Traffic Impact Study

DHI-Waterview

El Paso County, Colorado

PCD File No. P222

Prepared for:

Evergreen Devco, Inc.

Kimley»Horn

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1.0 EXECUTIVE SUMMARY

This report has been prepared to document the results of a Traffic Impact Study for the DHI - Waterview multifamily residential project proposed to be located on the southeast corner of the Grinnell Boulevard and Powers Boulevard (SH-21) intersection in El Paso County, Colorado. For the purposes of this analysis, the DHI - Waterview project is anticipated to include 345 multifamily housing units. It is expected that DHI - Waterview will be completed in the next few years; therefore, analysis was conducted for the 2024 short term buildout and 2045 long-term twenty-year planning horizons.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system, and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with El Paso County and State of Colorado Department of Transportation (CDOT) standards and requirements:

- Powers Boulevard (SH-21) and Grinnell Boulevard
- Goldfield Drive and Grinnell Boulevard
- Goldfield Drive and Escanaba Drive
- Goldfield Drive and Cudahy Road
- Bradley Road and Grinnell Boulevard

In addition, the proposed full movement access along Goldfield Drive to align with Escanaba Drive and the proposed full movement access along Cudahy Road were evaluated.

Regional access to the development is provided by Interstate 25, US Highway 85 (US-85), Powers Boulevard (SH-21) and US Highway 24 (US-24). Primary access will be provided Powers Boulevard (SH-21) and Grinnell Boulevard. Direct access will be provided by a full movement access along Goldfield Drive to align with Escanaba Drive and a full movement access along Cudahy Road located approximately 425 feet north of Goldfield Drive.

The DHI - Waterview project is expected to generate approximately 2,326 weekday daily trips, with 138 of these trips occurring during the morning peak hour and 176 of these trips occurring during the afternoon peak hour.

Based on the analysis presented in this report, Kimley-Horn believes DHI - Waterview will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following recommendations:

2022 Existing Traffic Recommendations

- With the existing 2022 traffic volumes collected at the Bradley Road and Grinnell Boulevard (#5) intersection, a traffic signal is believed to be warranted at this intersection today. With signalization it is recommended that a 150-foot eastbound left turn lane be designated at this intersection.

2024 Recommendations

- The intersection of Goldfield Drive and Grinnell Boulevard (#2) may require signalization. A four-hour vehicular volume signal warrant analysis was completed for this intersection. It was found that a signal may be warranted in 2024. With signalization, the existing 300-foot southbound left turn lane may need to be lengthened to 405 feet with a 160-foot taper to meet El Paso County requirements. Extension of this southbound left turn lane will require reconstruction of Grinnell Boulevard for the two-lane roadway transition to occur further north. Of note, this intersection was also evaluated with roundabout control as a possible improvement alternative. Based on the traffic signal showing better overall operations and a roundabout likely costing twice the amount of a traffic signal, a traffic signal is the recommended control type for this intersection.

- With completion of the DHI - Waterview project, one access is proposed along the north side of Goldfield Drive (to align with Escanaba Drive), and one access is proposed along the west side of Cudahy Road. The access along Goldfield Drive and the access along Cudahy Road are proposed as full movement accesses. It is recommended that R1-1 “STOP” signs be installed on the exiting southbound approach at the access along Goldfield Drive and the exiting eastbound approach at the Cudahy Road Access.

- The threshold for requiring an access permit along Colorado Department of Transportation (CDOT) roadways occurs when project traffic is anticipated to increase the existing access traffic volumes by more than 20 percent. Based on traffic projections, the addition of project

traffic on the south leg of Grinnell Boulevard at SH-21 (Powers Boulevard) is not anticipated to increase existing access traffic volumes by more than 20 percent (10 percent increase in the morning peak hour and 12 percent increase in the afternoon peak hour). Therefore, a CDOT access permit is not anticipated to be required in association with this project.

- To meet El Paso County requirements, an eastbound left turn lane may need to be designated at the intersection of Goldfield Drive and Escanaba Drive (#3) to a length of 235 feet with a 75-foot taper. El Paso County standards recommends a taper length of 140 feet, however due to the Goldfield Drive/Grinnell Boulevard intersection 340 feet to the west (edge to edge), this taper will need to be shortened to 75 feet. A deviation request will be provided for this access with the preliminary plan application. Based on spacing constraints, this eastbound left turn lane would need to be designated side-by-side with the westbound left turn lane at the Goldfield Drive and Grinnell Boulevard intersection. It is recommended that this existing westbound left turn lane be shifted to the striped-out area to the north for the side-by-side left turn lanes.

- It is recommended that the eastbound left turn lane at the intersection of Goldfield Drive and Cudahy Road (#4) be restriped to the maximum length of 235 feet with a 30-foot taper. El Paso County standards recommends a taper length of 140 feet, however due to the existing Goldfield Drive and Escanaba Drive intersection to the west, this taper will need to be shortened to 30 feet. A deviation request will be provided for this turn lane with the preliminary plan application.

- Based on El Paso County standards, the Cudahy Road Access (#6) should provide a northbound left turn lane with a length of 165 feet plus an 80-foot taper. The existing two-way left turn lane should be restriped with this actual defined left turn bay. With this lane being designated it is recommended that the southbound left turn lane at the intersection of Goldfield Drive and Cudahy Road (#4) be restriped to a length of 260 feet with an 80-foot taper instead of the current two-way left turn lane striping, although a southbound left turn lane at this intersection isn't actually warranted.

- The daily traffic volume along Grinnell Boulevard will likely be above the El Paso County daily traffic volume threshold to be widened to a four-lane urban minor arterial cross section in 2024

prior to the addition of project traffic. This widening would be "warranted" based on background traffic volumes only, prior to the addition of project traffic, although the actual daily volume is about 60 percent of the actual two-lane roadway capacity. It should be noted, if project traffic was added directly to the existing traffic volumes along Grinnell Boulevard north of Goldfield Drive (9,400 vpd +1,400 vpd = 10,800 ADT), widening would also be warranted. However, it is important to note that if project traffic was added directly to existing traffic volumes along Grinnell Boulevard south of Goldfield Drive (8,700 vpd + 950 vpd = 9,650 ADT), widening would not be warranted. The County should provide additional consideration and thought to the vehicle volume threshold standards, as widening roadways when they are not needed is not beneficial for overall traffic safety as higher vehicle speeds will result. Likewise, overbuilding roadways is not fiscally responsible.

2045 Recommendations

- As identified in the El Paso County Major Transportation Corridors Plan Update, it is understood that Grinnell Boulevard will provide two northbound and southbound through lanes in the future through Project ID C16. Therefore, it is assumed that two northbound and southbound through lanes will be constructed along Grinnell Boulevard by the long-term 2045 horizon.

- If future traffic volumes are realized, three eastbound and westbound through lanes may be needed along Powers Boulevard (SH-21) through the intersection with Grinnell Boulevard (#1). It is believed that this would be the ultimate at-grade configuration prior to the need of a grade separated interchange. The northbound dual left turn lanes may need to be extended to provide a length of 675 feet plus 160-foot taper with the at-grade intersection configuration.

- The southbound left turn lane at the intersection of Goldfield Drive and Grinnell Boulevard (#2) may need to be further lengthened to 430 feet with a 160-foot taper to meet El Paso County requirements if future traffic volumes are realized. For reference, the 2024 recommendation identified extension of the existing 300-foot southbound left turn lane to 405 feet at this intersection.

- If future traffic volumes are realized, the eastbound left turn lane at the intersection of Bradley Road and Grinnell Boulevard (#5) may need to be extended from 150 feet to 200 feet.

2.0 INTRODUCTION

Kimley-Horn and Associates, Inc. has prepared this report to document the results of a Traffic Impact Study for the DHI - Waterview multifamily residential project proposed to be located on the southeast corner of the Grinnell Boulevard and Powers Boulevard (SH-21) intersection in El Paso County, Colorado. A vicinity map illustrating the DHI - Waterview development location is shown in **Figure 1**. For the purposes of this analysis, the DHI - Waterview project is anticipated to include 345 multifamily housing units. A conceptual site plan for the project is provided in **Appendix G**. It is expected that DHI - Waterview will be completed in the next few years; therefore, analysis was conducted for the 2024 and 2045 planning year horizons.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system, and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with El Paso County and CDOT requirements:

- Powers Boulevard (SH-21) and Grinnell Boulevard
- Goldfield Drive and Grinnell Boulevard
- Goldfield Drive and Escanaba Drive
- Goldfield Drive and Cudahy Road
- Bradley Road and Grinnell Boulevard

In addition, the proposed full movement access along Goldfield Drive to align with Escanaba Drive and the proposed full movement access along Cudahy Road were evaluated.

Regional access to the development is provided by Interstate 25, US Highway 85 (US-85), Powers Boulevard (SH-21) and US Highway 24 (US-24). Primary access will be provided Powers Boulevard (SH-21) and Grinnell Boulevard. Direct access will be provided by a full movement access along Goldfield Drive to align with Escanaba Drive and a full movement access along Cudahy Road located approximately 425 feet north of Goldfield Drive.

Kimley»Horn
NORTH
NTS 096266039

DHI-WATERVIEW
EL PASO COUNTY, COLORADO
VICINITY MAP

FIGURE 1

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3.0 EXISTING AND FUTURE CONDITIONS

3.1 Existing Study Area/Site Visit

The existing site is comprised of vacant land. The site is surrounded on the east and south by residential neighborhoods. The area to the north of the site is Peak Innovation Park, a mixed-use area that is currently being developed. Further to the south of the project is more vacant land and the Fountain Valley School of Colorado.

3.2 Existing Roadway Network

Powers Boulevard (SH-21) extends mainly in the north-south direction; however, within the site vicinity, Powers Boulevard (SH-21) is oriented in the east-west direction. It has two through lanes in each direction and a posted speed limit of 65 miles per hour eastbound and 60 miles per hour westbound.

Grinnell Boulevard extends north-south with one through lane in each direction south of Powers Boulevard (SH-21). Grinnell Boulevard has two through lanes in each direction north of Powers Boulevard (SH-21). The roadway has a posted speed limit of 40 miles per hour.

Goldfield Drive extends east-west with one through lane in each direction and a speed limit of 35 miles per hour. Escanaba Drive extends north-south with one through lane in each direction. Cudahy Road extends north-south, with one through lane in each direction and a speed limit of 25 miles per hour. Cudahy Road includes left turn lanes between Goldfield Drive and the access location, approximately 425 feet north of Goldfield Drive. Bradley Road extends east-west with one through lane in each direction and a speed limit of 40 miles per hour west of Grinnell Boulevard and 35 miles per hour east of Grinnell Boulevard.

The signalized intersection of Powers Boulevard (SH-21) and Grinnell Boulevard (#1) operates with protected-only left turn phasing on all approaches. All four approaches provide dual left turn lanes, two through lanes, and a free right turn lane. An aerial photo of the existing intersection configuration is below (north is up - typical).

Powers Boulevard (SH-21) and Grinnell Boulevard (#1)

The unsignalized intersection of Goldfield Drive and Grinnell Boulevard (#2) operates with stop control on the westbound Goldfield Drive approach. The westbound approach provides one left turn lane and one right turn lane with a striped-out area between these two turn lanes. The northbound approach of Grinnell Boulevard provides one through lane and a right turn lane. The southbound approach provides one left turn lane and one through lane. An aerial photo of the existing intersection configuration is below.

Goldfield Drive and Grinnell Boulevard (#2)

The unsignalized T-intersection of Goldfield Drive and Escanaba Drive (#3) operates with stop control on the northbound Escanaba Drive approach. The westbound approach provides one left turn lane and a through lane while the eastbound approach includes one through lane and a right turn lane. The northbound approach provides a shared left/right turn lane. An aerial photo of the existing intersection configuration is below.

Goldfield Drive and Escanaba Drive (#3)

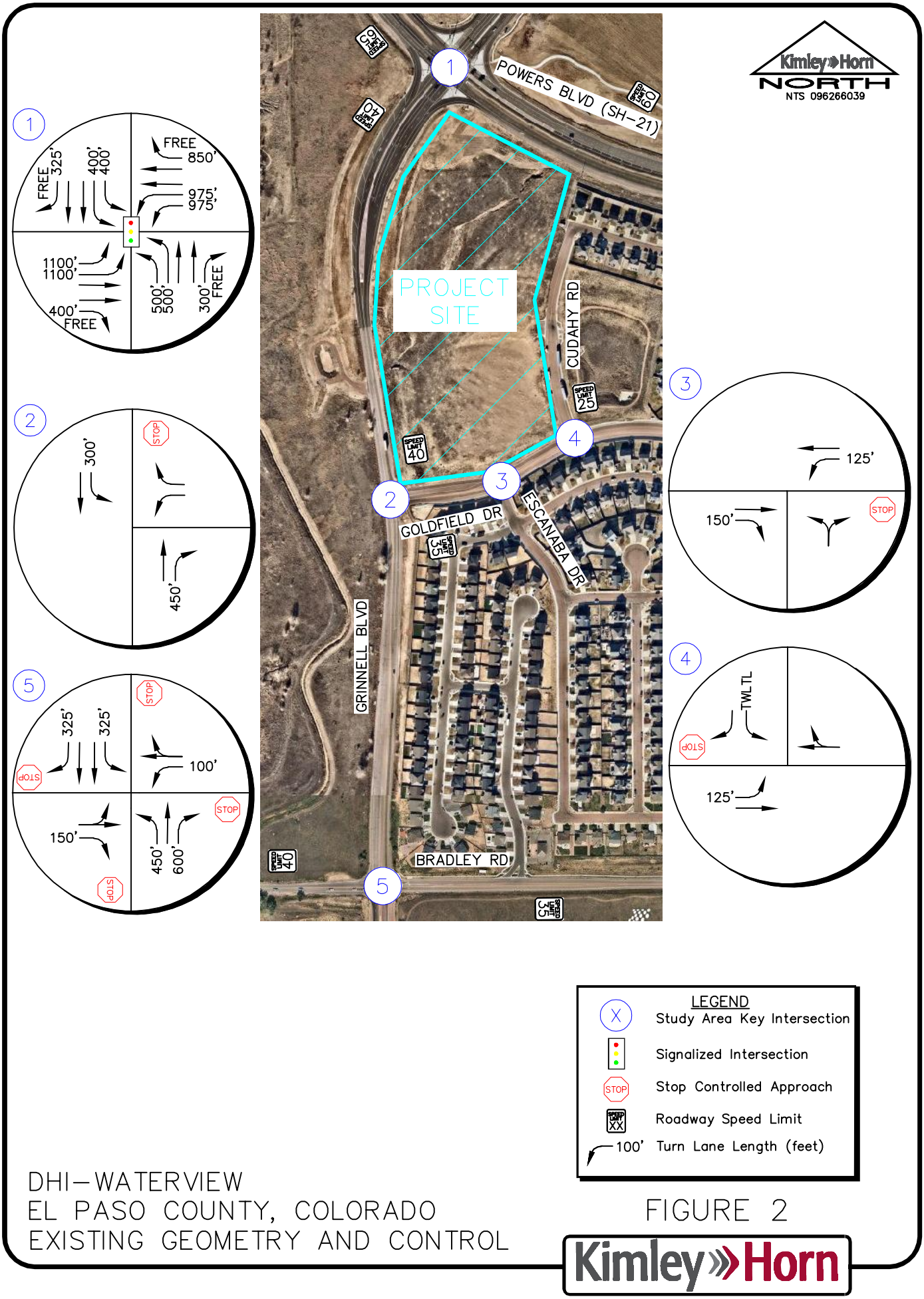
The unsignalized intersection of Goldfield Drive and Cudahy Road (#4) operates with stop control on the southbound Cudahy Road approach. The eastbound approach provides one left turn lane and a through lane. The westbound approach provides a shared through/right turn lane. The southbound approach provides a two-way left turn lane and a right turn lane. An aerial photo of the existing intersection configuration is below.

Goldfield Drive and Cudahy Road (#4)

The unsignalized intersection of Bradley Road and Grinnell Boulevard (#5) operates with all-way stop control on all four approaches. The eastbound approach consists of a shared left turn/through lane and a right turn lane. The westbound approach provides a left turn lane and a shared through/right turn lane. The northbound approach consists of a left turn lane, one through lane, and a right turn lane. The southbound approach provides a left turn lane, two through lanes, and a right turn lane. An aerial photo of the existing intersection configuration is below.

Bradley Road and Grinnell Boulevard (#5)

The intersection lane configuration and control for the study area intersections are shown in **Figure 2**.



DHI–WATERVIEW
EL PASO COUNTY, COLORADO
EXISTING GEOMETRY AND CONTROL

FIGURE 2

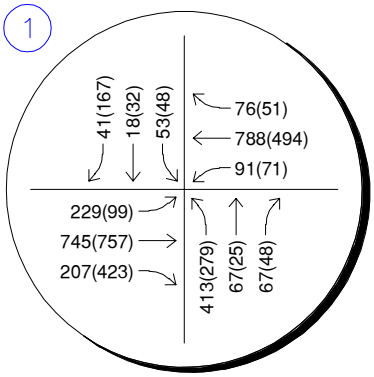
Kimley»Horn

3.3 Existing Traffic Volumes

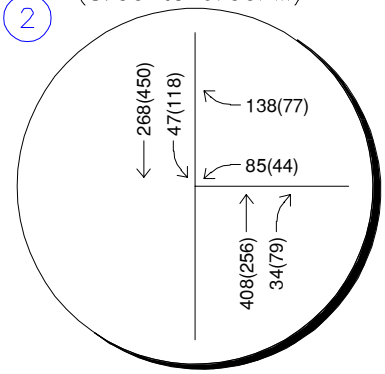
Existing turning movement counts were conducted at most of the study intersections on Tuesday, August 31, 2021 during the morning and afternoon peak hours with exception of the Bradley Road and Grinnell Boulevard intersection which were collected on Wednesday, March 2, 2022. The counts were conducted during the morning and afternoon peak hours of adjacent street traffic in 15-minute intervals from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM on these count dates. The existing intersection traffic volumes are shown in **Figure 3** with count sheets provided in **Appendix A**.

3.4 Unspecified Development Traffic Growth

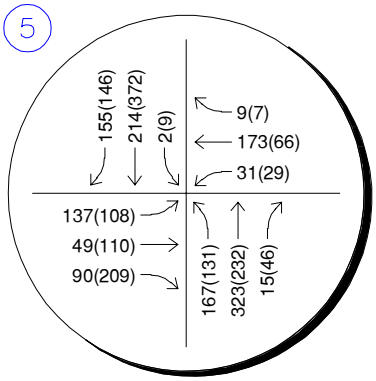
According to information provided on the website for the Colorado Department of Transportation (CDOT), the 20-year growth factor along SH-21 (Powers Boulevard) in the vicinity of the site is 1.15. The 20-year growth factor equates to annual growth rate of 0.7 percent. Traffic information from the CDOT Online Transportation Information System (OTIS) website is included in **Appendix B**. This annual growth rate was used to estimate near term 2024 and long term 2045 traffic volume projections at the key intersections. In addition to growing traffic volumes to 2024 and 2045 by the baseline growth rate, project traffic from Peak Innovation Park development to the north was also added to the study area intersections. Traffic assignment from Peak Innovation Park is also provided in **Appendix B**. Background traffic volumes for 2024 and 2045 are shown in **Figures 4** and **5**, respectively.



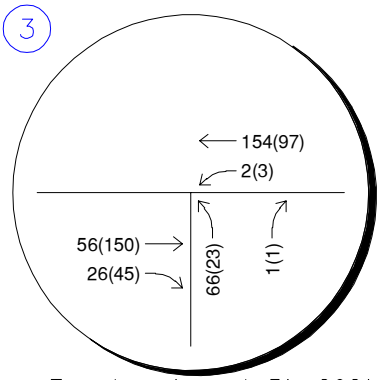
Tuesday, August 31, 2021
7:00 to 8:00AM
(5:00 to 6:00PM)



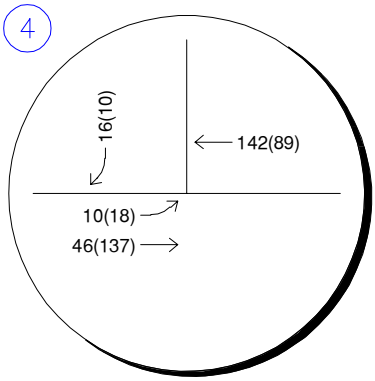
Tuesday, August 31, 2021
7:00 to 8:00AM
(4:45 to 5:45PM)



Wednesday, March 2, 2022
7:00 to 8:00AM
(4:45 to 5:45PM)



Tuesday, August 31, 2021
7:00 to 8:00AM
(4:45 to 5:45PM)



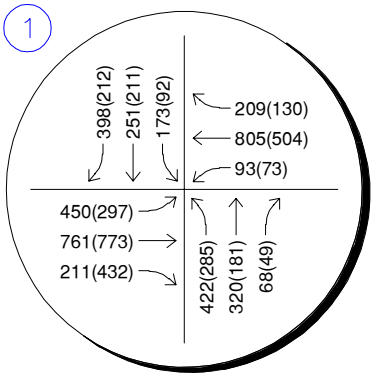
Tuesday, August 31, 2021
7:00 to 8:00AM
(4:45 to 5:45PM)

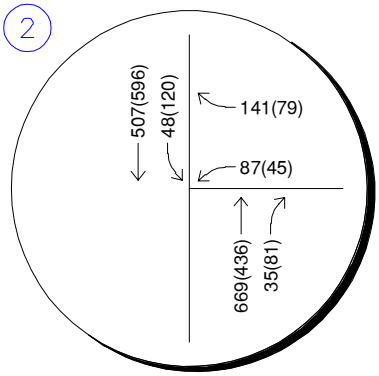
LEGEND

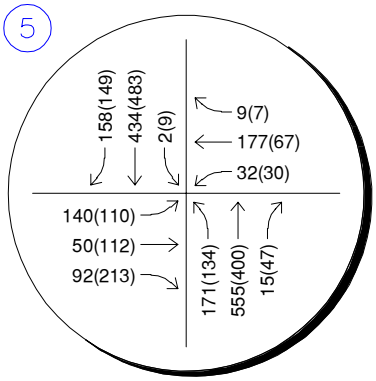
X	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

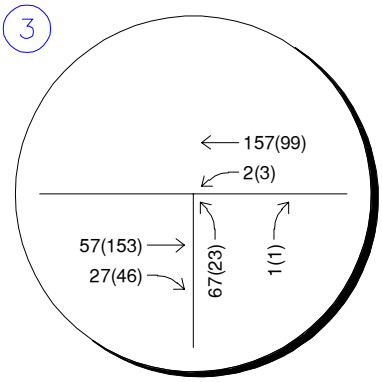
DHI–WATERVIEW
EL PASO COUNTY, COLORADO
2021 EXISTING TRAFFIC VOLUMES

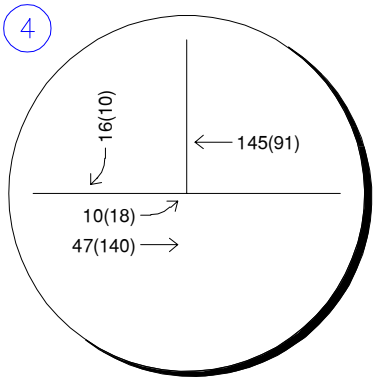
FIGURE 3









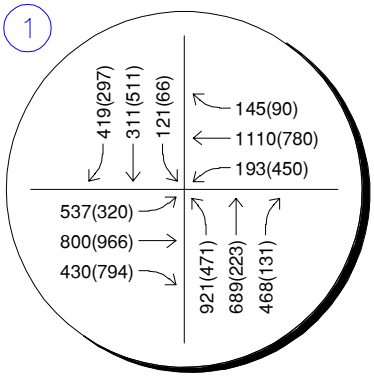


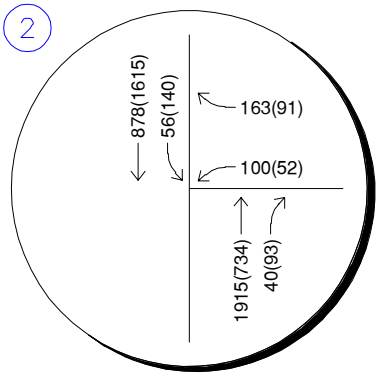
LEGEND

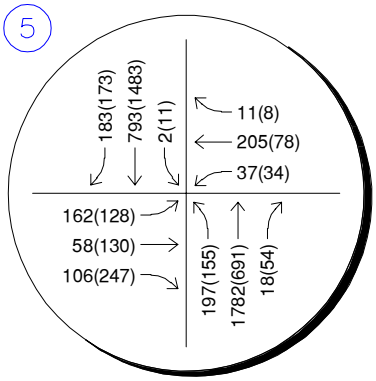
X	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

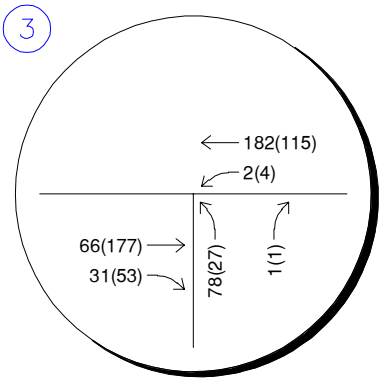
DHI–WATERVIEW
EL PASO COUNTY, COLORADO
2024 BACKGROUND TRAFFIC VOLUMES

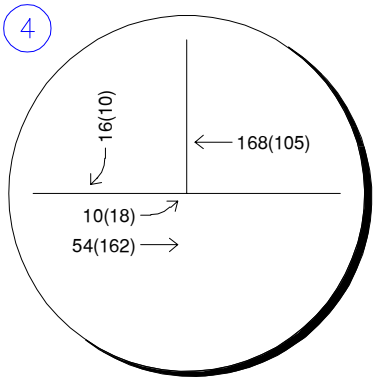
FIGURE 4











LEGEND

X	Study Area Key Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

DHI–WATERVIEW
EL PASO COUNTY, COLORADO
2045 BACKGROUND TRAFFIC VOLUMES

FIGURE 5

4.0 PROJECT TRAFFIC CHARACTERISTICS

4.1 Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual*[1] published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. For this study, Kimley-Horn used the ITE Trip Generation Report average rates that apply to Multifamily Low-Rise Housing (ITE Land Use Code 220) for traffic associated with the development.

The DHI - Waterview project is expected to generate approximately 2,326 weekday daily trips, with 138 of these trips occurring during the morning peak hour and 176 of these trips occurring during the afternoon peak hour. Calculations were based on the procedure and information provided in the ITE *Trip Generation Manual, 11th Edition – Volume 1: User's Guide and Handbook*, 2021. **Table 1** summarizes the estimated trip generation for the DHI - Waterview. The trip generation worksheets are included in **Appendix C**.

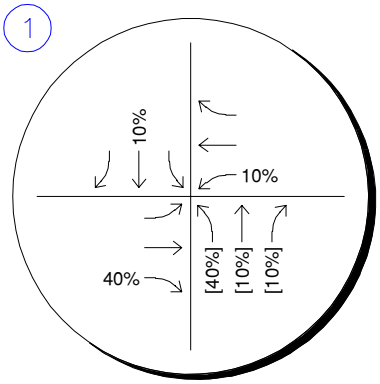
Table 1 – DHI - Waterview Traffic Generation

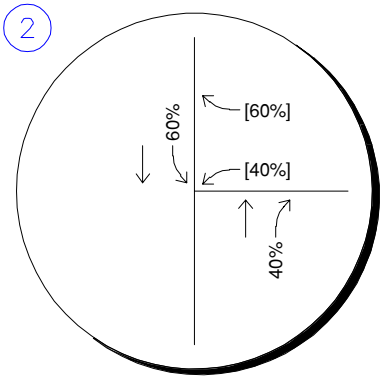
Land Use and Size	Weekday Vehicle Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Low-Rise Multifamily Housing (ITE 221) – 345 Dwelling Units	2,326	33	105	138	111	65	176

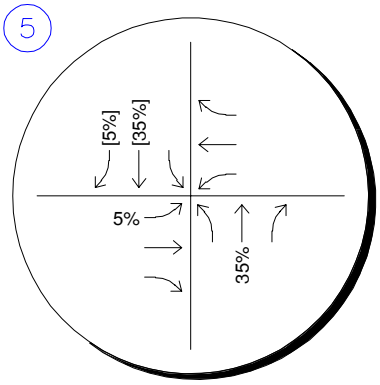
4.2 Trip Distribution

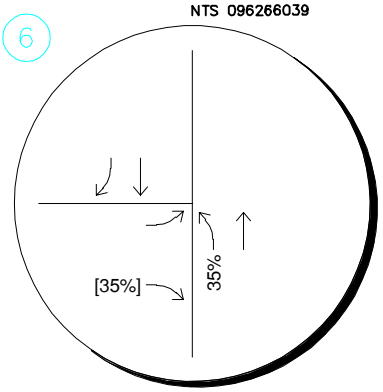
Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns, existing and anticipated surrounding demographic information, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site back to the original source. The project trip distribution for the proposed development is illustrated in **Figure 6**.

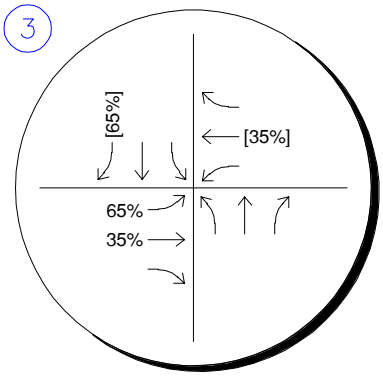
[1] Institute of Transportation Engineers, *Trip Generation Manual*, Eleventh Edition, Washington DC, 2021.

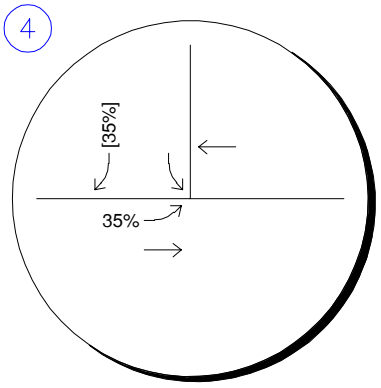












LEGEND

(X)	Study Area Key Intersection
(X)	Project Access Intersection
XX%	External Trip Distribution Percentage
XX%[XX%]	Entering[Exiting] Trip Distribution Percentage

DHI–WATERVIEW
EL PASO COUNTY, COLORADO
PROJECT TRIP DISTRIBUTION

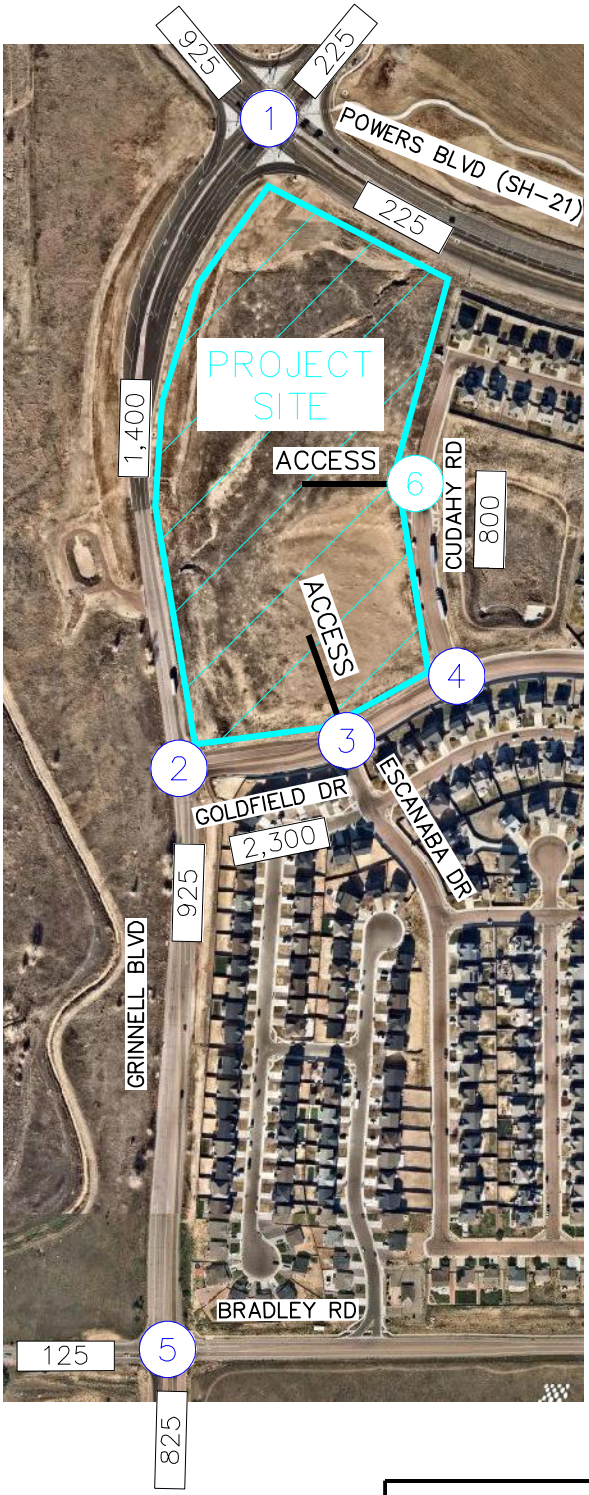
FIGURE 6

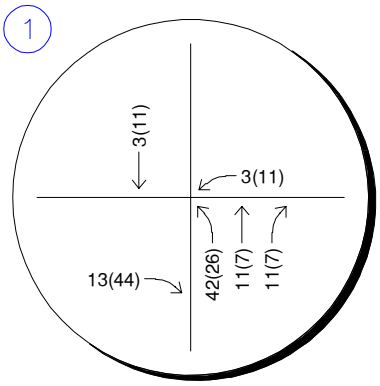
4.3 Traffic Assignment

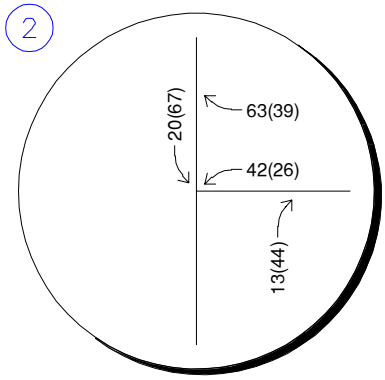
DHI - Waterview traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. Traffic assignment is shown in **Figure 7**.

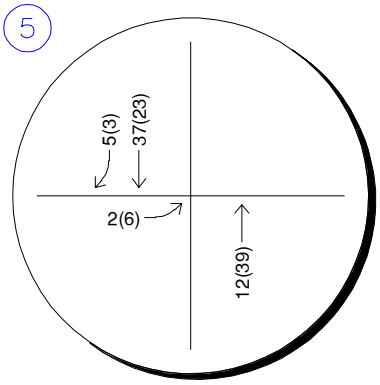
4.4 Total (Background Plus Project) Traffic

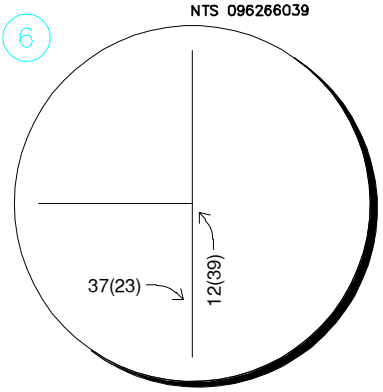
Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the short-term 2024 buildout horizon and long-term 2045 twenty-year planning horizon. These total traffic volumes for the study area are illustrated for the 2024 and 2045 horizon years in **Figures 8** and **9**, respectively.

