1.49	0.84	0.91	1.16	0.84	1.26	1.42	1.68	0.64	0.77	1.19	0.36
Control Delay	276.4	70.2	60.4	153.4	70.1	169.0	250.5	336.5	24.3	78.7	126.7	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	276.4	70.2	60.4	153.4	70.1	169.0	250.5	336.5	24.3	78.7	126.7	3.7
Queue Length 50th (ft)	~378	263	220	~253	262	~497	~295	~1920	251	131	~1099	0
Queue Length 95th (ft)	#467	314	#373	#358	#330	#715	#408	#1975	382	182	#1181	56
Internal Link Dist (ft)		926			325			844			2578	
Turn Bay Length (ft)	150			175			600			600		575
Base Capacity (vph)	376	642	417	376	642	416	317	2242	797	376	2211	865
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.49	0.84	0.91	1.16	0.84	1.26	1.42	1.68	0.64	0.73	1.19	0.36

Intersection Summary

Cycle Length: 146
Actuated Cycle Length: 146
Offset: 54 (37%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Powers & Galley



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	482	463	327	389	478	467	409	3425	465	266	2548	305
Future Volume (veh/h)	482	463	327	389	478	467	409	3425	465	266	2548	305
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	560	538	0	437	537	0	449	3764	0	274	2627	314
Peak Hour Factor	0.86	0.86	0.86	0.89	0.89	0.89	0.91	0.91	0.91	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	599		379	599		320	2369		323	2286	710
Arrive On Green	0.11	0.17	0.00	0.11	0.17	0.00	0.09	0.46	0.00	0.09	0.45	0.45
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	560	538	0	437	537	0	449	3764	0	274	2627	314
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1702	1585
Q Serve(g_s), s	16.0	21.7	0.0	16.0	21.6	0.0	13.5	67.7	0.0	11.4	65.4	19.9
Cycle Q Clear(g_c), s	16.0	21.7	0.0	16.0	21.6	0.0	13.5	67.7	0.0	11.4	65.4	19.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	379	599		379	599		320	2369		323	2286	710
V/C Ratio(X)	1.48	0.90		1.15	0.90		1.41	1.59		0.85	1.15	0.44
Avail Cap(c_a), veh/h	379	645		379	645		320	2369		379	2286	710
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	59.4	0.0	65.0	59.4	0.0	66.3	39.1	0.0	65.2	40.3	27.8
Incr Delay (d2), s/veh	229.2	14.7	0.0	95.2	14.5	0.0	200.1	267.1	0.0	14.6	72.7	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.1	11.0	0.0	12.1	11.0	0.0	14.9	86.4	0.0	5.7	42.3	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	294.2	74.2	0.0	160.2	74.0	0.0	266.4	306.3	0.0	79.7	113.0	29.8
LnGrp LOS	F	E		F	E		F	F		E	F	C
Approach Vol, veh/h		1098	A		974	A		4213	A		3215	
Approach Delay, s/veh		186.4			112.6			302.0			102.0	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.6	75.2	21.0	31.1	21.0	72.9	21.0	31.1
Change Period (Y+Rc), s	5.0	7.5	5.0	6.5	7.5	7.5	5.0	6.5
Max Green Setting (Gmax), s	16.0	63.5	16.0	26.5	13.5	63.5	16.0	26.5
Max Q Clear Time (g_c+I1), s	13.4	69.7	18.0	23.7	15.5	67.4	18.0	23.6
Green Ext Time (p_c), s	0.2	0.0	0.0	1.0	0.0	0.0	0.0	1.0

Intersection Summary		
HCM 6th Ctrl Delay		201.6
HCM 6th LOS		F

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	781.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	90	932	129	56	1103	25	123	3	77	14	2	62
Future Vol, veh/h	90	932	129	56	1103	25	123	3	77	14	2	62
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	-	0	100	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	84	84	92	72	92	72	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	98	1013	140	67	1313	27	171	3	107	15	2	67

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1340	0	0	1153	0	0	2704	2683	1013	2795	2810	1327
Stage 1	-	-	-	-	-	-	1209	1209	-	1461	1461	-
Stage 2	-	-	-	-	-	-	1495	1474	-	1334	1349	-
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	514	-	-	606	-	-	~ 14	22	290	~ 12	18	190
Stage 1	-	-	-	-	-	-	223	256	-	160	193	-
Stage 2	-	-	-	-	-	-	~ 153	191	-	190	219	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	514	-	-	606	-	-	~ 6	16	290	~ 5	13	190
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 6	16	-	~ 5	13	-
Stage 1	-	-	-	-	-	-	180	207	-	129	172	-
Stage 2	-	-	-	-	-	-	~ 87	170	-	96	177	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.6	$ 8261.3	$ 457.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	6	192	514	-	-	606	-	-	5	133
HCM Lane V/C Ratio	28.472	0.574	0.19	-	-	0.11	-	-	3.043	0.523
HCM Control Delay (s)	$ 13560.9	46.3	13.6	-	-	11.7	-	-	$ 2279.1	58.5
HCM Lane LOS	F	E	B	-	-	B	-	-	F	F
HCM 95th %tile Q(veh)	23.3	3.1	0.7	-	-	0.4	-	-	3.1	2.5

