TRAFFIC IMPACT STUDY

QuikTrip 4266 & Bubble Bath

Castle Pines, Colorado

Prepared for:

QuikTrip Corporation

Kimley»Horn

T R A F F I C I M P A C T S T U D Y

QuikTrip 4266 & Bubble Bath

Castle Pines, Colorado

Prepared for
QuikTrip Corporation
4705 South 129th East Avenue
Tulsa, Oklahoma 74134-7008

Prepared by
Jeffery R. Planck, P.E.
Kimley-Horn and Associates, Inc.
6200 South Syracuse Way
Suite 300
Greenwood Village, Colorado 80111
(303) 228-2300

September 2026

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1.0 EXECUTIVE SUMMARY

QuikTrip 4266 & Bubble Bath is proposed to be located on the northwest corner of the Castle Pines Parkway and the realigned Havana Street intersection in the Castle Pines, Colorado. The project is proposed to include a gas station with 16 passenger vehicle fueling positions, a convenience market with approximately 6,445 square feet of building space, and a Bubble Bath Car Wash with approximately 4,302 square feet of building space. It is expected that the project will be completed in the next several years; therefore, analysis was conducted for the 2028 short-term buildout horizon as well as the 2050 long-term twenty-year planning horizon.

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 the Castle Pines, Colorado standards and requirements:

- Castle Pines Parkway and Interstate 25 Southbound Ramps (#1)
- Castle Pines Parkway and Interstate 25 Northbound Ramps (#2)
- Castle Pines Parkway/Hess Road and realigned Havana Street (#3)

In addition, two proposed accesses along the realigned Havana Street, hereafter referred to as Havana Street, will be evaluated. The South Access (#4) will operate as right-in only and the North Access (#5) will provide full turning movements.

Regional access to the site will be provided by Interstate 25 (I-25). Primary access will be provided by Castle Pines Parkway. Direct access will be provided by the new right-in only South Access (#4) and new full movement North Access (#5) along the west side of Havana Street approximately 350 feet and 600 feet north of Castle Pines Parkway (measured edge of pavement to edge pavement).

QuikTrip 4266 & Bubble Bath is expected to generate approximately 5,231 daily weekday driveway trips, with 483 of these trips occurring during the morning peak hour and 499 trips occurring during the afternoon peak hour. Accounting for pass-by, expected net new (non pass-by) trips to the surrounding street network results in approximately 2,126 weekday daily trips, of

which 165 trips and 203 trips are anticipated during the weekday morning and afternoon peak hours, respectively.

Based on the analysis presented in this report, Kimley-Horn believes QuikTrip 4266 & Bubble Bath 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 conclusions and recommendations:

- With completion of the project, two project accesses are proposed along the west side of Havana Street to serve the new development. It is recommended that a R1-1 “STOP” sign be installed on the eastbound approach for vehicles exiting the development at the north access. The north access along Havana Street will provide full turning movements while aligning with a future access to the overall Canyonside development. The south access along Havana Street will be restricted to right-in only movements. The north access directly fronts the car wash site but will provide cross access to the gas station site due to the southern access restricting left turning movements and exiting right-turn movements. A raised channelized island is proposed within the driveway throat of the south access to restrict this access to right-in only turning movements. Consistent with Canyonside Subdivision Filing 4 master traffic study, it is recommended that the northbound, southbound, and westbound leg of the Havana Street North Access provide a designated left turn lane and a shared through/right turn lane while the northbound approach will have two through lanes. The exiting throat of the north access should provide one full movement egress lane.

- The planned improvements at the intersection of Castle Pines Parkway and Havana Street outlined by the Canyonside Subdivision Filing 4 Traffic Impact Study, September 2022 should be constructed in association of the overall Canyonside development. Havana Street is currently under construction to be realigned approximately 350 feet to the east and will be converted from stop control to signal control. With the realignment, a south leg is planned at this intersection; however, this intersection may operate as a T-intersection without the south leg for a short duration due to the development on the north side of Castle Pines Parkway being constructed prior to the south side. Therefore, in the buildout condition, this intersection was evaluated as T-intersection with signal control. When the

south leg is constructed and open for operation, this intersection is expected to operate with three through lanes in each direction along Castle Pines Parkway, one through lane in each direction along Havana Street, left and right turn lanes on all four approaches while the eastbound and northbound approaches will provide dual left turn lanes.