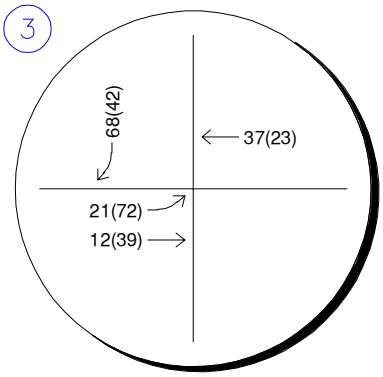


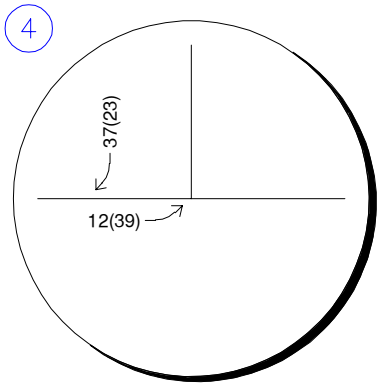












Kimley»Horn NORTH
NTS 096266039

LEGEND

(X) Study Area Key Intersection

(X) Project Access Intersection

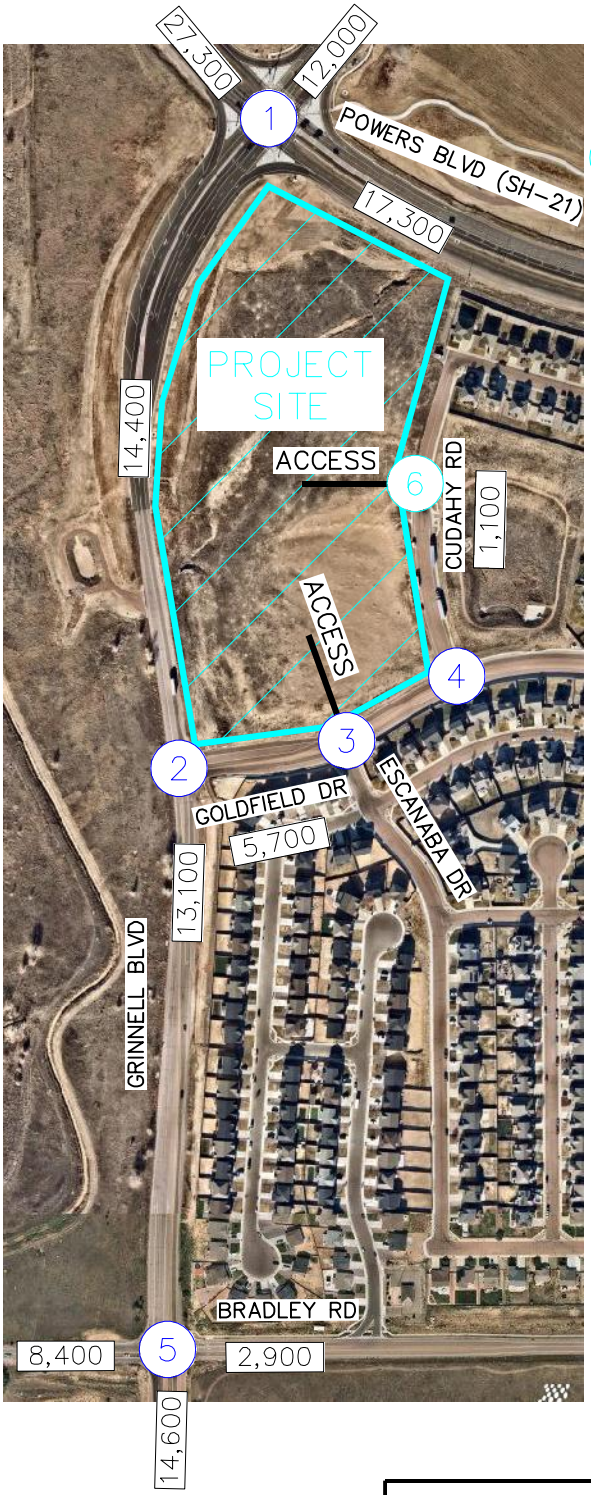
XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes

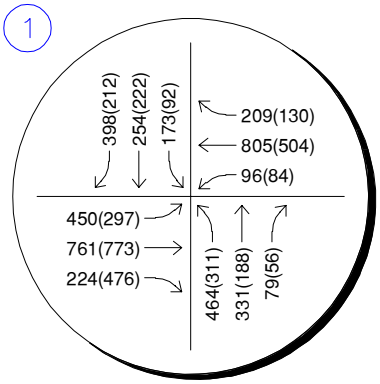
XX,X00 Estimated Daily Traffic Volume

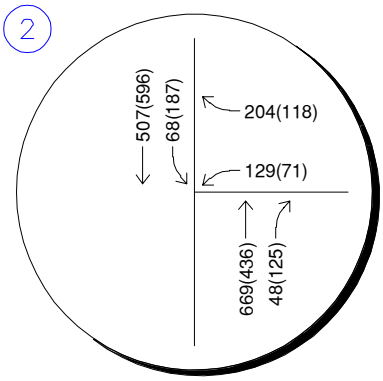
DHI–WATERVIEW
EL PASO COUNTY, COLORADO
PROJECT TRAFFIC ASSIGNMENT

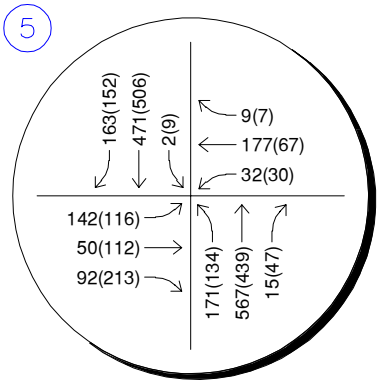
FIGURE 7

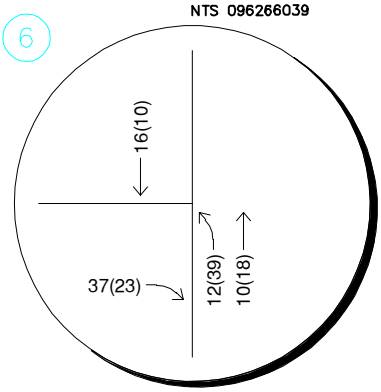
Kimley»Horn

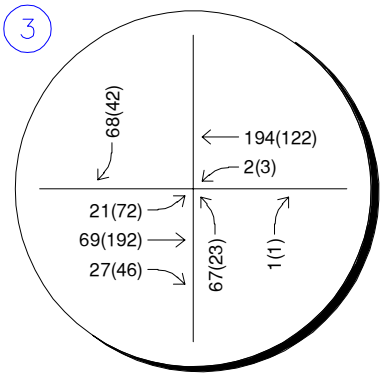


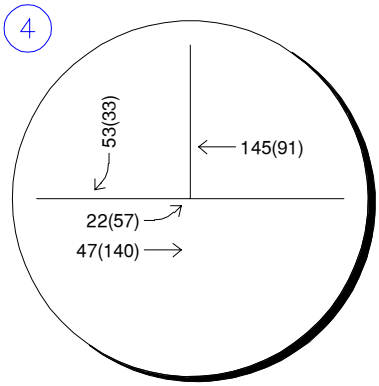










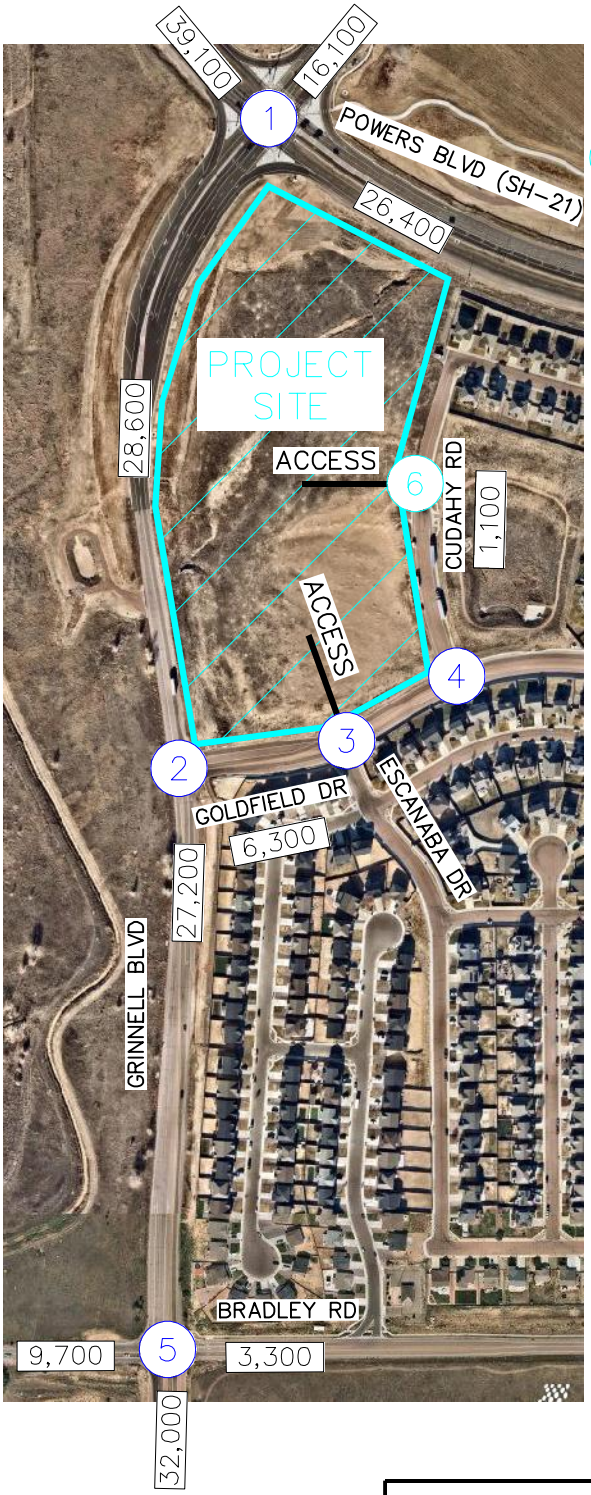


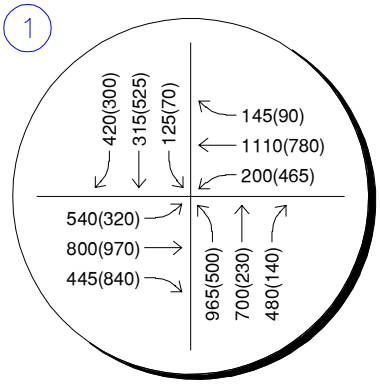
LEGEND

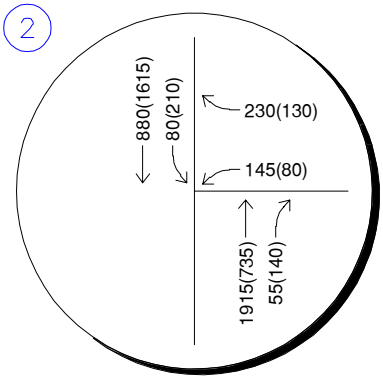
X	Study Area Key Intersection
X	Project Access Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

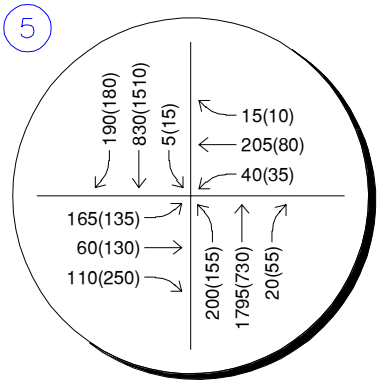
DHI–WATERVIEW
EL PASO COUNTY, COLORADO
2024 TOTAL TRAFFIC VOLUMES

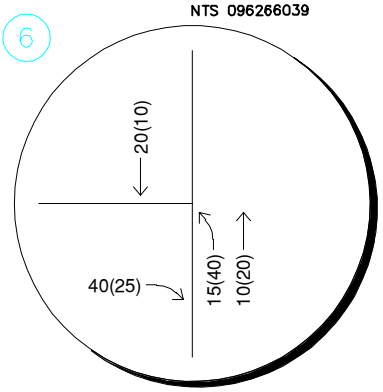
FIGURE 8

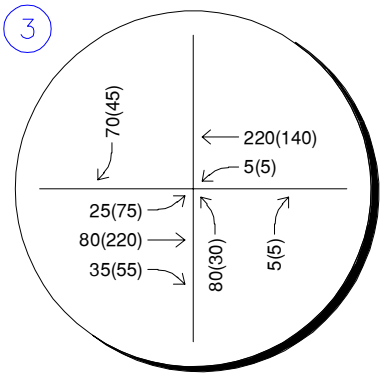


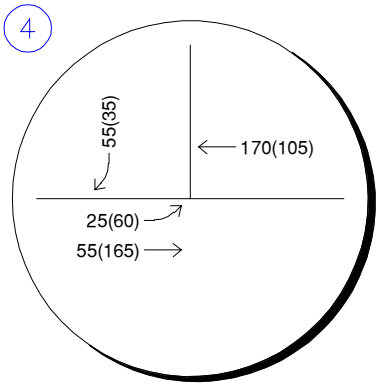












LEGEND

(X)	Study Area Key Intersection
(X)	Project Access Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

DHI–WATERVIEW
EL PASO COUNTY, COLORADO
2045 TOTAL TRAFFIC VOLUMES

FIGURE 9

5.0 TRAFFIC OPERATIONS ANALYSIS

Kimley-Horn's analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies in the 2024 and 2045 development horizons at the identified key intersections. The acknowledged source for determining overall capacity is the current edition of the *Highway Capacity Manual (HCM)*[2].

5.1 Analysis Methodology

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). Based on El Paso County standards, the threshold for acceptable LOS is not less than LOS D during peak hours. **Table 2** shows the definition of level of service for signalized and unsignalized intersections.

Table 2 – Level of Service Definitions

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Definitions provided from the Highway Capacity Manual, Sixth Edition, Transportation Research Board, 2016.

Study area intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections. Under the unsignalized analysis, the LOS for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS for a two-way stop-controlled intersection is not defined for the intersection as a whole. LOS for signalized, roundabout, and four-way stop controlled intersections are defined for each approach and for the overall intersection.

[2] Transportation Research Board, *Highway Capacity Manual*, Sixth Edition, Washington DC, 2016.

5.2 Key Intersection Operational Analysis

Calculations for the operational level of service at the key intersections for the study area are provided in **Appendix D**. The existing year analysis is based on the lane geometry and intersection control shown in **Figure 2.** Existing peak hour factors were utilized in the existing and 2024 horizon analysis years while the HCM urban standard of 0.92 was used for the long-term 2045 horizon analysis. The signalized intersection analysis utilizes the observed cycle lengths with optimized phasing and timing. Based on increased national attention given to establishing appropriate yellow and all-red clearance intervals to improve intersection safety, these have been calculated and are applied for approaches at the signalized intersections. The increase in yellow and all red time sacrifices intersection capacity for improved safety. Synchro traffic analysis software was used to analyze the signalized, and unsignalized key intersections for HCM level of service.

Powers Boulevard (SH-21) and Grinnell Boulevard (#1)

The signalized intersection of Powers Boulevard (SH-21) and Grinnell Boulevard (#1) operates with protected-only left turn phasing on all approaches. As such, the intersection operates acceptably at LOS D or better during both peak hours under existing conditions. With project traffic, this intersection will operate at LOS D during the morning and afternoon peak hours in 2024. By 2045, this intersection may need to be built to its ultimate at-grade configuration with three eastbound and westbound through lanes. With these improvements, this intersection may operate at LOS F during the morning peak hour and LOS D during the afternoon peak hour with project traffic in 2045. This intersection is planned to be a grade separated interchange sometime in the future, and likely by 2045 if these future traffic volumes are realized. **Table 3** provides the results of the LOS analysis conducted at this intersection.

Table 3 – Powers Boulevard & Grinnell Boulevard (#1) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2021 Existing	38.8	D	33.6	C
2024 Background	47.5	D	38.2	D
2024 Background Plus Project	50.8	D	39.1	D
2045 Background	135.8	F	55.7	E
2045 Background Plus Project #	126.3	F	50.9	D

= Three Eastbound and Westbound Through Lanes

Goldfield Drive and Grinnell Boulevard (#2)

The unsignalized intersection of Goldfield Drive and Grinnell Boulevard (#2) operates with stop control on the westbound approach. The movements at this intersection currently operate acceptably at LOS C or better during both peak hours under existing conditions. With the addition of project traffic in 2024, all movements are anticipated to operate acceptably at LOS D or better. By 2045 in the background condition, it was found that some movements may operate with long delays and LOS F if future traffic volume projections are realized. Therefore, alternate control may be needed at this intersection sometime in the future. Traffic signal warrants were evaluated for this intersection as described in **Section 5.3**. From this warrant analysis, it was found that the intersection may warrant signalization with the addition of project traffic in 2024. If signalized, this intersection would operate at LOS B during both peak hours in 2024 with project traffic. It is understood that this project may be required to construct this traffic signal since the signal warrant is met with this development project traffic. Construction of this signal may be included as a reimbursable improvement.

As identified in the El Paso County Major Transportation Corridors Plan Update, it is understood that Grinnell Boulevard will provide two northbound and southbound through lanes in the future as part of Project ID C16. Therefore, it was assumed that a second northbound and southbound through lane would be constructed by 2045. With this improvement, this intersection is anticipated to operate acceptably at LOS B during the morning peak hour and LOS A during the afternoon peak hour as a signalized intersection with project traffic in 2045.

An alternative analysis was completed for this intersection with roundabout control. A single lane roundabout was analyzed during the 2024 horizon with project traffic. It was found that a single lane roundabout would operate acceptably in 2024 with project traffic at LOS B during the morning and afternoon peak hours. By 2045, it is anticipated that Grinnell Boulevard will provide two through lanes northbound and southbound. Therefore, a two-lane roundabout with two approach lanes on each approach was analyzed for the 2045 horizon. With project traffic, a two-lane roundabout would operate with LOS D during the morning peak hour in 2045, and at LOS B during the afternoon peak hour. However, a traffic signal is preferred based on improved operations and the cost of a roundabout being likely twice the cost of a traffic signal at this intersection. **Table 4** provides the results of the LOS analysis conducted at this intersection.

Table 4 – Goldfield Drive & Grinnell Boulevard (#2) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2021 Existing				
Westbound Left	13.7	B	15.4	C
Westbound Right	12.8	B	10.2	B
Southbound Left	8.5	A	8.3	A
2024 Background				
Westbound Left	19.2	C	18.4	C
Westbound Right	18.5	C	11.9	B
Southbound Left	9.6	A	9.0	A
2024 Background Plus Project				
Westbound Left	23.7	C	25.2	D
Westbound Right	23.0	C	12.5	B
Southbound Left	9.8	A	9.6	A
2024 Background Plus Project #	18.2	B	10.2	B
2024 Background Plus Project ##	11.4	B	10.3	B
2045 Background				
Westbound Left	246.4	F	99.6	F
Westbound Right	>300	F	16.9	C
Southbound Left	23.4	C	10.7	B
2045 Background Plus Project ###	15.7	B	7.1	A
2045 Background Plus Project ####	27.6	D	12.4	B

= Signalized
= Single lane roundabout
= # + Signalized with two northbound and southbound through lanes
= Two lane roundabout

Goldfield Drive and Escanaba Drive (#3)

The unsignalized intersection of Goldfield Drive and Escanaba Drive (#3) operates with stop control on the northbound approach. The movements at this intersection operate acceptably at LOS B or better during both peak hours under existing conditions. With construction of this project, a north leg is proposed at this intersection to provide access to the development. When this north leg is constructed, it is recommended that there be one lane for all movements, and a R1-1 STOP sign be installed on the southbound exiting approach. An eastbound left turn lane will also need to be constructed at this intersection to meet El Paso County standards. With these improvements, the movements at this intersection are expected to operate at LOS B or better during both peak hours throughout 2045 with project traffic. **Table 5** provides the results of the LOS analysis conducted at this intersection.

Table 5 – Goldfield Drive & Escanaba Drive (#3) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2021 Existing				
Northbound Approach	10.5	B	10.1	B
Westbound Left	7.4	A	7.7	A
2024 Background				
Northbound Approach	10.5	B	10.1	B
Westbound Left	7.4	A	7.7	A
2024 Background Plus Project #				
Northbound Approach	12.7	B	12.6	B
Eastbound Through/Left	7.7	A	7.6	A
Westbound Left	7.4	A	7.8	A
Southbound Approach	9.9	A	9.1	A
2024 Background Plus Project ##				
Northbound Approach	12.7	B	12.6	B
Eastbound Left	7.7	A	7.6	A
Westbound Left	7.4	A	7.8	A
Southbound Approach	9.9	A	9.1	A
2045 Background				
Northbound Approach	10.6	B	10.4	B
Westbound Left	7.4	A	7.7	A
2045 Background Plus Project ##				
Northbound Approach	12.9	B	13.0	B
Eastbound Left	7.8	A	7.7	A
Westbound Left	7.5	A	7.9	A
Southbound Approach	10.0	B	9.3	A

= North leg
= # + Eastbound left turn lane

Goldfield Drive and Cudahy Road (#4)

The unsignalized intersection of Goldfield Drive and Cudahy Road (#4) operates with stop control on the southbound approach. The movements at this intersection operate acceptably at LOS A during both peak hours under existing conditions. The movements at this intersection will operate at LOS B or better during both peak hours throughout 2045 with project traffic. Therefore, no improvements are believed to be necessary at this intersection. **Table 6** provides the results of the LOS analysis conducted at this intersection.

Table 6 – Goldfield Drive & Cudahy Road (#4) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2021 Existing				
Eastbound Left	7.6	A	7.4	A
Southbound Left	0.0	A	0.0	A
Southbound Right	9.3	A	8.8	A
2024 Background				
Eastbound Left	7.6	A	7.4	A
Southbound Left	0.0	A	0.0	A
Southbound Right	9.3	A	8.8	A
2024 Background Plus Project				
Eastbound Left	7.6	A	7.5	A
Southbound Left	0.0	A	0.0	A
Southbound Right	9.5	B	8.9	A
2045 Background				
Eastbound Left	7.6	A	7.5	A
Southbound Left	0.0	A	0.0	A
Southbound Right	9.3	A	8.9	A
2045 Background Plus Project				
Eastbound Left	7.6	A	7.6	A
Southbound Left	0.0	A	0.0	A
Southbound Right	9.5	B	9.0	A

Bradley Road and Grinnell Boulevard (#5)

The unsignalized intersection of Bradley Road and Grinnell Boulevard (#5) operates with all-way stop control on all four approaches. This intersection operates acceptably at LOS C during both peak hours under existing conditions. Prior to the addition of project traffic, this intersection is anticipated to operate poorly at LOS F by 2024. Therefore, signalization may be needed at this intersection sometime soon. A traffic signal warrant analysis was conducted for this intersection as provided in **Section 5.3**. It was found that a traffic signal is warranted at this intersection with existing traffic volumes. With signalization it is recommended that an eastbound left turn lane be designated at this intersection. With these improvements, this intersection will operate at LOS B during both peak hours in 2024 with project traffic.

As identified in the El Paso County Major Transportation Corridors Plan Update, it is understood that Grinnell Boulevard will provide two northbound and southbound through lanes in the future as part of Project ID C16. Therefore, it was assumed that a second northbound through lane would be constructed by 2045. With this improvement, this intersection is anticipated to operate acceptably at LOS C during the morning peak hour and LOS B during the afternoon peak hour as a signalized intersection with project traffic in 2045. **Table 7** provides the results of the LOS analysis conducted at this intersection.

Table 7 – Bradley Road & Grinnell Boulevard (#5) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2022 Existing	21.2	C	18.9	C
2022 Existing #	23.6	C	23.5	C
2024 Background	102.6	F	45.6	E
2024 Background #	21.4	C	21.8	C
2024 Background Plus Project #	17.1	B	17.9	B
2045 Background	>300	F	>300	F
2045 Background Plus Project ##	24.3	C	16.2	B

= Signalized with an eastbound left turn lane
= # + Two northbound through lanes

Cudahy Road Project Access

With completion of the DHI - Waterview project, one access is proposed along Goldfield Drive to align with Escanaba Drive and one access is proposed along the west side of Cudahy Road. The access along Cudahy Road is proposed as a full movement access. It is recommended that R1-1 "STOP" signs be installed on the exiting eastbound approach at the Cudahy Road Access.

Table 8 provides the results of the level of service for the Cudahy Road project access (the Goldfield Drive Access was evaluated as part of the Goldfield Drive and Escanaba Drive intersection #3 with which the access will align). As shown in the table, the project access intersection along Cudahy Road is anticipated to have all movements operating with acceptable LOS A during the peak hours in both the 2024 buildout year and the 2045 long term horizons with the recommended configuration. The access along Goldfield Drive aligns with Escanaba Drive and was evaluated within that key intersection (#3) with LOS results provided in previous **Table 5**.

Table 8 – Cudahy Road Project Access Level of Service Results

Intersection	2024 Total				2045 Total			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS
Cudahy Rd Access (#6)								
Northbound Left	7.3	A	7.3	A	7.3	A	7.3	A
Eastbound Approach	8.5	A	8.4	A	8.6	A	8.5	A

5.3 Traffic Signal Warrant Analysis

The most restrictive form of traffic control is the traffic signal. A traffic signal not only provides traffic control and direction to motorists, it also takes on the active role of allocating and assigning time to each direction of travel. Therefore, the installation of traffic signals must be uniform across the entire nation to maintain the proper respect for the devices, as well as to ensure the device actually benefits the public. The Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) 2009 establishes the standards and the basic principles governing the design, usage, and installation of all traffic control devices (including the traffic signal). The determination to install a traffic control signal should be based on an engineering study of existing traffic conditions, pedestrian characteristics, and the geometry of the intersection in question.

The MUTCD 2009, provides a series of signal warrants that define the minimum conditions under which the installation of a traffic control signal should be considered. The installation of a traffic control signal, even when justified by existing conditions, can be improperly designed, placed, and operated, causing excessive delay, driver disregard and increases in collision frequency. The MUTCD states; "*The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal*." As such, consideration should be given to providing alternative, less restrictive, forms of traffic control; including the installation of multi-way STOP sign control, roundabouts, and turning movement restrictions.

The first step when conducting a traffic signal warrant study is the collection of traffic engineering data. This includes field observations and traffic counts. Next, the existing conditions are compared to the guidelines contained in the MUTCD. Finally, a determination is made as to the appropriate form of traffic control for the current conditions. Although most of the steps in conducting the study are quantitative, the final step of recommending whether a signal should be considered for installation involves a degree of qualitative assessments that require the use of engineering judgment.

The justification for the installation of a traffic signal at an intersection is based on warrants stated in the MUTCD 2009. The decision to install a signal should not be based solely upon the warrants, since the installation of traffic signals may increase certain types of collisions. Delay, congestion, approach condition, driver confusion, future land use or other evidence of the need for right-of-way assignment beyond that which could be provided by stop signs must be demonstrated.

When the 85th percentile speed of traffic on the major street exceeds 40 miles per hour in either an urban or rural area, or when the study intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes evaluated may be 70 percent of the stated minimums. The location of the intersections evaluated are not within the 70 percent volume location due to the speed limit along Grinnell Boulevard being set at 40 miles per hour and within an area having a population greater than 10,000 people.

The installation of a traffic control signal should be considered if one or more of the following traffic signal warrants are met:

Warrant 1, Eight-Hour Vehicular Volume

Warrant 2, Four-Hour Vehicular Volume

Warrant 3, Peak Hour
Warrant 4, Pedestrian Volume
Warrant 5, School Crossing
Warrant 6, Coordinated Signal System
Warrant 7, Crash Experience
Warrant 8, Roadway Network
Warrant 9, Intersection Near a Grade Crossing

El Paso County has requested that traffic signal warrant evaluations be conducted for the Goldfield Drive/Grinnell Boulevard and Bradley Road/Grinnell Boulevard intersection due to movement failure level of service in the future. Four-hour vehicular volume signal warrant analyses were completed for these two intersections. This analysis determined that a traffic signal may be warranted at the Goldfield Drive/Grinnell Boulevard intersection in 2024 with the addition of project traffic and at the Bradley Road/Grinnell Boulevard intersection with existing traffic in 2022. The DHI-Waterview project is anticipated to make up 3.0 percent (56/1891) of the traffic at the intersection of Bradley Road/Grinnell Boulevard during the morning peak hour and 3.9 percent (71/1832) during the afternoon peak hour during the 2024 total scenario. Based on current policy the applicant may be required to provide an escrow of their fair share contribution for the signal at the intersection of Bradley Road/Grinnell Boulevard. The signal warrant analysis graphs for both intersections are attached in **Appendix E.**

Based on the warrant criteria, with the area being residential in character, the Warrant 1, Eight-Hour Vehicular Volume Warrant wasn't evaluated, as the additional four hours through the less traffic portions of the day through residential areas are significantly less than the four hours of the morning and afternoon peaks. Therefore, the Warrant 2, Four-Hour warrant was evaluated. The Warrant 3, Peak Hour warrant wasn't evaluated as MUTCD reads that application of this warrant should only be applied in unique circumstances when there is a large employer access generating significant traffic volumes to an intersection over just one hour. The Warrant 4, Pedestrian Volume and Warrant 5, School Crossing warrants were not evaluated as there were limited pedestrians observed crossing at these intersections, likewise no school directly adjacent. The Warrant 6, Coordinated Signal System is not applicable as installation of a traffic signal to coordinate a signal system is not relevant to the Grinnell Boulevard corridor. Warrant 7, Crash Experience was applicable, but not evaluated since the four-hour traffic volume warrants traffic signals at both intersections. Warrant 8, Roadway Network and Warrant 9, Intersection Near a Grade Crossing

are not applicable as these intersections are not within a central business district grid where concentration of traffic volumes is desired nor near a railroad crossing.

5.4 CDOT Access Permit Need Analysis

The threshold for requiring an access permit along Colorado Department of Transportation (CDOT) roadways occurs when project traffic is anticipated to increase the existing access traffic volumes by more than 20 percent. Based on traffic projections, the addition of project traffic on the south leg of Grinnell Boulevard at SH-21 (Powers Boulevard) is not anticipated to increase existing access traffic volumes by more than 20 percent (10 percent increase in the morning peak hour and 12 percent increase in the afternoon peak hour). Therefore, a CDOT access permit is not anticipated to be required in association with this project.

5.5 Turn Lane Evaluation and Vehicle Queuing Analysis

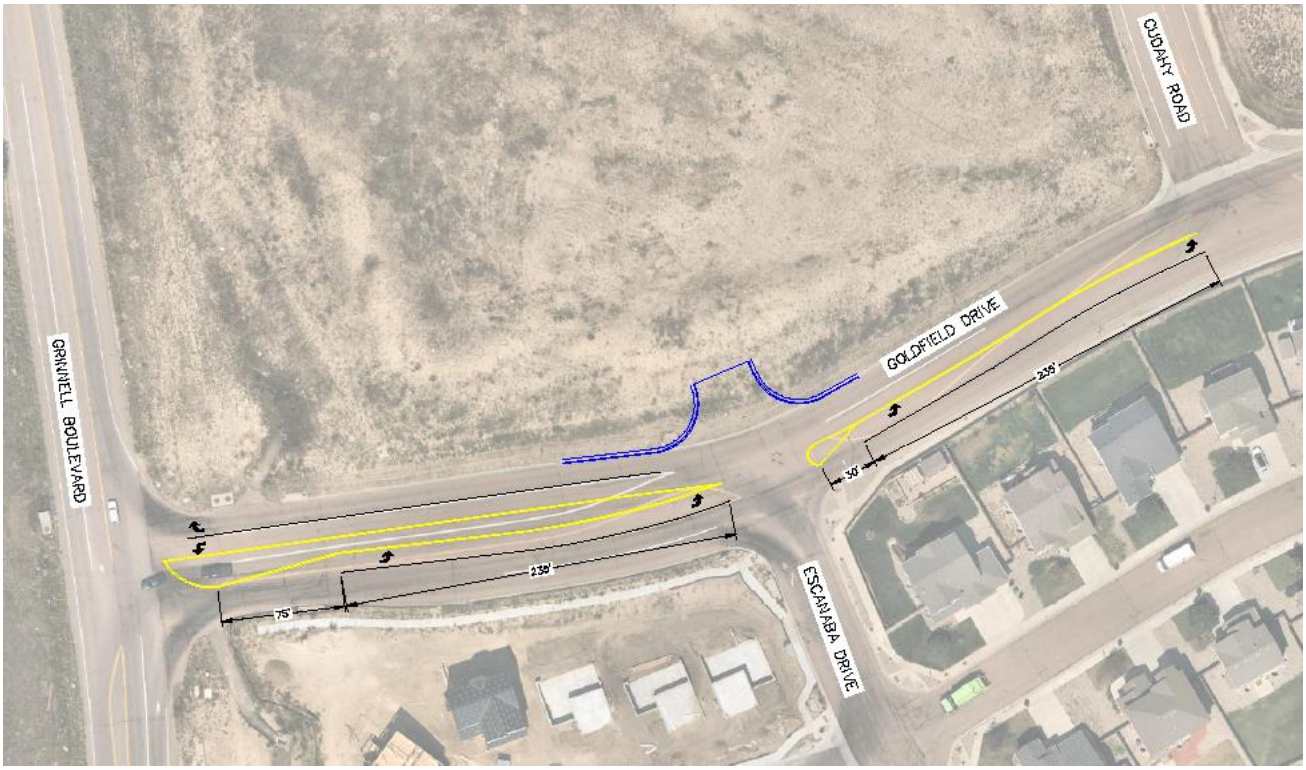
The El Paso County ECM was used to determine if right turn lanes are warranted at the project accesses along Goldfield Drive and Cudahy Road. Goldfield Drive meets the characteristics of a residential collector while Cudahy Road meets characteristics of a local street. According to El Paso County ECM guidelines for Minor Arterials and below, a right turn lane is required for any access with a projected peak hour right turning volume of 50 vehicles per hour or greater.

The proposed project accesses along Goldfield Drive and Cudahy Road are expected to have minimal right turn movements; therefore, right turn lanes are not warranted at these locations. Likewise, the El Paso County ECM was used to determine if left turn lanes are warranted at the studied intersections. For minor arterials or lower classifications, a left turn lane is required for any access with a projected peak hour ingress turning volume of 25 vehicles per hour or greater.

Therefore, an eastbound left turn lane will be required at the intersection of Goldfield Drive and Escanaba Drive (#3). Based on El Paso County standards for a design speed of 35 miles per hour an estimated 72 eastbound left turn movements, the Goldfield Drive and Escanaba Drive (#3) intersection should provide an eastbound left turn lane with a length of 235 feet (100 feet of storage plus 135 feet of deceleration lane length) plus a 75-foot taper. El Paso County standards recommends a taper length of 140 feet, however due to the Goldfield Drive/Grinnell Boulevard intersection 340 feet to the west (edge to edge), this taper will need to be shortened to 75 feet. A deviation request will be provided for this turn lane with the preliminary plan application. Based on spacing constraints, this eastbound left turn lane would need to be designated side-by-side

with the westbound left turn lane at the Goldfield Drive and Grinnell Boulevard intersection. It is recommended that this existing westbound left turn lane be shifted to the striped-out area to the north for the side-by-side left turn lanes.

The eastbound left turn lane at the intersection of Goldfield Drive and Cudahy Road (#4) may also need to be extended by 2024 to a length of 235 feet with a 30-foot taper. El Paso County standards recommends a taper length of 140 feet, however due to the intersection to the west this taper will need to be shortened to 30 feet. A deviation request will be provided for this turn lane with the preliminary plan application. The restriping for the eastbound left turn lanes recommended along Goldfield Drive are shown in the following aerial photo exhibit.



Recommended Goldfield Drive Restriping for Eastbound Left Turn Lanes

Additionally, a northbound left turn lane will be required at the Cudahy Road Access (#6). Based on El Paso County standards for a design speed of 25 miles per hour an estimated 39 northbound left turn movements, the Cudahy Road Access (#6) should provide northbound left turn lane with a length of 165 feet (50 feet of storage plus 115 feet of deceleration lane length) plus an 80-foot taper. The existing two-way left turn lane should be restriped with this actual defined left turn bay. With this lane being designated it is recommended that the southbound left turn lane at the

intersection of Goldfield Drive and Cudahy Road (#4) be restriped to 260 feet with an 80-foot taper, although this southbound left turn lane is not warranted based on no traffic counted in this movement.

A vehicle queuing analysis was conducted for the study area intersections. The queuing analysis was performed using Synchro presenting the results of the 95th percentile queue lengths. Auxiliary turn lanes and turn lane lengths are based on the guidelines outlined in the El Paso County Engineering Criteria Manual. Results are shown in the following **Table 9** with calculations provided within the level of service operational sheets of **Appendix D** for unsignalized intersections and **Appendix F** for signalized intersections.

Table 9 – Turn Lane Queuing Analysis Results

Intersection Turn Lane	Existing Turn Lane Length (feet)	2024 Calculated Queue (feet)	2024 Recommended Length (feet)	2045 Calculated Queue (feet)	2045 Recommended Length (feet)
Powers Blvd & Grinnell Blvd (#1)					
Eastbound Left	1100' DL	265' DL	1100' DL	334' DL	1100' DL
Eastbound Right	400'	FREE	400'	FREE	400'
Westbound Left	975' DL	63' DL	975' DL	276' DL	975' DL
Westbound Right	850'	FREE	850'	FREE	850'
Northbound Left	500' DL	259' DL	500' DL	**656' DL**	**675' DL**
Northbound Right	300'	FREE	300'	FREE	300'
Southbound Left	400' DL	95' DL	400' DL	72' DL	400' DL
Southbound Right	325'	FREE	325'	FREE	325'
Goldfield Dr & Grinnell Blvd (#2)					
Westbound Left	C	167'	C	157'	C
Westbound Right	C	69'	C	273'	C
Northbound Right	450'	25'	450'	25'	450'
Southbound Left	300'	112'	**405'+160'T (EC)**	188'	**430'+160'T (EC)**
Goldfield Dr & Escanaba Dr (#3)					
Eastbound Left	DNE	25'	**235'+75' T (EC)***	25'	235'+75' T (EC)
Eastbound Right	150'	25'	150'	25'	150'
Westbound Left	125'	25'	125'	25'	125'
Goldfield Dr & Cudahy Rd (#4)					
Eastbound Left	125'	25'	**235'+30'T (EC)***	25'	235'+30'T (EC)
Southbound Left	TWLTL	25'	**260'+80'T**	25'	260'+80'T
Bradley Rd & Grinnell Blvd (#5)					
Eastbound Left	DNE	134'	**150'**	183'	**200'**
Eastbound Right	150'	69'	150'	118'	150'
Westbound Left	100'	43'	100'	53'	100'
Northbound Left	450'	104'	450'	161'	450'
Northbound Right	600'	25'	600'	25'	600'
Southbound Left	325'	25'	325'	25'	325'
Southbound Right	325'	28'	325'	44'	325'
Cudahy Rd Access (#6)					
Northbound Left	TWLTL	25'	**165'+80'T (EC)**	25'	165'+80'T (EC)

DL = Dual Left Turn Lanes; FREE = Free Right Turn; C = continuous Turn Lane; EC = El Paso County Requirement; *= Bay taper does not meet El Paso Criteria and will require a deviation request; TWLTL = Two-Way Left Turn Lane; DNE = Does Not Exist; **Red** Text = Storage Deficiency; **Blue** Text = Recommendation

As shown in the previous table, all queues are accommodated within the available and recommended storage in 2024 with project traffic. However, it is recommended that the southbound left turn lane at the intersection of Grinnell Boulevard and Goldfield Drive (#2) be constructed to a length of 405 feet with a 160-foot taper to meet El Paso County Standards if future volumes materialize in 2024. Additionally, it is recommended that the eastbound left turn lane at the intersection of Bradley Road and Grinnell Boulevard (#5) be designated to a length of 150 feet by 2024 and 200 feet by 2045.

If future traffic volume projections are realized by 2045, the dual northbound left turn lanes at the intersection of Powers Boulevard (SH-21) and Grinnell Boulevard (#1) may need to be extended to 675 feet if the intersection is still in the at-grade configuration. It is also recommended that the southbound left turn lane at the intersection of Grinnell Boulevard and Goldfield Drive (#2) be constructed to a length of 430 feet with a 160-foot taper to meet El Paso County Standards if future volumes materialize in 2045.

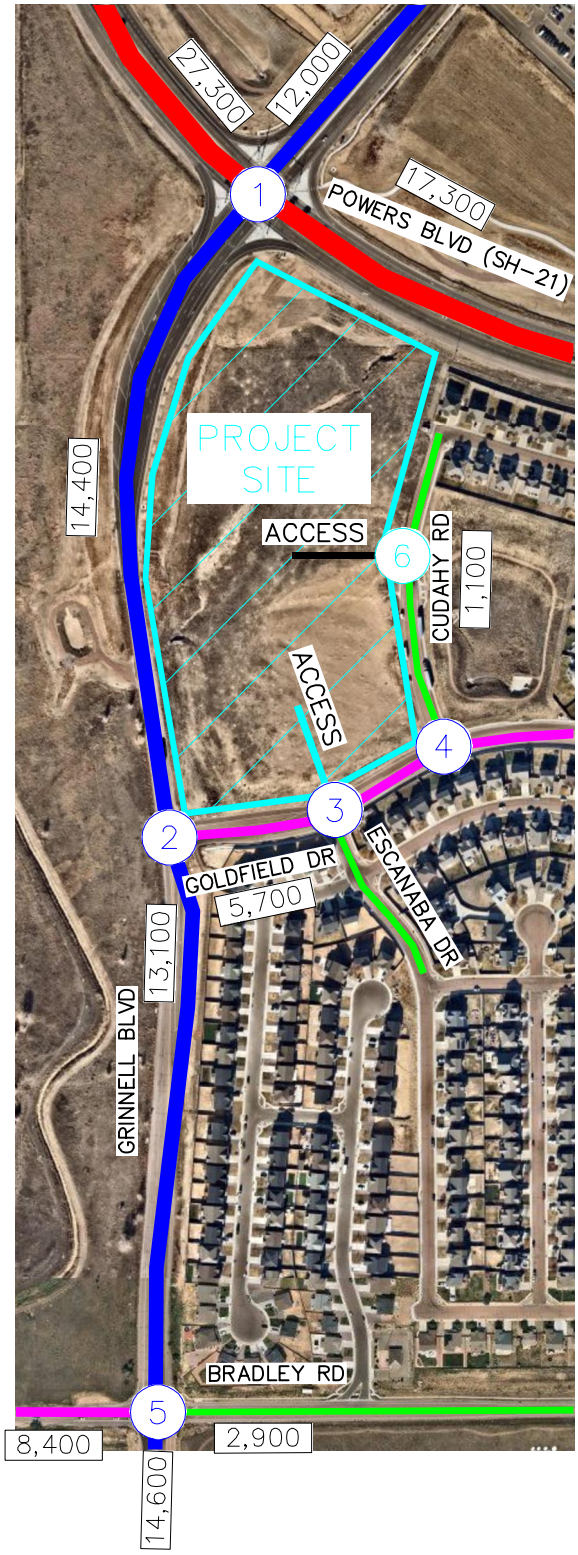
5.6 Access Spacing Requirements and Internal Roadway Classifications

The access along Cudahy Road is proposed to be located approximately 425 feet north of Goldfield Drive. According to the El Paso County 2016 Major Transportation Corridors Plan Update, Cudahy Road meets the characteristics of a local street.

According to the El Paso Engineering Criteria Manual, spacing of intersections along urban local roadways shall not intersect urban local roadways closer than 200 feet from each other (center to center). Therefore, it is believed that the proposed access along Cudahy Road meets ECM standards.