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

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	177	42	23	188	79	24	31	44	102	19	19
Future Vol, veh/h	45	177	42	23	188	79	24	31	44	102	19	19
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	93	93	93	83	83	83	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	60	236	56	25	202	85	29	37	53	152	28	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	287	0	0	292	0	0	549	721	146	552	707	144
Stage 1	-	-	-	-	-	-	384	384	-	295	295	-
Stage 2	-	-	-	-	-	-	165	337	-	257	412	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1272	-	-	1267	-	-	419	352	875	416	359	877
Stage 1	-	-	-	-	-	-	611	610	-	689	668	-
Stage 2	-	-	-	-	-	-	821	640	-	725	593	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1272	-	-	1267	-	-	356	324	875	335	330	877
Mov Cap-2 Maneuver	-	-	-	-	-	-	356	324	-	335	330	-
Stage 1	-	-	-	-	-	-	576	575	-	650	652	-
Stage 2	-	-	-	-	-	-	742	625	-	601	559	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.7	15.4	27.3
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	464	1272	-	-	1267	-	-	365
HCM Lane V/C Ratio	0.257	0.047	-	-	0.02	-	-	0.572
HCM Control Delay (s)	15.4	8	0.2	-	7.9	0.1	-	27.3
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	1	0.1	-	-	0.1	-	-	3.4

Intersection	
Int Delay, s/veh	108.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1134	60	26	1273	61	33
Future Vol, veh/h	1134	60	26	1273	61	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	85	85	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1289	68	31	1498	81	44

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1357	0	2883	679
Stage 1	-	-	-	-	1323	-
Stage 2	-	-	-	-	1560	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	505	-	~ 15	395
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	190	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	505	-	~ 14	395
Mov Cap-2 Maneuver	-	-	-	-	~ 14	-
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	178	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	$ 2602
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	21	-	-	505	-
HCM Lane V/C Ratio	5.968	-	-	0.061	-
HCM Control Delay (s)	$ 2602	-	-	12.6	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	16	-	-	0.2	-

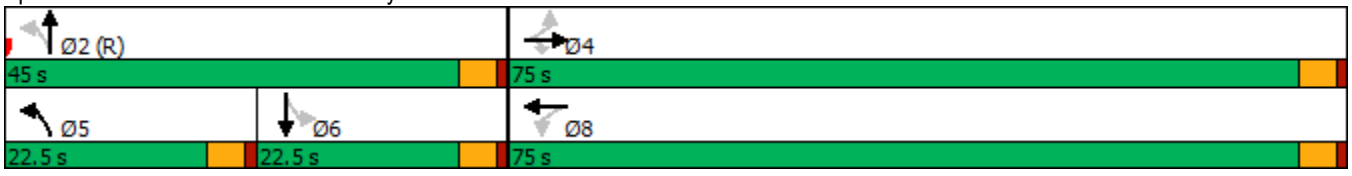
Notes

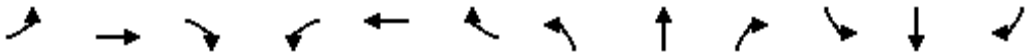
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	90	932	129	56	1103	123	3	14	2
Future Volume (vph)	90	932	129	56	1103	123	3	14	2
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4			8	5	2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	8	8	5	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	75.0	75.0	75.0	75.0	75.0	22.5	45.0	22.5	22.5
Total Split (%)	62.5%	62.5%	62.5%	62.5%	62.5%	18.8%	37.5%	18.8%	18.8%
Yellow Time (s)	3.5	3.5	3.5	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	1.0	1.0	1.0
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)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead		Lag	Lag
Lead-Lag Optimize?						Yes		Yes	Yes
Recall Mode	None	None	None	None	None	Max	C-Max	Max	Max
Act Effct Green (s)	63.1	63.1	63.1	63.1	63.1	47.9	47.9	18.0	18.0
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53	0.40	0.40	0.15	0.15
v/c Ratio	1.01	0.58	0.15	0.39	0.72	0.30	0.16	0.08	0.23
Control Delay	123.0	20.2	2.3	22.4	23.7	28.0	6.1	45.2	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	123.0	20.2	2.3	22.4	23.7	28.0	6.1	45.2	13.3
LOS	F	C	A	C	C	C	A	D	B
Approach Delay		26.5			23.7		19.4		19.0
Approach LOS		C			C		B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 24.3	Intersection LOS: C
Intersection Capacity Utilization 61.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Paonia & Galley