- The vehicle queues are all anticipated to remain within the existing or recommended turn lane lengths by the buildout horizon in 2028. By 2050, the southbound left turning movements at the intersection of Castle Pines Parkway and I-25 Southbound Ramps (#1) and the eastbound left turn, southbound left and right turning movements at the intersection of Castle Pines Parkway & Havana Street (#3) may extend beyond the existing or planned turn lane lengths. With a high traffic growth rate utilized in this traffic study, it is recommended that traffic volumes be monitored in the future to determine if these three turn lanes need to be extended by the long-term 2050 horizon. If 2050 planning level traffic projections are realized, an additional southbound left turn lane could be needed at the I-25 Southbound Off Ramp (at Castle Pines Parkway) while the shared left /through/right turn lane may need to be extended from 350 feet to 700 feet. Further, a third eastbound through would be needed at the I-25 Northbound Ramp and Castle Pines Parkway intersection. These improvements are driven by the master development plans surrounding both the northeast and southeast quadrants of the Castle Pines Parkway and I-25 interchange, and the findings are consistent with the Canyonside Subdivision Filing 4 Traffic Impact Study.

- Any onsite or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the City of Castle Pines and the Manual on Uniform Traffic Control Devices (MUTCD) – 11th Edition, 2023.

2.0 INTRODUCTION

Kimley-Horn has prepared this report to document the results of a Traffic Impact Study for QuikTrip 4266 & Bubble Bath proposed to be located on the northwest corner of the Castle Pines Parkway and the realigned Havana Street intersection in the Castle Pines, Colorado. A vicinity map illustrating the project development location is shown in **Figure 1**. The project is proposed to include a gas station with 16 passenger vehicle fueling positions, a convenience market with approximately 6,445 square feet of building space, and a Bubble Bath Car Wash with approximately 4,302 square feet of building space. A conceptual site plan is attached in **Appendix A**. It is expected that the project will be completed in the next several years; therefore, analysis was conducted for the 2028 short-term buildout horizon as well as the 2050 long-term twenty-year planning horizon.

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 the Castle Pines, Colorado standards and requirements:

- Castle Pines Parkway and Interstate 25 Southbound Ramps (#1)
- Castle Pines Parkway and Interstate 25 Northbound Ramps (#2)
- Castle Pines Parkway/Hess Road and realigned Havana Street (#3)

In addition, two proposed assess along the realigned Havana Street, hereafter referred to as Havana Street, will be evaluated. The South Access (#4) will operate as right-in only and the North Access (#5) will provide full turning movements.

Regional access to the site will be provided by Interstate 25 (I-25). Primary access will be provided by Castle Pines Parkway. Direct access will be provided by the new right-in only South Access (#4) and new full movement North Access (#5) along the west side of Havana Street approximately 350 feet and 600 feet north of Castle Pines Parkway (measured edge of pavement to edge of pavement).