The average daily traffic (ADT) along Cudahy Road is anticipated to be 1,100 vehicles which meets El Paso County ADT threshold standard of 3,000 vehicles per day or less for an Urban Local street. Bradley Road east of Grinnell Boulevard also meets El Paso County ADT threshold standard of 3,000 vehicles per day for an Urban Local street. Likewise, Goldfield Drive and Bradley Road west of Grinnell Boulevard are expected to meet the 10,000 ADT threshold for an Urban Residential Collector with daily traffic volumes along these two roadways being less than this threshold. Lastly, Grinnell Boulevard is expected to meet the El Paso County ADT threshold standard of 20,000 vehicles per day for an Urban Minor Arterial roadway; however, this ADT threshold may be exceeded by the long-term 2045 horizon if future traffic volumes materialize. Although the ADT along Grinnell Boulevard meets the threshold for an Urban Minor Arterial roadway of 10,000 by 2024 prior to the addition of project traffic it is not recommended that this roadway be widened as part of this project as all key intersections are anticipated to operate acceptably with the aforementioned improvements. This widening would be “warranted” based on background traffic volumes only, prior to the addition of project traffic, although the actual daily volume is about 60 percent of the actual two-lane roadway capacity. It should be noted, if project traffic was added directly to the existing traffic volumes along Grinnell Boulevard north of Goldfield Drive (9,400 vpd +1,400 vpd = 10,800 ADT), widening would also be warranted. However, it is

important to note that if project traffic was added directly to existing traffic volumes along Grinnell Boulevard south of Goldfield Drive (8,700 vpd + 950 vpd = 9,650 ADT), widening would not be warranted. The County should provide additional consideration and thought to the vehicle volume threshold standards, as widening roadways when they are not needed is not beneficial for overall traffic safety as higher vehicle speeds will result. Likewise, overbuilding roadways is not fiscally responsible. It is also believed that project traffic from the Peak Innovation Park development to the north and background growth is what triggers this roadway to be classified as an Urban Minor Arterial roadway in 2024 as shown by the ADTs ranging from 11,800 to 13,800 in **Figure 4** as compared to the ADTs ranging from 4,400 to 9,700 as shown in **Figure 3** with the exception of the portion of Grinnell Boulevard south of Bradley Road which has an ADT of 10,700 in the existing condition. Additionally, the El Paso County Major Transportation Corridors Plan identifies this as an improvement in the long-term horizon. **Figure 10** illustrates the circulation plan and street classification map for roadways internal and external to the project.



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LEGEND

- EXPRESSWAY
- URBAN MINOR ARTERIAL
- URBAN RESIDENTIAL COLLECTOR
- URBAN LOCAL
- PRIVATE ACCESS
- XX,X00 ESTIMATED 2024 DAILY TRAFFIC VOLUME

DHI–WATERVIEW
EL PASO COUNTY, COLORADO
CIRCULATION PLAN

FIGURE 10

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5.7 Sight Distance Evaluation

It is recommended that sight triangles be provided at all site access points to give drivers exiting the site a clear view of oncoming traffic. Landscaping and objects within sight triangles must not obstruct drivers' views of the adjacent travel lanes. El Paso County ECM design intersection sight distances for left turn and right turn from stop (from Table 2-35) were evaluated at the accesses along Goldfield Drive and Cudahy Road. Further, ECM design sight distances for left and right turns from stop from public street intersections (Table 2-21) was evaluated at the intersection of Goldfield Drive and Cudahy Road (#4). AASHTO standards were used for left-turn and right-turn from stop distances at the intersections of Goldfield Drive and Grinnell Boulevard (#2). The following identifies sight distance requirements for the access intersections:

Goldfield Drive and Grinnell Boulevard (#2)

With AASHTO standards and a roadway design speed of 40 miles per hour along Grinnell Boulevard, the intersection sight distance for a vehicle turning left from stop is 445 feet and the sight distance for a vehicle turning right from stop is 385 feet. Therefore, all obstructions for left turning vehicles from stop should be clear to the right within the triangle created with a vertex point located 13 feet from the edge of the major road traveled way (typical position of the minor road driver's eye when stopped) and a line-of-sight distance of 445 feet located in the middle of the southbound through lane along Grinnell Boulevard. Likewise, all obstructions for right turning vehicles from stop should be clear to the left within the triangle created with a vertex point located 13 feet from the edge of the major road traveled way and a line-of-sight distance of 385 feet located in the middle of the northbound through lane along Grinnell Boulevard.

Goldfield Drive Access (#3)

According to Table 2-35 (Entering Sight Distance for Driveways) from ECM and a posted speed limit of 35 miles per hour along Goldfield Drive, the intersection sight distance for a single unit truck turning right and left from stop along a two-lane roadway is 455 feet. Therefore, all obstructions for right turning vehicles from stop should be clear to the left within the triangle created with a vertex point located 10 feet from the edge of the major road traveled way and a line-of-sight distance of 455 feet located in the middle of the westbound through lane along Goldfield Drive for this access. Additionally, all obstructions for left turning vehicles from stop should be clear to the right within the triangle created with a vertex point located 10 feet from the edge of the major road traveled way and a line-of-sight distance of 455 feet located in the middle of the eastbound through lane along Goldfield Drive for this access. It is believed that the

proposed access along Goldfield Drive is appropriately located to provide the necessary sight distance needed for through volumes along Goldfield Drive. As this access is located approximately 300 feet from Cudahy Road, sight distances of 455 feet will not be provided for vehicles turning from Cudahy Road to westbound Goldfield Drive; however, these vehicles will be traveling at speeds much slower than 35 miles per hour. Therefore, it is believed that the proposed access along Goldfield Drive is appropriately located to provide necessary sight distances. It should be noted that a single unit truck was used for the sight distance as it is believed that there will be less than two multi-unit truck trips per day at this site access.

Goldfield Drive and Cudahy Road (#4)

According to Table 2-21 from ECM and a roadway design speed of 35 miles per hour along Goldfield Drive, the intersection sight distance for a vehicle turning left and right from stop is 390 feet for a two-lane roadway. Therefore, all obstructions for left turning vehicles from stop should be clear to the right within the triangle created with a vertex point located 10 feet from the edge of the major road traveled way (typical position of the minor road driver's eye when stopped) and a line-of-sight distance of 390 feet located in the middle of the nearest eastbound through lane along Goldfield Drive for the Goldfield Drive and Cudahy Road (#4) intersection. Likewise, all obstructions for right turning vehicles from stop should be clear to the left within the triangle created with a vertex point located 10 feet from the edge of the major road traveled way (typical position of the minor road driver's eye when stopped) and a line-of-sight distance of 390 feet located in the middle of the nearest westbound through lane along Goldfield Drive for the Goldfield Drive and Cudahy Road (#4) intersection. It is believed that the intersection of Goldfield Drive and Cudahy Road (#4) is appropriately located to provide the necessary sight distance needed for through volumes along Goldfield Drive. As this intersection is located approximately 300 feet from the proposed Goldfield Drive Access (#3), sight distances of 390 feet will not be provided for vehicles turning from the Goldfield Drive Access (#3) to eastbound Goldfield Drive; however, these vehicles will be traveling at speeds much slower than 35 miles per hour. Therefore, it is believed that the proposed access along Goldfield Drive is appropriately located to provide necessary sight distances.

Cudahy Road Access (#6)

According to Table 2-35 (Entering Sight Distance for Driveways) from ECM and a posted speed limit of 25 miles per hour along Cudahy Road, the intersection sight distance for a single unit truck turning right and left from stop along a two-lane roadway is 325 feet. Therefore, all obstructions

for right turning vehicles from stop should be clear to the left within the triangle created with a vertex point located 10 feet from the edge of the major road traveled way and a line-of-sight distance of 325 feet located in the middle of the southbound through lane along Cudahy Road for this access. Additionally, all obstructions for left turning vehicles from stop should be clear to the right within the triangle created with a vertex point located 10 feet from the edge of the major road traveled way and a line-of-sight distance of 325 feet located in the middle of the northbound through lane along Cudahy Road for this access. It is believed that the proposed access along Cudahy Road is appropriately located to provide the necessary sight distance needed for through volumes along Cudahy Road. It should be noted that a single unit truck was used for the sight distance as it is believed that there will be less than two multi-unit truck trips per day at this site access.

5.8 Bicycle and Pedestrian Access

Sidewalks are provided along the south side of Goldfield Drive and the east side of Cudahy Road within the project vicinity. Adjacent to the site, there are no bicycle lanes along any project roadways. Sidewalks are proposed with the project adjacent to the property frontages along Grinnell Boulevard, Goldfield Drive, and Cudahy Road.

5.9 Road Impact Fees

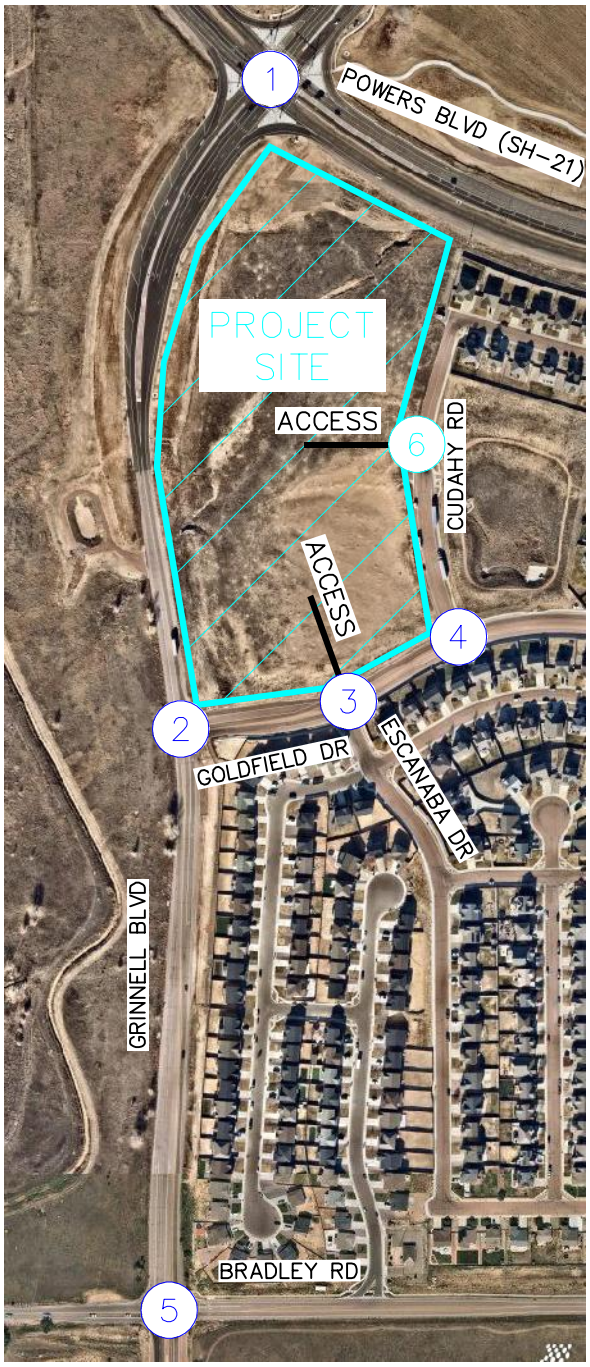
Road impact fees were evaluated based on the El Paso County Road Impact Fee Schedule. Based on these fee schedule guidelines, the fee per multi-family dwelling unit is $2,407. Therefore, the road impact fee for the proposed 345 multi-family residences is expected to be $830,415. Road impact fee calculations are shown in **Table 10**. During the final plat process, the project team will determine if the impact fees are paid up front or if the property will be included in one of the available public improvement districts with reduced upfront costs. The project team will determine payment methods with the final plat.

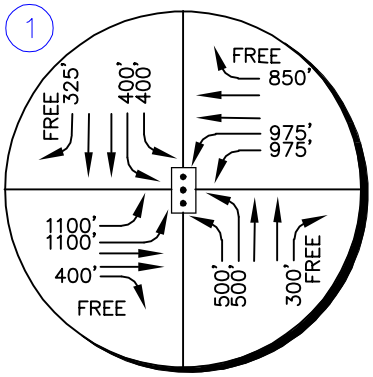
Table 10 – Road Impact Fees

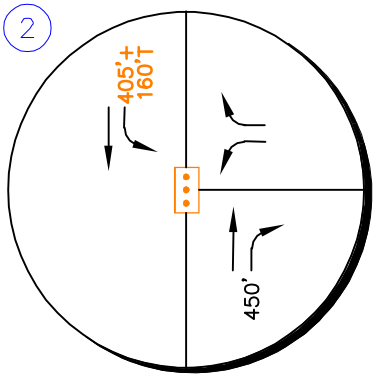
Use	Units	Fee / Unit	Total Fee
Multi-Family Housing	345	$2,407	$830,415

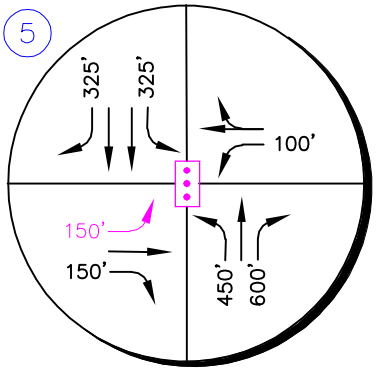
5.10 Improvement Summary

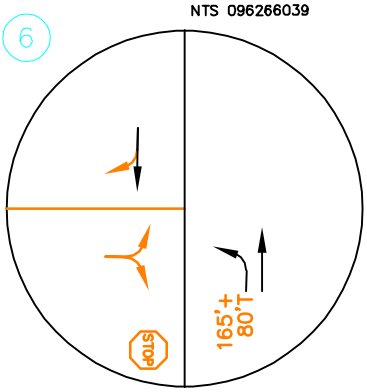
Based on the results of the intersection operational and vehicle queuing analysis, the key intersection recommended improvements and control are shown in **Figure 11** for 2024 and **Figure 12** for 2045.

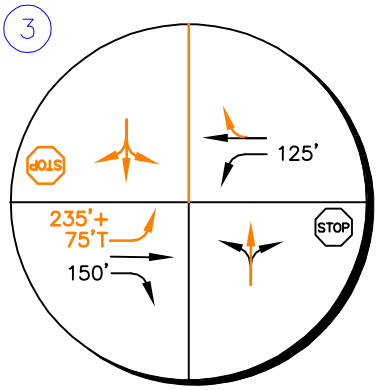


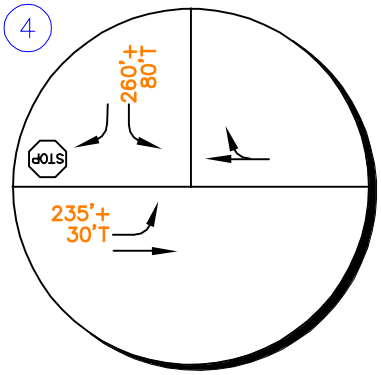












LEGEND

- (X) Study Area Key Intersection
- (X) Project Access Intersection
- Signalized Intersection
- STOP Stop Controlled Approach
- Improvement By Others
- Site-Specific Improvement
- 100' Turn Lane Length (feet)

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DHI-WATERVIEW
COLORADO SPRINGS, COLORADO
2024 RECOMMENDATIONS

FIGURE 11

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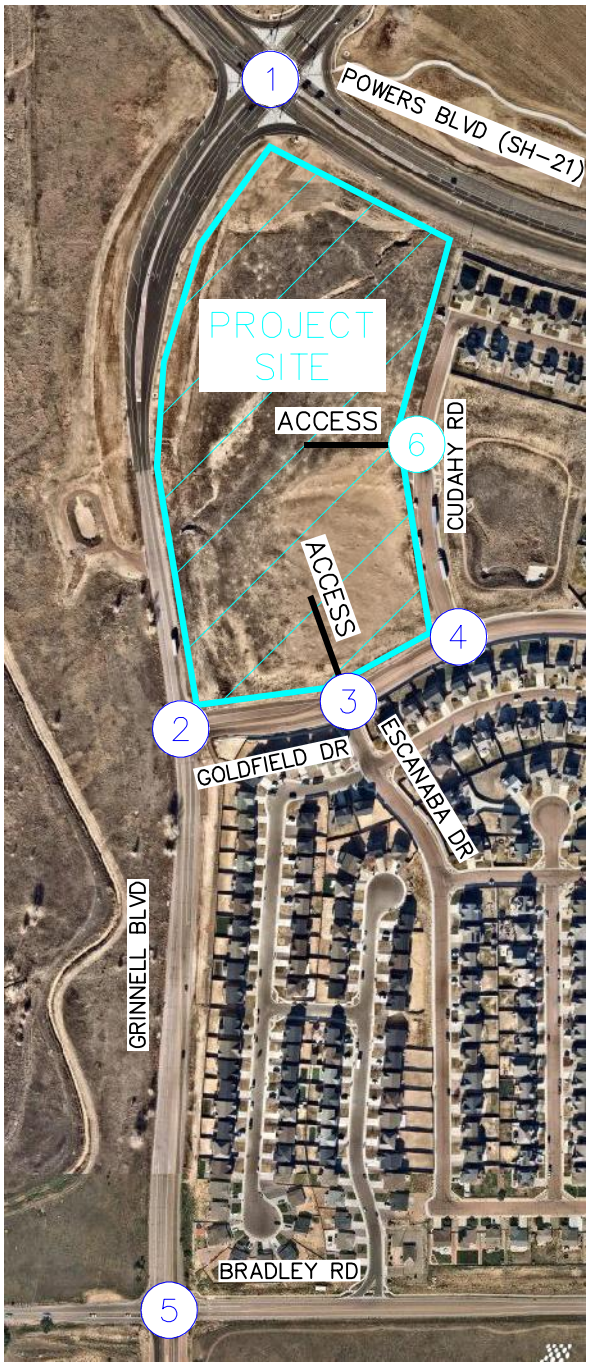

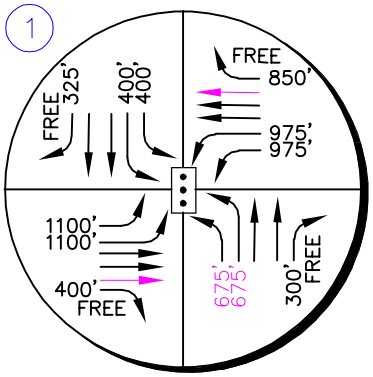

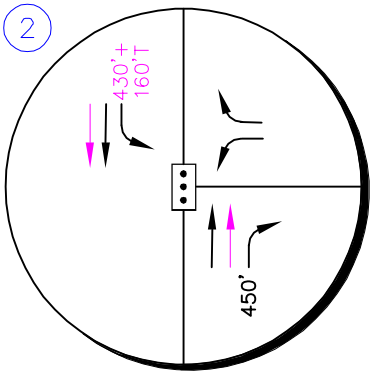

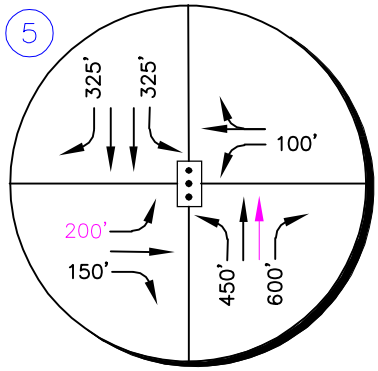

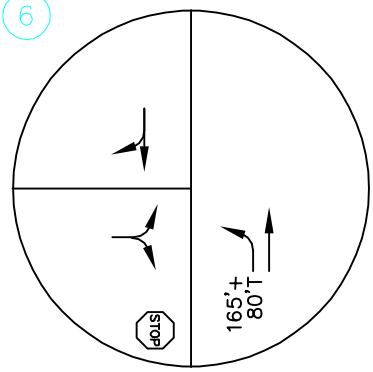

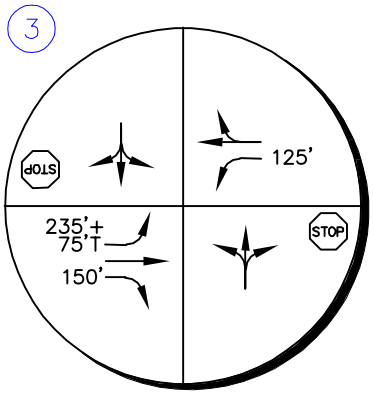

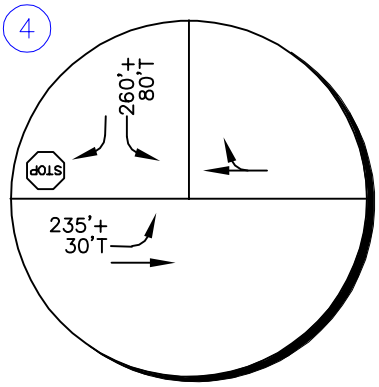

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NORTH
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LEGEND

- X — Study Area Key Intersection
- X — Project Access Intersection
- Signalized Intersection
- STOP — Stop Controlled Approach
- Improvement By Others
- Site-Specific Improvement
- 100' — Turn Lane Length (feet)

DHI-WATERVIEW
COLORADO SPRINGS, COLORADO
2045 RECOMMENDATIONS

FIGURE 12

Kimley»Horn

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis presented in this report, Kimley-Horn believes DHI - Waterview will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following recommendations:

2022 Existing Traffic Recommendations

- With the existing 2022 traffic volumes collected at the Bradley Road and Grinnell Boulevard (#5) intersection, a traffic signal is believed to be warranted at this intersection today. With signalization it is recommended that a 150-foot eastbound left turn lane be designated at this intersection.

2024 Recommendations

- The intersection of Goldfield Drive and Grinnell Boulevard (#2) may require signalization. A four-hour vehicular volume signal warrant analysis was completed for this intersection. It was found that a signal may be warranted in 2024. With signalization, the existing 300-foot southbound left turn lane may need to be lengthened to 405 feet with a 160-foot taper to meet El Paso County requirements. Extension of this southbound left turn lane will require reconstruction of Grinnell Boulevard for the two-lane roadway transition to occur further north. Of note, this intersection was also evaluated with roundabout control as a possible improvement alternative. Based on the traffic signal showing better overall operations and a roundabout likely costing twice the amount of a traffic signal, a traffic signal is the recommended control type for this intersection.

- With completion of the DHI - Waterview project, one access is proposed along the north side of Goldfield Drive (to align with Escanaba Drive), and one access is proposed along the west side of Cudahy Road. The access along Goldfield Drive and the access along Cudahy Road are proposed as full movement accesses. It is recommended that R1-1 “STOP” signs be installed on the exiting southbound approach at the access along Goldfield Drive and the exiting eastbound approach at the Cudahy Road Access.

- The threshold for requiring an access permit along Colorado Department of Transportation (CDOT) roadways occurs when project traffic is anticipated to increase the existing access traffic volumes by more than 20 percent. Based on traffic projections, the addition of project traffic on the south leg of Grinnell Boulevard at SH-21 (Powers Boulevard) is not anticipated to increase existing access traffic volumes by more than 20 percent (10 percent increase in the morning peak hour and 12 percent increase in the afternoon peak hour). Therefore, a CDOT access permit is not anticipated to be required in association with this project.

- To meet El Paso County requirements, an eastbound left turn lane may need to be designated at the intersection of Goldfield Drive and Escanaba Drive (#3) to a length of 235 feet with a 75-foot taper. El Paso County standards recommends a taper length of 140 feet, however due to the Goldfield Drive/Grinnell Boulevard intersection 340 feet to the west (edge to edge), this taper will need to be shortened to 75 feet. A deviation request will be provided for this access with the preliminary plan application. Based on spacing constraints, this eastbound left turn lane would need to be designated side-by-side with the westbound left turn lane at the Goldfield Drive and Grinnell Boulevard intersection. It is recommended that this existing westbound left turn lane be shifted to the striped-out area to the north for the side-by-side left turn lanes.

- It is recommended that the eastbound left turn lane at the intersection of Goldfield Drive and Cudahy Road (#4) be restriped to the maximum length of 235 feet with a 30-foot taper. El Paso County standards recommends a taper length of 140 feet, however due to the existing Goldfield Drive and Escanaba Drive intersection to the west, this taper will need to be shortened to 30 feet. A deviation request will be provided for this turn lane with the preliminary plan application.

- Based on El Paso County standards, the Cudahy Road Access (#6) should provide a northbound left turn lane with a length of 165 feet plus an 80-foot taper. The existing two-way left turn lane should be restriped with this actual defined left turn bay. With this lane being designated it is recommended that the southbound left turn lane at the intersection of Goldfield Drive and Cudahy Road (#4) be restriped to a length of 260 feet with an 80-foot taper instead of the current two-way left turn lane striping, although a southbound left turn lane at this intersection isn't actually warranted.

- The daily traffic volume along Grinnell Boulevard will likely be above the El Paso County daily traffic volume threshold to be widened to a four-lane urban minor arterial cross section in 2024 prior to the addition of project traffic. This widening would be "warranted" based on background traffic volumes only, prior to the addition of project traffic, although the actual daily volume is about 60 percent of the actual two-lane roadway capacity. It should be noted, if project traffic was added directly to the existing traffic volumes along Grinnell Boulevard north of Goldfield Drive (9,400 vpd +1,400 vpd = 10,800 ADT), widening would also be warranted. However, it is important to note that if project traffic was added directly to existing traffic volumes along Grinnell Boulevard south of Goldfield Drive (8,700 vpd + 950 vpd = 9,650 ADT), widening would not be warranted. The County should provide additional consideration and thought to the vehicle volume threshold standards, as widening roadways when they are not needed is not beneficial for overall traffic safety as higher vehicle speeds will result. Likewise, overbuilding roadways is not fiscally responsible.

<u>2045 Recommendations</u>

- As identified in the El Paso County Major Transportation Corridors Plan Update, it is understood that Grinnell Boulevard will provide two northbound and southbound through lanes in the future through Project ID C16. Therefore, it is assumed that two northbound and southbound through lanes will be constructed along Grinnell Boulevard by the long-term 2045 horizon.

- If future traffic volumes are realized, three eastbound and westbound through lanes may be needed along Powers Boulevard (SH-21) through the intersection with Grinnell Boulevard (#1). It is believed that this would be the ultimate at-grade configuration prior to the need of a grade separated interchange. The northbound dual left turn lanes may need to be extended to provide a length of 675 feet plus 160-foot taper with the at-grade intersection configuration.

- The southbound left turn lane at the intersection of Goldfield Drive and Grinnell Boulevard (#2) may need to be further lengthened to 430 feet with a 160-foot taper to meet El Paso County requirements if future traffic volumes are realized. For reference, the 2024 recommendation identified extension of the existing 300-foot southbound left turn lane to 405 feet at this intersection.

- If future traffic volumes are realized, the eastbound left turn lane at the intersection of Bradley Road and Grinnell Boulevard (#5) may need to be extended from 150 feet to 200 feet.

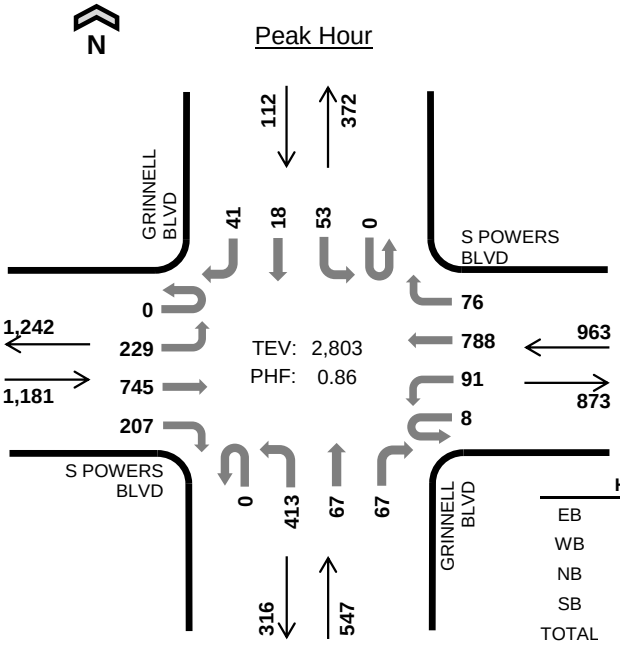
APPENDICES

APPENDIX A

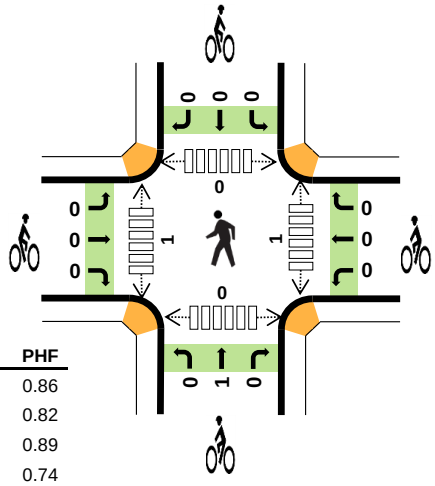
Intersection Count Sheets

GRINNELL BLVD
S POWERS BLVD

Date: Tue, Aug 31, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM



	HV %:	PHF
EB	2.4%	0.86
WB	2.2%	0.82
NB	1.8%	0.89
SB	3.6%	0.74
TOTAL	2.2%	0.86



Two-Hour Count Summaries

Interval Start	S POWERS BLVD Eastbound				S POWERS BLVD Westbound				GRINNELL BLVD Northbound				GRINNELL BLVD Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**81**	**188**	**40**	**0**	**31**	**195**	**27**	**0**	**113**	**29**	**11**	**0**	**9**	**2**	**12**	**738**	0
7:15 AM	**0**	**90**	**206**	**48**	**1**	**17**	**242**	**35**	**0**	**102**	**24**	**20**	**0**	**7**	**8**	**12**	**812**	0
7:30 AM	**0**	**30**	**189**	**62**	**7**	**22**	**187**	**6**	**0**	**111**	**10**	**24**	**0**	**22**	**3**	**13**	**686**	0
7:45 AM	**0**	**28**	**162**	**57**	**0**	**21**	**164**	**8**	**0**	**87**	**4**	**12**	**0**	**15**	**5**	**4**	**567**	**2,803**
8:00 AM	0	15	117	65	0	13	133	6	0	59	4	18	1	2	2	12	447	2,512
8:15 AM	0	15	111	70	0	8	123	3	1	77	2	17	0	3	1	2	433	2,133
8:30 AM	0	9	101	48	0	16	128	1	0	71	0	17	0	1	1	9	402	1,849
8:45 AM	0	16	90	45	1	22	119	8	0	53	3	13	0	2	0	17	389	1,671
Count Total	0	284	1,164	435	9	150	1,291	94	1	673	76	132	1	61	22	81	4,474	0
Peak Hour All	**0**	**229**	**745**	**207**	**8**	**91**	**788**	**76**	**0**	**413**	**67**	**67**	**0**	**53**	**18**	**41**	**2,803**	**0**
Peak Hour HV	**0**	**9**	**12**	**7**	**0**	**4**	**17**	**0**	**0**	**2**	**0**	**8**	**0**	**1**	**1**	**2**	**63**	**0**
Peak Hour HV%	**-**	**4%**	**2%**	**3%**	**0%**	**4%**	**2%**	**0%**	**-**	**0%**	**0%**	**12%**	**-**	**2%**	**6%**	**5%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**4**	**4**	**2**	**2**	***12***	**0**	**0**	**1**	**0**	***1***	**1**	**0**	**0**	**0**	*1*
7:15 AM	**12**	**4**	**3**	**1**	***20***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**6**	**4**	**4**	**0**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**6**	**9**	**1**	**1**	***17***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	***1***
8:00 AM	25	7	4	1	*37*	0	1	0	0	*1*	0	0	0	0	*0*
8:15 AM	5	8	10	1	*24*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	18	11	6	1	*36*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	15	14	8	3	*40*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	91	61	38	10	*200*	0	1	1	0	*2*	1	1	0	0	*2*
Peak Hour	**28**	**21**	**10**	**4**	***63***	**0**	**0**	**1**	**0**	***1***	**1**	**1**	**0**	**0**	***2***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	S POWERS BLVD Eastbound				S POWERS BLVD Westbound				GRINNELL BLVD Northbound				GRINNELL BLVD Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**2**	**0**	**2**	**0**	**1**	**3**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**12**	0
7:15 AM	**0**	**3**	**7**	**2**	**0**	**1**	**3**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**1**	**0**	**20**	0
7:30 AM	**0**	**4**	**1**	**1**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**14**	0
7:45 AM	**0**	**0**	**4**	**2**	**0**	**1**	**8**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**17**	**63**
8:00 AM	0	1	21	3	0	2	5	0	0	2	0	2	0	0	0	1	37	88
8:15 AM	0	0	5	0	0	1	7	0	0	5	0	5	0	0	0	1	24	92
8:30 AM	0	0	16	2	0	1	10	0	0	4	0	2	0	0	0	1	36	114
8:45 AM	0	1	11	3	1	2	11	0	0	1	0	7	0	1	0	2	40	137
Count Total	0	11	65	15	1	10	50	0	0	14	0	24	0	2	1	7	200	0
Peak Hour	**0**	**9**	**12**	**7**	**0**	**4**	**17**	**0**	**0**	**2**	**0**	**8**	**0**	**1**	**1**	**2**	**63**	**0**

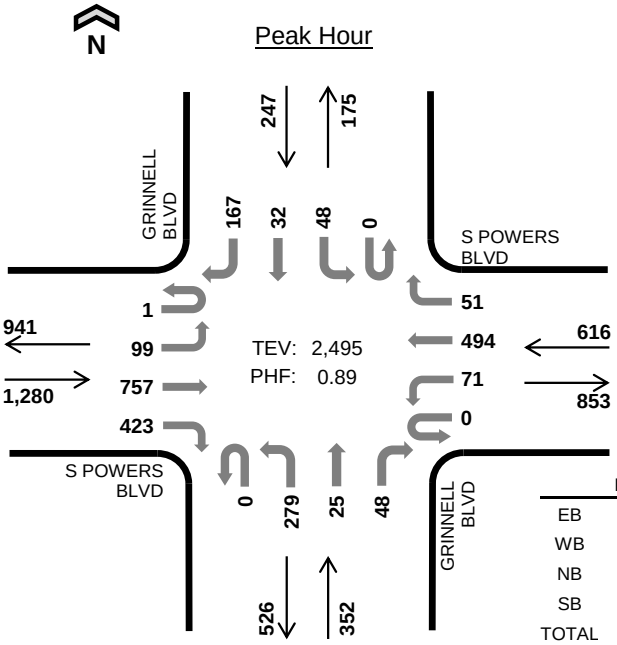
Two-Hour Count Summaries - Bikes

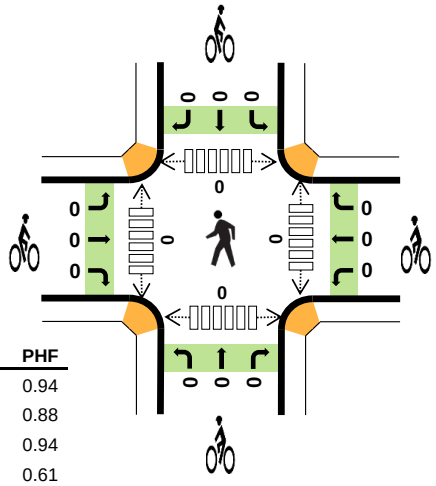
Interval Start	S POWERS BLVD Eastbound			S POWERS BLVD Westbound			GRINNELL BLVD Northbound			GRINNELL BLVD Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	1	0	0	1	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

GRINNELL BLVD
S POWERS BLVD

Date: Tue, Aug 31, 2021
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	1.6%	0.94
WB	2.1%	0.88
NB	1.7%	0.94
SB	1.6%	0.61
TOTAL	1.8%	0.89

Two-Hour Count Summaries

Interval Start	S POWERS BLVD Eastbound				S POWERS BLVD Westbound				GRINNELL BLVD Northbound				GRINNELL BLVD Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	173	105	0	23	112	4	0	78	1	26	0	7	5	34	570	0
4:15 PM	0	9	194	113	0	24	151	3	0	57	0	21	0	5	4	22	603	0
4:30 PM	0	6	184	112	0	25	117	3	0	61	2	7	0	6	8	34	565	0
4:45 PM	3	10	199	113	0	29	122	4	0	61	0	8	0	5	3	24	581	2,319
5:00 PM	**0**	**15**	**193**	**113**	**0**	**17**	**128**	**4**	**0**	**74**	**4**	**9**	**0**	**9**	**1**	**27**	**594**	2,343
5:15 PM	**0**	**16**	**206**	**120**	**0**	**19**	**117**	**6**	**0**	**64**	**4**	**13**	**0**	**7**	**5**	**43**	**620**	2,360
5:30 PM	**1**	**31**	**189**	**105**	**0**	**27**	**131**	**18**	**0**	**76**	**11**	**7**	**0**	**22**	**19**	**60**	**697**	2,492
5:45 PM	**0**	**37**	**169**	**85**	**0**	**8**	**118**	**23**	**0**	**65**	**6**	**19**	**0**	**10**	**7**	**37**	**584**	**2,495**
Count Total	4	126	1,507	866	0	172	996	65	0	536	28	110	0	71	52	281	4,814	0
Peak Hour All	**1**	**99**	**757**	**423**	**0**	**71**	**494**	**51**	**0**	**279**	**25**	**48**	**0**	**48**	**32**	**167**	**2,495**	**0**
Peak Hour HV	**0**	**5**	**12**	**4**	**0**	**0**	**12**	**1**	**0**	**6**	**0**	**0**	**0**	**1**	**0**	**3**	**44**	**0**
Peak Hour HV%	**0%**	**5%**	**2%**	**1%**	**-**	**0%**	**2%**	**2%**	**-**	**2%**	**0%**	**0%**	**-**	**2%**	**0%**	**2%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	8	8	6	2	*24*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	8	12	3	1	*24*	0	0	1	0	*1*	0	0	0	0	*0*
4:30 PM	9	6	1	2	*18*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	1	4	0	2	*7*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	**2**	**4**	**2**	**2**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**10**	**4**	**2**	**0**	***16***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**2**	**1**	**1**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**7**	**4**	**1**	**0**	***12***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
Count Total	47	43	16	11	*117*	0	0	1	0	*1*	0	0	0	0	*0*
Peak Hour	**21**	**13**	**6**	**4**	***44***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	S POWERS BLVD				S POWERS BLVD				GRINNELL BLVD				GRINNELL BLVD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	4	4	0	3	5	0	0	2	0	4	0	0	0	2	24	0
4:15 PM	0	0	7	1	0	0	12	0	0	1	0	2	0	0	0	1	24	0
4:30 PM	0	0	8	1	0	2	3	1	0	1	0	0	0	0	0	2	18	0
4:45 PM	0	0	0	1	0	0	3	1	0	0	0	0	0	0	0	2	7	73
5:00 PM	**0**	**1**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**1**	**10**	59
5:15 PM	**0**	**0**	**7**	**3**	**0**	**0**	**4**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	51
5:30 PM	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**6**	39
5:45 PM	**0**	**3**	**4**	**0**	**0**	**0**	**3**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**44**
Count Total	0	5	31	11	0	5	35	3	0	10	0	6	0	1	0	10	117	0
Peak Hour	**0**	**5**	**12**	**4**	**0**	**0**	**12**	**1**	**0**	**6**	**0**	**0**	**0**	**1**	**0**	**3**	**44**	**0**

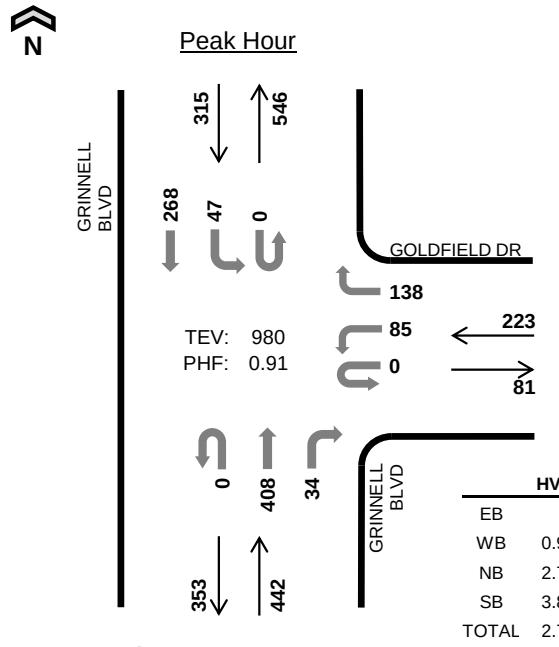
Two-Hour Count Summaries - Bikes

Interval Start	S POWERS BLVD			S POWERS BLVD			GRINNELL BLVD			GRINNELL BLVD			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Count Total	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

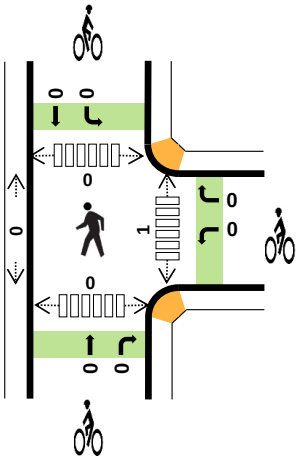
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