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	932	129	56	1103	25	123	3	77	14	2	62
Future Volume (veh/h)	90	932	129	56	1103	25	123	3	77	14	2	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	1013	140	67	1313	27	171	3	107	15	2	67
Peak Hour Factor	0.92	0.92	0.92	0.84	0.84	0.92	0.72	0.92	0.72	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	179	2069	877	249	1970	40	523	16	576	297	9	285
Arrive On Green	0.55	0.55	0.55	0.55	0.55	0.55	0.15	0.37	0.37	0.18	0.18	0.18
Sat Flow, veh/h	408	3741	1585	487	3561	73	1781	43	1548	1283	46	1546
Grp Volume(v), veh/h	98	1013	140	67	655	685	171	0	110	15	0	69
Grp Sat Flow(s),veh/h/ln	408	1870	1585	487	1777	1857	1781	0	1592	1283	0	1592
Q Serve(g_s), s	26.9	19.9	5.2	11.7	31.3	31.3	8.3	0.0	5.6	1.2	0.0	4.4
Cycle Q Clear(g_c), s	58.2	19.9	5.2	31.6	31.3	31.3	8.3	0.0	5.6	1.2	0.0	4.4
Prop In Lane	1.00		1.00	1.00		0.04	1.00		0.97	1.00		0.97
Lane Grp Cap(c), veh/h	179	2069	877	249	983	1027	523	0	592	297	0	293
V/C Ratio(X)	0.55	0.49	0.16	0.27	0.67	0.67	0.33	0.00	0.19	0.05	0.00	0.24
Avail Cap(c_a), veh/h	193	2198	931	265	1044	1091	523	0	592	297	0	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.6	16.4	13.1	26.1	19.0	19.0	28.2	0.0	25.4	40.4	0.0	41.7
Incr Delay (d2), s/veh	2.7	0.2	0.1	0.6	1.5	1.4	1.7	0.0	0.7	0.3	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	8.4	1.9	1.4	12.9	13.5	3.8	0.0	2.2	0.4	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	16.6	13.2	26.7	20.5	20.4	29.8	0.0	26.1	40.7	0.0	43.6
LnGrp LOS	D	B	B	C	C	C	C	A	C	D	A	D
Approach Vol, veh/h		1251			1407			281			84	
Approach Delay, s/veh		18.2			20.8			28.4			43.1	
Approach LOS		B			C			C			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		49.1		70.9	22.5	26.6		70.9				
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s		40.5		70.5	18.0	18.0		70.5				
Max Q Clear Time (g_c+I1), s		7.6		60.2	10.3	6.4		33.6				
Green Ext Time (p_c), s		0.7		6.2	0.3	0.2		13.9				

Intersection Summary												
HCM 6th Ctrl Delay			21.0									
HCM 6th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX G. SIGNAL WARRANT ANALYSES GALLEY RD/PAONIA ST

MUTCD Volume-based Warrant Evaluation - Existing Traffic Conditions
Galley / Paonia Intersection

Major Street: Galley
Minor Street: Paonia

Critical Approach Speed: 40 MPH
Critical Approach Speed: 25 MPH

Peak Hour Factor: 9

Intersection type: Urban

Major Street Peak Hour Volume (Both Approaches): 1280
Minor Street Peak Hour Volume (Highest Approach): 162

Major Street Lanes: 2 or more
Minor Street Lanes: 2 or more

Update Charts

Warrant 1A	**No**
Warrant 1B	**No**
Warrant 1A & 1B at 80%	**No**
Warrant 2	**No**
Warrant 3	**No**

WARRANT 1 - Condition A, Minimum Vehicular Volume

	100%	80%
Major	Yes	Yes
Minor	No	No

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or more U	2 or more R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	500 (400)	350 (280)	600 (480)	420 (336)	1280	1216	1152	1089	1025	961	897	833
Highest Apprch. Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	162	154	146	138	130	122	114	105