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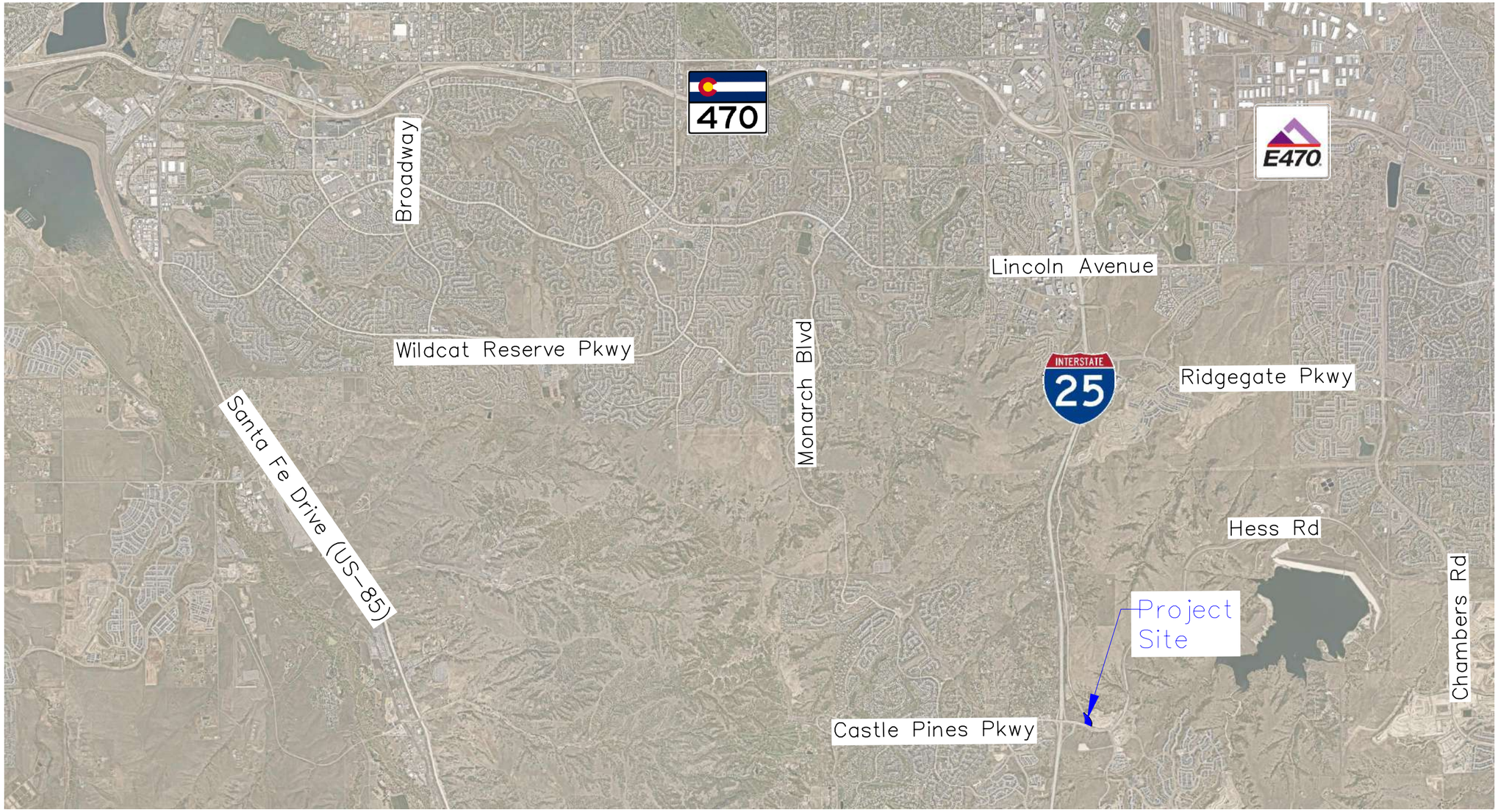

FIGURE 1
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
Vicinity Map

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3.0 EXISTING AND FUTURE CONDITIONS