GRINNELL BLVD
GOLDFIELD DR

Date: Tue, Aug 31, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM



	HV %:	PHF
EB	-	-
WB	0.9%	0.72
NB	2.7%	0.83
SB	3.8%	0.91
TOTAL	2.7%	0.91



Two-Hour Count Summaries

Interval Start	0 Eastbound				GOLDFIELD DR Westbound				GRINNELL BLVD Northbound				GRINNELL BLVD Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**32**	**0**	**45**	**0**	**0**	**115**	**2**	**0**	**8**	**64**	**0**	**266**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**27**	**0**	**37**	**0**	**0**	**120**	**13**	**0**	**11**	**62**	**0**	**270**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**32**	**0**	**0**	**102**	**7**	**0**	**14**	**73**	**0**	**246**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**24**	**0**	**0**	**71**	**12**	**0**	**14**	**69**	**0**	**198**	**980**
8:00 AM	0	0	0	0	0	21	0	15	0	0	73	15	0	20	58	0	202	916
8:15 AM	0	0	0	0	0	22	0	18	0	0	83	7	0	21	60	0	211	857
8:30 AM	0	0	0	0	0	30	0	20	0	0	74	11	0	7	59	0	201	812
8:45 AM	0	0	0	0	0	15	0	12	0	0	45	12	0	12	53	0	149	763
Count Total	0	0	0	0	0	173	0	203	0	0	683	79	0	107	498	0	1,743	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**85**	**0**	**138**	**0**	**0**	**408**	**34**	**0**	**47**	**268**	**0**	**980**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**9**	**3**	**0**	**2**	**10**	**0**	**26**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**1%**	**-**	**1%**	**-**	**-**	**2%**	**9%**	**-**	**4%**	**4%**	**-**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**0**	**0**	**2**	**3**	***5***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	*1*
7:15 AM	**0**	**1**	**6**	**3**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**0**	**1**	**2**	**4**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**0**	**2**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	0	0	8	3	*11*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	0	3	8	6	*17*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	0	0	6	2	*8*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	0	0	7	3	*10*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	5	41	26	*72*	0	0	0	0	*0*	1	0	0	0	*1*
Peak Hr	**0**	**2**	**12**	**12**	***26***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	0				GOLDFIELD DR				GRINNELL BLVD				GRINNELL BLVD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**5**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**4**	**2**	**0**	**1**	**2**	**0**	**10**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**1**	**3**	**0**	**7**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**4**	**26**
8:00 AM	0	0	0	0	0	0	0	0	0	0	7	1	0	2	1	0	11	32
8:15 AM	0	0	0	0	0	3	0	0	0	0	8	0	0	1	5	0	17	39
8:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	8	40
8:45 AM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	3	0	10	46
Count Total	0	0	0	0	0	4	0	1	0	0	37	4	0	5	21	0	72	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**9**	**3**	**0**	**2**	**10**	**0**	**26**	**0**

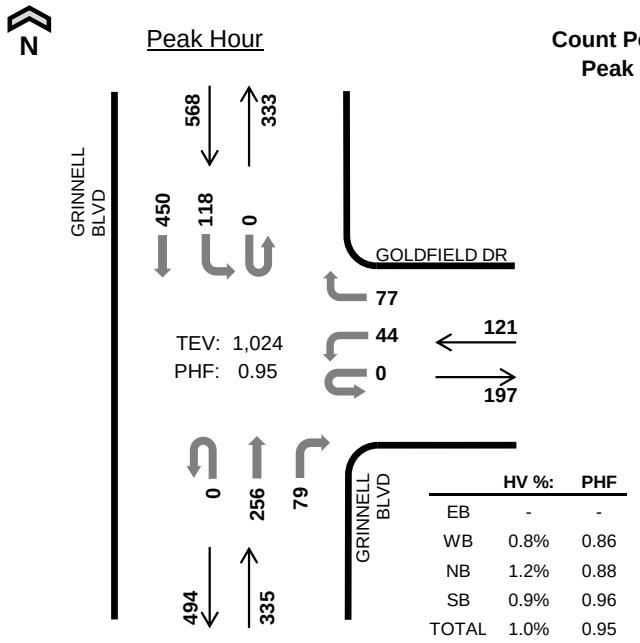
Two-Hour Count Summaries - Bikes

Interval Start	0			GOLDFIELD DR			GRINNELL BLVD			GRINNELL BLVD			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

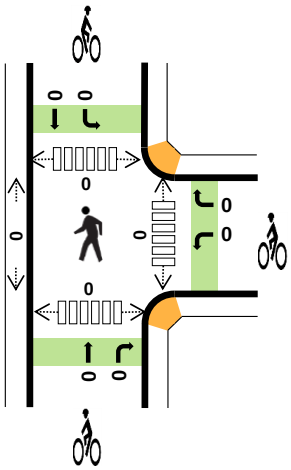
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

GRINNELL BLVD
GOLDFIELD DR

Date: Tue, Aug 31, 2021
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	-	-
WB	0.8%	0.86
NB	1.2%	0.88
SB	0.9%	0.96
TOTAL	1.0%	0.95



Two-Hour Count Summaries

Interval Start		0 Eastbound				GOLDFIELD DR Westbound				GRINNELL BLVD Northbound				GRINNELL BLVD Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	0	0	0	5	0	14	0	0	84	15	0	27	106	0	251	0
4:15 PM		0	0	0	0	0	12	0	14	0	0	68	25	0	34	107	0	260	0
4:30 PM		0	0	0	0	0	14	0	17	0	0	56	17	0	26	120	0	250	0
4:45 PM		**0**	**0**	**0**	**0**	**0**	**7**	**0**	**15**	**0**	**0**	**55**	**29**	**0**	**26**	**121**	**0**	**253**	1,014
5:00 PM		**0**	**0**	**0**	**0**	**0**	**10**	**0**	**23**	**0**	**0**	**65**	**13**	**0**	**31**	**99**	**0**	**241**	1,004
5:15 PM		**0**	**0**	**0**	**0**	**0**	**13**	**0**	**18**	**0**	**0**	**72**	**23**	**0**	**35**	**108**	**0**	**269**	1,013
5:30 PM		**0**	**0**	**0**	**0**	**0**	**14**	**0**	**21**	**0**	**0**	**64**	**14**	**0**	**26**	**122**	**0**	**261**	**1,024**
5:45 PM		0	0	0	0	0	13	0	23	0	0	63	25	0	15	87	0	226	997
Count Total		0	0	0	0	0	88	0	145	0	0	527	161	0	220	870	0	2,011	0
Peak Hour	**All**	**0**	**0**	**0**	**0**	**0**	**44**	**0**	**77**	**0**	**0**	**256**	**79**	**0**	**118**	**450**	**0**	**1,024**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**0**	**5**	**0**	**10**	**0**
	HV%	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**1%**	**-**	**-**	**2%**	**0%**	**-**	**0%**	**1%**	**-**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	5	5	*10*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	0	3	4	*7*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	0	0	1	2	*3*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**1**	**2**	**1**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**1**	**3**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:45 PM	0	0	2	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	1	15	16	*32*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hr	**0**	**1**	**4**	**5**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	0				GOLDFIELD DR				GRINNELL BLVD				GRINNELL BLVD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	10	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	7	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**2**	22
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**4**	16
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**4**	13
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	10
Count Total	0	0	0	0	0	0	0	1	0	0	15	0	0	0	16	0	32	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**0**	**5**	**0**	**10**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	0			GOLDFIELD DR			GRINNELL BLVD			GRINNELL BLVD			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

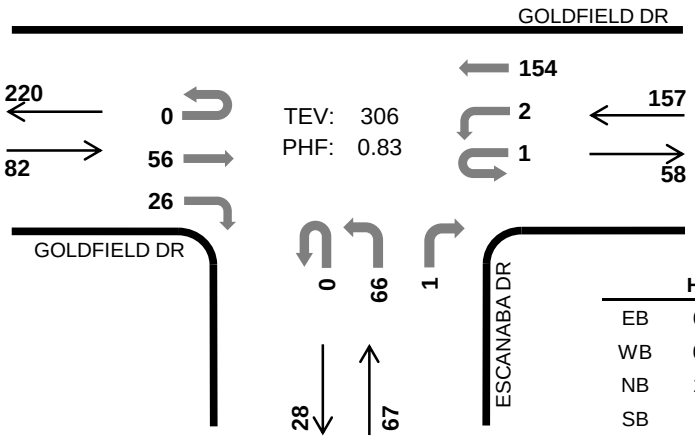
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

ESCANABA DR
GOLDFIELD DR

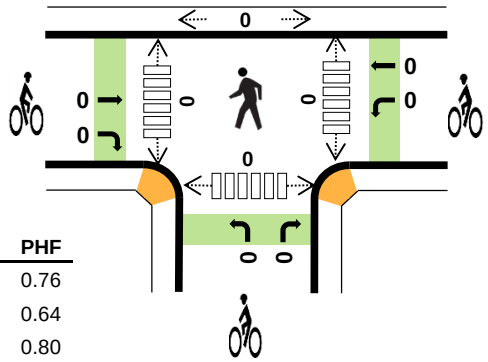
N

Peak Hour

Date: Tue, Aug 31, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM



	HV %:	PHF
EB	6.1%	0.76
WB	0.6%	0.64
NB	1.5%	0.80
SB	-	-
TOTAL	2.3%	0.83



Two-Hour Count Summaries

Interval Start	GOLDFIELD DR Eastbound				GOLDFIELD DR Westbound				ESCANABA DR Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**7**	**3**	**1**	**0**	**60**	**0**	**0**	**21**	**0**	**0**	**0**	**0**	**0**	**0**	**92**	0
7:15 AM	**0**	**0**	**21**	**3**	**0**	**2**	**39**	**0**	**0**	**19**	**0**	**1**	**0**	**0**	**0**	**0**	**85**	0
7:30 AM	**0**	**0**	**12**	**9**	**0**	**0**	**37**	**0**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**73**	0
7:45 AM	**0**	**0**	**16**	**11**	**0**	**0**	**18**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**56**	**306**
8:00 AM	0	0	23	11	0	0	24	0	0	12	0	0	0	0	0	0	70	284
8:15 AM	0	0	22	6	0	0	31	0	0	10	0	1	0	0	0	0	70	269
8:30 AM	0	0	13	5	0	0	28	0	0	24	0	0	0	0	0	0	70	266
8:45 AM	0	0	17	7	0	1	17	0	0	10	0	0	0	0	0	0	52	262
Count Total	0	0	131	55	1	3	254	0	0	122	0	2	0	0	0	0	568	0
Peak Hour All	**0**	**0**	**56**	**26**	**1**	**2**	**154**	**0**	**0**	**66**	**0**	**1**	**0**	**0**	**0**	**0**	**306**	**0**
Peak Hour HV	**0**	**0**	**2**	**3**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**
Peak Hour HV%	**-**	**-**	**4%**	**12%**	**0%**	**0%**	**1%**	**-**	**-**	**2%**	**-**	**0%**	**-**	**-**	**-**	**-**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:15 AM	**2**	**1**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**1**	**0**	**1**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	3	0	0	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	1	2	1	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	9	3	2	0	*14*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hr	**5**	**1**	**1**	**0**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	GOLDFIELD DR				GOLDFIELD DR				ESCANABA DR				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
7:15 AM	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	0
7:30 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
7:45 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**7**
8:00 AM	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3	9
8:15 AM	0	0	0	1	0	0	2	0	0	1	0	0	0	0	0	0	4	10
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Count Total	0	0	4	5	0	0	3	0	0	2	0	0	0	0	0	0	14	0
Peak Hour	**0**	**0**	**2**	**3**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	GOLDFIELD DR			GOLDFIELD DR			ESCANABA DR			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

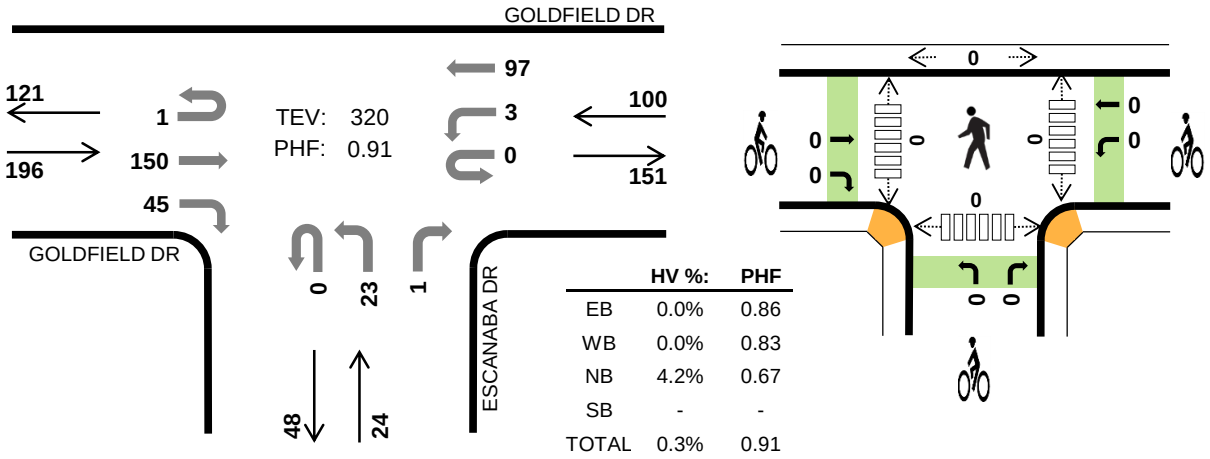
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

ESCANABA DR
GOLDFIELD DR

N

Peak Hour

Date: Tue, Aug 31, 2021
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	0.0%	0.86
WB	0.0%	0.83
NB	4.2%	0.67
SB	-	-
TOTAL	0.3%	0.91

Two-Hour Count Summaries

Interval Start		GOLDFIELD DR Eastbound				GOLDFIELD DR Westbound				ESCANABA DR Northbound				0 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	27	16	0	0	19	0	1	1	0	1	0	0	0	0	65	0
4:15 PM		0	0	42	17	0	0	20	0	0	8	0	1	0	0	0	0	88	0
4:30 PM		0	0	37	6	0	0	18	0	0	11	0	1	0	0	0	0	73	0
4:45 PM		**0**	**0**	**40**	**15**	**0**	**1**	**22**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**80**	306
5:00 PM		**0**	**0**	**32**	**12**	**0**	**0**	**23**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**76**	317
5:15 PM		**1**	**0**	**46**	**10**	**0**	**1**	**23**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**88**	317
5:30 PM		**0**	**0**	**32**	**8**	**0**	**1**	**29**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**76**	**320**
5:45 PM		0	0	26	14	0	0	28	0	0	7	0	0	0	0	0	0	75	315
Count Total		1	0	282	98	0	3	182	0	1	50	0	4	0	0	0	0	621	0
Peak Hour	**All**	**1**	**0**	**150**	**45**	**0**	**3**	**97**	**0**	**0**	**23**	**0**	**1**	**0**	**0**	**0**	**0**	**320**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
	HV%	**0%**	**-**	**0%**	**0%**	**-**	**0%**	**0%**	**-**	**-**	**4%**	**-**	**0%**	**-**	**-**	**-**	**-**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	1	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	0	2	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hr	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	GOLDFIELD DR				GOLDFIELD DR				ESCANABA DR				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

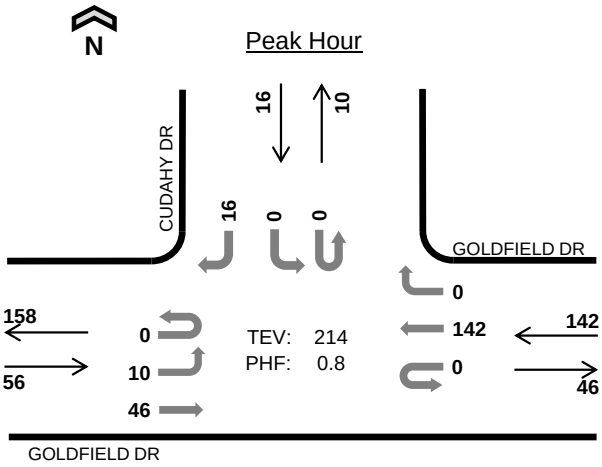
Two-Hour Count Summaries - Bikes

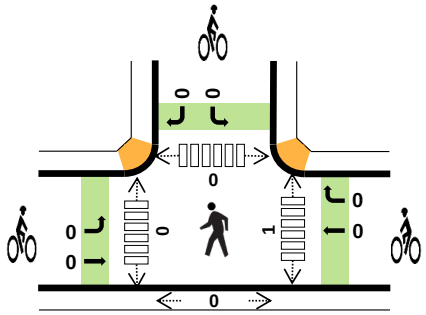
Interval Start	GOLDFIELD DR			GOLDFIELD DR			ESCANABA DR			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

CUDAHY DR
GOLDFIELD DR

Date: Tue, Aug 31, 2021
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM





	HV %:	PHF
EB	3.6%	0.64
WB	0.0%	0.70
NB	-	-
SB	6.3%	0.50
TOTAL	1.4%	0.80

Two-Hour Count Summaries

Interval Start	GOLDFIELD DR Eastbound				GOLDFIELD DR Westbound				0 Northbound				CUDAHY DR Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**4**	**4**	**0**	**0**	**0**	**51**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**67**	0
7:15 AM	**0**	**3**	**19**	**0**	**0**	**0**	**40**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**66**	0
7:30 AM	**0**	**1**	**11**	**0**	**0**	**0**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**47**	0
7:45 AM	**0**	**2**	**12**	**0**	**0**	**0**	**18**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**34**	**214**
8:00 AM	0	3	24	0	0	0	20	0	0	0	0	0	0	0	0	3	50	197
8:15 AM	0	1	20	0	0	0	27	0	0	0	0	0	0	1	0	3	52	183
8:30 AM	0	0	10	0	0	0	22	0	0	0	0	0	0	0	0	6	38	174
8:45 AM	0	4	16	0	0	0	14	0	0	0	0	0	0	0	0	5	39	179
Count Total	0	18	116	0	0	0	225	0	0	0	0	0	0	1	0	33	393	0
Peak Hour All	**0**	**10**	**46**	**0**	**0**	**0**	**142**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**214**	**0**
Peak Hour HV	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**0**
Peak Hour HV%	**-**	**0%**	**4%**	**-**	**-**	**-**	**0%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**6%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:15 AM	**2**	**0**	**0**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	*1*
7:45 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	2	0	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	0	2	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	1	0	*1*
8:45 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	4	2	0	1	*7*	0	0	0	0	*0*	1	0	1	0	*2*
Peak Hr	**2**	**0**	**0**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	GOLDFIELD DR				GOLDFIELD DR				0				CUDAHY DR				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**
8:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5
8:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Count Total	0	1	3	0	0	0	2	0	0	0	0	0	0	0	0	1	7	0
Peak Hour	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**0**

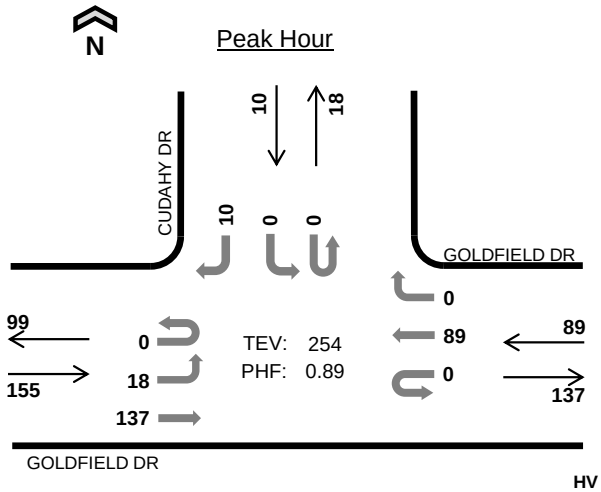
Two-Hour Count Summaries - Bikes

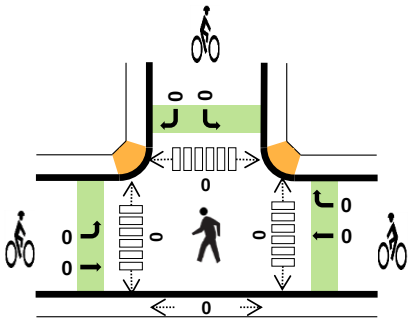
Interval Start	GOLDFIELD DR			GOLDFIELD DR			0			CUDAHY DR			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

CUDAHY DR
GOLDFIELD DR

Date: Tue, Aug 31, 2021
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	0.0%	0.84
WB	0.0%	0.89
NB	-	-
SB	0.0%	0.63
TOTAL	0.0%	0.89

Two-Hour Count Summaries

Interval Start		GOLDFIELD DR Eastbound				GOLDFIELD DR Westbound				0 Northbound				CUDAHY DR Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	4	24	0	0	0	17	0	0	0	0	0	0	0	0	1	46	0
4:15 PM		0	5	38	0	0	0	18	0	0	0	0	0	0	0	0	2	63	0
4:30 PM		0	3	32	0	0	0	17	0	0	0	0	0	0	0	0	3	55	0
4:45 PM		**0**	**3**	**40**	**0**	**0**	**0**	**22**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**66**	230
5:00 PM		**0**	**3**	**30**	**0**	**0**	**0**	**20**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**55**	239
5:15 PM		**0**	**9**	**37**	**0**	**0**	**0**	**22**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**71**	247
5:30 PM		**0**	**3**	**30**	**0**	**0**	**0**	**25**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**62**	**254**
5:45 PM		0	2	23	0	0	0	26	0	0	0	0	0	0	0	0	2	53	241
Count Total		0	32	254	0	0	0	167	0	0	0	0	0	0	0	0	18	471	0
Peak Hour	**All**	**0**	**18**	**137**	**0**	**0**	**0**	**89**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**254**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	HV%	**-**	**0%**	**0%**	**-**	**-**	**-**	**0%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hr	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	GOLDFIELD DR				GOLDFIELD DR				0				CUDAHY DR				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Two-Hour Count Summaries - Bikes

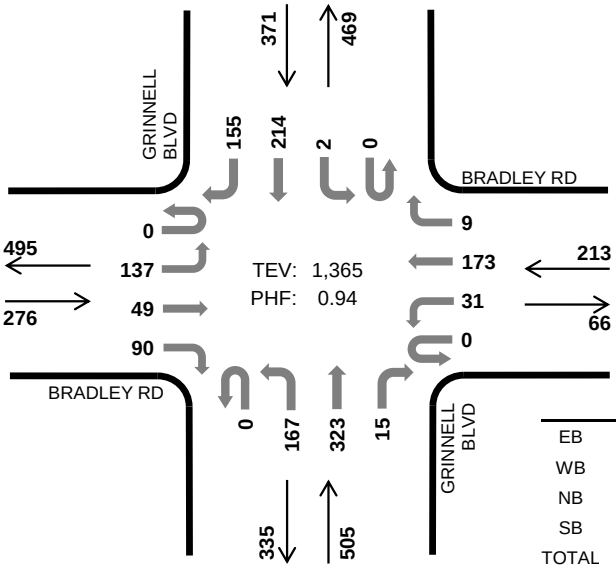
Interval Start	GOLDFIELD DR			GOLDFIELD DR			0			CUDAHY DR			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

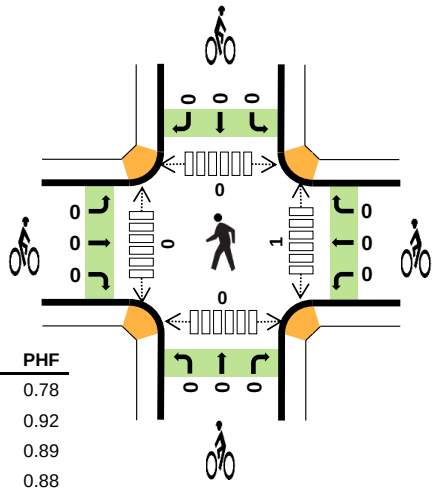
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

GRINNELL BLVD
BRADLEY RD

Date: 03/02/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM

Peak Hour





	HV %:	PHF
EB	4.7%	0.78
WB	1.4%	0.92
NB	2.2%	0.89
SB	3.2%	0.88
TOTAL	2.9%	0.94

Two-Hour Count Summaries

Interval Start	BRADLEY RD Eastbound				BRADLEY RD Westbound				GRINNELL BLVD Northbound				GRINNELL BLVD Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**31**	**14**	**29**	**0**	**6**	**40**	**5**	**0**	**35**	**93**	**5**	**0**	**1**	**54**	**51**	**364**	0
7:15 AM	**0**	**49**	**14**	**26**	**0**	**12**	**42**	**3**	**0**	**45**	**86**	**3**	**0**	**0**	**41**	**29**	**350**	0
7:30 AM	**0**	**31**	**10**	**18**	**0**	**6**	**51**	**1**	**0**	**43**	**94**	**5**	**0**	**0**	**59**	**36**	**354**	0
7:45 AM	**0**	**26**	**11**	**17**	**0**	**7**	**40**	**0**	**0**	**44**	**50**	**2**	**0**	**1**	**60**	**39**	**297**	**1,365**
8:00 AM	0	15	16	30	0	9	34	1	0	39	68	4	0	1	48	32	297	1,298
8:15 AM	0	28	17	28	0	8	35	0	0	50	70	3	0	1	55	35	330	1,278
8:30 AM	0	41	19	28	0	9	33	2	1	38	67	4	0	1	45	41	329	1,253
8:45 AM	0	25	22	25	0	4	29	1	0	22	41	3	2	0	54	17	245	1,201
Count Total	0	246	123	201	0	61	304	13	1	316	569	29	2	5	416	280	2,566	0
Peak Hour All	**0**	**137**	**49**	**90**	**0**	**31**	**173**	**9**	**0**	**167**	**323**	**15**	**0**	**2**	**214**	**155**	**1,365**	**0**
Peak Hour HV	**0**	**11**	**1**	**1**	**0**	**1**	**2**	**0**	**0**	**4**	**7**	**0**	**0**	**1**	**4**	**7**	**39**	**0**
Peak Hour HV%	**-**	**8%**	**2%**	**1%**	**-**	**3%**	**1%**	**0%**	**-**	**2%**	**2%**	**0%**	**-**	**50%**	**2%**	**5%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**3**	**0**	**2**	**1**	***6***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	*1*
7:15 AM	**3**	**0**	**2**	**3**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**4**	**3**	**5**	**4**	***16***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**3**	**0**	**2**	**4**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	3	1	2	4	*10*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	3	3	4	3	*13*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	10	3	1	5	*19*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	7	0	1	5	*13*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	36	10	19	29	*94*	0	0	0	0	*0*	1	0	0	0	*1*
Peak Hour	**13**	**3**	**11**	**12**	***39***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	BRADLEY RD Eastbound				BRADLEY RD Westbound				GRINNELL BLVD Northbound				GRINNELL BLVD Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**6**	0
7:15 AM	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**3**	**8**	0
7:30 AM	**0**	**4**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**1**	**4**	**0**	**0**	**0**	**2**	**2**	**16**	0
7:45 AM	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**2**	**1**	**9**	**39**
8:00 AM	0	1	1	1	0	0	1	0	0	0	2	0	0	0	1	3	10	43
8:15 AM	0	2	1	0	0	0	3	0	0	3	1	0	0	0	2	1	13	48
8:30 AM	0	9	1	0	0	1	2	0	0	0	0	1	0	0	2	3	19	51
8:45 AM	0	4	2	1	0	0	0	0	0	0	1	0	0	0	4	1	13	55
Count Total	0	27	6	3	0	2	8	0	0	7	11	1	0	1	13	15	94	0
Peak Hour	**0**	**11**	**1**	**1**	**0**	**1**	**2**	**0**	**0**	**4**	**7**	**0**	**0**	**1**	**4**	**7**	**39**	**0**

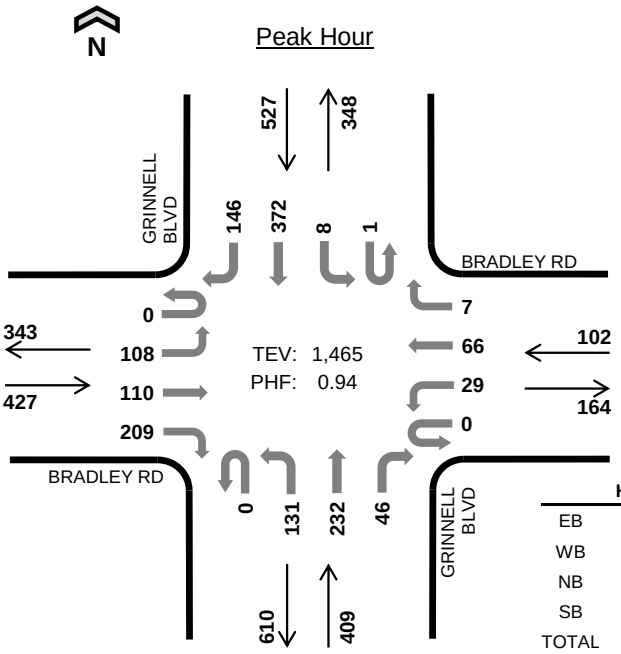
Two-Hour Count Summaries - Bikes

Interval Start	BRADLEY RD Eastbound			BRADLEY RD Westbound			GRINNELL BLVD Northbound			GRINNELL BLVD Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

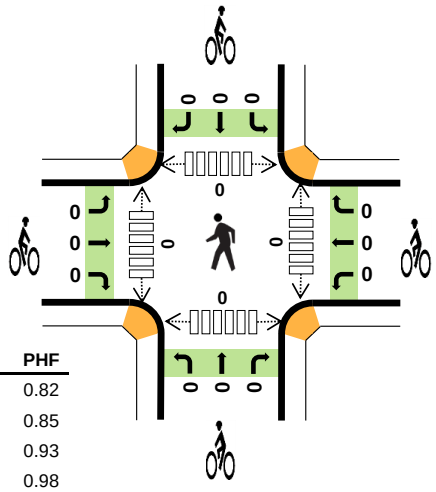
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

GRINNELL BLVD
BRADLEY RD

Date: 03/02/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	0.5%	0.82
WB	0.0%	0.85
NB	1.2%	0.93
SB	1.1%	0.98
TOTAL	0.9%	0.94



Two-Hour Count Summaries

Interval Start	BRADLEY RD Eastbound				BRADLEY RD Westbound				GRINNELL BLVD Northbound				GRINNELL BLVD Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	35	39	37	0	11	20	1	0	42	45	6	0	0	89	36	361	0
4:15 PM	0	38	35	50	0	5	22	0	0	35	54	7	0	3	85	47	381	0
4:30 PM	0	24	24	42	0	7	13	1	0	37	49	4	0	1	86	42	330	0
4:45 PM	**0**	**21**	**27**	**67**	**0**	**6**	**17**	**1**	**0**	**45**	**51**	**14**	**0**	**3**	**87**	**44**	**383**	1,455
5:00 PM	**0**	**17**	**25**	**47**	**0**	**6**	**12**	**3**	**0**	**30**	**62**	**9**	**0**	**0**	**92**	**36**	**339**	1,433
5:15 PM	**0**	**23**	**26**	**44**	**0**	**6**	**20**	**1**	**0**	**33**	**59**	**10**	**1**	**4**	**92**	**36**	**355**	1,407
5:30 PM	**0**	**47**	**32**	**51**	**0**	**11**	**17**	**2**	**0**	**23**	**60**	**13**	**0**	**1**	**101**	**30**	**388**	**1,465**
5:45 PM	0	28	23	33	0	6	34	3	0	38	69	9	0	2	78	36	359	1,441
Count Total	0	233	231	371	0	58	155	12	0	283	449	72	1	14	710	307	2,896	0
Peak Hour All	**0**	**108**	**110**	**209**	**0**	**29**	**66**	**7**	**0**	**131**	**232**	**46**	**1**	**8**	**372**	**146**	**1,465**	**0**
Peak Hour HV	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**0**	**0**	**4**	**2**	**13**	**0**
Peak Hour HV%	**-**	**1%**	**0%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**2%**	**1%**	**0%**	**0%**	**0%**	**1%**	**1%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	1	2	3	*10*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	2	1	2	0	*5*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	2	0	1	2	*5*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	**1**	**0**	**2**	**1**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**1**	**0**	**1**	**4**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:45 PM	0	2	3	0	*5*	0	1	0	0	*1*	0	0	0	0	*0*
Count Total	10	4	13	11	*38*	0	1	0	0	*1*	0	0	0	0	*0*
Peak Hour	**2**	**0**	**5**	**6**	***13***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	BRADLEY RD Eastbound				BRADLEY RD Westbound				GRINNELL BLVD Northbound				GRINNELL BLVD Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	2	0	0	0	1	0	0	0	2	0	0	0	2	1	10	0
4:15 PM	0	2	0	0	0	0	1	0	0	1	1	0	0	0	0	0	5	0
4:30 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	2	0	5	0
4:45 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**4**	24
5:00 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**1**	**6**	20
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**2**	17
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**13**
5:45 PM	0	0	0	0	0	0	2	0	0	1	2	0	0	0	0	0	5	14
Count Total	0	7	2	1	0	0	4	0	0	5	8	0	0	0	8	3	38	0
Peak Hour	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**0**	**0**	**4**	**2**	**13**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	BRADLEY RD Eastbound			BRADLEY RD Westbound			GRINNELL BLVD Northbound			GRINNELL BLVD Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Count Total	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

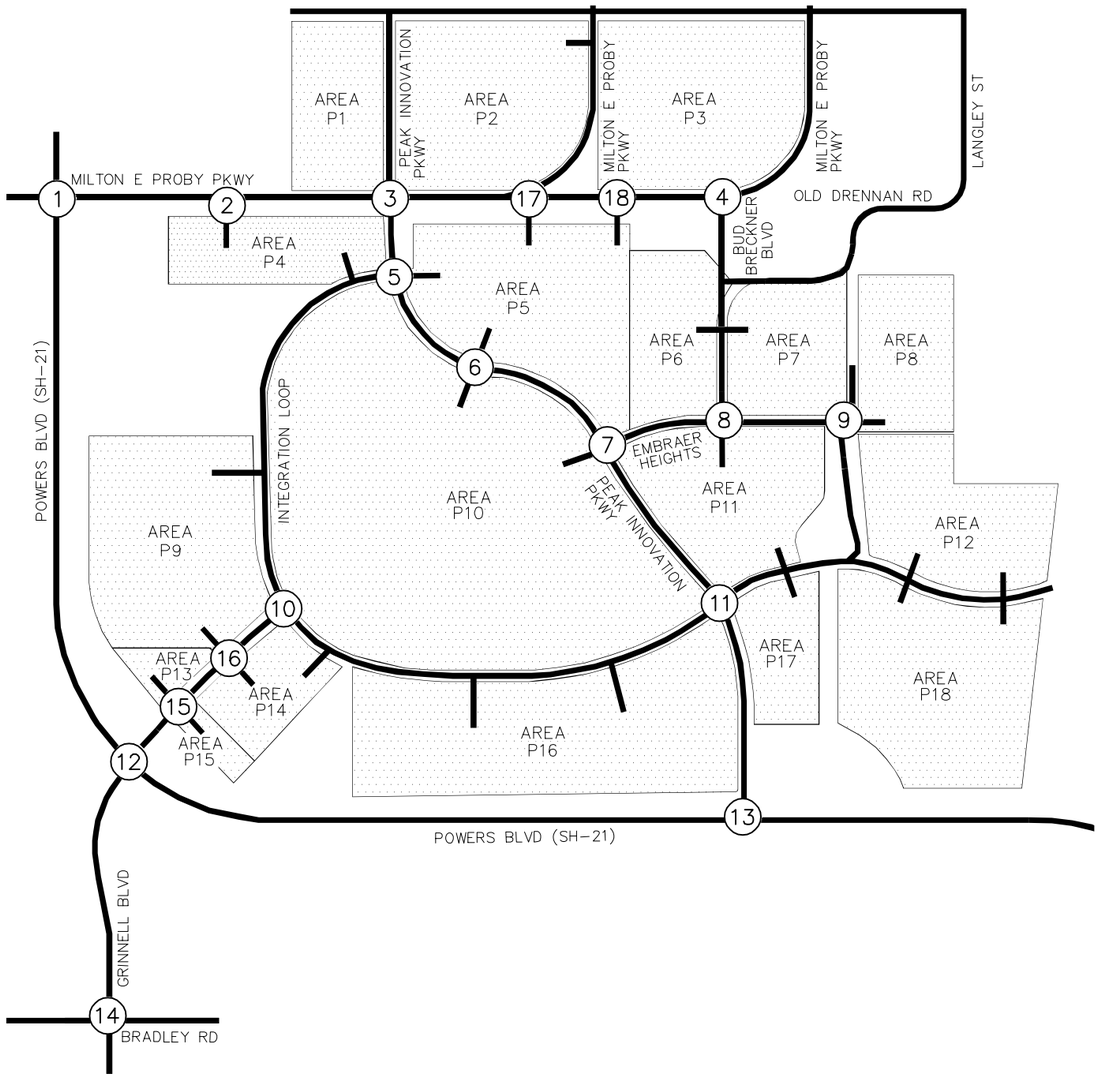
APPENDIX B

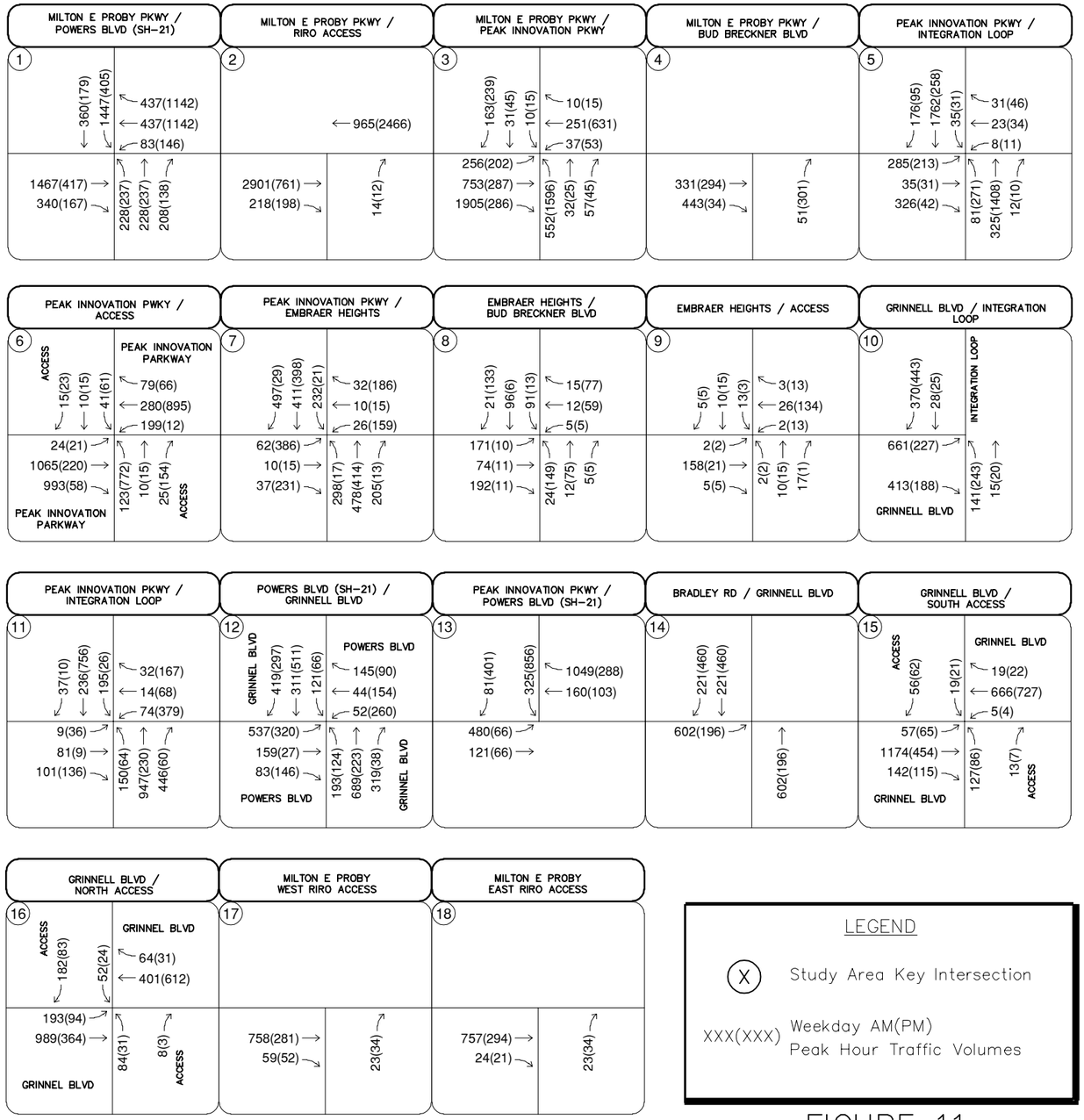
Future Traffic Projections/Peak Innovation Park Assignment