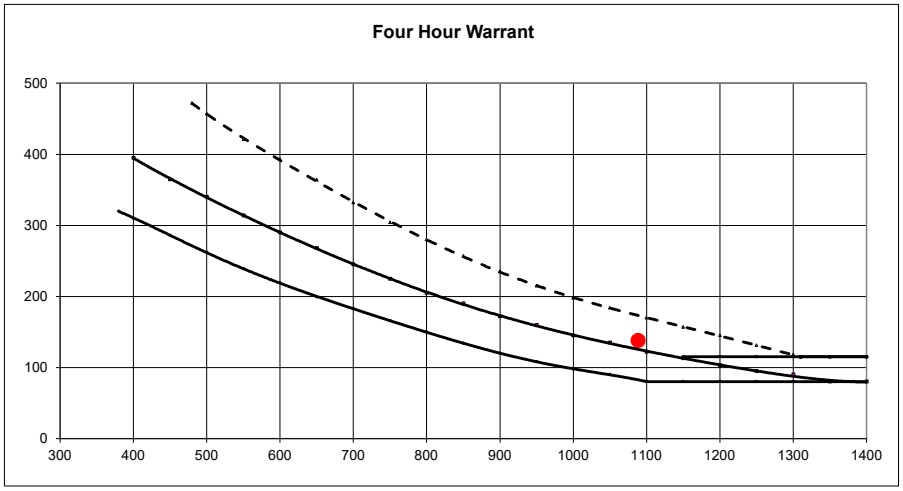
WARRANT 1, Condition B - Interruption of Continuous Traffic

	100%	80%
Major	No	Yes
Minor	Yes	Yes

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or more U	2 or more R	Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
Both Apprchs. Major Street	750 (600)	525 (420)	900 (720)	630 (504)	1280	1216	1152	1089	1025	961	897	833
Highest Apprch. Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	162	154	146	138	130	122	114	105

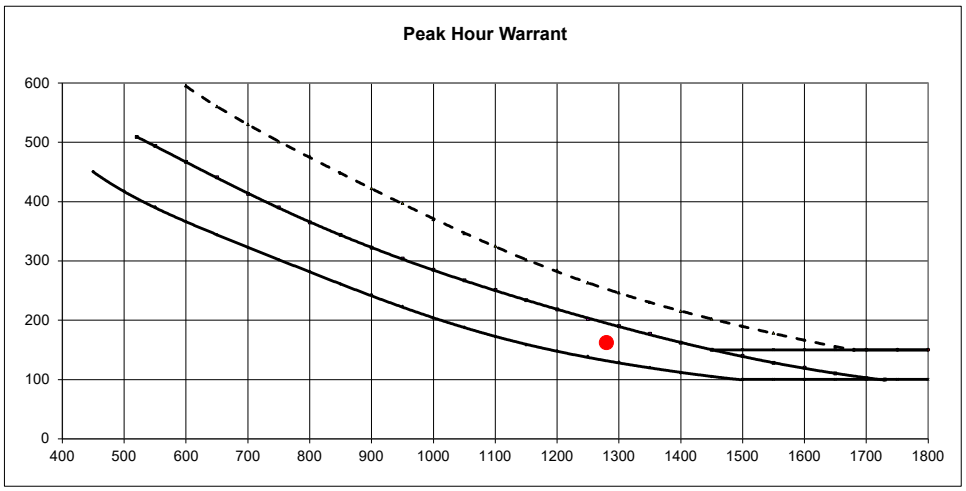
WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO



WARRANT 3 - Peak Hour Volume

100 % Satisfied	YES	NO



MUTCD Volume-based Warrant Evaluation - Short Term Future Background Traffic
Galley / Paonia Intersection

Major Street: Galley
Minor Street: Paonia

Critical Approach Speed: 40 MPH
Critical Approach Speed: 25 MPH

Peak Hour Factor: 9

Intersection type: Urban

Major Street Peak Hour Volume (Both Approaches): 1380
Minor Street Peak Hour Volume (Highest Approach): 162

Major Street Lanes: 2 or more
Minor Street Lanes: 2 or more

Update Charts

Warrant 1A	**No**
Warrant 1B	**No**
Warrant 1A & 1B at 80%	**No**
Warrant 2	**No**
Warrant 3	**No**

WARRANT 1 - Condition A, Minimum Vehicular Volume

	100%	80%
Major	Yes	Yes
Minor	No	No

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
	U	R	U	R								
APPROACH LANES	1		2 or more									
Both Apprchs. Major Street	500 (400)	350 (280)	600 (480)	420 (336)	1380	1311	1242	1174	1105	1036	967	899
Highest Apprch. Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	162	154	146	138	130	122	114	105