3.1 Existing Study Area

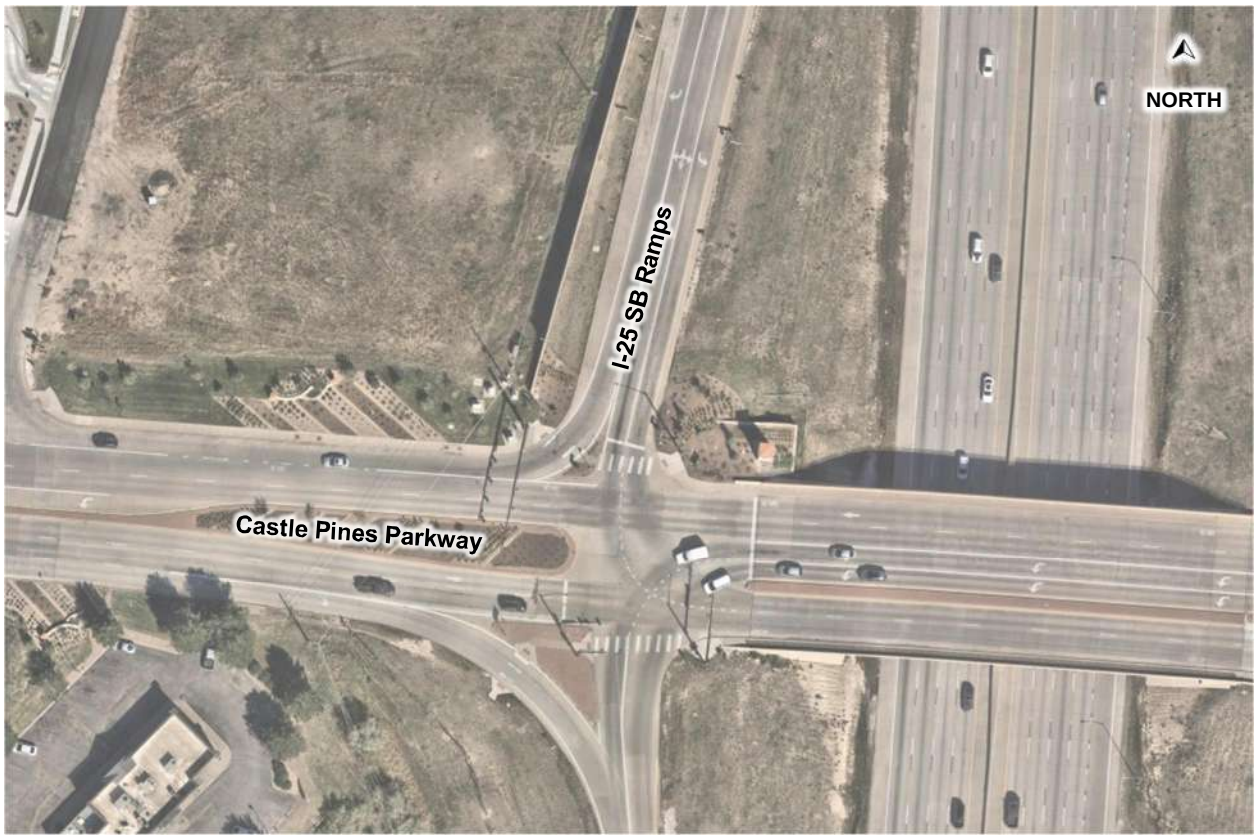
The existing site is comprised of undeveloped, vacant land. To the east are existing single-family detached residences. To the southeast are the partially developed Canyonside and North Canyons developments. To the northeast is more undeveloped, vacant land. I-25 is located to the west while a mix of commercial and residential uses are located west of I-25.

3.2 Existing Roadway Network

Castle Pines Parkway primarily extends east/west with two through lanes in each direction, near the project site. In the project area, both directions are separated with a raised center median. Castle Pines Parkway is defined by the City of Castle Pines as an arterial roadway, and it has a posted speed limit of 40 miles per hour (mph) within the project limits.

Havana Street currently primarily extends north/south with a single through lane in each direction. With the development of Canyonside PA-1, currently under construction, Havana Street is currently being realigned to intersect Castle Pines Parkway approximately 350 feet to the east, measured edge of pavement to edge of pavement. Havana Street has a posted speed limit of 35 mph within the project limits.

The signalized intersection of Castle Pines Parkway and I-25 Southbound Ramps (#1) operates with protected left turn phasing on the westbound approach. The eastbound approach provides two designated through lanes and one channelized right turn lane. The westbound approach has dual left turn lanes and two designated through lanes. The southbound approach has a designated left turn lane, a lane for all turning movements, and a channelized right turn lane. An aerial photo of the existing intersection configuration is below.