CDOT OTIS: SEC Grinnell & Powers

ROUTE	REFPT	ENDREFPT	LENGTH	AADT	AADTYR	YR20FACTOR	Annual Growth Rate	DHV	DD	LOCATION
021A	136.607	138	1.377	23000	2020	1.15	0.70%	9.5	61	ON POWERS BLVD N/O DRENNAN RD COLO SPGS

Kimley»Horn
NORTH
NTS 096161008





LEGEND

(X) Study Area Key Intersection

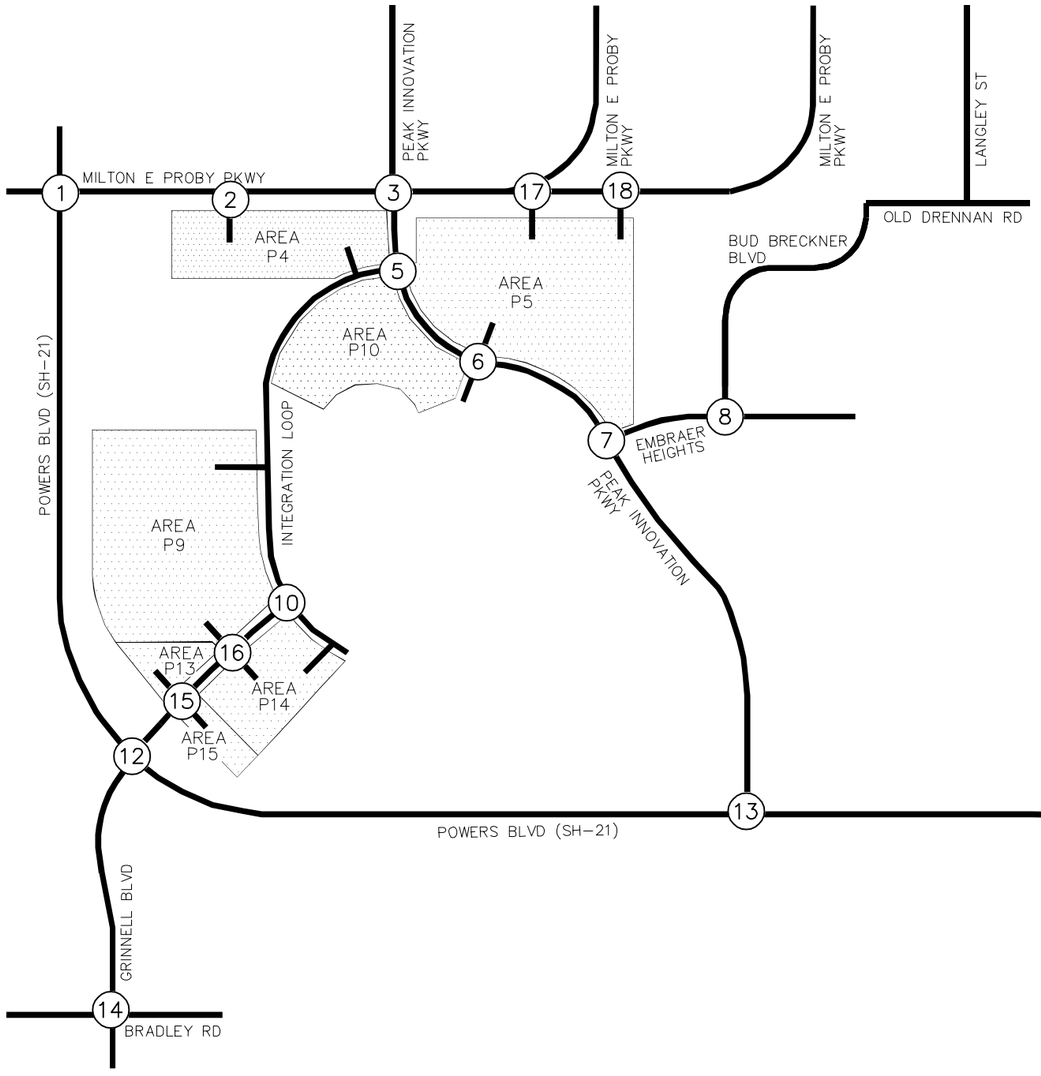
XXX(XXX) Weekday AM(PM) Peak Hour Traffic Volumes

PEAK INNOVATION PARK
FULL BUILDOUT 2045 PROJECT TRAFFIC ASSIGNMENT

FIGURE 11

Kimley»Horn

Kimley»Horn
NORTH
NTS 096161008



1 — MILTON E PROBY PKWY / POWERS BLVD (SH-21)

	242(156) ← 323(170) ↑	188(244) ↑ 188(244) ←
356(186) → 210(141) ↘	198(106) ↑	198(106) ↑ 58(53) ↗

2 — MILTON E PROBY PKWY / RIRO ACCESS

← 378(488)	
503(197) → 233(211) ↘	14(12) ↑

3 — MILTON E PROBY PKWY / PEAK INNOVATION PKWY

	← 32(48)
57(52) → 461(157) ↘	332(427) ↑

5 — PEAK INNOVATION PKWY / INTEGRATION LOOP

176(95) ↙ 260(40) ↓ 24(22) ↘	21(32) ↑ 16(24) ← 5(8) ↖
271(200) ↘ 24(22) → 100(40) ↘	36(71) ↑ 40(195) → 8(7) ↗

6 — PEAK INNOVATION PWKY / ACCESS

ACCESS 11(16) ↙ 21(32) ↓	PEAK INNOVATION PARKWAY 32(30) ↑ 37(33) ← 96(6) ↖
16(15) → 60(58) → 288(17) → PEAK INNOVATION PARKWAY	36(224) ↑ 12(75) ↑ ACCESS

7 — PEAK INNOVATION PKWY / EMBRAER HEIGHTS

94(165) ↓	
	166(69) →

8 — EMBRAER HEIGHTS / BUD BRECKNER BLVD

10 — GRINNELL BLVD / INTEGRATION LOOP

359(259) ↙	INTEGRATION LOOP
442(219) ↘ 183(141) ↘ GRINNELL BLVD	39(16) ↑ 10(15) →

12 — POWERS BLVD (SH-21) / GRINNELL BLVD

GRINNELL BLVD 398(212) ↓ 251(211) ↓ 173(92) ↓	POWERS BLVD 209(130) ↑ 29(26) ← 7(23) ↖
450(297) → POWERS BLVD	29(26) ↑ 320(181) → 27(8) ↗ GRINNEL BLVD

13 — PEAK INNOVATION PKWY / POWERS BLVD (SH-21)

7(23) ↓ 86(142) ↓	↑ 138(60) ← 250(165)
27(8) → 181(96) →	

14 — BRADLEY RD / GRINNELL BLVD

130(117) ↓ 130(117) ↓	
187(109) →	187(109) →

15 — GRINNELL BLVD / SOUTH ACCESS

ACCESS 59(66) ↓ 15(16) ↓	GRINNEL BLVD 15(17) ← 627(359) ↖
61(69) → 772(422) → 147(119) ↘ GRINNEL BLVD	132(90) → ACCESS

16 — GRINNELL BLVD / NORTH ACCESS

ACCESS 182(83) ↓ 26(12) ↓	GRINNEL BLVD 32(16) ← 346(238) ↖
193(94) → 579(328) → GRINNEL BLVD	101(37) ↑ ACCESS

17 — MILTON E PROBY WEST RIRO ACCESS

16(15) → 41(37) ↘	16(24) ↑

18 — MILTON E PROBY EAST RIRO ACCESS

16(24) → 16(15) ↘	16(24) ↑

LEGEND

(X) Study Area Key Intersection

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

PEAK INNOVATION PARK
PHASE I 2022 PROJECT TRAFFIC ASSIGNMENT

FIGURE 9

Kimley»Horn

APPENDIX C

Trip Generation Worksheets

Kimley»Horn

Project	DHI - Waterview				
Subject	Trip Generation for Multifamily Housing (Low-Rise)				
Designed by	TES	*Date*	March 08, 2022	*Job No.*	096266039
Checked by		*Date*		*Sheet No.*	of

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 11th Edition, Average Rate Equations

Land Use Code - Multifamily Housing (Low-Rise) (220)

Independent Variable - Dwelling Units (X)

X = 345
T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (200 Series Page 255)

Average Weekday — Directional Distribution: 24% ent. 76% exit.
(T) = 0.40 (X) — T = 138 Average Vehicle Trip Ends
(T) = 0.40 * (345.0) — 33 entering 105 exiting

33 + 105 = 138

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (200 Series Page 256)

Average Weekday — Directional Distribution: 63% ent. 37% exit.
(T) = 0.51(X) — T = 176 Average Vehicle Trip Ends
(T) = 0.51 * (345.0) — 111 entering 65 exiting

111 + 65 = 176

Weekday (200 Series Page 254)

Average Weekday — Directional Distribution: 50% entering, 50% exiting
(T) = 6.74 (X) — T = 2326 Average Vehicle Trip Ends
(T) = 6.74 * (345.0) — 1163 entering 1163 exiting

1163 + 1163 = 2326

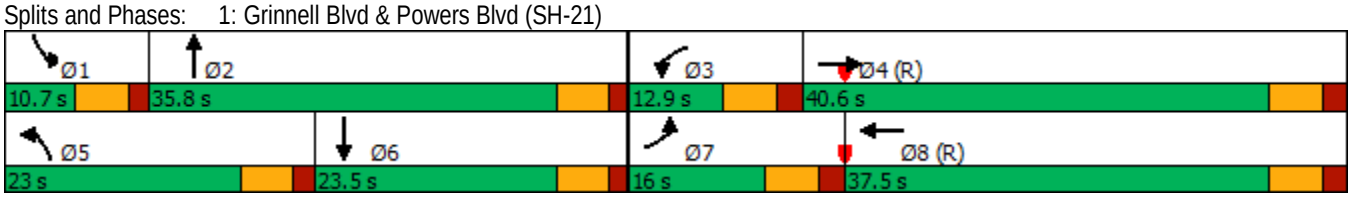
APPENDIX D

Intersection Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	229	745	207	91	788	76	413	67	67	53	18	41
Future Volume (vph)	229	745	207	91	788	76	413	67	67	53	18	41
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			Free			Free			Free			Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0		12.5	25.5		10.5	23.5		10.5	23.5	
Total Split (s)	16.0	40.6		12.9	37.5		23.0	35.8		10.7	23.5	
Total Split (%)	16.0%	40.6%		12.9%	37.5%		23.0%	35.8%		10.7%	23.5%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	10.0	34.7	100.0	6.8	31.5	100.0	16.9	32.4	100.0	5.2	18.6	100.0
Actuated g/C Ratio	0.10	0.35	1.00	0.07	0.32	1.00	0.17	0.32	1.00	0.05	0.19	1.00
v/c Ratio	0.78	0.70	0.15	0.46	0.82	0.06	0.83	0.07	0.05	0.35	0.03	0.03
Control Delay	60.6	32.0	0.2	51.5	39.0	0.1	53.4	24.9	0.1	51.4	34.1	0.0
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	60.6	32.0	0.2	51.5	39.0	0.1	53.4	24.9	0.1	51.4	34.1	0.0
LOS	E	C	A	D	D	A	D	C	A	D	C	A
Approach Delay		32.0			37.1			43.3			29.8	
Approach LOS		C			D			D			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 35.9	Intersection LOS: D
Intersection Capacity Utilization 61.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Grinnell Blvd & Powers Blvd (SH-21)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	745	207	91	788	76	413	67	67	53	18	41
Future Volume (veh/h)	229	745	207	91	788	76	413	67	67	53	18	41
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	266	866	0	106	916	0	480	78	0	62	21	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	331	1343		166	1173		551	1077		142	656	
Arrive On Green	0.10	0.38	0.00	0.05	0.33	0.00	0.16	0.30	0.00	0.04	0.18	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	266	866	0	106	916	0	480	78	0	62	21	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	7.5	20.0	0.0	3.0	23.3	0.0	13.6	1.6	0.0	1.8	0.5	0.0
Cycle Q Clear(g_c), s	7.5	20.0	0.0	3.0	23.3	0.0	13.6	1.6	0.0	1.8	0.5	0.0
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	1343		166	1173		551	1077		142	656	
V/C Ratio(X)	0.80	0.64		0.64	0.78		0.87	0.07		0.44	0.03	
Avail Cap(c_a), veh/h	346	1343		238	1173		605	1077		180	656	
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	0.00
Uniform Delay (d), s/veh	44.3	25.6	0.0	46.8	30.2	0.0	41.0	24.8	0.0	46.8	33.5	0.0
Incr Delay (d2), s/veh	12.4	2.4	0.0	4.1	5.2	0.0	12.3	0.1	0.0	2.1	0.1	0.0
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	3.8	8.7	0.0	1.4	10.5	0.0	6.6	0.7	0.0	0.8	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	28.0	0.0	50.8	35.4	0.0	53.3	25.0	0.0	48.9	33.5	0.0
LnGrp LOS	E	C		D	D		D	C		D	C	
Approach Vol, veh/h		1132	A		1022	A		558	A		83	A
Approach Delay, s/veh		34.7			37.0			49.3			45.0	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	35.8	10.8	43.8	21.5	23.9	15.6	39.0
Change Period (Y+Rc), s	5.5	5.5	6.0	6.0	5.5	5.5	6.0	6.0
Max Green Setting (Gmax), s	5.2	30.3	6.9	34.6	17.5	18.0	10.0	31.5
Max Q Clear Time (g_c+I1), s	3.8	3.6	5.0	22.0	15.6	2.5	9.5	25.3
Green Ext Time (p_c), s	0.0	0.4	0.0	4.9	0.4	0.0	0.0	3.2

Intersection Summary	
HCM 6th Ctrl Delay	38.8
HCM 6th LOS	D

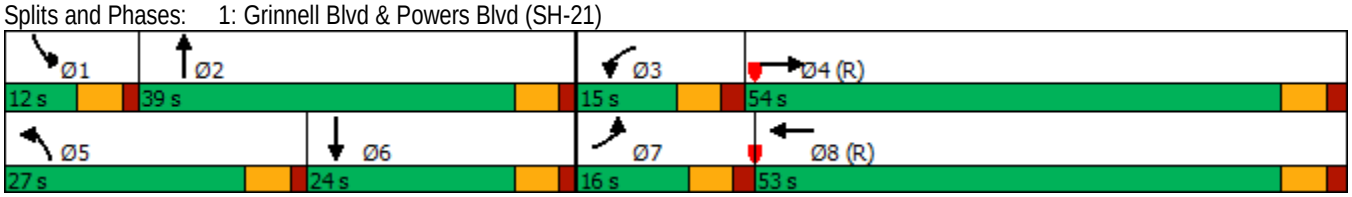
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	757	423	71	494	51	279	25	48	48	32	167
Future Volume (vph)	99	757	423	71	494	51	279	25	48	48	32	167
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			Free			Free			Free			Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0		12.5	25.5		10.5	23.5		10.5	23.5	
Total Split (s)	16.0	54.0		15.0	53.0		27.0	39.0		12.0	24.0	
Total Split (%)	13.3%	45.0%		12.5%	44.2%		22.5%	32.5%		10.0%	20.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	8.8	51.5	120.0	7.9	48.2	120.0	16.2	35.9	120.0	6.3	23.8	120.0
Actuated g/C Ratio	0.07	0.43	1.00	0.07	0.40	1.00	0.14	0.30	1.00	0.05	0.20	1.00
v/c Ratio	0.44	0.56	0.30	0.36	0.39	0.04	0.68	0.03	0.03	0.30	0.05	0.12
Control Delay	58.6	28.4	0.5	57.7	26.7	0.0	56.8	31.6	0.0	59.2	41.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	28.4	0.5	57.7	26.7	0.0	56.8	31.6	0.0	59.2	41.0	0.2
LOS	E	C	A	E	C	A	E	C	A	E	D	A
Approach Delay		21.5			28.1			47.3			16.9	
Approach LOS		C			C			D			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 26.3	Intersection LOS: C
Intersection Capacity Utilization 54.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Grinnell Blvd & Powers Blvd (SH-21)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	757	423	71	494	51	279	25	48	48	32	167
Future Volume (veh/h)	99	757	423	71	494	51	279	25	48	48	32	167
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	111	851	0	80	555	0	313	28	0	54	36	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	1619		134	1587		385	992		120	720	
Arrive On Green	0.05	0.46	0.00	0.04	0.45	0.00	0.11	0.28	0.00	0.03	0.20	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	111	851	0	80	555	0	313	28	0	54	36	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	3.8	20.6	0.0	2.7	12.3	0.0	10.6	0.7	0.0	1.8	1.0	0.0
Cycle Q Clear(g_c), s	3.8	20.6	0.0	2.7	12.3	0.0	10.6	0.7	0.0	1.8	1.0	0.0
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	165	1619		134	1587		385	992		120	720	
V/C Ratio(X)	0.67	0.53		0.60	0.35		0.81	0.03		0.45	0.05	
Avail Cap(c_a), veh/h	288	1619		259	1587		619	992		187	720	
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	0.00
Uniform Delay (d), s/veh	56.2	23.4	0.0	56.8	21.8	0.0	52.1	31.4	0.0	56.8	38.5	0.0
Incr Delay (d2), s/veh	4.6	1.2	0.0	4.2	0.6	0.0	4.4	0.1	0.0	2.6	0.1	0.0
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	1.8	8.8	0.0	1.3	5.3	0.0	4.8	0.3	0.0	0.8	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.8	24.6	0.0	61.0	22.4	0.0	56.5	31.5	0.0	59.4	38.7	0.0
LnGrp LOS	E	C		E	C		E	C		E	D	
Approach Vol, veh/h		962	A		635	A		341	A		90	A
Approach Delay, s/veh		28.8			27.3			54.4			51.1	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	39.0	10.7	60.7	18.9	29.8	11.7	59.6
Change Period (Y+Rc), s	5.5	5.5	6.0	6.0	5.5	5.5	6.0	6.0
Max Green Setting (Gmax), s	6.5	33.5	9.0	48.0	21.5	18.5	10.0	47.0
Max Q Clear Time (g_c+I1), s	3.8	2.7	4.7	22.6	12.6	3.0	5.8	14.3
Green Ext Time (p_c), s	0.0	0.1	0.1	6.6	0.7	0.1	0.1	4.2

Intersection Summary	
HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

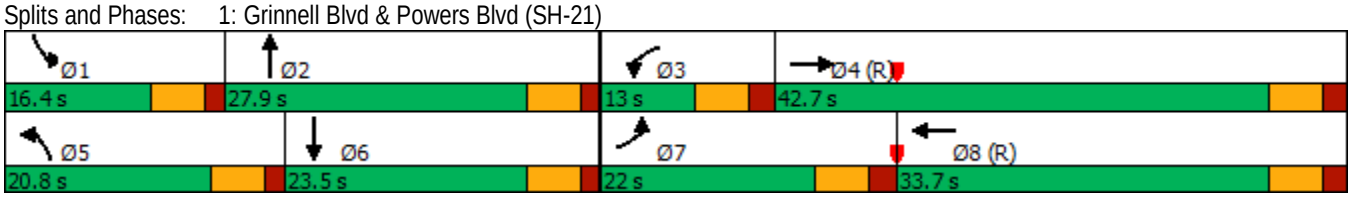
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	450	761	211	93	805	209	422	320	68	173	251	398
Future Volume (vph)	450	761	211	93	805	209	422	320	68	173	251	398
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			Free			Free			Free			Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0		12.5	25.5		10.5	23.5		10.5	23.5	
Total Split (s)	22.0	42.7		13.0	33.7		20.8	27.9		16.4	23.5	
Total Split (%)	22.0%	42.7%		13.0%	33.7%		20.8%	27.9%		16.4%	23.5%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	16.0	36.9	100.0	6.8	27.7	100.0	15.3	23.2	100.0	10.1	18.0	100.0
Actuated g/C Ratio	0.16	0.37	1.00	0.07	0.28	1.00	0.15	0.23	1.00	0.10	0.18	1.00
v/c Ratio	0.95	0.68	0.15	0.46	0.96	0.15	0.94	0.45	0.05	0.58	0.46	0.29
Control Delay	71.0	29.8	0.2	51.4	56.1	0.2	69.0	35.4	0.1	49.7	39.3	0.5
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	71.0	29.8	0.2	51.4	56.1	0.2	69.0	35.4	0.1	49.7	39.3	0.5
LOS	E	C	A	D	E	A	E	D	A	D	D	A
Approach Delay		38.5			45.2			49.9			22.7	
Approach LOS		D			D			D			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 39.4	Intersection LOS: D
Intersection Capacity Utilization 73.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Grinnell Blvd & Powers Blvd (SH-21)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	450	761	211	93	805	209	422	320	68	173	251	398
Future Volume (veh/h)	450	761	211	93	805	209	422	320	68	173	251	398
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	523	885	0	108	936	0	491	372	0	201	292	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	553	1380		168	984		529	904		271	640	
Arrive On Green	0.16	0.39	0.00	0.05	0.28	0.00	0.15	0.25	0.00	0.08	0.18	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	523	885	0	108	936	0	491	372	0	201	292	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	15.0	20.3	0.0	3.1	25.9	0.0	14.0	8.7	0.0	5.7	7.3	0.0
Cycle Q Clear(g_c), s	15.0	20.3	0.0	3.1	25.9	0.0	14.0	8.7	0.0	5.7	7.3	0.0
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	553	1380		168	984		529	904		271	640	
V/C Ratio(X)	0.95	0.64		0.64	0.95		0.93	0.41		0.74	0.46	
Avail Cap(c_a), veh/h	553	1380		242	984		529	904		377	640	
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	0.00
Uniform Delay (d), s/veh	41.6	24.9	0.0	46.7	35.5	0.0	41.8	31.0	0.0	45.1	36.6	0.0
Incr Delay (d2), s/veh	25.5	2.3	0.0	4.1	19.0	0.0	22.9	1.4	0.0	4.9	2.3	0.0
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	8.3	8.7	0.0	1.4	13.5	0.0	7.6	3.9	0.0	2.6	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.0	27.2	0.0	50.8	54.5	0.0	64.8	32.4	0.0	50.0	39.0	0.0
LnGrp LOS	E	C		D	D		E	C		D	D	
Approach Vol, veh/h		1408	A		1044	A		863	A		493	A
Approach Delay, s/veh		42.0			54.1			50.8			43.5	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	30.9	10.9	44.8	20.8	23.5	22.0	33.7
Change Period (Y+Rc), s	5.5	5.5	6.0	6.0	5.5	5.5	6.0	6.0
Max Green Setting (Gmax), s	10.9	22.4	7.0	36.7	15.3	18.0	16.0	27.7
Max Q Clear Time (g_c+I1), s	7.7	10.7	5.1	22.3	16.0	9.3	17.0	27.9
Green Ext Time (p_c), s	0.2	1.8	0.0	5.4	0.0	1.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.5
HCM 6th LOS	D

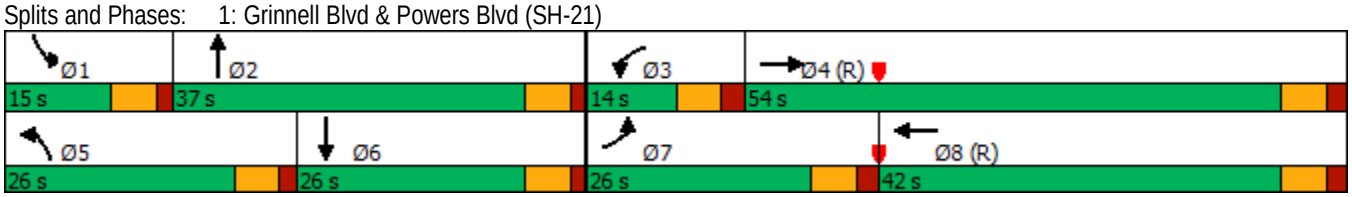
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	297	773	432	73	504	130	285	181	49	92	211	212
Future Volume (vph)	297	773	432	73	504	130	285	181	49	92	211	212
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			Free			Free			Free			Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0		12.5	25.5		10.5	23.5		10.5	23.5	
Total Split (s)	26.0	54.0		14.0	42.0		26.0	37.0		15.0	26.0	
Total Split (%)	21.7%	45.0%		11.7%	35.0%		21.7%	30.8%		12.5%	21.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	16.6	50.9	120.0	7.5	39.4	120.0	16.4	32.5	120.0	8.5	24.6	120.0
Actuated g/C Ratio	0.14	0.42	1.00	0.06	0.33	1.00	0.14	0.27	1.00	0.07	0.20	1.00
v/c Ratio	0.70	0.58	0.31	0.38	0.49	0.09	0.68	0.21	0.03	0.43	0.33	0.15
Control Delay	57.4	29.1	0.5	59.2	34.5	0.1	56.9	34.9	0.0	58.6	42.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	29.1	0.5	59.2	34.5	0.1	56.9	34.9	0.0	58.6	42.9	0.2
LOS	E	C	A	E	C	A	E	C	A	E	D	A
Approach Delay		26.5			30.8			43.7			28.1	
Approach LOS		C			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 30.4	Intersection LOS: C
Intersection Capacity Utilization 58.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Grinnell Blvd & Powers Blvd (SH-21)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	297	773	432	73	504	130	285	181	49	92	211	212
Future Volume (veh/h)	297	773	432	73	504	130	285	181	49	92	211	212
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	334	869	0	82	566	0	320	203	0	103	237	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	403	1641		135	1364		390	933		156	692	
Arrive On Green	0.12	0.46	0.00	0.04	0.38	0.00	0.11	0.26	0.00	0.05	0.19	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	334	869	0	82	566	0	320	203	0	103	237	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	11.3	20.9	0.0	2.8	14.0	0.0	10.9	5.4	0.0	3.5	6.9	0.0
Cycle Q Clear(g_c), s	11.3	20.9	0.0	2.8	14.0	0.0	10.9	5.4	0.0	3.5	6.9	0.0
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	403	1641		135	1364		390	933		156	692	
V/C Ratio(X)	0.83	0.53		0.61	0.41		0.82	0.22		0.66	0.34	
Avail Cap(c_a), veh/h	576	1641		230	1364		590	933		274	692	
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	0.00
Uniform Delay (d), s/veh	51.8	23.0	0.0	56.8	27.1	0.0	52.0	34.6	0.0	56.4	41.7	0.0
Incr Delay (d2), s/veh	6.7	1.2	0.0	4.4	0.9	0.0	5.5	0.5	0.0	4.7	1.3	0.0
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	5.3	8.9	0.0	1.3	6.1	0.0	5.0	2.4	0.0	1.6	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	24.2	0.0	61.2	28.0	0.0	57.6	35.1	0.0	61.1	43.0	0.0
LnGrp LOS	E	C		E	C		E	D		E	D	
Approach Vol, veh/h		1203	A		648	A		523	A		340	A
Approach Delay, s/veh		33.8			32.2			48.9			48.5	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	37.0	10.7	61.4	19.1	28.9	20.0	52.1
Change Period (Y+Rc), s	5.5	5.5	6.0	6.0	5.5	5.5	6.0	6.0
Max Green Setting (Gmax), s	9.5	31.5	8.0	48.0	20.5	20.5	20.0	36.0
Max Q Clear Time (g_c+I1), s	5.5	7.4	4.8	22.9	12.9	8.9	13.3	16.0
Green Ext Time (p_c), s	0.1	1.2	0.0	6.7	0.7	1.1	0.7	3.8

Intersection Summary	
HCM 6th Ctrl Delay	38.2
HCM 6th LOS	D

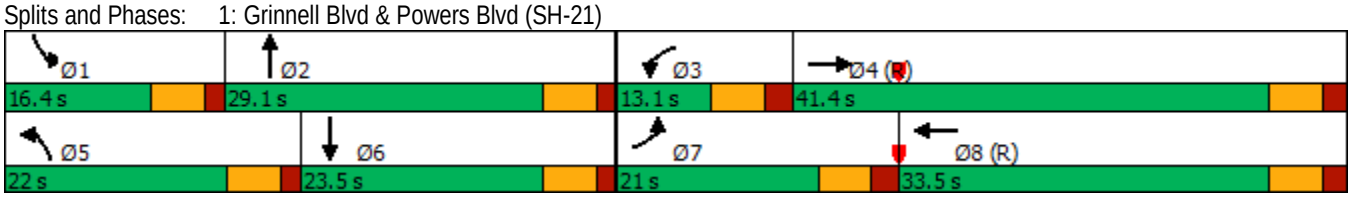
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	450	761	224	96	805	209	464	331	79	173	254	398
Future Volume (vph)	450	761	224	96	805	209	464	331	79	173	254	398
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			Free			Free			Free			Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0		12.5	25.5		10.5	23.5		10.5	23.5	
Total Split (s)	21.0	41.4		13.1	33.5		22.0	29.1		16.4	23.5	
Total Split (%)	21.0%	41.4%		13.1%	33.5%		22.0%	29.1%		16.4%	23.5%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	15.0	35.6	100.0	6.9	27.5	100.0	16.5	24.4	100.0	10.1	18.0	100.0
Actuated g/C Ratio	0.15	0.36	1.00	0.07	0.28	1.00	0.16	0.24	1.00	0.10	0.18	1.00
v/c Ratio	1.02	0.70	0.16	0.47	0.96	0.15	0.95	0.45	0.06	0.58	0.46	0.29
Control Delay	87.3	31.4	0.2	51.6	57.6	0.2	70.4	34.3	0.1	49.7	39.4	0.5
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	87.3	31.4	0.2	51.6	57.6	0.2	70.4	34.3	0.1	49.7	39.4	0.5
LOS	F	C	A	D	E	A	E	C	A	D	D	A
Approach Delay		44.1			46.3			50.4			22.8	
Approach LOS		D			D			D			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 41.8	Intersection LOS: D
Intersection Capacity Utilization 74.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Grinnell Blvd & Powers Blvd (SH-21)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	450	761	224	96	805	209	464	331	79	173	254	398
Future Volume (veh/h)	450	761	224	96	805	209	464	331	79	173	254	398
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	523	885	0	112	936	0	540	385	0	201	295	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	518	1333		173	977		570	947		271	640	
Arrive On Green	0.15	0.38	0.00	0.05	0.28	0.00	0.17	0.27	0.00	0.08	0.18	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	523	885	0	112	936	0	540	385	0	201	295	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	15.0	20.7	0.0	3.2	25.9	0.0	15.5	8.9	0.0	5.7	7.4	0.0
Cycle Q Clear(g_c), s	15.0	20.7	0.0	3.2	25.9	0.0	15.5	8.9	0.0	5.7	7.4	0.0
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	518	1333		173	977		570	947		271	640	
V/C Ratio(X)	1.01	0.66		0.65	0.96		0.95	0.41		0.74	0.46	
Avail Cap(c_a), veh/h	518	1333		245	977		570	947		377	640	
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	0.00
Uniform Delay (d), s/veh	42.5	26.0	0.0	46.6	35.7	0.0	41.3	30.2	0.0	45.1	36.7	0.0
Incr Delay (d2), s/veh	41.8	2.6	0.0	4.0	20.2	0.0	25.2	1.3	0.0	4.9	2.4	0.0
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	9.3	9.0	0.0	1.5	13.7	0.0	8.5	3.9	0.0	2.6	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.3	28.6	0.0	50.7	55.9	0.0	66.5	31.5	0.0	50.0	39.0	0.0
LnGrp LOS	F	C		D	E		E	C		D	D	
Approach Vol, veh/h		1408	A		1048	A		925	A		496	A
Approach Delay, s/veh		49.3			55.4			51.9			43.5	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	32.1	11.0	43.5	22.0	23.5	21.0	33.5
Change Period (Y+Rc), s	5.5	5.5	6.0	6.0	5.5	5.5	6.0	6.0
Max Green Setting (Gmax), s	10.9	23.6	7.1	35.4	16.5	18.0	15.0	27.5
Max Q Clear Time (g_c+I1), s	7.7	10.9	5.2	22.7	17.5	9.4	17.0	27.9
Green Ext Time (p_c), s	0.2	2.0	0.1	5.0	0.0	1.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	50.8
HCM 6th LOS	D

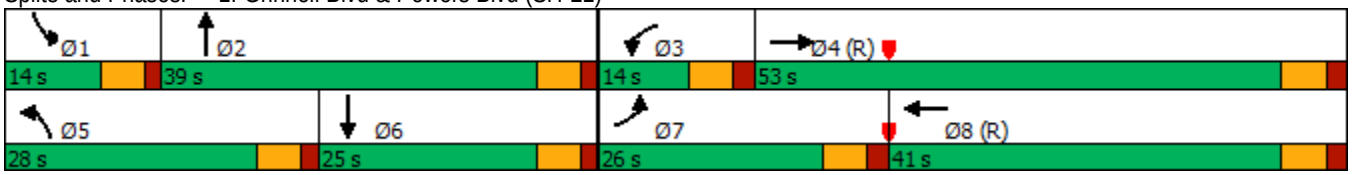
Notes

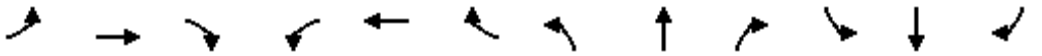
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	297	773	476	84	504	130	311	188	56	92	222	212
Future Volume (vph)	297	773	476	84	504	130	311	188	56	92	222	212
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			Free			Free			Free			Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0		12.5	25.5		10.5	23.5		10.5	23.5	
Total Split (s)	26.0	53.0		14.0	41.0		28.0	39.0		14.0	25.0	
Total Split (%)	21.7%	44.2%		11.7%	34.2%		23.3%	32.5%		11.7%	20.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	16.6	47.4	120.0	7.6	38.4	120.0	17.4	34.0	120.0	8.0	24.6	120.0
Actuated g/C Ratio	0.14	0.40	1.00	0.06	0.32	1.00	0.14	0.28	1.00	0.07	0.20	1.00
v/c Ratio	0.70	0.62	0.34	0.43	0.50	0.09	0.70	0.21	0.04	0.45	0.34	0.15
Control Delay	57.4	31.6	0.6	60.4	35.5	0.1	56.5	33.6	0.1	60.2	43.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	31.6	0.6	60.4	35.5	0.1	56.5	33.6	0.1	60.2	43.3	0.2
LOS	E	C	A	E	D	A	E	C	A	E	D	A
Approach Delay		27.0			32.0			43.1			28.9	
Approach LOS		C			C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 31.0	Intersection LOS: C
Intersection Capacity Utilization 59.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Grinnell Blvd & Powers Blvd (SH-21)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	297	773	476	84	504	130	311	188	56	92	222	212
Future Volume (veh/h)	297	773	476	84	504	130	311	188	56	92	222	212
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	334	869	0	94	566	0	349	211	0	103	249	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	403	1571		145	1306		422	992		156	718	
Arrive On Green	0.12	0.44	0.00	0.04	0.37	0.00	0.12	0.28	0.00	0.05	0.20	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	334	869	0	94	566	0	349	211	0	103	249	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	11.3	21.7	0.0	3.2	14.4	0.0	11.8	5.5	0.0	3.5	7.2	0.0
Cycle Q Clear(g_c), s	11.3	21.7	0.0	3.2	14.4	0.0	11.8	5.5	0.0	3.5	7.2	0.0
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	403	1571		145	1306		422	992		156	718	
V/C Ratio(X)	0.83	0.55		0.65	0.43		0.83	0.21		0.66	0.35	
Avail Cap(c_a), veh/h	576	1571		230	1306		648	992		245	718	
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	0.00
Uniform Delay (d), s/veh	51.8	24.7	0.0	56.6	28.6	0.0	51.4	33.1	0.0	56.4	41.1	0.0
Incr Delay (d2), s/veh	6.7	1.4	0.0	4.8	1.1	0.0	5.3	0.5	0.0	4.7	1.3	0.0
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	5.3	9.3	0.0	1.5	6.3	0.0	5.4	2.4	0.0	1.6	3.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	26.1	0.0	61.4	29.6	0.0	56.7	33.6	0.0	61.1	42.4	0.0
LnGrp LOS	E	C		E	C		E	C		E	D	
Approach Vol, veh/h		1203	A		660	A		560	A		352	A
Approach Delay, s/veh		35.1			34.1			48.0			47.9	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	39.0	11.0	59.1	20.2	29.7	20.0	50.1
Change Period (Y+Rc), s	5.5	5.5	6.0	6.0	5.5	5.5	6.0	6.0
Max Green Setting (Gmax), s	8.5	33.5	8.0	47.0	22.5	19.5	20.0	35.0
Max Q Clear Time (g_c+I1), s	5.5	7.5	5.2	23.7	13.8	9.2	13.3	16.4
Green Ext Time (p_c), s	0.1	1.3	0.1	6.6	0.8	1.0	0.7	3.7

Intersection Summary			
HCM 6th Ctrl Delay		39.1	
HCM 6th LOS		D	

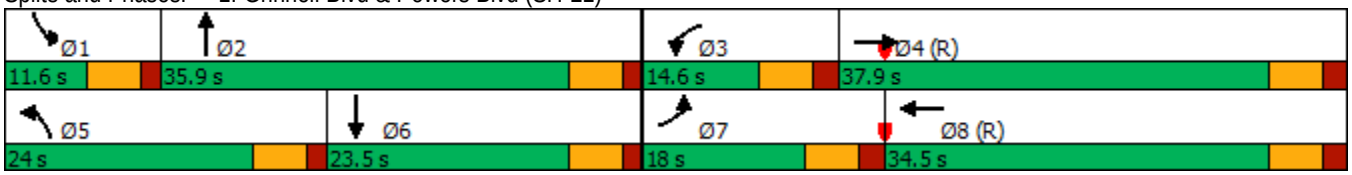
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	537	800	430	193	1110	145	921	689	468	121	311	419
Future Volume (vph)	537	800	430	193	1110	145	921	689	468	121	311	419
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			Free			Free			Free			Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0		12.5	25.5		10.5	23.5		10.5	23.5	
Total Split (s)	18.0	37.9		14.6	34.5		24.0	35.9		11.6	23.5	
Total Split (%)	18.0%	37.9%		14.6%	34.5%		24.0%	35.9%		11.6%	23.5%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	12.0	31.9	100.0	8.6	28.5	100.0	18.5	30.4	100.0	6.1	18.0	100.0
Actuated g/C Ratio	0.12	0.32	1.00	0.09	0.28	1.00	0.18	0.30	1.00	0.06	0.18	1.00
v/c Ratio	1.42	0.77	0.30	0.71	1.20	0.10	1.58	0.70	0.32	0.63	0.53	0.29
Control Delay	237.5	36.2	0.5	59.0	131.9	0.1	297.2	34.8	0.5	60.0	40.7	0.5
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	237.5	36.2	0.5	59.0	131.9	0.1	297.2	34.8	0.5	60.0	40.7	0.5
LOS	F	D	A	E	F	A	F	C	A	E	D	A
Approach Delay		88.7			108.9			143.4			23.6	
Approach LOS		F			F			F			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.58	
Intersection Signal Delay: 103.0	Intersection LOS: F
Intersection Capacity Utilization 100.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 1: Grinnell Blvd & Powers Blvd (SH-21)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	537	800	430	193	1110	145	921	689	468	121	311	419
Future Volume (veh/h)	537	800	430	193	1110	145	921	689	468	121	311	419
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	584	870	0	210	1207	0	1001	749	0	132	338	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	415	1156		276	1013		639	1098		194	640	
Arrive On Green	0.12	0.33	0.00	0.08	0.28	0.00	0.19	0.31	0.00	0.06	0.18	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	584	870	0	210	1207	0	1001	749	0	132	338	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	12.0	21.9	0.0	6.0	28.5	0.0	18.5	18.5	0.0	3.7	8.6	0.0
Cycle Q Clear(g_c), s	12.0	21.9	0.0	6.0	28.5	0.0	18.5	18.5	0.0	3.7	8.6	0.0
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	415	1156		276	1013		639	1098		194	640	
V/C Ratio(X)	1.41	0.75		0.76	1.19		1.57	0.68		0.68	0.53	
Avail Cap(c_a), veh/h	415	1156		297	1013		639	1098		211	640	
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	0.00
Uniform Delay (d), s/veh	44.0	30.1	0.0	45.1	35.8	0.0	40.8	30.3	0.0	46.3	37.2	0.0
Incr Delay (d2), s/veh	197.7	4.6	0.0	10.3	96.2	0.0	262.2	3.4	0.0	7.8	3.1	0.0
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	16.5	9.9	0.0	2.9	25.5	0.0	31.0	8.3	0.0	1.8	4.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	241.7	34.7	0.0	55.4	131.9	0.0	302.9	33.7	0.0	54.1	40.3	0.0
LnGrp LOS	F	C		E	F		F	C		D	D	
Approach Vol, veh/h		1454	A		1417	A		1750	A		470	A
Approach Delay, s/veh		117.8			120.6			187.7			44.1	
Approach LOS		F			F			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	36.4	14.0	38.5	24.0	23.5	18.0	34.5
Change Period (Y+Rc), s	5.5	5.5	6.0	6.0	5.5	5.5	6.0	6.0
Max Green Setting (Gmax), s	6.1	30.4	8.6	31.9	18.5	18.0	12.0	28.5
Max Q Clear Time (g_c+I1), s	5.7	20.5	8.0	23.9	20.5	10.6	14.0	30.5
Green Ext Time (p_c), s	0.0	3.6	0.0	3.7	0.0	1.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	135.8
HCM 6th LOS	F