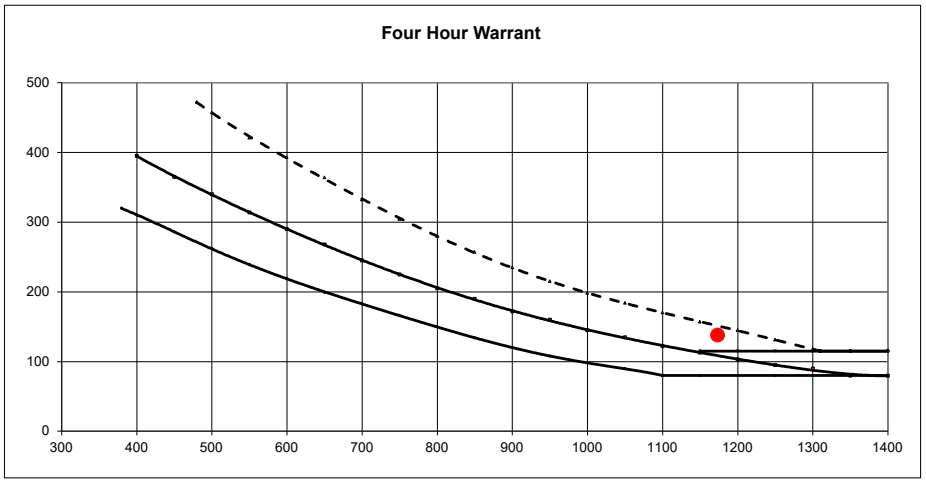
WARRANT 1, Condition B - Interruption of Continuous Traffic

	100%	80%
Major	No	Yes
Minor	Yes	Yes

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
	U	R	U	R								
APPROACH LANES	1		2 or more									
Both Apprchs. Major Street	750 (600)	525 (420)	900 (720)	630 (504)	1380	1311	1242	1174	1105	1036	967	899
Highest Apprch. Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	162	154	146	138	130	122	114	105

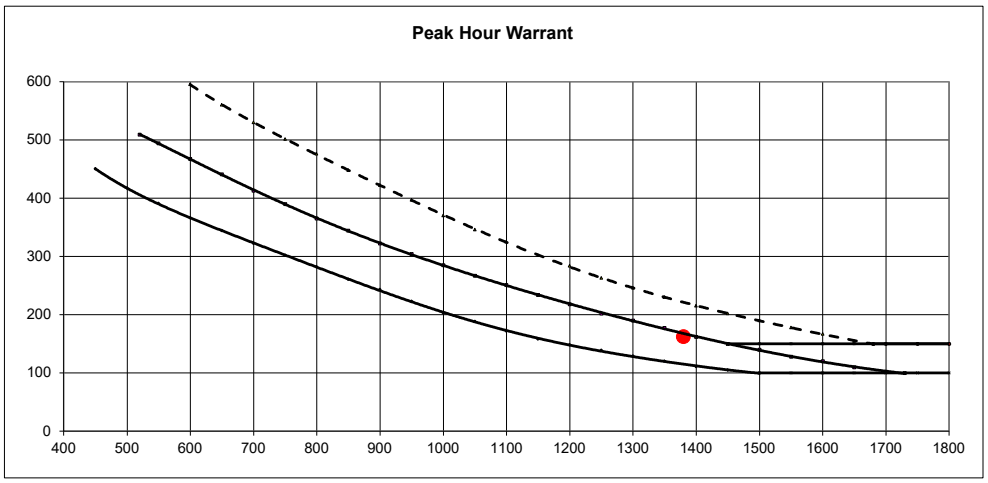
WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO



WARRANT 3 - Peak Hour Volume

100 % Satisfied	YES	NO



MUTCD Volume-based Warrant Evaluation - Long Term Future Background Traffic
Galley / Paonia Intersection

Major Street:	Galley	Critical Approach Speed:	40 MPH	Peak Hour Factor:	9
Minor Street:	Paonia	Critical Approach Speed:	25 MPH	Intersection type:	Urban
Major Street Peak Hour Volume (Both Approaches):	2096			Major Street Lanes	2 or more
Minor Street Peak Hour Volume (Highest Approach):	162			Minor Street Lanes	2 or more

Update Charts

Warrant 1A	**No**
Warrant 1B	**Yes**
Warrant 1A & 1B at 80%	**No**
Warrant 2	**Yes**
Warrant 3	**Yes**

WARRANT 1 - Condition A, Minimum Vehicular Volume

	100%	80%
Major	Yes	Yes
Minor	No	No

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
	U	R	U	R								
APPROACH LANES	1		2 or more									
Both Apprchs. Major Street	500 (400)	350 (280)	600 (480)	420 (336)	2096	1992	1887	1783	1678	1574	1469	1365
Highest Apprch. Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	162	154	146	138	130	122	114	105