Castle Pines Parkway and I-25 Southbound Ramps (#1)

The signalized intersection of Castle Pines Parkway and I-25 Northbound Ramps (#2) operates with protective phasing for the northbound left turning movements. The eastbound approach has two through lanes and a channelized right turn lane. The westbound approach operates with a designated through lane, a through/right turn lane, and a designated right turn lane. The northbound approach has dual left turn lanes and dual right turn lanes, with one of the right turn lanes being channelized. An aerial photo of the existing intersection configuration is below.

Castle Pines Parkway and I-25 Northbound Ramps (#2)

The unsignalized 'T'-intersection of Castle Pines Parkway and Havana Street currently operates under stop control for the southbound approach. The eastbound approach has dual left turn lanes and two through lanes. The westbound approach has two through lanes and a single channelized right turn lane. The southbound approach operates with a designated left turn lane and a channelized right turn lane. By 2028, Havana Street is planned to be realigned approximately 350 feet to the east and operate as a signalized intersection. An aerial photo of the existing intersection configuration is below.

Castle Pines Parkway and Havana Street (#3)

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

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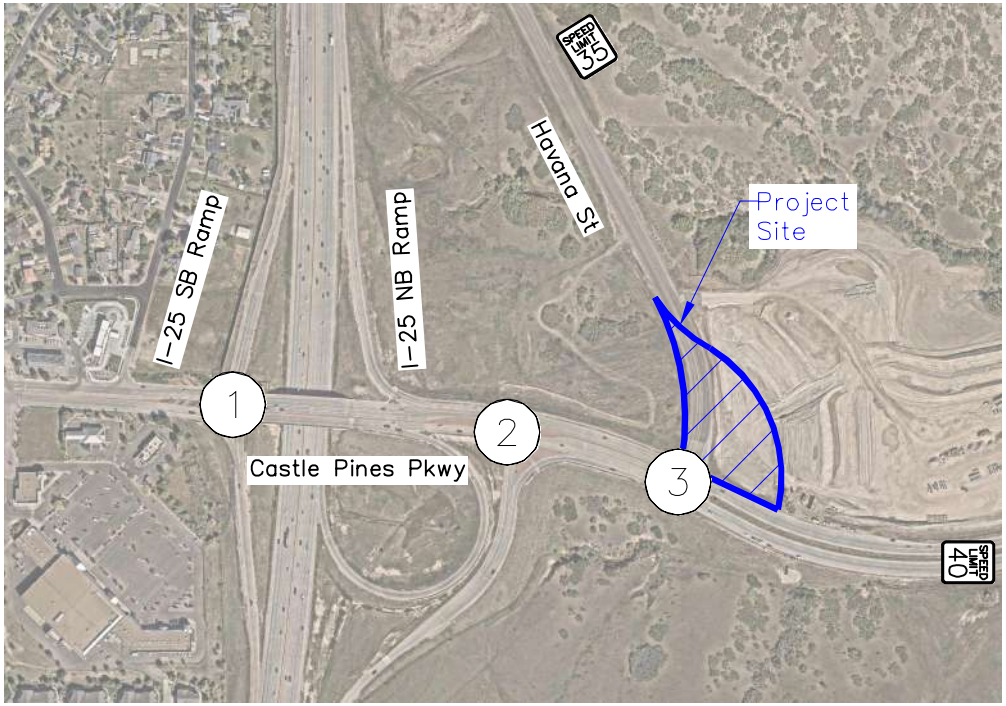
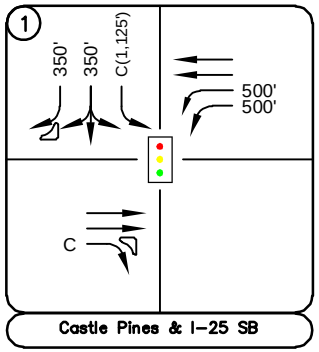
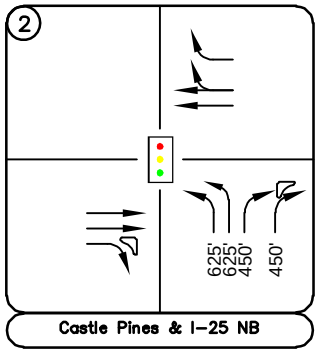
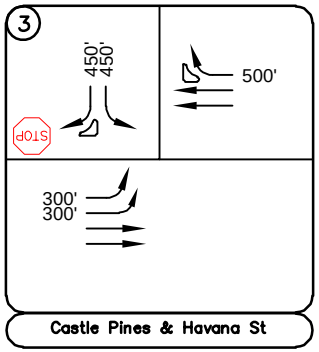