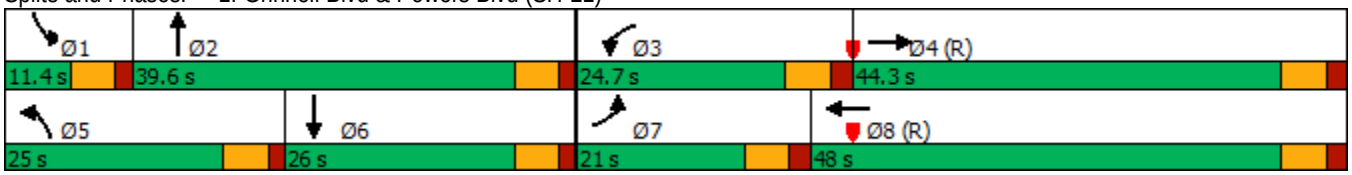
Notes

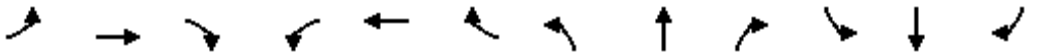
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	966	794	450	780	90	471	223	131	66	511	297
Future Volume (vph)	320	966	794	450	780	90	471	223	131	66	511	297
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			Free			Free			Free			Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0		12.5	25.5		10.5	23.5		10.5	23.5	
Total Split (s)	21.0	44.3		24.7	48.0		25.0	39.6		11.4	26.0	
Total Split (%)	17.5%	36.9%		20.6%	40.0%		20.8%	33.0%		9.5%	21.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	14.7	38.4	120.0	18.6	42.3	120.0	19.4	36.4	120.0	5.9	20.6	120.0
Actuated g/C Ratio	0.12	0.32	1.00	0.16	0.35	1.00	0.16	0.30	1.00	0.05	0.17	1.00
v/c Ratio	0.83	0.93	0.55	0.92	0.68	0.06	0.92	0.23	0.09	0.43	0.92	0.20
Control Delay	68.8	54.1	1.4	73.7	36.5	0.1	73.1	32.8	0.1	63.6	69.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.8	54.1	1.4	73.7	36.5	0.1	73.1	32.8	0.1	63.6	69.9	0.3
LOS	E	D	A	E	D	A	E	C	A	E	E	A
Approach Delay		36.2			46.7			50.7			45.8	
Approach LOS		D			D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 42.9	Intersection LOS: D
Intersection Capacity Utilization 86.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Grinnell Blvd & Powers Blvd (SH-21)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	966	794	450	780	90	471	223	131	66	511	297
Future Volume (veh/h)	320	966	794	450	780	90	471	223	131	66	511	297
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	348	1050	0	489	848	0	512	242	0	72	555	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	404	1135		538	1273		561	1050		131	607	
Arrive On Green	0.12	0.32	0.00	0.16	0.36	0.00	0.16	0.30	0.00	0.04	0.17	0.00
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	348	1050	0	489	848	0	512	242	0	72	555	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	11.9	34.3	0.0	16.7	24.1	0.0	17.5	6.2	0.0	2.5	18.4	0.0
Cycle Q Clear(g_c), s	11.9	34.3	0.0	16.7	24.1	0.0	17.5	6.2	0.0	2.5	18.4	0.0
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	404	1135		538	1273		561	1050		131	607	
V/C Ratio(X)	0.86	0.93		0.91	0.67		0.91	0.23		0.55	0.91	
Avail Cap(c_a), veh/h	432	1135		539	1273		562	1050		170	607	
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	0.00
Uniform Delay (d), s/veh	52.0	39.5	0.0	49.8	32.5	0.0	49.4	32.0	0.0	56.7	48.9	0.0
Incr Delay (d2), s/veh	15.4	13.9	0.0	19.3	2.8	0.0	19.3	0.5	0.0	3.6	20.6	0.0
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	6.0	17.0	0.0	8.6	10.8	0.0	9.0	2.8	0.0	1.1	9.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.5	53.4	0.0	69.1	35.2	0.0	68.7	32.5	0.0	60.3	69.5	0.0
LnGrp LOS	E	D		E	D		E	C		E	E	
Approach Vol, veh/h		1398	A		1337	A		754	A		627	A
Approach Delay, s/veh		56.9			47.6			57.1			68.4	
Approach LOS		E			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	40.9	24.7	44.3	25.0	26.0	20.0	49.0
Change Period (Y+Rc), s	5.5	5.5	6.0	6.0	5.5	5.5	6.0	6.0
Max Green Setting (Gmax), s	5.9	34.1	18.7	38.3	19.5	20.5	15.0	42.0
Max Q Clear Time (g_c+I1), s	4.5	8.2	18.7	36.3	19.5	20.4	13.9	26.1
Green Ext Time (p_c), s	0.0	1.5	0.0	1.3	0.0	0.0	0.2	5.4

Intersection Summary	
HCM 6th Ctrl Delay	55.7
HCM 6th LOS	E

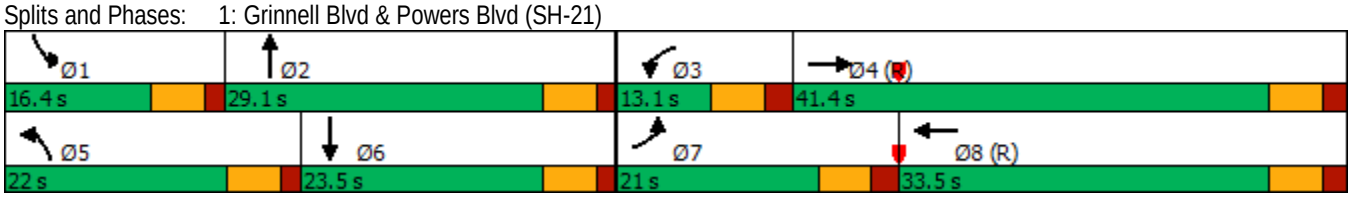
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	540	800	445	200	1110	145	965	700	480	125	315	420
Future Volume (vph)	540	800	445	200	1110	145	965	700	480	125	315	420
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			Free			Free			Free			Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0		12.5	25.5		10.5	23.5		10.5	23.5	
Total Split (s)	21.0	41.4		13.1	33.5		22.0	29.1		16.4	23.5	
Total Split (%)	21.0%	41.4%		13.1%	33.5%		22.0%	29.1%		16.4%	23.5%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	15.0	35.4	100.0	7.1	27.5	100.0	16.5	25.4	100.0	9.1	18.0	100.0
Actuated g/C Ratio	0.15	0.35	1.00	0.07	0.28	1.00	0.16	0.25	1.00	0.09	0.18	1.00
v/c Ratio	1.14	0.48	0.31	0.89	0.86	0.10	1.85	0.85	0.33	0.43	0.54	0.29
Control Delay	124.6	26.3	0.5	82.9	42.2	0.1	415.8	37.7	0.3	47.1	40.8	0.5
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	124.6	26.3	0.5	82.9	42.2	0.1	415.8	37.7	0.3	47.1	40.8	0.5
LOS	F	C	A	F	D	A	F	D	A	D	D	A
Approach Delay		49.6			43.5			199.4			22.0	
Approach LOS		D			D			F			C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.85	
Intersection Signal Delay: 95.8	Intersection LOS: F
Intersection Capacity Utilization 92.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 1: Grinnell Blvd & Powers Blvd (SH-21)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	540	800	445	200	1110	145	965	700	480	125	315	420
Future Volume (veh/h)	540	800	445	200	1110	145	965	700	480	125	315	420
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	587	870	0	217	1207	0	1049	761	0	136	342	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	518	1808		245	1404		570	1017		203	640	
Arrive On Green	0.15	0.35	0.00	0.07	0.28	0.00	0.17	0.29	0.00	0.06	0.18	0.00
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	587	870	0	217	1207	0	1049	761	0	136	342	0
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	15.0	13.3	0.0	6.2	22.4	0.0	16.5	19.5	0.0	3.9	8.7	0.0
Cycle Q Clear(g_c), s	15.0	13.3	0.0	6.2	22.4	0.0	16.5	19.5	0.0	3.9	8.7	0.0
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	518	1808		245	1404		570	1017		203	640	
V/C Ratio(X)	1.13	0.48		0.88	0.86		1.84	0.75		0.67	0.53	
Avail Cap(c_a), veh/h	518	1808		245	1404		570	1017		377	640	
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	0.49	0.49	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.5	25.2	0.0	46.0	34.4	0.0	41.8	32.4	0.0	46.1	37.2	0.0
Incr Delay (d2), s/veh	81.3	0.9	0.0	29.4	7.1	0.0	381.2	2.5	0.0	3.8	3.2	0.0
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	12.2	5.4	0.0	3.7	10.0	0.0	37.1	8.6	0.0	1.8	4.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	123.8	26.1	0.0	75.4	41.5	0.0	423.0	34.9	0.0	49.9	40.4	0.0
LnGrp LOS	F	C		E	D		F	C		D	D	
Approach Vol, veh/h		1457	A		1424	A		1810	A		478	A
Approach Delay, s/veh		65.5			46.6			259.8			43.1	
Approach LOS		E			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	34.1	13.1	41.4	22.0	23.5	21.0	33.5
Change Period (Y+Rc), s	5.5	5.5	6.0	6.0	5.5	5.5	6.0	6.0
Max Green Setting (Gmax), s	10.9	23.6	7.1	35.4	16.5	18.0	15.0	27.5
Max Q Clear Time (g_c+I1), s	5.9	21.5	8.2	15.3	18.5	10.7	17.0	24.4
Green Ext Time (p_c), s	0.2	1.1	0.0	6.2	0.0	1.2	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	126.3
HCM 6th LOS	F

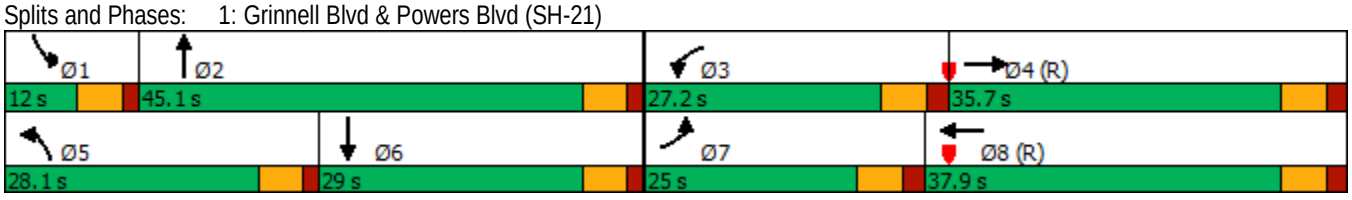
Notes

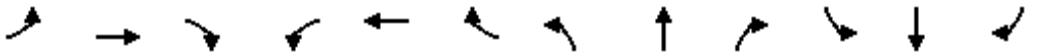
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	970	840	465	780	90	500	230	140	70	525	300
Future Volume (vph)	320	970	840	465	780	90	500	230	140	70	525	300
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			Free			Free			Free			Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0		12.5	25.5		10.5	23.5		10.5	23.5	
Total Split (s)	25.0	35.7		27.2	37.9		28.1	45.1		12.0	29.0	
Total Split (%)	20.8%	29.8%		22.7%	31.6%		23.4%	37.6%		10.0%	24.2%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max		None	Max	
Act Effct Green (s)	16.7	30.4	120.0	20.5	34.2	120.0	21.8	42.0	120.0	6.4	24.3	120.0
Actuated g/C Ratio	0.14	0.25	1.00	0.17	0.28	1.00	0.18	0.35	1.00	0.05	0.20	1.00
v/c Ratio	0.73	0.82	0.58	0.86	0.59	0.06	0.87	0.20	0.10	0.42	0.80	0.21
Control Delay	58.6	48.5	1.5	64.0	39.2	0.1	58.8	22.9	0.1	62.2	55.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	48.5	1.5	64.0	39.2	0.1	58.8	22.9	0.1	62.2	55.1	0.3
LOS	E	D	A	E	D	A	E	C	A	E	E	A
Approach Delay		31.5			45.2			39.9			37.3	
Approach LOS		C			D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 37.4	Intersection LOS: D
Intersection Capacity Utilization 80.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Grinnell Blvd & Powers Blvd (SH-21)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	970	840	465	780	90	500	230	140	70	525	300
Future Volume (veh/h)	320	970	840	465	780	90	500	230	140	70	525	300
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	348	1054	0	505	848	0	543	250	0	76	571	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	415	1391		565	1613		610	1187		133	696	
Arrive On Green	0.12	0.27	0.00	0.16	0.32	0.00	0.06	0.11	0.00	0.04	0.20	0.00
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	348	1054	0	505	848	0	543	250	0	76	571	0
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	11.8	22.7	0.0	17.2	16.3	0.0	18.7	7.7	0.0	2.6	18.5	0.0
Cycle Q Clear(g_c), s	11.8	22.7	0.0	17.2	16.3	0.0	18.7	7.7	0.0	2.6	18.5	0.0
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	415	1391		565	1613		610	1187		133	696	
V/C Ratio(X)	0.84	0.76		0.89	0.53		0.89	0.21		0.57	0.82	
Avail Cap(c_a), veh/h	547	1391		611	1613		651	1187		187	696	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.96	0.96	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	51.7	40.0	0.0	49.2	33.7	0.0	55.4	39.0	0.0	56.7	46.2	0.0
Incr Delay (d2), s/veh	8.6	3.9	0.0	14.9	1.2	0.0	13.4	0.4	0.0	3.9	10.5	0.0
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	5.6	10.0	0.0	8.6	6.9	0.0	9.9	3.6	0.0	1.2	9.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.3	43.9	0.0	64.1	34.9	0.0	68.7	39.4	0.0	60.6	56.7	0.0
LnGrp LOS	E	D		E	C		E	D		E	E	
Approach Vol, veh/h		1402	A		1353	A		793	A		647	A
Approach Delay, s/veh		48.0			45.8			59.5			57.2	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	45.6	25.6	38.7	26.7	29.0	20.4	43.9
Change Period (Y+Rc), s	5.5	5.5	6.0	6.0	5.5	5.5	6.0	6.0
Max Green Setting (Gmax), s	6.5	39.6	21.2	29.7	22.6	23.5	19.0	31.9
Max Q Clear Time (g_c+I1), s	4.6	9.7	19.2	24.7	20.7	20.5	13.8	18.3
Green Ext Time (p_c), s	0.0	1.7	0.4	3.0	0.5	1.1	0.6	5.0

Intersection Summary	
HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D

Notes

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

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	85	138	408	34	47	268
Future Vol, veh/h	85	138	408	34	47	268
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	450	300	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	152	448	37	52	295

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	847	448	0	0	485	0
Stage 1	448	-	-	-	-	-
Stage 2	399	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	332	611	-	-	1078	-
Stage 1	644	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	316	611	-	-	1078	-
Mov Cap-2 Maneuver	508	-	-	-	-	-
Stage 1	644	-	-	-	-	-
Stage 2	645	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	1.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	508	611	1078	-
HCM Lane V/C Ratio	-	-	0.184	0.248	0.048	-
HCM Control Delay (s)	-	-	13.7	12.8	8.5	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	1	0.2	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	77	256	79	118	450
Future Vol, veh/h	44	77	256	79	118	450
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	450	300	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	81	269	83	124	474

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	991	269	0	0	352	0
Stage 1	269	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	273	770	-	-	1207	-
Stage 1	776	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	245	770	-	-	1207	-
Mov Cap-2 Maneuver	394	-	-	-	-	-
Stage 1	776	-	-	-	-	-
Stage 2	431	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	1.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	394	770	1207	-
HCM Lane V/C Ratio	-	-	0.118	0.105	0.103	-
HCM Control Delay (s)	-	-	15.4	10.2	8.3	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.4	0.3	-

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	87	141	669	35	48	507
Future Vol, veh/h	87	141	669	35	48	507
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	450	300	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	96	155	735	38	53	557

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1398	735	0	0	773	0
Stage 1	735	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	155	420	-	-	842	-
Stage 1	474	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	145	420	-	-	842	-
Mov Cap-2 Maneuver	348	-	-	-	-	-
Stage 1	474	-	-	-	-	-
Stage 2	480	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.8	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	348	420	842	-
HCM Lane V/C Ratio	-	-	0.275	0.369	0.063	-
HCM Control Delay (s)	-	-	19.2	18.5	9.6	-
HCM Lane LOS	-	-	C	C	A	-
HCM 95th %tile Q(veh)	-	-	1.1	1.7	0.2	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	79	436	81	120	596
Future Vol, veh/h	45	79	436	81	120	596
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	450	300	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	83	459	85	126	627

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1338	459	0	0	544	0
Stage 1	459	-	-	-	-	-
Stage 2	879	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	169	602	-	-	1025	-
Stage 1	636	-	-	-	-	-
Stage 2	406	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	148	602	-	-	1025	-
Mov Cap-2 Maneuver	316	-	-	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	356	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.3	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	316	602	1025	-
HCM Lane V/C Ratio	-	-	0.15	0.138	0.123	-
HCM Control Delay (s)	-	-	18.4	11.9	9	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.5	0.4	-

Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	129	204	669	48	68	507
Future Vol, veh/h	129	204	669	48	68	507
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	450	300	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	142	224	735	53	75	557

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1442	735	0	0	788	0
Stage 1	735	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	146	420	-	-	831	-
Stage 1	474	-	-	-	-	-
Stage 2	489	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 133	420	-	-	831	-
Mov Cap-2 Maneuver	332	-	-	-	-	-
Stage 1	474	-	-	-	-	-
Stage 2	445	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.3	0	1.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	332	420	831	-
HCM Lane V/C Ratio	-	-	0.427	0.534	0.09	-
HCM Control Delay (s)	-	-	23.7	23	9.8	-
HCM Lane LOS	-	-	C	C	A	-
HCM 95th %tile Q(veh)	-	-	2.1	3.1	0.3	-

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

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	71	118	436	125	187	596
Future Vol, veh/h	71	118	436	125	187	596
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	450	300	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	124	459	132	197	627

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1480	459	0	0	591	0
Stage 1	459	-	-	-	-	-
Stage 2	1021	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	138	602	-	-	985	-
Stage 1	636	-	-	-	-	-
Stage 2	348	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	110	602	-	-	985	-
Mov Cap-2 Maneuver	252	-	-	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	278	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.3	0	2.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	252	602	985	-
HCM Lane V/C Ratio	-	-	0.297	0.206	0.2	-
HCM Control Delay (s)	-	-	25.2	12.5	9.6	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.2	0.8	0.7	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	129	204	669	48	68	507
Future Volume (vph)	129	204	669	48	68	507
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	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
Total Split (s)	26.0	26.0	94.0	94.0	94.0	94.0
Total Split (%)	21.7%	21.7%	78.3%	78.3%	78.3%	78.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	14.9	14.9	96.1	96.1	96.1	96.1
Actuated g/C Ratio	0.12	0.12	0.80	0.80	0.80	0.80
v/c Ratio	0.65	0.57	0.49	0.04	0.15	0.37
Control Delay	63.3	11.9	5.7	1.0	4.1	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	11.9	5.7	1.0	4.1	4.6
LOS	E	B	A	A	A	A
Approach Delay	31.8		5.4			4.5
Approach LOS	C		A			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 10.5	Intersection LOS: B
Intersection Capacity Utilization 57.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Grinnell Blvd & Goldfield Dr

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	129	204	669	48	68	507
Future Volume (veh/h)	129	204	669	48	68	507
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	142	224	735	53	75	557
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	282	251	1434	1215	483	1434
Arrive On Green	0.16	0.16	0.77	0.77	0.77	0.77
Sat Flow, veh/h	1781	1585	1870	1585	687	1870
Grp Volume(v), veh/h	142	224	735	53	75	557
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	687	1870
Q Serve(g_s), s	8.7	16.6	18.1	1.0	5.6	11.9
Cycle Q Clear(g_c), s	8.7	16.6	18.1	1.0	23.8	11.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	282	251	1434	1215	483	1434
V/C Ratio(X)	0.50	0.89	0.51	0.04	0.16	0.39
Avail Cap(c_a), veh/h	319	284	1434	1215	483	1434
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	0.95	0.95
Uniform Delay (d), s/veh	46.2	49.5	5.4	3.4	9.9	4.6
Incr Delay (d2), s/veh	1.4	26.0	1.3	0.1	0.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	8.4	6.4	0.3	0.9	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.6	75.5	6.7	3.4	10.6	5.4
LnGrp LOS	D	E	A	A	B	A
Approach Vol, veh/h	366		788			632
Approach Delay, s/veh	64.7		6.5			6.0
Approach LOS	E		A			A

Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		96.5			96.5	23.5
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		89.5			89.5	21.5
Max Q Clear Time (g_c+I1), s		20.1			25.8	18.6
Green Ext Time (p_c), s		6.7			5.1	0.4

Intersection Summary	
HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	118	436	125	187	596
Future Volume (vph)	71	118	436	125	187	596
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	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
Total Split (s)	27.0	27.0	93.0	93.0	93.0	93.0
Total Split (%)	22.5%	22.5%	77.5%	77.5%	77.5%	77.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	10.4	10.4	100.6	100.6	100.6	100.6
Actuated g/C Ratio	0.09	0.09	0.84	0.84	0.84	0.84
v/c Ratio	0.49	0.50	0.29	0.10	0.26	0.40
Control Delay	62.2	15.6	2.8	0.5	5.7	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.2	15.6	2.8	0.5	5.7	7.5
LOS	E	B	A	A	A	A
Approach Delay	33.1		2.3			7.1
Approach LOS	C		A			A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 8.5	Intersection LOS: A
Intersection Capacity Utilization 48.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Grinnell Blvd & Goldfield Dr

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	71	118	436	125	187	596
Future Volume (veh/h)	71	118	436	125	187	596
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	75	124	459	132	197	627
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	172	153	1549	1313	698	1549
Arrive On Green	0.10	0.10	0.83	0.83	0.83	0.83
Sat Flow, veh/h	1781	1585	1870	1585	826	1870
Grp Volume(v), veh/h	75	124	459	132	197	627
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	826	1870
Q Serve(g_s), s	4.8	9.2	6.7	1.9	8.6	10.4
Cycle Q Clear(g_c), s	4.8	9.2	6.7	1.9	15.3	10.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	172	153	1549	1313	698	1549
V/C Ratio(X)	0.44	0.81	0.30	0.10	0.28	0.40
Avail Cap(c_a), veh/h	334	297	1549	1313	698	1549
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	0.95	0.95
Uniform Delay (d), s/veh	51.1	53.1	2.3	1.9	4.1	2.7
Incr Delay (d2), s/veh	1.7	9.6	0.5	0.2	1.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	4.1	1.9	0.5	1.4	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.8	62.7	2.8	2.1	5.0	3.4
LnGrp LOS	D	E	A	A	A	A
Approach Vol, veh/h	199		591			824
Approach Delay, s/veh	59.0		2.7			3.8
Approach LOS	E		A			A

Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		103.9			103.9	16.1
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		88.5			88.5	22.5
Max Q Clear Time (g_c+I1), s		8.7			17.3	11.2
Green Ext Time (p_c), s		3.8			6.9	0.4

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	366	788	632
Demand Flow Rate, veh/h	373	804	644
Vehicles Circulating, veh/h	750	76	145
Vehicles Exiting, veh/h	130	713	978
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	16.2	10.8	9.4
Approach LOS	C	B	A

Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	373	804	644
Cap Entry Lane, veh/h	642	1277	1190
Entry HV Adj Factor	0.981	0.980	0.981
Flow Entry, veh/h	366	788	632
Cap Entry, veh/h	630	1252	1168
V/C Ratio	0.581	0.630	0.541
Control Delay, s/veh	16.2	10.8	9.4
LOS	C	B	A
95th %tile Queue, veh	4	5	3

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	199	591	824
Demand Flow Rate, veh/h	202	603	841
Vehicles Circulating, veh/h	468	201	76
Vehicles Exiting, veh/h	336	716	594
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.8	9.7	11.5
Approach LOS	A	A	B

Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	202	603	841
Cap Entry Lane, veh/h	856	1124	1277
Entry HV Adj Factor	0.985	0.980	0.980
Flow Entry, veh/h	199	591	824
Cap Entry, veh/h	843	1101	1252
V/C Ratio	0.236	0.536	0.659
Control Delay, s/veh	6.8	9.7	11.5
LOS	A	A	B
95th %tile Queue, veh	1	3	5

Intersection	
Int Delay, s/veh	53.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	100	163	1915	40	56	878
Future Vol, veh/h	100	163	1915	40	56	878
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	450	300	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	109	177	2082	43	61	954

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	3158	2082	0	0	2125	0
Stage 1	2082	-	-	-	-	-
Stage 2	1076	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 12	~ 67	-	-	256	-
Stage 1	~ 104	-	-	-	-	-
Stage 2	327	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 9	~ 67	-	-	256	-
Mov Cap-2 Maneuver	~ 90	-	-	-	-	-
Stage 1	~ 104	-	-	-	-	-
Stage 2	249	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 637.2	0	1.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	90	67	256	-
HCM Lane V/C Ratio	-	-	1.208	2.644	0.238	-
HCM Control Delay (s)	-	-	246.4	$ 876.9	23.4	-
HCM Lane LOS	-	-	F	F	C	-
HCM 95th %tile Q(veh)	-	-	7.7	17.6	0.9	-

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

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	91	734	93	140	1615
Future Vol, veh/h	52	91	734	93	140	1615
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	450	300	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	96	773	98	147	1700

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2767	773	0	0	871	0
Stage 1	773	-	-	-	-	-
Stage 2	1994	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 21	399	-	-	774	-
Stage 1	455	-	-	-	-	-
Stage 2	116	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 17	399	-	-	774	-
Mov Cap-2 Maneuver	87	-	-	-	-	-
Stage 1	455	-	-	-	-	-
Stage 2	94	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	47	0	0.9
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	87	399	774	-
HCM Lane V/C Ratio	-	-	0.629	0.24	0.19	-
HCM Control Delay (s)	-	-	99.6	16.9	10.7	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	2.9	0.9	0.7	-

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	145	230	1915	55	80	880
Future Volume (vph)	145	230	1915	55	80	880
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	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
Total Split (s)	22.5	22.5	77.5	77.5	77.5	77.5
Total Split (%)	22.5%	22.5%	77.5%	77.5%	77.5%	77.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	17.1	17.1	73.9	73.9	73.9	73.9
Actuated g/C Ratio	0.17	0.17	0.74	0.74	0.74	0.74
v/c Ratio	0.52	0.87	0.80	0.05	1.18	0.37
Control Delay	44.3	65.1	11.5	1.1	181.8	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	65.1	11.5	1.1	181.8	6.9
LOS	D	E	B	A	F	A
Approach Delay	57.1		11.2			21.5
Approach LOS	E		B			C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.18	
Intersection Signal Delay: 19.4	Intersection LOS: B
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Grinnell Blvd & Goldfield Dr

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	145	230	1915	55	80	880
Future Volume (veh/h)	145	230	1915	55	80	880
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	158	250	2082	60	87	957
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	312	278	2611	1164	139	2611
Arrive On Green	0.18	0.18	0.73	0.73	0.73	0.73
Sat Flow, veh/h	1781	1585	3647	1585	187	3647
Grp Volume(v), veh/h	158	250	2082	60	87	957
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	187	1777
Q Serve(g_s), s	8.0	15.4	37.5	1.0	35.9	9.8
Cycle Q Clear(g_c), s	8.0	15.4	37.5	1.0	73.5	9.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	312	278	2611	1164	139	2611
V/C Ratio(X)	0.51	0.90	0.80	0.05	0.62	0.37
Avail Cap(c_a), veh/h	321	285	2611	1164	139	2611
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	0.86	0.86
Uniform Delay (d), s/veh	37.3	40.4	8.5	3.7	36.1	4.8
Incr Delay (d2), s/veh	1.3	28.6	2.6	0.1	16.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	8.2	12.3	0.3	2.8	3.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.6	69.0	11.1	3.7	52.9	5.2
LnGrp LOS	D	E	B	A	D	A
Approach Vol, veh/h	408		2142			1044
Approach Delay, s/veh	57.2		10.9			9.1
Approach LOS	E		B			A

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	78.0			78.0	22.0
Change Period (Y+Rc), s	4.5			4.5	4.5
Max Green Setting (Gmax), s	73.0			73.0	18.0
Max Q Clear Time (g_c+I1), s	39.5			75.5	17.4
Green Ext Time (p_c), s	24.2			0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	15.7
HCM 6th LOS	B

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	80	130	735	140	210	1615
Future Volume (vph)	80	130	735	140	210	1615
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	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
Total Split (s)	23.0	23.0	97.0	97.0	97.0	97.0
Total Split (%)	19.2%	19.2%	80.8%	80.8%	80.8%	80.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	11.0	11.0	100.0	100.0	100.0	100.0
Actuated g/C Ratio	0.09	0.09	0.83	0.83	0.83	0.83
v/c Ratio	0.52	0.51	0.26	0.11	0.40	0.58
Control Delay	62.5	14.9	2.0	0.4	9.5	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.5	14.9	2.0	0.4	9.5	11.6
LOS	E	B	A	A	A	B
Approach Delay	33.0		1.8			11.3
Approach LOS	C		A			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.58	
Intersection Signal Delay: 10.0	Intersection LOS: B
Intersection Capacity Utilization 56.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Grinnell Blvd & Goldfield Dr

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	80	130	735	140	210	1615
Future Volume (veh/h)	80	130	735	140	210	1615
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	84	137	774	147	221	1700
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	186	165	2917	1301	558	2917
Arrive On Green	0.10	0.10	1.00	1.00	0.82	0.82
Sat Flow, veh/h	1781	1585	3647	1585	607	3647
Grp Volume(v), veh/h	84	137	774	147	221	1700
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	607	1777
Q Serve(g_s), s	5.3	10.2	0.0	0.0	12.3	19.7
Cycle Q Clear(g_c), s	5.3	10.2	0.0	0.0	12.3	19.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	186	165	2917	1301	558	2917
V/C Ratio(X)	0.45	0.83	0.27	0.11	0.40	0.58
Avail Cap(c_a), veh/h	275	244	2917	1301	558	2917
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.94	0.94	0.63	0.63
Uniform Delay (d), s/veh	50.5	52.7	0.0	0.0	3.0	3.7
Incr Delay (d2), s/veh	1.7	14.0	0.2	0.2	1.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.7	0.1	0.1	1.3	5.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.2	66.7	0.2	0.2	4.4	4.2
LnGrp LOS	D	E	A	A	A	A
Approach Vol, veh/h	221		921			1921
Approach Delay, s/veh	61.2		0.2			4.2
Approach LOS	E		A			A

Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		103.0			103.0	17.0
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		92.5			92.5	18.5
Max Q Clear Time (g_c+I1), s		2.0			21.7	12.2
Green Ext Time (p_c), s		7.3			32.1	0.3

Intersection Summary	
HCM 6th Ctrl Delay	7.1
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	27.6
Intersection LOS	D

Approach	WB	NB	SB
Entry Lanes	2	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	408	2142	1044
Demand Flow Rate, veh/h	416	2185	1065
Vehicles Circulating, veh/h	2124	89	161
Vehicles Exiting, veh/h	150	1137	2379
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	111.8	21.2	7.7
Approach LOS	F	C	A

Lane	Left	Right	Left	Right	Left	Right
Designated Moves	L	TR	LT	TR	LT	TR
Assumed Moves	L	TR	LT	TR	LT	TR
RT Channelized						
Lane Util	0.387	0.613	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	161	255	1027	1158	501	564
Cap Entry Lane, veh/h	191	233	1244	1317	1164	1238
Entry HV Adj Factor	0.981	0.980	0.980	0.981	0.979	0.981
Flow Entry, veh/h	158	250	1007	1135	491	553
Cap Entry, veh/h	188	229	1219	1291	1140	1215
V/C Ratio	0.842	1.092	0.826	0.880	0.430	0.455
Control Delay, s/veh	80.1	131.9	19.2	23.0	7.7	7.7
LOS	F	F	C	C	A	A
95th %tile Queue, veh	6	11	10	13	2	2

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Approach	WB	NB	SB
Entry Lanes	2	2	2
Conflicting Circle Lanes	2	2	2
Adj Approach Flow, veh/h	221	921	1921
Demand Flow Rate, veh/h	226	939	1959
Vehicles Circulating, veh/h	789	225	86
Vehicles Exiting, veh/h	375	1820	929
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.2	7.6	15.3
Approach LOS	A	A	C

Lane	Left	Right	Left	Right	Left	Right
Designated Moves	L	TR	LT	TR	LT	TR
Assumed Moves	L	TR	LT	TR	LT	TR
RT Channelized						
Lane Util	0.381	0.619	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	86	140	441	498	921	1038
Cap Entry Lane, veh/h	653	726	1097	1173	1247	1320
Entry HV Adj Factor	0.977	0.979	0.981	0.980	0.980	0.981
Flow Entry, veh/h	84	137	433	488	903	1018
Cap Entry, veh/h	638	711	1077	1149	1223	1295
V/C Ratio	0.132	0.193	0.402	0.425	0.738	0.786
Control Delay, s/veh	7.2	7.2	7.6	7.5	14.4	16.0
LOS	A	A	A	A	B	C
95th %tile Queue, veh	0	1	2	2	7	9

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	56	26	2	154	66	1
Future Vol, veh/h	56	26	2	154	66	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	125	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	31	2	186	80	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	98	0	257	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	190	-
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	-	-	1495	-	732	997
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	842	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1495	-	731	997
Mov Cap-2 Maneuver	-	-	-	-	735	-
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	841	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	738	-	-	1495	-
HCM Lane V/C Ratio	0.109	-	-	0.002	-
HCM Control Delay (s)	10.5	-	-	7.4	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	150	45	3	97	23	1
Future Vol, veh/h	150	45	3	97	23	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	125	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	165	49	3	107	25	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	214	0	278	165
Stage 1	-	-	-	-	165	-
Stage 2	-	-	-	-	113	-
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	-	-	1356	-	712	879
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	912	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1356	-	711	879
Mov Cap-2 Maneuver	-	-	-	-	728	-
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	910	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	733	-	-	1356	-
HCM Lane V/C Ratio	0.036	-	-	0.002	-
HCM Control Delay (s)	10.1	-	-	7.7	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	57	27	2	157	67	1
Future Vol, veh/h	57	27	2	157	67	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	125	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	69	33	2	189	81	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	102	0	262	69
Stage 1	-	-	-	-	69	-
Stage 2	-	-	-	-	193	-
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	-	-	1490	-	727	994
Stage 1	-	-	-	-	954	-
Stage 2	-	-	-	-	840	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1490	-	726	994
Mov Cap-2 Maneuver	-	-	-	-	732	-
Stage 1	-	-	-	-	954	-
Stage 2	-	-	-	-	839	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	735	-	-	1490	-
HCM Lane V/C Ratio	0.111	-	-	0.002	-
HCM Control Delay (s)	10.5	-	-	7.4	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	153	46	3	99	23	1
Future Vol, veh/h	153	46	3	99	23	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	125	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	51	3	109	25	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	219	0	283	168
Stage 1	-	-	-	-	168	-
Stage 2	-	-	-	-	115	-
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	-	-	1350	-	707	876
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	910	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1350	-	706	876
Mov Cap-2 Maneuver	-	-	-	-	725	-
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	908	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	730	-	-	1350	-
HCM Lane V/C Ratio	0.036	-	-	0.002	-
HCM Control Delay (s)	10.1	-	-	7.7	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	69	27	2	194	0	67	0	1	0	0	68
Future Vol, veh/h	21	69	27	2	194	0	67	0	1	0	0	68
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	125	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	83	83	83	83	92	83	92	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	83	33	2	234	0	81	0	1	0	0	74

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	234	0	0	116	0	0	404	367	83	384	400	234
Stage 1	-	-	-	-	-	-	129	129	-	238	238	-
Stage 2	-	-	-	-	-	-	275	238	-	146	162	-
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	1333	-	-	1473	-	-	557	562	976	574	538	805
Stage 1	-	-	-	-	-	-	875	789	-	765	708	-
Stage 2	-	-	-	-	-	-	731	708	-	857	764	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1333	-	-	1473	-	-	498	551	976	564	527	805
Mov Cap-2 Maneuver	-	-	-	-	-	-	548	579	-	616	571	-
Stage 1	-	-	-	-	-	-	858	774	-	750	707	-
Stage 2	-	-	-	-	-	-	663	707	-	840	749	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.1	12.7	9.9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	552	1333	-	-	1473	-	-	805
HCM Lane V/C Ratio	0.148	0.017	-	-	0.002	-	-	0.092
HCM Control Delay (s)	12.7	7.7	0	-	7.4	-	-	9.9
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	72	192	46	3	122	0	23	0	1	0	0	42
Future Vol, veh/h	72	192	46	3	122	0	23	0	1	0	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	125	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	91	91	91	91	92	91	92	91	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	211	51	3	134	0	25	0	1	0	0	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	134	0	0	262	0	0	530	507	211	533	558	134
Stage 1	-	-	-	-	-	-	367	367	-	140	140	-
Stage 2	-	-	-	-	-	-	163	140	-	393	418	-
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	1451	-	-	1302	-	-	460	468	829	458	438	915
Stage 1	-	-	-	-	-	-	653	622	-	863	781	-
Stage 2	-	-	-	-	-	-	839	781	-	632	591	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1451	-	-	1302	-	-	415	438	829	435	410	915
Mov Cap-2 Maneuver	-	-	-	-	-	-	488	485	-	435	410	-
Stage 1	-	-	-	-	-	-	612	583	-	809	779	-
Stage 2	-	-	-	-	-	-	795	779	-	591	554	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0.2	12.6	9.1
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	497	1451	-	-	1302	-	-	915
HCM Lane V/C Ratio	0.053	0.054	-	-	0.003	-	-	0.05
HCM Control Delay (s)	12.6	7.6	0	-	7.8	-	-	9.1
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	69	27	2	194	0	67	0	1	0	0	68
Future Vol, veh/h	21	69	27	2	194	0	67	0	1	0	0	68
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	125	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	83	83	83	83	92	83	92	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	83	33	2	234	0	81	0	1	0	0	74