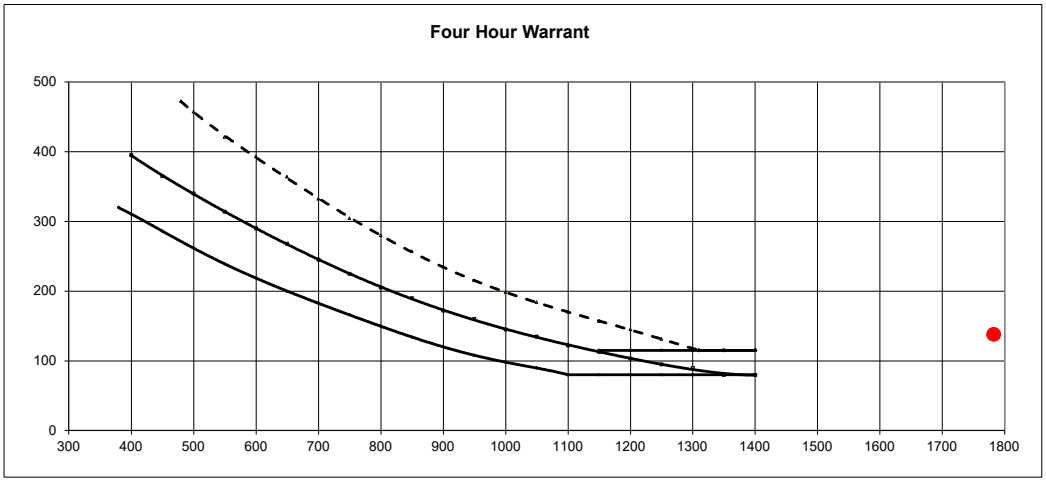
WARRANT 1, Condition B - Interruption of Continuous Traffic

	100%	80%
Major	Yes	Yes
Minor	Yes	Yes

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
	U	R	U	R								
APPROACH LANES	1		2 or more									
Both Apprchs. Major Street	750 (600)	525 (420)	900 (720)	630 (504)	2096	1992	1887	1783	1678	1574	1469	1365
Highest Apprch. Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	162	154	146	138	130	122	114	105

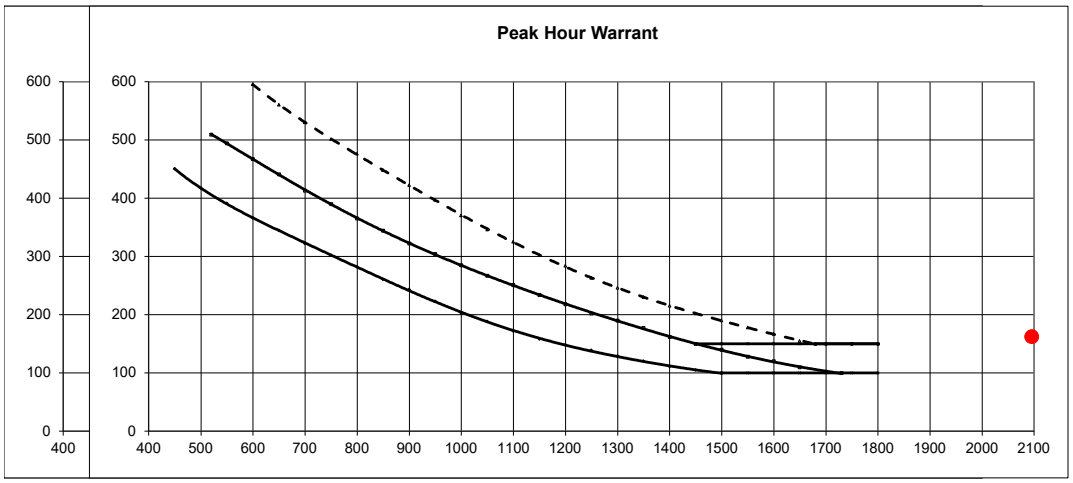
WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO



WARRANT 3 - Peak Hour Volume

100 % Satisfied	YES	NO



MUTCD Volume-based Warrant Evaluation - Short Term Future Total Traffic
Galley / Paonia Intersection

Major Street:	Galley	Critical Approach Speed:	40 MPH	Peak Hour Factor:	9
Minor Street:	Paonia	Critical Approach Speed:	25 MPH	Intersection type:	Urban
Major Street Peak Hour Volume (Both Approaches):	1478			Major Street Lanes	2 or more
Minor Street Peak Hour Volume (Highest Approach):	183			Minor Street Lanes	2 or more

Update Charts

Warrant 1A	**No**
Warrant 1B	**Yes**
Warrant 1A & 1B at 80%	**No**
Warrant 2	**Yes**
Warrant 3	**No**

WARRANT 1 - Condition A, Minimum Vehicular Volume

	100%	80%
Major	Yes	Yes
Minor	No	No

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
	U	R	U	R								
APPROACH LANES	1		2 or more									
Both Apprchs. Major Street	500 (400)	350 (280)	600 (480)	420 (336)	1478	1404	1331	1257	1183	1110	1036	962
Highest Apprch. Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	183	174	165	156	147	137	128	119