*Havana Street is currently under construction to be realigned to the east side of the development area







LEGEND

- X — Study Area Key Intersection
- Signalized Intersection
- STOP — Stop-Controlled Approach
- SPEED LIMIT XX — Roadway Speed Limit
- 100' — Turn Lane Length (feet)

FIGURE 2
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
Existing Geometry & Control

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3.3 Existing Traffic Volumes

Existing turning movement counts were conducted at the study intersections on Wednesday, January 14, 2026 during the weekday morning and afternoon peak hours. 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 this count date. The existing intersection traffic volumes are shown in **Figure 3** with count sheets provided in **Appendix B.**

3.4 Unspecified Development Traffic Growth

Several sources were used to determine future background traffic volumes in this area, including the Denver Regional Council of Governments and several traffic impact studies that have been completed over the past several years within City of Castle Pines boundaries.

According to traffic projections from the Denver Regional Council of Governments (DRCOG) traffic model, the area surrounding the site is expected to have an average 30-year growth factor of 2.49. This growth factor equates with an annual growth rate of 3.09 percent. In addition, several future known developments are anticipated to be constructed in this study area that were included in the background traffic volumes for this study. It is understood that Shea Canyons Phase I to the south of the project site, comprised mostly of 1,099 single family residences, has completed construction. In addition, North Canyons PA-1 and PA-2 and Shea Canyons Phase II comprising of multi-family residential units, commercial spaces, and an elementary school are expected to be completed by 2028. The final background development considered is the North Canyons PA-3 tract with commercial and residential uses is understood to be completed by 2050. Information for all the background developments and the applicable excerpts can be found in the attached *Canyonside Subdivision Filing 4 Traffic Impact Study*, September 2022 in **Appendix C**. Additional development associated with Canyonside Filing 4 include two multi-family residential parcels to the north of Castle Pines Parkway, are also proposed. In the 2028 short-term horizon, it was assumed that a minimum of 75 percent of the remaining development associated with North Canyons PA-2, North Canyons PA-3, Shea Canyons Phase I, Shea Canyons Phase II, and the multi-family residential parcels associated with Canyonside Filing 4 would be complete. Within Canyonside Filing 4, a gas station with 20 fueling positions and a convenience store was proposed, but the traffic generated by that development has been removed from the background traffic volumes in this study, as the QuikTrip 4266 proposed project is occupying that site.

Accounting for the aforementioned developments and the proposed QuikTrip site, this area is expected to generate approximately 35,000 daily trips (see Table 3 from the Canyonside Filing 4 traffic study in **Appendix C**). To develop a background traffic growth rate for other developments not included in North Canyons, Shea Canyons, Canyonside Filing 4, and this project, an updated background traffic growth rate was developed. Using the DRCOG traffic projections in the area and the project trip distribution proposed in the Canyonside Filing 4 development, an updated background traffic growth rate was developed. The updated growth factor in this area after accounting for these developments is approximately 1.15, which equates to an average annual growth rate of 0.48 percent. A detailed summary including these calculations is provided in **Appendix C**. After directly adding the background traffic volumes associated with these developments based on the remaining portions of development to be constructed in the area from North Canyons, Shea Canyons, and Canyonside Filing 4, an annual growth rate of 0.50 percent was used to account for any additional background traffic growth that may occur by the 2028 short-term horizon. The calculated background traffic volumes for 2028 are shown in **Figure 4.**