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	234	0	0	116	0	0	404	367	83	384	400	234
Stage 1	-	-	-	-	-	-	129	129	-	238	238	-
Stage 2	-	-	-	-	-	-	275	238	-	146	162	-
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	1333	-	-	1473	-	-	557	562	976	574	538	805
Stage 1	-	-	-	-	-	-	875	789	-	765	708	-
Stage 2	-	-	-	-	-	-	731	708	-	857	764	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1333	-	-	1473	-	-	499	552	976	565	528	805
Mov Cap-2 Maneuver	-	-	-	-	-	-	548	580	-	617	572	-
Stage 1	-	-	-	-	-	-	860	776	-	752	707	-
Stage 2	-	-	-	-	-	-	663	707	-	841	751	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.1	12.7	9.9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	552	1333	-	-	1473	-	-	805
HCM Lane V/C Ratio	0.148	0.017	-	-	0.002	-	-	0.092
HCM Control Delay (s)	12.7	7.7	-	-	7.4	-	-	9.9
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	72	192	46	3	122	0	23	0	1	0	0	42
Future Vol, veh/h	72	192	46	3	122	0	23	0	1	0	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	125	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	91	91	91	91	92	91	92	91	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	211	51	3	134	0	25	0	1	0	0	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	134	0	0	262	0	0	530	507	211	533	558	134
Stage 1	-	-	-	-	-	-	367	367	-	140	140	-
Stage 2	-	-	-	-	-	-	163	140	-	393	418	-
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	1451	-	-	1302	-	-	460	468	829	458	438	915
Stage 1	-	-	-	-	-	-	653	622	-	863	781	-
Stage 2	-	-	-	-	-	-	839	781	-	632	591	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1451	-	-	1302	-	-	418	442	829	438	413	915
Mov Cap-2 Maneuver	-	-	-	-	-	-	491	489	-	438	413	-
Stage 1	-	-	-	-	-	-	618	588	-	816	779	-
Stage 2	-	-	-	-	-	-	795	779	-	597	559	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0.2	12.6	9.1
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	499	1451	-	-	1302	-	-	915
HCM Lane V/C Ratio	0.053	0.054	-	-	0.003	-	-	0.05
HCM Control Delay (s)	12.6	7.6	-	-	7.8	-	-	9.1
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	66	31	2	182	78	1
Future Vol, veh/h	66	31	2	182	78	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	125	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	34	2	198	85	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	106	0	274	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	202	-
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	-	-	1485	-	716	990
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	832	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1485	-	715	990
Mov Cap-2 Maneuver	-	-	-	-	724	-
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	831	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	726	-	-	1485	-
HCM Lane V/C Ratio	0.118	-	-	0.001	-
HCM Control Delay (s)	10.6	-	-	7.4	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	177	53	4	115	27	1
Future Vol, veh/h	177	53	4	115	27	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	125	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	192	58	4	125	29	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	250	0	325	192
Stage 1	-	-	-	-	192	-
Stage 2	-	-	-	-	133	-
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	-	-	1316	-	669	850
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1316	-	667	850
Mov Cap-2 Maneuver	-	-	-	-	698	-
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	890	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	702	-	-	1316	-
HCM Lane V/C Ratio	0.043	-	-	0.003	-
HCM Control Delay (s)	10.4	-	-	7.7	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	80	35	5	220	0	80	0	5	0	0	70
Future Vol, veh/h	25	80	35	5	220	0	80	0	5	0	0	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	125	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	87	38	5	239	0	87	0	5	0	0	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	239	0	0	125	0	0	428	390	87	412	428	239
Stage 1	-	-	-	-	-	-	141	141	-	249	249	-
Stage 2	-	-	-	-	-	-	287	249	-	163	179	-
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	1328	-	-	1462	-	-	537	545	971	550	519	800
Stage 1	-	-	-	-	-	-	862	780	-	755	701	-
Stage 2	-	-	-	-	-	-	720	701	-	839	751	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1328	-	-	1462	-	-	477	532	971	537	507	800
Mov Cap-2 Maneuver	-	-	-	-	-	-	530	565	-	597	557	-
Stage 1	-	-	-	-	-	-	845	764	-	740	699	-
Stage 2	-	-	-	-	-	-	649	699	-	817	736	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.2	12.9	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	545	1328	-	-	1462	-	-	800
HCM Lane V/C Ratio	0.17	0.02	-	-	0.004	-	-	0.095
HCM Control Delay (s)	12.9	7.8	-	-	7.5	-	-	10
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	220	55	5	140	0	30	0	5	0	0	45
Future Vol, veh/h	75	220	55	5	140	0	30	0	5	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	150	125	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	239	60	5	152	0	33	0	5	0	0	49

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	152	0	0	299	0	0	590	565	239	598	625	152
Stage 1	-	-	-	-	-	-	403	403	-	162	162	-
Stage 2	-	-	-	-	-	-	187	162	-	436	463	-
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	1429	-	-	1262	-	-	419	434	800	414	401	894
Stage 1	-	-	-	-	-	-	624	600	-	840	764	-
Stage 2	-	-	-	-	-	-	815	764	-	599	564	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1429	-	-	1262	-	-	378	408	800	392	377	894
Mov Cap-2 Maneuver	-	-	-	-	-	-	459	464	-	392	377	-
Stage 1	-	-	-	-	-	-	588	566	-	792	761	-
Stage 2	-	-	-	-	-	-	767	761	-	561	532	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	0.3	13	9.3
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	489	1429	-	-	1262	-	-	894
HCM Lane V/C Ratio	0.078	0.057	-	-	0.004	-	-	0.055
HCM Control Delay (s)	13	7.7	-	-	7.9	-	-	9.3
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0.2	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	46	142	0	0	16
Future Vol, veh/h	10	46	142	0	0	16
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	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	58	178	0	0	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	178	0	-	0	262	178
Stage 1	-	-	-	-	178	-
Stage 2	-	-	-	-	84	-
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	1398	-	-	-	727	865
Stage 1	-	-	-	-	853	-
Stage 2	-	-	-	-	939	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1398	-	-	-	720	865
Mov Cap-2 Maneuver	-	-	-	-	730	-
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	939	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1398	-	-	-	-	865
HCM Lane V/C Ratio	0.009	-	-	-	-	0.023
HCM Control Delay (s)	7.6	-	-	-	0	9.3
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	137	89	0	0	10
Future Vol, veh/h	18	137	89	0	0	10
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	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	154	100	0	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	100	0	-	0	294	100
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	194	-
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	1493	-	-	-	697	956
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	839	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1493	-	-	-	688	956
Mov Cap-2 Maneuver	-	-	-	-	710	-
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	839	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1493	-	-	-	-	956
HCM Lane V/C Ratio	0.014	-	-	-	-	0.012
HCM Control Delay (s)	7.4	-	-	-	0	8.8
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	47	145	0	0	16
Future Vol, veh/h	10	47	145	0	0	16
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	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	59	181	0	0	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	181	0	-	0	266	181
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	85	-
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	1394	-	-	-	723	862
Stage 1	-	-	-	-	850	-
Stage 2	-	-	-	-	938	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1394	-	-	-	716	862
Mov Cap-2 Maneuver	-	-	-	-	727	-
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	938	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1394	-	-	-	-	862
HCM Lane V/C Ratio	0.009	-	-	-	-	0.023
HCM Control Delay (s)	7.6	-	-	-	0	9.3
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	140	91	0	0	10
Future Vol, veh/h	18	140	91	0	0	10
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	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	157	102	0	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	102	0	-	0	299	102
Stage 1	-	-	-	-	102	-
Stage 2	-	-	-	-	197	-
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	1490	-	-	-	692	953
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	836	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1490	-	-	-	683	953
Mov Cap-2 Maneuver	-	-	-	-	707	-
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	836	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1490	-	-	-	-	953
HCM Lane V/C Ratio	0.014	-	-	-	-	0.012
HCM Control Delay (s)	7.4	-	-	-	0	8.8
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	22	47	145	0	0	53
Future Vol, veh/h	22	47	145	0	0	53
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	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	59	181	0	0	66

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	181	0	-	0	296	181
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	115	-
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	1394	-	-	-	695	862
Stage 1	-	-	-	-	850	-
Stage 2	-	-	-	-	910	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	1394	-	-	-	681	862
Mov Cap-2 Maneuver	-	-	-	-	705	-
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	910	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1394	-	-	-	-	862
HCM Lane V/C Ratio	0.02	-	-	-	-	0.077
HCM Control Delay (s)	7.6	-	-	-	0	9.5
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.2

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	57	140	91	0	0	33
Future Vol, veh/h	57	140	91	0	0	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	157	102	0	0	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	102	0	-	0	387	102
Stage 1	-	-	-	-	102	-
Stage 2	-	-	-	-	285	-
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	1490	-	-	-	616	953
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	763	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1490	-	-	-	590	953
Mov Cap-2 Maneuver	-	-	-	-	638	-
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	763	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1490	-	-	-	-	953
HCM Lane V/C Ratio	0.043	-	-	-	-	0.039
HCM Control Delay (s)	7.5	-	-	-	0	8.9
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	54	168	0	0	16
Future Vol, veh/h	10	54	168	0	0	16
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	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	59	183	0	0	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	183	0	-	0	264	183
Stage 1	-	-	-	-	183	-
Stage 2	-	-	-	-	81	-
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	1392	-	-	-	725	859
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	942	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1392	-	-	-	719	859
Mov Cap-2 Maneuver	-	-	-	-	728	-
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	942	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1392	-	-	-	-	859
HCM Lane V/C Ratio	0.008	-	-	-	-	0.02
HCM Control Delay (s)	7.6	-	-	-	0	9.3
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	162	105	0	0	10
Future Vol, veh/h	18	162	105	0	0	10
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	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	176	114	0	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	114	0	-	0	330	114
Stage 1	-	-	-	-	114	-
Stage 2	-	-	-	-	216	-
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	1475	-	-	-	665	939
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	820	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1475	-	-	-	656	939
Mov Cap-2 Maneuver	-	-	-	-	688	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	820	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1475	-	-	-	-	939
HCM Lane V/C Ratio	0.013	-	-	-	-	0.012
HCM Control Delay (s)	7.5	-	-	-	0	8.9
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	55	170	0	0	55
Future Vol, veh/h	25	55	170	0	0	55
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	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	60	185	0	0	60

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	185	0	-	0	299	185
Stage 1	-	-	-	-	185	-
Stage 2	-	-	-	-	114	-
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	1390	-	-	-	692	857
Stage 1	-	-	-	-	847	-
Stage 2	-	-	-	-	911	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1390	-	-	-	679	857
Mov Cap-2 Maneuver	-	-	-	-	704	-
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	911	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1390	-	-	-	-	857
HCM Lane V/C Ratio	0.02	-	-	-	-	0.071
HCM Control Delay (s)	7.6	-	-	-	0	9.5
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.2

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	165	105	0	0	35
Future Vol, veh/h	60	165	105	0	0	35
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	-	-	-	50	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	179	114	0	0	38

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	114	0	-	0	423	114
Stage 1	-	-	-	-	114	-
Stage 2	-	-	-	-	309	-
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	1475	-	-	-	588	939
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	745	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1475	-	-	-	562	939
Mov Cap-2 Maneuver	-	-	-	-	618	-
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	745	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1475	-	-	-	-	939
HCM Lane V/C Ratio	0.044	-	-	-	-	0.041
HCM Control Delay (s)	7.6	-	-	-	0	9
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.1

Intersection	
Intersection Delay, s/veh	21.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	137	49	90	31	173	9	167	323	15	2	214	155
Future Vol, veh/h	137	49	90	31	173	9	167	323	15	2	214	155
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	146	52	96	33	184	10	178	344	16	2	228	165
Number of Lanes	0	1	1	1	1	0	1	1	1	0	2	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay	18.2	18.7	28.4	15.2
HCM LOS	C	C	D	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	74%	0%	100%	0%	3%	0%	0%
Vol Thru, %	0%	100%	0%	26%	0%	0%	95%	97%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	0%	5%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	167	323	15	186	90	31	182	73	143	155
LT Vol	167	0	0	137	0	31	0	2	0	0
Through Vol	0	323	0	49	0	0	173	71	143	0
RT Vol	0	0	15	0	90	0	9	0	0	155
Lane Flow Rate	178	344	16	198	96	33	194	78	152	165
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.429	0.781	0.033	0.501	0.214	0.087	0.479	0.187	0.364	0.362
Departure Headway (Hd)	8.697	8.181	7.46	9.117	8.033	9.456	8.913	8.642	8.628	7.904
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	414	443	480	396	447	379	405	415	417	455
Service Time	6.445	5.929	5.208	6.866	5.781	7.209	6.665	6.394	6.38	5.655
HCM Lane V/C Ratio	0.43	0.777	0.033	0.5	0.215	0.087	0.479	0.188	0.365	0.363
HCM Control Delay	17.9	34.6	10.5	20.7	13	13.1	19.6	13.4	16.3	15.1
HCM Lane LOS	C	D	B	C	B	B	C	B	C	C
HCM 95th-tile Q	2.1	6.8	0.1	2.7	0.8	0.3	2.5	0.7	1.6	1.6

Intersection	
Intersection Delay, s/veh	18.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	108	110	209	29	66	7	131	232	46	9	372	146
Future Vol, veh/h	108	110	209	29	66	7	131	232	46	9	372	146
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	115	117	222	31	70	7	139	247	49	10	396	155
Number of Lanes	0	1	1	1	1	0	1	1	1	0	2	1

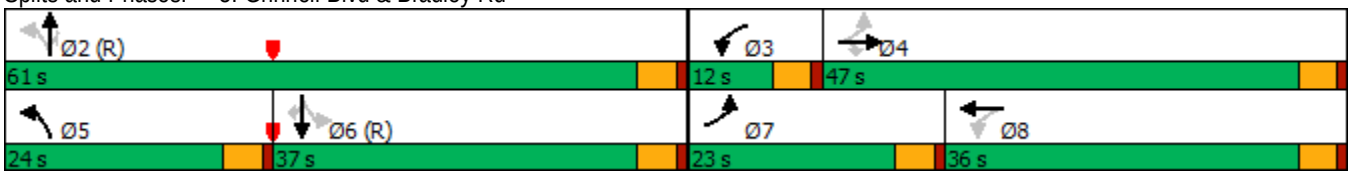
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay	19.7	14.4	19.5	18.6
HCM LOS	C	B	C	C

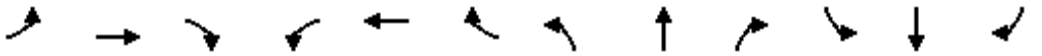
Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	50%	0%	100%	0%	7%	0%	0%
Vol Thru, %	0%	100%	0%	50%	0%	0%	90%	93%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	0%	10%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	131	232	46	218	209	29	73	133	248	146
LT Vol	131	0	0	108	0	29	0	9	0	0
Through Vol	0	232	0	110	0	0	66	124	248	0
RT Vol	0	0	46	0	209	0	7	0	0	146
Lane Flow Rate	139	247	49	232	222	31	78	141	264	155
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.35	0.585	0.106	0.56	0.478	0.086	0.204	0.328	0.609	0.327
Departure Headway (Hd)	9.042	8.526	7.804	8.69	7.732	10.055	9.476	8.345	8.31	7.589
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	399	425	459	417	467	356	378	433	435	475
Service Time	6.793	6.277	5.555	6.412	5.454	7.82	7.24	6.068	6.033	5.312
HCM Lane V/C Ratio	0.348	0.581	0.107	0.556	0.475	0.087	0.206	0.326	0.607	0.326
HCM Control Delay	16.6	22.7	11.5	21.9	17.4	13.8	14.7	15.1	23.2	14
HCM Lane LOS	C	C	B	C	C	B	B	C	C	B
HCM 95th-tile Q	1.5	3.6	0.4	3.3	2.5	0.3	0.8	1.4	3.9	1.4

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	137	49	90	31	173	167	323	15	2	214	155
Future Volume (vph)	137	49	90	31	173	167	323	15	2	214	155
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8	5	2			6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	6	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	23.0	47.0	47.0	12.0	36.0	24.0	61.0	61.0	37.0	37.0	37.0
Total Split (%)	19.2%	39.2%	39.2%	10.0%	30.0%	20.0%	50.8%	50.8%	30.8%	30.8%	30.8%
Yellow Time (s)	3.5	3.5	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	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	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	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	36.7	29.6	29.6	24.6	17.8	74.3	74.3	74.3	58.8	58.8	58.8
Actuated g/C Ratio	0.31	0.25	0.25	0.20	0.15	0.62	0.62	0.62	0.49	0.49	0.49
v/c Ratio	0.45	0.11	0.21	0.11	0.71	0.25	0.30	0.02	0.00	0.13	0.19
Control Delay	34.4	34.7	7.6	27.7	61.5	12.2	12.9	0.0	22.0	19.3	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	34.7	7.6	27.7	61.5	12.2	12.9	0.0	22.0	19.3	4.2
LOS	C	C	A	C	E	B	B	A	C	B	A
Approach Delay		25.7			56.6		12.3			13.0	
Approach LOS		C			E		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 22.1	Intersection LOS: C
Intersection Capacity Utilization 53.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Grinnell Blvd & Bradley Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	49	90	31	173	9	167	323	15	2	214	155
Future Volume (veh/h)	137	49	90	31	173	9	167	323	15	2	214	155
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	146	52	96	33	184	10	178	344	16	2	228	165
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	243	347	294	266	222	12	708	1261	1069	651	2057	917
Arrive On Green	0.09	0.19	0.19	0.03	0.13	0.13	0.06	0.67	0.67	0.58	0.58	0.58
Sat Flow, veh/h	1781	1870	1585	1781	1758	96	1781	1870	1585	1022	3554	1585
Grp Volume(v), veh/h	146	52	96	33	0	194	178	344	16	2	228	165
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1853	1781	1870	1585	1022	1777	1585
Q Serve(g_s), s	8.3	2.8	6.3	1.9	0.0	12.3	4.6	8.8	0.4	0.1	3.5	5.9
Cycle Q Clear(g_c), s	8.3	2.8	6.3	1.9	0.0	12.3	4.6	8.8	0.4	0.1	3.5	5.9
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	243	347	294	266	0	235	708	1261	1069	651	2057	917
V/C Ratio(X)	0.60	0.15	0.33	0.12	0.00	0.83	0.25	0.27	0.01	0.00	0.11	0.18
Avail Cap(c_a), veh/h	364	662	561	328	0	486	894	1261	1069	651	2057	917
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	41.0	42.4	43.7	0.0	51.1	8.2	7.8	6.4	10.7	11.4	11.9
Incr Delay (d2), s/veh	2.4	0.2	0.6	0.2	0.0	7.3	0.2	0.5	0.0	0.0	0.1	0.4
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	1.3	2.5	0.9	0.0	6.2	1.7	3.5	0.1	0.0	1.4	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	41.2	43.0	43.9	0.0	58.4	8.3	8.3	6.5	10.7	11.5	12.3
LnGrp LOS	D	D	D	D	A	E	A	A	A	B	B	B
Approach Vol, veh/h		294			227			538			395	
Approach Delay, s/veh		42.2			56.3			8.3			11.8	
Approach LOS		D			E			A			B	

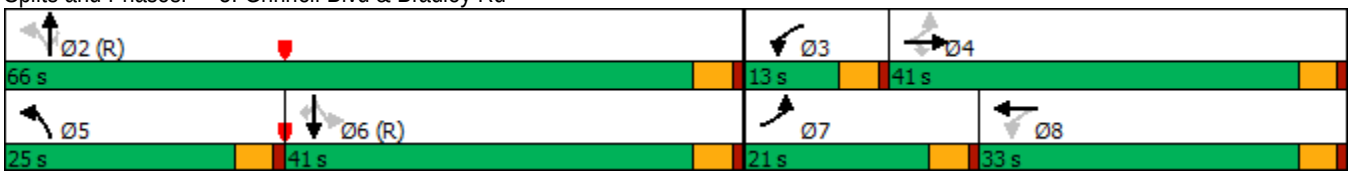
Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		85.4	7.8	26.7	11.5	74.0	14.9	19.7				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		56.5	7.5	42.5	19.5	32.5	18.5	31.5				
Max Q Clear Time (g_c+I1), s		10.8	3.9	8.3	6.6	7.9	10.3	14.3				
Green Ext Time (p_c), s		2.4	0.0	0.6	0.4	2.0	0.2	0.9				

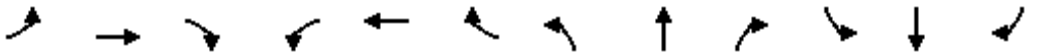
Intersection Summary	
HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	108	110	209	29	66	131	232	46	9	372	146
Future Volume (vph)	108	110	209	29	66	131	232	46	9	372	146
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8	5	2			6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	6	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	21.0	41.0	41.0	13.0	33.0	25.0	66.0	66.0	41.0	41.0	41.0
Total Split (%)	17.5%	34.2%	34.2%	10.8%	27.5%	20.8%	55.0%	55.0%	34.2%	34.2%	34.2%
Yellow Time (s)	3.5	3.5	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	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	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	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	24.7	17.3	17.3	16.0	10.2	86.3	86.3	86.3	73.1	73.1	73.1
Actuated g/C Ratio	0.21	0.14	0.14	0.13	0.08	0.72	0.72	0.72	0.61	0.61	0.61
v/c Ratio	0.43	0.44	0.53	0.16	0.48	0.20	0.18	0.04	0.01	0.18	0.15
Control Delay	42.8	51.4	10.7	36.2	59.1	7.3	7.1	0.2	16.1	14.7	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	51.4	10.7	36.2	59.1	7.3	7.1	0.2	16.1	14.7	4.9
LOS	D	D	B	D	E	A	A	A	B	B	A
Approach Delay		29.3			52.6		6.4			12.0	
Approach LOS		C			D		A			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 18.3	Intersection LOS: B
Intersection Capacity Utilization 41.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Grinnell Blvd & Bradley Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	110	209	29	66	7	131	232	46	9	372	146
Future Volume (veh/h)	108	110	209	29	66	7	131	232	46	9	372	146
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	115	117	222	31	70	7	139	247	49	10	396	155
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	294	306	259	220	200	20	626	1304	1105	724	2180	972
Arrive On Green	0.07	0.16	0.16	0.03	0.12	0.12	0.05	0.70	0.70	0.61	0.61	0.61
Sat Flow, veh/h	1781	1870	1585	1781	1673	167	1781	1870	1585	1083	3554	1585
Grp Volume(v), veh/h	115	117	222	31	0	77	139	247	49	10	396	155
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1840	1781	1870	1585	1083	1777	1585
Q Serve(g_s), s	6.6	6.7	16.3	1.8	0.0	4.6	3.3	5.5	1.2	0.4	5.8	5.0
Cycle Q Clear(g_c), s	6.6	6.7	16.3	1.8	0.0	4.6	3.3	5.5	1.2	0.4	5.8	5.0
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	294	306	259	220	0	220	626	1304	1105	724	2180	972
V/C Ratio(X)	0.39	0.38	0.86	0.14	0.00	0.35	0.22	0.19	0.04	0.01	0.18	0.16
Avail Cap(c_a), veh/h	412	569	482	298	0	437	848	1304	1105	724	2180	972
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	44.8	48.8	44.5	0.0	48.6	7.1	6.3	5.7	9.0	10.1	9.9
Incr Delay (d2), s/veh	0.8	0.8	7.9	0.3	0.0	1.0	0.2	0.3	0.1	0.0	0.2	0.4
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	3.0	3.2	7.0	0.8	0.0	2.2	1.2	2.2	0.4	0.1	2.3	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.4	45.6	56.7	44.8	0.0	49.5	7.3	6.7	5.8	9.1	10.3	10.3
LnGrp LOS	D	D	E	D	A	D	A	A	A	A	B	B
Approach Vol, veh/h		454			108			435			561	
Approach Delay, s/veh		50.0			48.2			6.8			10.3	
Approach LOS		D			D			A			B	

Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		88.1	7.7	24.1	10.0	78.1	13.0	18.8				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		61.5	8.5	36.5	20.5	36.5	16.5	28.5				
Max Q Clear Time (g_c+I1), s		7.5	3.8	18.3	5.3	7.8	8.6	6.6				
Green Ext Time (p_c), s		1.7	0.0	1.3	0.3	3.4	0.2	0.3				

Intersection Summary												
HCM 6th Ctrl Delay			23.5									
HCM 6th LOS			C									

Intersection	
Intersection Delay, s/veh	102.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	50	92	32	177	9	171	555	15	2	434	158
Future Vol, veh/h	140	50	92	32	177	9	171	555	15	2	434	158
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	149	53	98	34	188	10	182	590	16	2	462	168
Number of Lanes	0	1	1	1	1	0	1	1	1	0	2	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay	24.5	25.3	213.6	29.5
HCM LOS	C	D	F	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	74%	0%	100%	0%	1%	0%	0%
Vol Thru, %	0%	100%	0%	26%	0%	0%	95%	99%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	0%	5%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	171	555	15	190	92	32	186	147	289	158
LT Vol	171	0	0	140	0	32	0	2	0	0
Through Vol	0	555	0	50	0	0	177	145	289	0
RT Vol	0	0	15	0	92	0	9	0	0	158
Lane Flow Rate	182	590	16	202	98	34	198	156	308	168
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.5	1.537	0.038	0.579	0.252	0.101	0.558	0.397	0.783	0.395
Departure Headway (Hd)	9.893	9.373	8.645	11.289	10.189	11.68	11.129	10.096	10.089	9.356
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	367	396	417	321	355	309	326	359	360	387
Service Time	7.593	7.073	6.345	8.989	7.889	9.38	8.829	7.796	7.789	7.056
HCM Lane V/C Ratio	0.496	1.49	0.038	0.629	0.276	0.11	0.607	0.435	0.856	0.434
HCM Control Delay	22.1	278.1	11.7	28.4	16.3	15.7	27	19.3	41	18
HCM Lane LOS	C	F	B	D	C	C	D	C	E	C
HCM 95th-tile Q	2.7	32.6	0.1	3.4	1	0.3	3.2	1.8	6.5	1.8

Intersection	
Intersection Delay, s/veh	45.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	110	112	213	30	67	7	134	400	47	9	483	149
Future Vol, veh/h	110	112	213	30	67	7	134	400	47	9	483	149
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	117	119	227	32	71	7	143	426	50	10	514	159
Number of Lanes	0	1	1	1	1	0	1	1	1	0	2	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay	25.7	16.8	79.6	32.9
HCM LOS	D	C	F	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	50%	0%	100%	0%	5%	0%	0%
Vol Thru, %	0%	100%	0%	50%	0%	0%	91%	95%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%	0%	9%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	134	400	47	222	213	30	74	170	322	149
LT Vol	134	0	0	110	0	30	0	9	0	0
Through Vol	0	400	0	112	0	0	67	161	322	0
RT Vol	0	0	47	0	213	0	7	0	0	149
Lane Flow Rate	143	426	50	236	227	32	79	181	343	159
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.391	1.105	0.12	0.637	0.553	0.1	0.236	0.453	0.855	0.365
Departure Headway (Hd)	9.864	9.346	8.62	10.054	9.088	11.68	11.096	9.387	9.359	8.632
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	366	391	418	361	399	309	326	387	391	420
Service Time	7.57	7.052	6.326	7.754	6.788	9.38	8.796	7.087	7.059	6.332
HCM Lane V/C Ratio	0.391	1.09	0.12	0.654	0.569	0.104	0.242	0.468	0.877	0.379
HCM Control Delay	18.8	107.8	12.5	28.8	22.5	15.7	17.2	19.6	47.7	16.2
HCM Lane LOS	C	F	B	D	C	C	C	C	E	C
HCM 95th-tile Q	1.8	15.4	0.4	4.2	3.2	0.3	0.9	2.3	8.2	1.6

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	140	50	92	32	177	171	555	15	2	434	158
Future Volume (vph)	140	50	92	32	177	171	555	15	2	434	158
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8	5	2			6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	6	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	19.0	39.0	39.0	10.0	30.0	17.0	71.0	71.0	54.0	54.0	54.0
Total Split (%)	15.8%	32.5%	32.5%	8.3%	25.0%	14.2%	59.2%	59.2%	45.0%	45.0%	45.0%
Yellow Time (s)	3.5	3.5	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	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	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	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	35.7	29.7	29.7	23.4	17.9	75.3	75.3	75.3	60.1	60.1	60.1
Actuated g/C Ratio	0.30	0.25	0.25	0.20	0.15	0.63	0.63	0.63	0.50	0.50	0.50
v/c Ratio	0.49	0.11	0.21	0.12	0.71	0.32	0.51	0.02	0.01	0.26	0.19
Control Delay	36.6	35.0	7.7	29.2	61.9	12.0	15.2	0.0	19.5	19.2	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
Total Delay	36.6	35.0	7.7	29.2	61.9	12.0	15.2	0.0	19.5	19.2	3.7
LOS	D	D	A	C	E	B	B	A	B	B	A
Approach Delay		26.9			57.1		14.2			15.1	
Approach LOS		C			E		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 21.5	Intersection LOS: C
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Grinnell Blvd & Bradley Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	50	92	32	177	9	171	555	15	2	434	158
Future Volume (veh/h)	140	50	92	32	177	9	171	555	15	2	434	158
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	149	53	98	34	188	10	182	590	16	2	462	168
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	243	349	295	268	224	12	573	1259	1067	485	2052	915
Arrive On Green	0.09	0.19	0.19	0.03	0.13	0.13	0.06	0.67	0.67	0.58	0.58	0.58
Sat Flow, veh/h	1781	1870	1585	1781	1760	94	1781	1870	1585	814	3554	1585
Grp Volume(v), veh/h	149	53	98	34	0	198	182	590	16	2	462	168
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1854	1781	1870	1585	814	1777	1585
Q Serve(g_s), s	8.4	2.8	6.4	2.0	0.0	12.5	4.8	18.1	0.4	0.1	7.6	6.0
Cycle Q Clear(g_c), s	8.4	2.8	6.4	2.0	0.0	12.5	4.8	18.1	0.4	6.8	7.6	6.0
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	243	349	295	268	0	236	573	1259	1067	485	2052	915
V/C Ratio(X)	0.61	0.15	0.33	0.13	0.00	0.84	0.32	0.47	0.02	0.00	0.23	0.18
Avail Cap(c_a), veh/h	302	538	456	299	0	394	655	1259	1067	485	2052	915
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	40.9	42.3	43.6	0.0	51.2	8.6	9.4	6.5	13.7	12.3	12.0
Incr Delay (d2), s/veh	2.5	0.2	0.7	0.2	0.0	7.9	0.3	1.3	0.0	0.0	0.3	0.4
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	3.9	1.3	2.6	0.9	0.0	6.3	1.8	7.4	0.1	0.0	3.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	41.1	43.0	43.8	0.0	59.1	8.9	10.6	6.5	13.7	12.6	12.4
LnGrp LOS	D	D	D	D	A	E	A	B	A	B	B	B
Approach Vol, veh/h		300			232			788			632	
Approach Delay, s/veh		42.3			56.8			10.1			12.5	
Approach LOS		D			E			B			B	

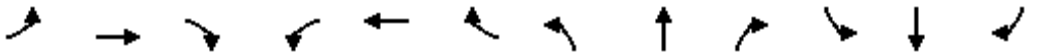
Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	85.3	7.9	26.9	11.5	73.8	15.0	19.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	66.5	5.5	34.5	12.5	49.5	14.5	25.5
Max Q Clear Time (g_c+I1), s	20.1	4.0	8.4	6.8	9.6	10.4	14.5
Green Ext Time (p_c), s	4.7	0.0	0.6	0.2	4.1	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	21.4
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	110	112	213	30	67	134	400	47	9	483	149
Future Volume (vph)	110	112	213	30	67	134	400	47	9	483	149
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8	5	2			6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	6	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	20.0	37.0	37.0	12.0	29.0	23.0	71.0	71.0	48.0	48.0	48.0
Total Split (%)	16.7%	30.8%	30.8%	10.0%	24.2%	19.2%	59.2%	59.2%	40.0%	40.0%	40.0%
Yellow Time (s)	3.5	3.5	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	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	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	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	24.7	17.6	17.6	15.8	10.2	86.3	86.3	86.3	73.0	73.0	73.0
Actuated g/C Ratio	0.21	0.15	0.15	0.13	0.08	0.72	0.72	0.72	0.61	0.61	0.61
v/c Ratio	0.44	0.44	0.53	0.16	0.49	0.23	0.32	0.04	0.02	0.24	0.16
Control Delay	43.1	51.0	10.5	36.6	59.3	7.5	8.2	0.2	13.9	12.4	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	51.0	10.5	36.6	59.3	7.5	8.2	0.2	13.9	12.4	2.9
LOS	D	D	B	D	E	A	A	A	B	B	A
Approach Delay		29.1			52.7		7.4			10.2	
Approach LOS		C			D		A			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 16.4	Intersection LOS: B
Intersection Capacity Utilization 49.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Grinnell Blvd & Bradley Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	112	213	30	67	7	134	400	47	9	483	149
Future Volume (veh/h)	110	112	213	30	67	7	134	400	47	9	483	149
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	117	119	227	32	71	7	143	426	50	10	514	159
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	297	311	263	222	204	20	560	1298	1100	615	2166	966
Arrive On Green	0.07	0.17	0.17	0.03	0.12	0.12	0.05	0.69	0.69	0.61	0.61	0.61
Sat Flow, veh/h	1781	1870	1585	1781	1675	165	1781	1870	1585	918	3554	1585
Grp Volume(v), veh/h	117	119	227	32	0	78	143	426	50	10	514	159
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1841	1781	1870	1585	918	1777	1585
Q Serve(g_s), s	6.7	6.8	16.7	1.9	0.0	4.7	3.4	10.8	1.2	0.5	7.9	5.2
Cycle Q Clear(g_c), s	6.7	6.8	16.7	1.9	0.0	4.7	3.4	10.8	1.2	1.2	7.9	5.2
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	297	311	263	222	0	224	560	1298	1100	615	2166	966
V/C Ratio(X)	0.39	0.38	0.86	0.14	0.00	0.35	0.26	0.33	0.05	0.02	0.24	0.16
Avail Cap(c_a), veh/h	399	507	429	284	0	376	750	1298	1100	615	2166	966
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.3	44.6	48.7	44.3	0.0	48.4	7.5	7.3	5.8	9.5	10.7	10.2
Incr Delay (d2), s/veh	0.8	0.8	9.7	0.3	0.0	0.9	0.2	0.7	0.1	0.0	0.3	0.4
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	3.0	3.2	7.3	0.8	0.0	2.2	1.3	4.3	0.4	0.1	3.1	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.1	45.3	58.4	44.6	0.0	49.3	7.7	7.9	5.9	9.6	11.0	10.5
LnGrp LOS	D	D	E	D	A	D	A	A	A	A	B	B
Approach Vol, veh/h		463			110			619			683	
Approach Delay, s/veh		50.7			47.9			7.7			10.8	
Approach LOS		D			D			A			B	

Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		87.8	7.8	24.4	10.2	77.6	13.1	19.1				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		66.5	7.5	32.5	18.5	43.5	15.5	24.5				
Max Q Clear Time (g_c+I1), s		12.8	3.9	18.7	5.4	9.9	8.7	6.7				
Green Ext Time (p_c), s		3.2	0.0	1.2	0.3	4.5	0.1	0.3				

Intersection Summary												
HCM 6th Ctrl Delay			21.8									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	142	50	92	32	177	171	567	15	2	471	163
Future Volume (vph)	142	50	92	32	177	171	567	15	2	471	163
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8	5	2			6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	6	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	19.0	39.0	39.0	10.0	30.0	19.0	71.0	71.0	52.0	52.0	52.0
Total Split (%)	15.8%	32.5%	32.5%	8.3%	25.0%	15.8%	59.2%	59.2%	43.3%	43.3%	43.3%
Yellow Time (s)	3.5	3.5	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	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	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	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	35.8	29.8	29.8	23.4	17.9	75.2	75.2	75.2	59.8	59.8	59.8
Actuated g/C Ratio	0.30	0.25	0.25	0.20	0.15	0.63	0.63	0.63	0.50	0.50	0.50
v/c Ratio	0.50	0.11	0.21	0.12	0.71	0.33	0.52	0.02	0.01	0.28	0.20
Control Delay	36.7	35.0	7.7	29.2	61.9	12.2	15.4	0.0	19.0	16.2	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.7	35.0	7.7	29.2	61.9	12.2	15.4	0.0	19.0	16.2	2.5
LOS	D	D	A	C	E	B	B	A	B	B	A
Approach Delay		27.0			57.1		14.4			12.7	
Approach LOS		C			E		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 66.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Grinnell Blvd & Bradley Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	50	92	32	177	9	171	567	15	2	471	163
Future Volume (veh/h)	142	50	92	32	177	9	171	567	15	2	471	163
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	151	53	98	34	188	10	182	603	16	2	501	173
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	244	350	297	268	224	12	605	1257	1065	475	2046	913
Arrive On Green	0.09	0.19	0.19	0.03	0.13	0.13	0.06	0.67	0.67	1.00	1.00	1.00
Sat Flow, veh/h	1781	1870	1585	1781	1760	94	1781	1870	1585	804	3554	1585
Grp Volume(v), veh/h	151	53	98	34	0	198	182	603	16	2	501	173
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1854	1781	1870	1585	804	1777	1585
Q Serve(g_s), s	8.5	2.8	6.4	2.0	0.0	12.5	4.8	18.7	0.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.5	2.8	6.4	2.0	0.0	12.5	4.8	18.7	0.4	7.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	244	350	297	268	0	236	605	1257	1065	475	2046	913
V/C Ratio(X)	0.62	0.15	0.33	0.13	0.00	0.84	0.30	0.48	0.02	0.00	0.24	0.19
Avail Cap(c_a), veh/h	302	538	456	299	0	394	715	1257	1065	475	2046	913
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	39.7	40.8	42.2	43.6	0.0	51.2	8.2	9.5	6.5	0.4	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.2	0.6	0.2	0.0	7.9	0.3	1.3	0.0	0.0	0.3	0.4
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	3.9	1.3	2.6	0.9	0.0	6.3	1.8	7.6	0.1	0.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	41.0	42.9	43.8	0.0	59.1	8.4	10.8	6.5	0.4	0.3	0.4
LnGrp LOS	D	D	D	D	A	E	A	B	A	A	A	A
Approach Vol, veh/h		302			232			801			676	
Approach Delay, s/veh		42.2			56.8			10.2			0.3	
Approach LOS		D			E			B			A	

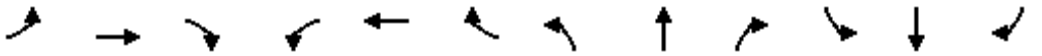
Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		85.1	7.9	27.0	11.5	73.6	15.1	19.8				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		66.5	5.5	34.5	14.5	47.5	14.5	25.5				
Max Q Clear Time (g_c+I1), s		20.7	4.0	8.4	6.8	9.2	10.5	14.5				
Green Ext Time (p_c), s		4.8	0.0	0.6	0.3	4.4	0.1	0.7				

Intersection Summary												
HCM 6th Ctrl Delay			17.1									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	116	112	213	30	67	134	439	47	9	506	152
Future Volume (vph)	116	112	213	30	67	134	439	47	9	506	152
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8	5	2			6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	6	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	20.0	35.0	35.0	12.0	27.0	21.0	73.0	73.0	52.0	52.0	52.0
Total Split (%)	16.7%	29.2%	29.2%	10.0%	22.5%	17.5%	60.8%	60.8%	43.3%	43.3%	43.3%
Yellow Time (s)	3.5	3.5	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	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	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	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	25.0	17.9	17.9	15.8	10.2	86.0	86.0	86.0	72.7	72.7	72.7
Actuated g/C Ratio	0.21	0.15	0.15	0.13	0.08	0.72	0.72	0.72	0.61	0.61	0.61
v/c Ratio	0.45	0.43	0.53	0.16	0.49	0.24	0.35	0.04	0.02	0.25	0.16
Control Delay	43.3	50.5	10.3	36.4	59.3	7.6	8.6	0.2	14.8	11.2	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
Total Delay	43.3	50.5	10.3	36.4	59.3	7.6	8.6	0.2	14.8	11.2	3.4
LOS	D	D	B	D	E	A	A	A	B	B	A
Approach Delay		29.2			52.6		7.7			9.5	
Approach LOS		C			D		A			A	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 16.1	Intersection LOS: B
Intersection Capacity Utilization 51.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5: Grinnell Blvd & Bradley Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	112	213	30	67	7	134	439	47	9	506	152
Future Volume (veh/h)	116	112	213	30	67	7	134	439	47	9	506	152
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	123	119	227	32	71	7	143	467	50	10	538	162
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	298	309	262	221	197	19	599	1299	1101	584	2169	967
Arrive On Green	0.08	0.17	0.17	0.03	0.12	0.12	0.05	0.69	0.69	1.00	1.00	1.00
Sat Flow, veh/h	1781	1870	1585	1781	1675	165	1781	1870	1585	884	3554	1585
Grp Volume(v), veh/h	123	119	227	32	0	78	143	467	50	10	538	162
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1841	1781	1870	1585	884	1777	1585
Q Serve(g_s), s	7.0	6.8	16.7	1.9	0.0	4.7	3.4	12.2	1.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.0	6.8	16.7	1.9	0.0	4.7	3.4	12.2	1.2	2.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	298	309	262	221	0	216	599	1299	1101	584	2169	967
V/C Ratio(X)	0.41	0.38	0.87	0.14	0.00	0.36	0.24	0.36	0.05	0.02	0.25	0.17
Avail Cap(c_a), veh/h	394	475	403	284	0	345	760	1299	1101	584	2169	967
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	40.5	44.6	48.8	44.7	0.0	48.8	7.0	7.5	5.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.8	11.7	0.3	0.0	1.0	0.2	0.8	0.1	0.0	0.3	0.3
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	3.2	3.2	7.5	0.9	0.0	2.2	1.3	4.8	0.4	0.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.4	45.4	60.5	45.0	0.0	49.8	7.2	8.2	5.9	0.1	0.3	0.3
LnGrp LOS	D	D	E	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		469			110			660			710	
Approach Delay, s/veh		51.7			48.4			7.8			0.3	
Approach LOS		D			D			A			A	