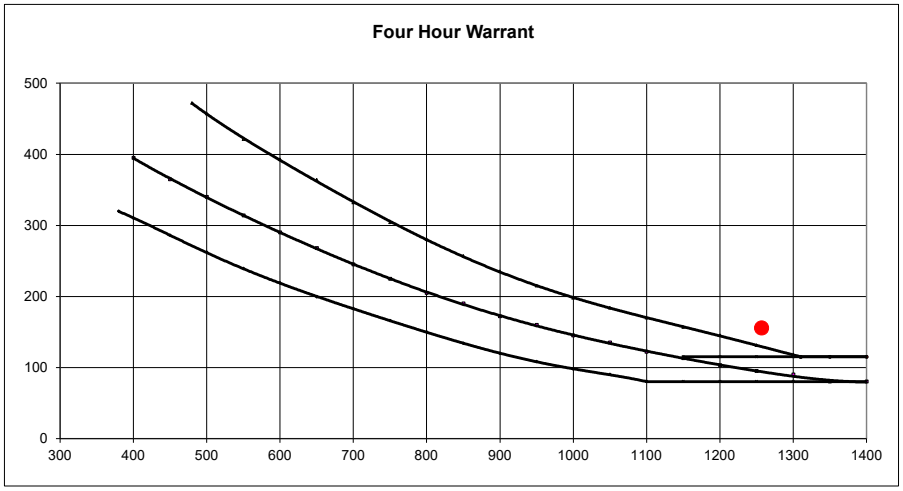
WARRANT 1, Condition B - Interruption of Continuous Traffic

	100%	80%
Major	Yes	Yes
Minor	Yes	Yes

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
	U	R	U	R								
APPROACH LANES	1		2 or more									
Both Apprchs. Major Street	750 (600)	525 (420)	900 (720)	630 (504)	1478	1404	1331	1257	1183	1110	1036	962
Highest Apprch. Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	183	174	165	156	147	137	128	119

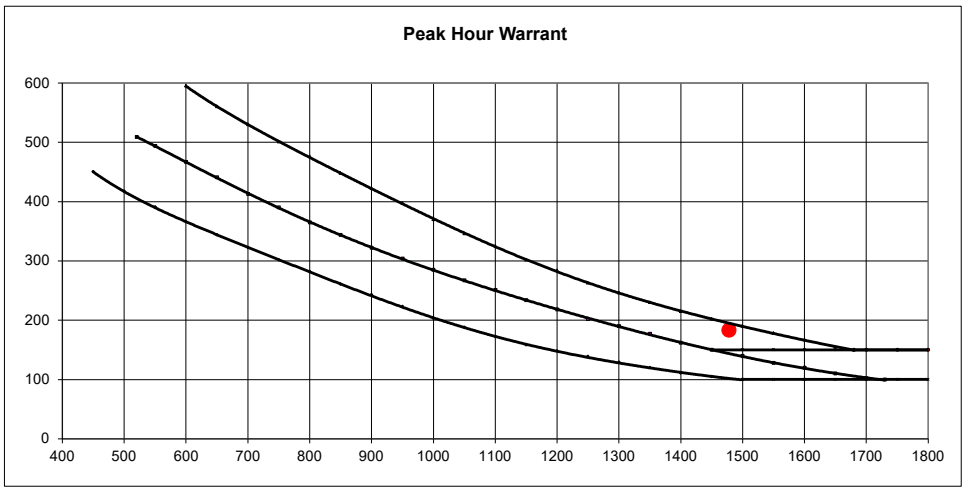
WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO



WARRANT 3 - Peak Hour Volume

100 % Satisfied	YES	NO



MUTCD Volume-based Warrant Evaluation - Long Term Future Total Traffic
Galley / Paonia Intersection

Major Street: Galley
Minor Street: Paonia

Critical Approach Speed: 40 MPH
Critical Approach Speed: 25 MPH

Peak Hour Factor: 9

Intersection type: Urban

Major Street Peak Hour Volume (Both Approaches): 2194
Minor Street Peak Hour Volume (Highest Approach): 183

Major Street Lanes: 2 or more
Minor Street Lanes: 2 or more

Update Charts

Warrant 1A	**No**
Warrant 1B	**Yes**
Warrant 1A & 1B at 80%	**No**
Warrant 2	**Yes**
Warrant 3	**Yes**

WARRANT 1 - Condition A, Minimum Vehicular Volume

	100%	80%
Major	Yes	Yes
Minor	No	No

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
	U	R	U	R								
APPROACH LANES	1		2 or more									
Both Apprchs. Major Street	500 (400)	350 (280)	600 (480)	420 (336)	2194	2085	1975	1866	1757	1647	1538	1429
Highest Apprch. Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	183	174	165	156	147	137	128	119