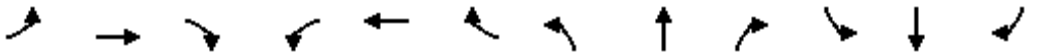
Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		87.9	7.8	24.4	10.1	77.7	13.5	18.6				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		68.5	7.5	30.5	16.5	47.5	15.5	22.5				
Max Q Clear Time (g_c+I1), s		14.2	3.9	18.7	5.4	4.1	9.0	6.7				
Green Ext Time (p_c), s		3.5	0.0	1.1	0.3	4.8	0.1	0.3				

Intersection Summary	
HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	162	58	106	37	205	197	1782	18	2	793	183
Future Volume (vph)	162	58	106	37	205	197	1782	18	2	793	183
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8	5	2			6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	6	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	10.0	22.9	22.9	9.6	22.5	17.4	87.5	87.5	70.1	70.1	70.1
Total Split (%)	8.3%	19.1%	19.1%	8.0%	18.8%	14.5%	72.9%	72.9%	58.4%	58.4%	58.4%
Yellow Time (s)	3.5	3.5	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	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	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	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	24.8	21.5	21.5	22.4	17.3	83.7	83.7	83.7	68.9	68.9	68.9
Actuated g/C Ratio	0.21	0.18	0.18	0.19	0.14	0.70	0.70	0.70	0.57	0.57	0.57
v/c Ratio	1.10	0.19	0.30	0.15	0.86	0.48	1.46	0.02	0.03	0.42	0.20
Control Delay	142.5	45.2	10.5	37.8	78.8	10.1	232.5	0.0	14.0	15.5	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	142.5	45.2	10.5	37.8	78.8	10.1	232.5	0.0	14.0	15.5	2.3
LOS	F	D	B	D	E	B	F	A	B	B	A
Approach Delay		82.1			72.8		208.4			13.0	
Approach LOS		F			E		F			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.46	
Intersection Signal Delay: 133.4	Intersection LOS: F
Intersection Capacity Utilization 133.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 5: Grinnell Blvd & Bradley Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	58	106	37	205	11	197	1782	18	2	793	183
Future Volume (veh/h)	162	58	106	37	205	11	197	1782	18	2	793	183
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	172	62	113	39	218	12	210	1896	19	2	844	195
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	162	291	246	267	246	14	430	1313	1112	60	2142	955
Arrive On Green	0.05	0.16	0.16	0.03	0.14	0.14	0.06	0.70	0.70	0.60	0.60	0.60
Sat Flow, veh/h	1781	1870	1585	1781	1756	97	1781	1870	1585	234	3554	1585
Grp Volume(v), veh/h	172	62	113	39	0	230	210	1896	19	2	844	195
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1853	1781	1870	1585	234	1777	1585
Q Serve(g_s), s	5.5	3.5	7.8	2.2	0.0	14.6	5.1	84.2	0.4	0.0	14.9	6.7
Cycle Q Clear(g_c), s	5.5	3.5	7.8	2.2	0.0	14.6	5.1	84.2	0.4	72.3	14.9	6.7
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	162	291	246	267	0	259	430	1313	1112	60	2142	955
V/C Ratio(X)	1.06	0.21	0.46	0.15	0.00	0.89	0.49	1.44	0.02	0.03	0.39	0.20
Avail Cap(c_a), veh/h	162	291	246	289	0	278	512	1313	1112	60	2142	955
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	44.3	46.1	42.2	0.0	50.7	8.9	17.9	5.4	60.0	12.4	10.8
Incr Delay (d2), s/veh	87.2	0.4	1.3	0.2	0.0	26.2	0.9	204.4	0.0	1.0	0.5	0.5
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	6.2	1.6	3.2	1.0	0.0	8.7	1.9	105.6	0.1	0.1	5.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	137.2	44.6	47.4	42.5	0.0	76.9	9.7	222.3	5.4	61.0	13.0	11.3
LnGrp LOS	F	D	D	D	A	E	A	F	A	E	B	B
Approach Vol, veh/h		347			269			2125			1041	
Approach Delay, s/veh		91.4			71.9			199.4			12.7	
Approach LOS		F			E			F			B	

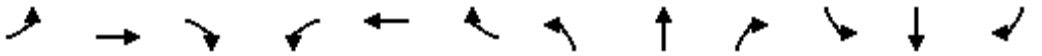
Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	88.7	8.1	23.2	11.9	76.8	10.0	21.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	83.0	5.1	18.4	12.9	65.6	5.5	18.0
Max Q Clear Time (g_c+I1), s	86.2	4.2	9.8	7.1	74.3	7.5	16.6
Green Ext Time (p_c), s	0.0	0.0	0.4	0.3	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	129.0
HCM 6th LOS	F

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	128	130	247	34	78	155	691	54	11	1483	173
Future Volume (vph)	128	130	247	34	78	155	691	54	11	1483	173
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8	5	2			6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	6	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	12.0	24.9	24.9	9.6	22.5	17.0	85.5	85.5	68.5	68.5	68.5
Total Split (%)	10.0%	20.8%	20.8%	8.0%	18.8%	14.2%	71.3%	71.3%	57.1%	57.1%	57.1%
Yellow Time (s)	3.5	3.5	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	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	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	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	22.8	18.3	18.3	17.2	12.1	86.9	86.9	86.9	71.4	71.4	71.4
Actuated g/C Ratio	0.19	0.15	0.15	0.14	0.10	0.72	0.72	0.72	0.60	0.60	0.60
v/c Ratio	0.60	0.49	0.60	0.18	0.49	0.69	0.54	0.05	0.03	0.75	0.18
Control Delay	53.0	53.0	15.0	39.4	56.4	34.5	10.0	1.7	6.4	8.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	53.0	15.0	39.4	56.4	34.5	10.0	1.7	6.4	8.5	0.3
LOS	D	D	B	D	E	C	B	A	A	A	A
Approach Delay		34.4			51.6		13.8			7.6	
Approach LOS		C			D		B			A	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 76.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Grinnell Blvd & Bradley Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	130	247	34	78	8	155	691	54	11	1483	173
Future Volume (veh/h)	128	130	247	34	78	8	155	691	54	11	1483	173
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	136	138	263	36	83	9	165	735	57	12	1578	184
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	318	269	214	227	25	229	1288	1091	393	2128	949
Arrive On Green	0.06	0.17	0.17	0.03	0.14	0.14	0.05	0.69	0.69	0.60	0.60	0.60
Sat Flow, veh/h	1781	1870	1585	1781	1658	180	1781	1870	1585	685	3554	1585
Grp Volume(v), veh/h	136	138	263	36	0	92	165	735	57	12	1578	184
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1838	1781	1870	1585	685	1777	1585
Q Serve(g_s), s	7.5	7.9	19.8	2.1	0.0	5.5	4.1	24.2	1.4	1.1	38.5	6.3
Cycle Q Clear(g_c), s	7.5	7.9	19.8	2.1	0.0	5.5	4.1	24.2	1.4	14.5	38.5	6.3
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	290	318	269	214	0	251	229	1288	1091	393	2128	949
V/C Ratio(X)	0.47	0.43	0.98	0.17	0.00	0.37	0.72	0.57	0.05	0.03	0.74	0.19
Avail Cap(c_a), veh/h	290	318	269	238	0	276	321	1288	1091	393	2128	949
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	44.6	49.6	42.7	0.0	47.1	22.4	9.6	6.0	16.1	17.4	10.9
Incr Delay (d2), s/veh	1.2	0.9	48.0	0.4	0.0	0.9	4.7	1.8	0.1	0.1	2.4	0.5
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	3.5	3.8	11.4	0.9	0.0	2.6	3.2	9.7	0.5	0.2	15.6	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0	45.6	97.6	43.1	0.0	48.0	27.1	11.4	6.1	16.2	19.8	11.4
LnGrp LOS	D	D	F	D	A	D	C	B	A	B	B	B
Approach Vol, veh/h		537			128			957			1774	
Approach Delay, s/veh		70.1			46.6			13.8			18.9	
Approach LOS		E			D			B			B	

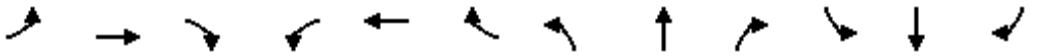
Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		87.1	8.0	24.9	10.8	76.3	12.0	20.9				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		81.0	5.1	20.4	12.5	64.0	7.5	18.0				
Max Q Clear Time (g_c+I1), s		26.2	4.1	21.8	6.1	40.5	9.5	7.5				
Green Ext Time (p_c), s		6.7	0.0	0.0	0.2	14.5	0.0	0.3				

Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	165	60	110	40	205	200	1795	20	5	830	190
Future Volume (vph)	165	60	110	40	205	200	1795	20	5	830	190
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8	5	2			6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	6	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	16.0	30.4	30.4	9.6	24.0	19.6	80.0	80.0	60.4	60.4	60.4
Total Split (%)	13.3%	25.3%	25.3%	8.0%	20.0%	16.3%	66.7%	66.7%	50.3%	50.3%	50.3%
Yellow Time (s)	3.5	3.5	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	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	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	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	34.0	26.4	26.4	23.2	18.1	77.0	77.0	77.0	61.0	61.0	61.0
Actuated g/C Ratio	0.28	0.22	0.22	0.19	0.15	0.64	0.64	0.64	0.51	0.51	0.51
v/c Ratio	0.72	0.16	0.27	0.16	0.84	0.54	0.84	0.02	0.08	0.49	0.22
Control Delay	51.2	39.6	8.5	32.7	73.4	14.6	21.7	0.1	21.4	21.2	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	39.6	8.5	32.7	73.4	14.6	21.7	0.1	21.4	21.2	3.1
LOS	D	D	A	C	E	B	C	A	C	C	A
Approach Delay		35.2			67.1		20.7			17.9	
Approach LOS		D			E		C			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 24.6	Intersection LOS: C
Intersection Capacity Utilization 89.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Grinnell Blvd & Bradley Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	60	110	40	205	15	200	1795	20	5	830	190
Future Volume (veh/h)	165	60	110	40	205	15	200	1795	20	5	830	190
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	176	64	117	43	218	16	213	1910	21	5	883	202
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	253	388	329	289	247	18	387	2304	1028	115	1922	857
Arrive On Green	0.10	0.21	0.21	0.03	0.14	0.14	0.07	0.65	0.65	0.54	0.54	0.54
Sat Flow, veh/h	1781	1870	1585	1781	1721	126	1781	3554	1585	230	3554	1585
Grp Volume(v), veh/h	176	64	117	43	0	234	213	1910	21	5	883	202
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1848	1781	1777	1585	230	1777	1585
Q Serve(g_s), s	9.8	3.4	7.6	2.4	0.0	14.9	6.1	49.0	0.6	2.0	18.2	8.0
Cycle Q Clear(g_c), s	9.8	3.4	7.6	2.4	0.0	14.9	6.1	49.0	0.6	38.2	18.2	8.0
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	388	329	289	0	265	387	2304	1028	115	1922	857
V/C Ratio(X)	0.70	0.16	0.36	0.15	0.00	0.88	0.55	0.83	0.02	0.04	0.46	0.24
Avail Cap(c_a), veh/h	253	404	342	308	0	300	486	2304	1028	115	1922	857
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	1.00	1.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	38.3	39.0	40.7	41.8	0.0	50.4	12.3	16.0	7.5	35.5	16.8	14.5
Incr Delay (d2), s/veh	8.1	0.2	0.7	0.2	0.0	23.3	1.2	3.6	0.0	0.7	0.7	0.6
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	4.8	1.6	3.0	1.1	0.0	8.6	2.4	19.4	0.2	0.1	7.5	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.3	39.2	41.3	42.1	0.0	73.7	13.6	19.7	7.6	36.1	17.6	15.1
LnGrp LOS	D	D	D	D	A	E	B	B	A	D	B	B
Approach Vol, veh/h		357			277			2144			1090	
Approach Delay, s/veh		43.4			68.8			18.9			17.2	
Approach LOS		D			E			B			B	

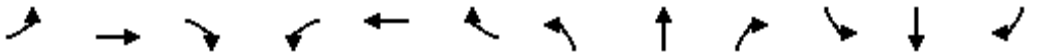
Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		82.3	8.3	29.4	12.9	69.4	16.0	21.7				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		75.5	5.1	25.9	15.1	55.9	11.5	19.5				
Max Q Clear Time (g_c+I1), s		51.0	4.4	9.6	8.1	40.2	11.8	16.9				
Green Ext Time (p_c), s		17.4	0.0	0.6	0.3	6.4	0.0	0.3				

Intersection Summary												
HCM 6th Ctrl Delay			24.3									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	135	130	250	35	80	155	730	55	15	1510	180
Future Volume (vph)	135	130	250	35	80	155	730	55	15	1510	180
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8	5	2			6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phase	7	4	4	3	8	5	2	2	6	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	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	12.0	24.9	24.9	9.6	22.5	16.0	85.5	85.5	69.5	69.5	69.5
Total Split (%)	10.0%	20.8%	20.8%	8.0%	18.8%	13.3%	71.3%	71.3%	57.9%	57.9%	57.9%
Yellow Time (s)	3.5	3.5	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	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	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	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	22.9	18.4	18.4	17.3	12.2	86.8	86.8	86.8	71.4	71.4	71.4
Actuated g/C Ratio	0.19	0.15	0.15	0.14	0.10	0.72	0.72	0.72	0.60	0.60	0.60
v/c Ratio	0.65	0.48	0.62	0.18	0.51	0.71	0.30	0.05	0.04	0.76	0.19
Control Delay	55.4	52.9	17.4	39.5	56.5	38.6	6.6	1.7	14.7	15.9	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
Total Delay	55.4	52.9	17.4	39.5	56.5	38.6	6.6	1.7	14.7	15.9	3.7
LOS	E	D	B	D	E	D	A	A	B	B	A
Approach Delay		36.3			51.8		11.6			14.6	
Approach LOS		D			D		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 18.6	Intersection LOS: B
Intersection Capacity Utilization 77.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Grinnell Blvd & Bradley Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	130	250	35	80	10	155	730	55	15	1510	180
Future Volume (veh/h)	135	130	250	35	80	10	155	730	55	15	1510	180
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	144	138	266	37	85	11	165	777	59	16	1606	191
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	318	269	215	222	29	310	2445	1090	453	2127	949
Arrive On Green	0.06	0.17	0.17	0.03	0.14	0.14	0.05	0.69	0.69	1.00	1.00	1.00
Sat Flow, veh/h	1781	1870	1585	1781	1623	210	1781	3554	1585	657	3554	1585
Grp Volume(v), veh/h	144	138	266	37	0	96	165	777	59	16	1606	191
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1833	1781	1777	1585	657	1777	1585
Q Serve(g_s), s	7.5	7.9	20.1	2.1	0.0	5.7	4.1	10.5	1.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.5	7.9	20.1	2.1	0.0	5.7	4.1	10.5	1.4	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.11	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	318	269	215	0	251	310	2445	1090	453	2127	949
V/C Ratio(X)	0.50	0.43	0.99	0.17	0.00	0.38	0.53	0.32	0.05	0.04	0.76	0.20
Avail Cap(c_a), veh/h	287	318	269	238	0	275	388	2445	1090	453	2127	949
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.79	0.79	0.79
Uniform Delay (d), s/veh	41.5	44.6	49.7	42.6	0.0	47.2	7.4	7.5	6.1	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.9	51.1	0.4	0.0	1.0	1.4	0.3	0.1	0.1	2.0	0.4
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	3.8	11.7	1.0	0.0	2.7	1.6	3.9	0.5	0.0	0.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	45.6	100.8	43.0	0.0	48.1	8.8	7.8	6.2	0.1	2.0	0.4
LnGrp LOS	D	D	F	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		548			133			1001			1813	
Approach Delay, s/veh		71.6			46.7			7.9			1.8	
Approach LOS		E			D			A			A	

Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		87.1	8.0	24.9	10.7	76.3	12.0	20.9				
Change Period (Y+Rc), s		4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s		81.0	5.1	20.4	11.5	65.0	7.5	18.0				
Max Q Clear Time (g_c+I1), s		12.5	4.1	22.1	6.1	2.0	9.5	7.7				
Green Ext Time (p_c), s		6.9	0.0	0.0	0.2	24.1	0.0	0.3				

Intersection Summary	
HCM 6th Ctrl Delay	16.2
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	37	12	10	16	0
Future Vol, veh/h	0	37	12	10	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	40	13	11	17	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	54	17	17	0	-	0
Stage 1	17	-	-	-	-	-
Stage 2	37	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	954	1062	1600	-	-	-
Stage 1	1006	-	-	-	-	-
Stage 2	985	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	946	1062	1600	-	-	-
Mov Cap-2 Maneuver	884	-	-	-	-	-
Stage 1	998	-	-	-	-	-
Stage 2	985	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1600	-	1062	-	-
HCM Lane V/C Ratio	0.008	-	0.038	-	-
HCM Control Delay (s)	7.3	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	23	39	18	10	0
Future Vol, veh/h	0	23	39	18	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	25	42	20	11	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	115	11	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	104	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	881	1070	1608	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	920	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	858	1070	1608	-	-	-
Mov Cap-2 Maneuver	821	-	-	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	920	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	1070	-	-
HCM Lane V/C Ratio	0.026	-	0.023	-	-
HCM Control Delay (s)	7.3	-	8.4	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	25	40	20	10	0
Future Vol, veh/h	0	25	40	20	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	27	43	22	11	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	119	11	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	108	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	877	1070	1608	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	853	1070	1608	-	-	-
Mov Cap-2 Maneuver	818	-	-	-	-	-
Stage 1	985	-	-	-	-	-
Stage 2	916	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	4.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	1070	-	-
HCM Lane V/C Ratio	0.027	-	0.025	-	-
HCM Control Delay (s)	7.3	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	25	40	20	10	0
Future Vol, veh/h	0	25	40	20	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	27	43	22	11	0

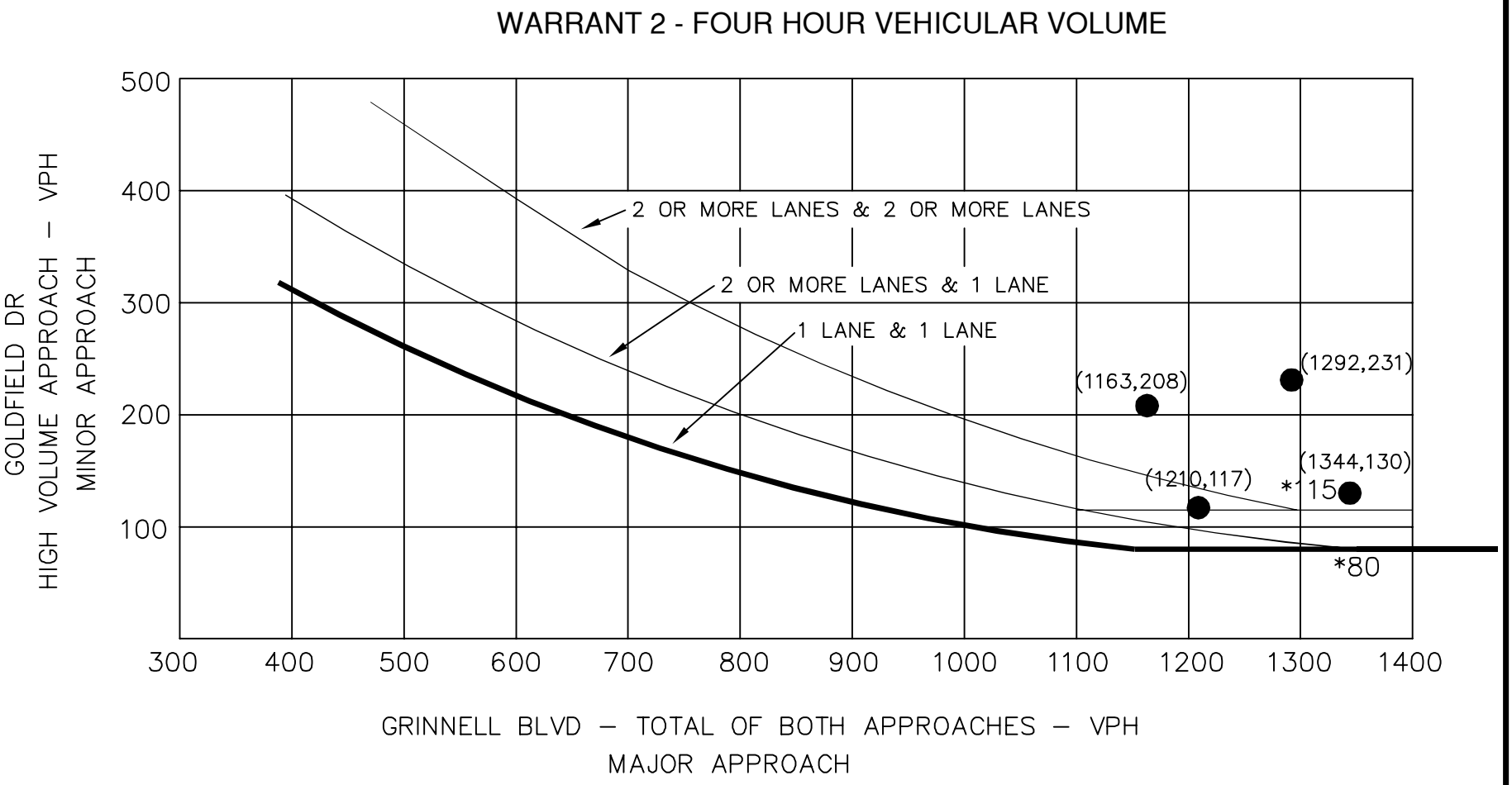
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	119	11	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	108	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	877	1070	1608	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	853	1070	1608	-	-	-
Mov Cap-2 Maneuver	818	-	-	-	-	-
Stage 1	985	-	-	-	-	-
Stage 2	916	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	4.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	1070	-	-
HCM Lane V/C Ratio	0.027	-	0.025	-	-
HCM Control Delay (s)	7.3	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

APPENDIX E

Signal Warrant Worksheets



* NOTE: 115 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 80 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

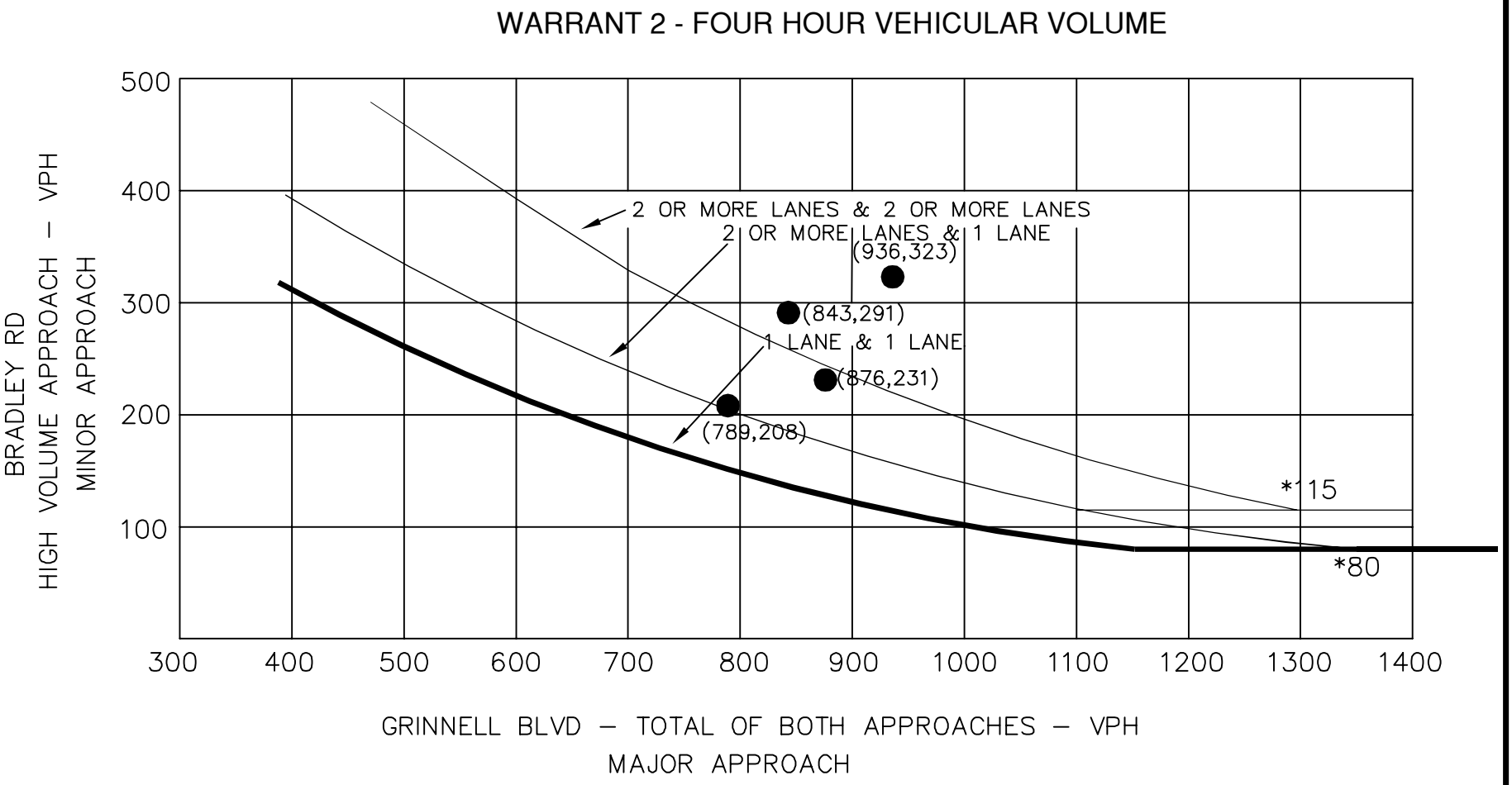
SIGNAL WARRANT ANALYSIS
GOLDFIELD DR & GRINNELL BLVD
FOUR HOUR VOLUME WARRANT

● 2024 TOTAL TRAFFIC DATA POINT

Source: Manual of Uniform Traffic Control Devices 2009

FIGURE A

Kimley»Horn



* NOTE: 115 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 80 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SIGNAL WARRANT ANALYSIS
BRADLEY ROAD & GRINNELL BLVD
FOUR HOUR VOLUME WARRANT

● 2021 EXISTING TRAFFIC DATA POINT

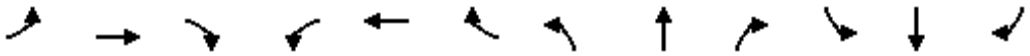
Source: Manual of Uniform Traffic Control Devices 2009

FIGURE B

Kimley»Horn

APPENDIX F

Queue Analysis Worksheets

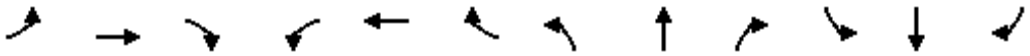


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	523	885	260	112	936	243	540	385	92	201	295	463
v/c Ratio	1.02	0.70	0.16	0.47	0.96	0.15	0.95	0.45	0.06	0.58	0.46	0.29
Control Delay	87.3	31.4	0.2	51.6	57.6	0.2	70.4	34.3	0.1	49.7	39.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.3	31.4	0.2	51.6	57.6	0.2	70.4	34.3	0.1	49.7	39.4	0.5
Queue Length 50th (ft)	~177	252	0	36	309	0	177	111	0	63	89	0
Queue Length 95th (ft)	#265	304	0	61	#406	0	#259	148	0	95	125	0
Internal Link Dist (ft)		493			1900			1437			410	
Turn Bay Length (ft)	1000		400	975		850	500		300	400		325
Base Capacity (vph)	514	1258	1583	243	973	1583	566	862	1583	374	637	1583
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	1.02	0.70	0.16	0.46	0.96	0.15	0.95	0.45	0.06	0.54	0.46	0.29

Intersection Summary

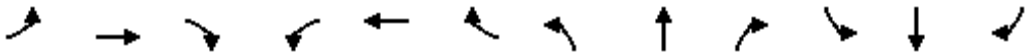
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	334	869	535	94	566	146	349	211	63	103	249	238
v/c Ratio	0.70	0.62	0.34	0.43	0.50	0.09	0.70	0.21	0.04	0.45	0.34	0.15
Control Delay	57.4	31.6	0.6	60.4	35.5	0.1	56.5	33.6	0.1	60.2	43.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	31.6	0.6	60.4	35.5	0.1	56.5	33.6	0.1	60.2	43.3	0.2
Queue Length 50th (ft)	128	282	0	36	186	0	134	65	0	40	87	0
Queue Length 95th (ft)	171	346	0	63	249	0	175	97	0	69	132	0
Internal Link Dist (ft)		493			1900			1437			410	
Turn Bay Length (ft)	1000		400	975		850	500		300	400		325
Base Capacity (vph)	572	1398	1583	228	1131	1583	643	1002	1583	243	726	1583
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	0.58	0.62	0.34	0.41	0.50	0.09	0.54	0.21	0.04	0.42	0.34	0.15

Intersection Summary



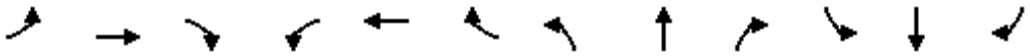
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	587	870	484	217	1207	158	1049	761	522	136	342	457
v/c Ratio	1.14	0.48	0.31	0.89	0.86	0.10	1.85	0.85	0.33	0.43	0.54	0.29
Control Delay	124.6	26.3	0.5	82.9	42.2	0.1	415.8	37.7	0.3	47.1	40.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	124.6	26.3	0.5	82.9	42.2	0.1	415.8	37.7	0.3	47.1	40.8	0.5
Queue Length 50th (ft)	~226	156	0	72	267	0	~525	218	0	42	105	0
Queue Length 95th (ft)	#334	196	0	#140	325	0	#656	m#356	m0	72	151	0
Internal Link Dist (ft)		493			1900			1437			410	
Turn Bay Length (ft)	1000		400	975		850	500			400		325
Base Capacity (vph)	514	1800	1583	243	1398	1583	566	898	1583	374	637	1583
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	1.14	0.48	0.31	0.89	0.86	0.10	1.85	0.85	0.33	0.36	0.54	0.29

Intersection Summary

~ 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.

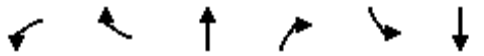
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	348	1054	913	505	848	98	543	250	152	76	571	326
v/c Ratio	0.73	0.82	0.58	0.86	0.59	0.06	0.87	0.20	0.10	0.42	0.80	0.21
Control Delay	58.6	48.5	1.5	64.0	39.2	0.1	58.8	22.9	0.1	62.2	55.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	48.5	1.5	64.0	39.2	0.1	58.8	22.9	0.1	62.2	55.1	0.3
Queue Length 50th (ft)	134	284	0	196	208	0	169	56	0	29	225	0
Queue Length 95th (ft)	182	341	0	#276	259	0	#278	83	0	56	#305	0
Internal Link Dist (ft)		493			1900			1437			410	
Turn Bay Length (ft)	1000		400	975		850	500			400		325
Base Capacity (vph)	543	1289	1583	606	1447	1583	646	1238	1583	185	716	1583
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	0.64	0.82	0.58	0.83	0.59	0.06	0.84	0.20	0.10	0.41	0.80	0.21

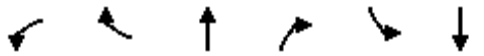
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	142	224	735	53	75	557
v/c Ratio	0.65	0.57	0.49	0.04	0.15	0.37
Control Delay	63.3	11.9	5.7	1.0	4.1	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	11.9	5.7	1.0	4.1	4.6
Queue Length 50th (ft)	106	0	151	0	11	99
Queue Length 95th (ft)	167	69	272	9	29	180
Internal Link Dist (ft)	285		1437			1437
Turn Bay Length (ft)				450	300	
Base Capacity (vph)	317	467	1492	1278	504	1492
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.48	0.49	0.04	0.15	0.37

Intersection Summary



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	75	124	459	132	197	627
v/c Ratio	0.49	0.50	0.29	0.10	0.26	0.40
Control Delay	62.2	15.6	2.8	0.5	5.7	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.2	15.6	2.8	0.5	5.7	7.5
Queue Length 50th (ft)	56	0	57	0	62	226
Queue Length 95th (ft)	103	57	105	10	112	411
Internal Link Dist (ft)	295		1451			1437
Turn Bay Length (ft)				450	300	
Base Capacity (vph)	331	397	1561	1347	761	1561
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.31	0.29	0.10	0.26	0.40

Intersection Summary

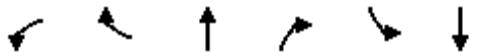
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	158	250	2082	60	87	957
v/c Ratio	0.52	0.87	0.80	0.05	1.18	0.37
Control Delay	44.3	65.1	11.5	1.1	181.8	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	65.1	11.5	1.1	181.8	6.9
Queue Length 50th (ft)	92	141	388	0	~68	168
Queue Length 95th (ft)	157	#273	492	9	m#147	m204
Internal Link Dist (ft)	285		1433			1437
Turn Bay Length (ft)				450	300	
Base Capacity (vph)	318	303	2616	1185	74	2616
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.83	0.80	0.05	1.18	0.37

Intersection Summary

~ 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.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	84	137	774	147	221	1700
v/c Ratio	0.52	0.51	0.26	0.11	0.40	0.58
Control Delay	62.5	14.9	2.0	0.4	9.5	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.5	14.9	2.0	0.4	9.5	11.6
Queue Length 50th (ft)	63	0	51	2	74	568
Queue Length 95th (ft)	112	59	53	m1	m188	659
Internal Link Dist (ft)	295		1436			1437
Turn Bay Length (ft)				450	300	
Base Capacity (vph)	272	359	2948	1343	549	2948
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.38	0.26	0.11	0.40	0.58

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	151	53	98	34	198	182	603	16	2	501	173
v/c Ratio	0.50	0.11	0.21	0.12	0.71	0.33	0.52	0.02	0.01	0.28	0.20
Control Delay	36.7	35.0	7.7	29.2	61.9	12.2	15.4	0.0	19.0	16.2	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.7	35.0	7.7	29.2	61.9	12.2	15.4	0.0	19.0	16.2	2.5
Queue Length 50th (ft)	88	33	0	19	146	56	248	0	1	91	0
Queue Length 95th (ft)	134	64	41	40	216	104	396	0	m2	154	28
Internal Link Dist (ft)		195			144		404			1437	
Turn Bay Length (ft)			150	100		450		600	150		325
Base Capacity (vph)	316	535	524	282	394	581	1168	1027	380	1763	875
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.10	0.19	0.12	0.50	0.31	0.52	0.02	0.01	0.28	0.20

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	123	119	227	32	78	143	467	50	10	538	162
v/c Ratio	0.45	0.43	0.53	0.16	0.49	0.24	0.35	0.04	0.02	0.25	0.16
Control Delay	43.3	50.5	10.3	36.4	59.3	7.6	8.6	0.2	14.8	11.2	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
Total Delay	43.3	50.5	10.3	36.4	59.3	7.6	8.6	0.2	14.8	11.2	3.4
Queue Length 50th (ft)	80	87	0	20	56	33	131	0	2	56	0
Queue Length 95th (ft)	126	139	69	43	104	67	227	2	m9	143	28
Internal Link Dist (ft)		301			309		579			1451	
Turn Bay Length (ft)			150	100		450		600	150		325
Base Capacity (vph)	306	473	571	205	348	671	1334	1161	558	2143	1022
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.25	0.40	0.16	0.22	0.21	0.35	0.04	0.02	0.25	0.16

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	176	64	117	43	234	213	1910	21	5	883	202
v/c Ratio	0.72	0.16	0.27	0.16	0.84	0.54	0.84	0.02	0.08	0.49	0.22
Control Delay	51.2	39.6	8.5	32.7	73.4	14.6	21.7	0.1	21.4	21.2	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	39.6	8.5	32.7	73.4	14.6	21.7	0.1	21.4	21.2	3.1
Queue Length 50th (ft)	107	41	0	24	174	65	584	0	2	234	0
Queue Length 95th (ft)	#183	80	49	53	#295	101	705	0	11	311	41
Internal Link Dist (ft)		366			576		522			1433	
Turn Bay Length (ft)			150	100		450		600			325
Base Capacity (vph)	247	414	442	276	302	432	2269	1049	63	1797	903
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.15	0.26	0.16	0.77	0.49	0.84	0.02	0.08	0.49	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	144	138	266	37	96	165	777	59	16	1606	191
v/c Ratio	0.65	0.48	0.62	0.18	0.51	0.71	0.30	0.05	0.04	0.76	0.19
Control Delay	55.4	52.9	17.4	39.5	56.5	38.6	6.6	1.7	14.7	15.9	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
Total Delay	55.4	52.9	17.4	39.5	56.5	38.6	6.6	1.7	14.7	15.9	3.7
Queue Length 50th (ft)	98	103	34	24	68	63	97	0	3	227	2
Queue Length 95th (ft)	152	162	118	51	118	#161	150	13	m10	407	44
Internal Link Dist (ft)		419			532		441			1436	
Turn Bay Length (ft)			150	100		450		600			325
Base Capacity (vph)	223	319	453	201	278	252	2560	1161	395	2105	1019
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.43	0.59	0.18	0.35	0.65	0.30	0.05	0.04	0.76	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

APPENDIX G

Conceptual Site Plan

Project Information
Address: Powers Blvd & Grinnell Blvd
Parcel Number:
City: Colorado Springs, CO
County: El Paso County
Zoning: RM-30

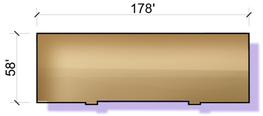
RM-30 Development Standards
Max Density: 30 du/ac
Front Setback: 25'
Rear Setback: 15'
Side Setback: 15'
Min. Building Separation: 10'
Max Lot Coverage: 60%
Max Height: 40'

Site Summary
Site Area: ±16.8 acres

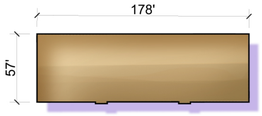
3-Story with Tuck-Under Parking:
195 units - 1bd (56%)
126 units - 2bd (37%)
24 units - 3bd (7%)
345 units

Site Density: ±20.5 du/ac

Parking Provided:
240 spaces - Garage parking
400 spaces - Open parking
640 spaces - Total Parking (±1.85 sp/unit)



BUILDING 'A' - 23 UNITS
1bd (13)
2bd (10)
16 garages



BUILDING 'B' - 23 UNITS
1bd (13)
2bd (4)
3bd (6)
16 garages

ktgy
Architecture + Planning
820 16th Street, Suite 500
Denver, CO 80202
303.825.6400
ktgy.com

DHI COMMUNITIES
a D.R. Horton Company

POWERS & GRINNELL - EL PASO MF
COLORADO SPRINGS, CO #2022-0091

OPTION 2
CONCEPTUAL SITE STUDY
FEBRUARY 10, 2022

0 30 60 120

TRAFFIC IMPACT STUDY

Traffic Engineer's Statement

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.

Curtis D. Rowe, P.E., PTOE PE #36355

May 10, 2022
Date

Developer's Statement

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

Mr. Russell Perkins
Evergreen Devco, Inc.
1873 S. Bellaire Street
Suite 1200
Denver, Colorado 80222

5/10/22
Date

DHI - Waterview

El Paso County, Colorado

Prepared for
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May 2022