WARRANT 1, Condition B - Interruption of Continuous Traffic

	100%	80%
Major	Yes	Yes
Minor	Yes	Yes

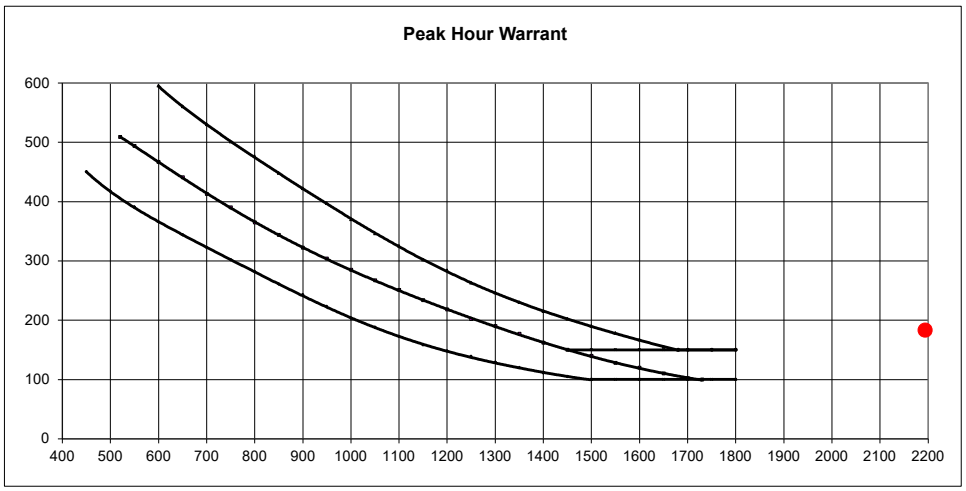
	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Peak Hour	2nd Highest	3rd Highest	4th Highest	5th Highest	6th Highest	7th Highest	8th Highest
	U	R	U	R								
APPROACH LANES	1		2 or more									
Both Apprchs. Major Street	750 (600)	525 (420)	900 (720)	630 (504)	2194	2085	1975	1866	1757	1647	1538	1429
Highest Apprch. Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	183	174	165	156	147	137	128	119

WARRANT 2 - Four Hour Volume

100 % Satisfied	YES	NO

WARRANT 3 - Peak Hour Volume

100 % Satisfied	YES	NO



TIS_V1.pdf Markup Summary

Cloud+ (1)

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Date: 4/1/2020 2:25:34 PM
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Trip Distribution percentages do not match Figure 7. Revise accordingly.

Highlight (4)

Subject: Highlight
Page Label: 12
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Author: Daniel Torres
Date: 4/1/2020 2:25:25 PM
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County Staff should occur to understand what, if any safety countermeasures have been implemented

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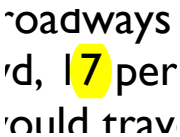

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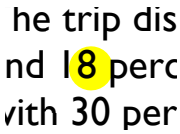
7



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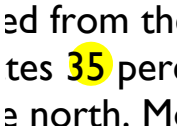

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Re: Callout (1)

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Page Label: 14
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Author: dsdlaforce
Date: 4/1/2020 2:26:26 PM
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I think they are talking about values obtained using the MODOT scaling factor

Text Box (4)

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Author: Daniel Torres
Date: 4/1/2020 2:25:18 PM
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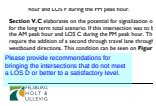
Add PCD File No. SP201



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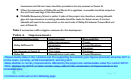
Please provide recommendations for bringing the intersections that do not meet a LOS D or better to a satisfactory level.



Subject: Text Box
Page Label: 25
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Author: Daniel Torres
Date: 4/1/2020 2:26:09 PM
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Color:
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Space:

-Please clearly state in the narrative and the supporting documents (your figures provided) what the ADT is on the roads, currently, at full development, and long term.
-State whether or not any improvements affected by the project are reimbursable under the current MTCP.
-State whether the MTCP or other corridor study calls for the construction of improvements in the immediate area.

Comments continued on the following page.

Subject: Text Box
Page Label: 26
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Author: Daniel Torres
Date: 4/1/2020 2:26:12 PM
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Comments continued:

-State what the current applicable Transportation Impact fees are and what option the developer will be selecting for payment.
-List the other traffic studies by the consultant in the area of study within the past 5 years, in addition to any reports that the applicant is aware of. State whether the current study is consistent with those studies and explain any discrepancies.
-List any other deviations from the ECM that the applicant will be making. Include the necessary supporting information.
-Please state whether or not any improvements are required to existing Paonia St. north of the site due to the traffic impact of the proposed development.