In order to ensure all background traffic is accounted for in the 2050 long-term horizon, the 2040 total traffic volumes from the Canyonside Subdivision Filing 4 were used. These volumes were also grown by 0.50 percent per year between 2040 and 2050 as only a small amount of additional growth is expected. As noted previously, the traffic to be generated by the previously proposed Lot 1 within Canyonside Filing 4, which is the currently proposed QuikTrip 4266 site, was removed from the 2040 total traffic volumes obtained in the Canyonside Filing 4 traffic study. The calculated background traffic volumes for 2050 are shown in **Figure 5**.

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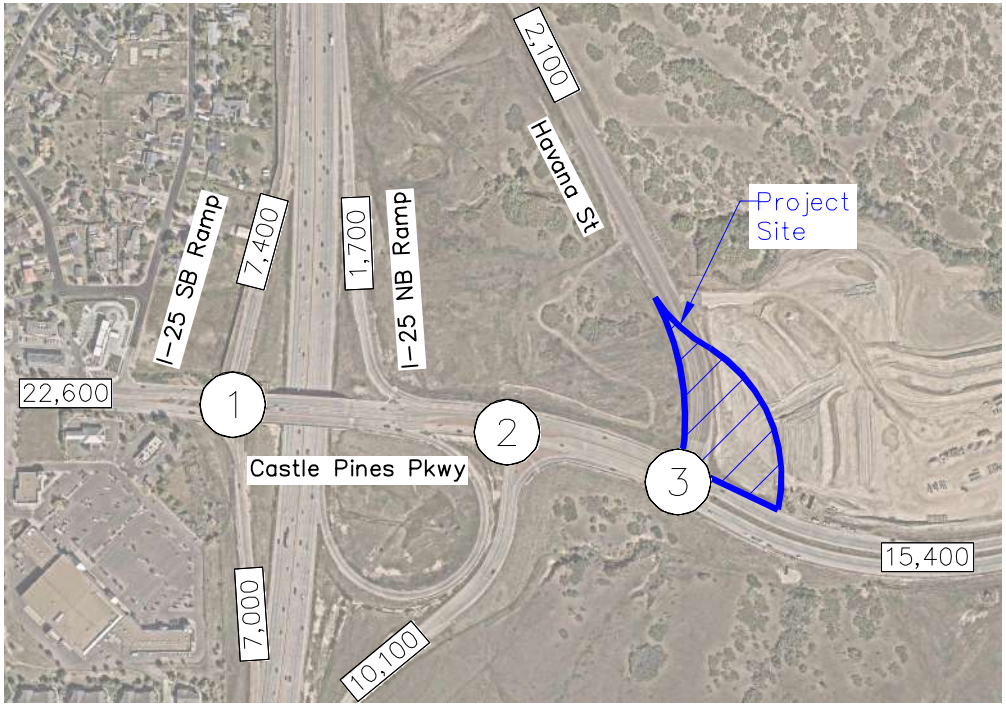
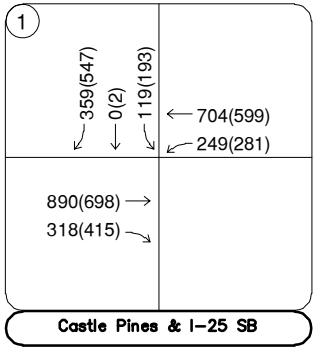
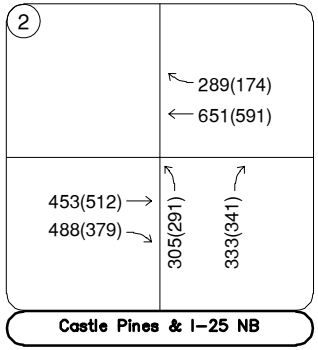


*Havana Street is currently under construction to be realigned to the east side of the development area



Wed, Jan 14, 2026
7:30 to 8:30AM
(4:00 to 5:00PM)



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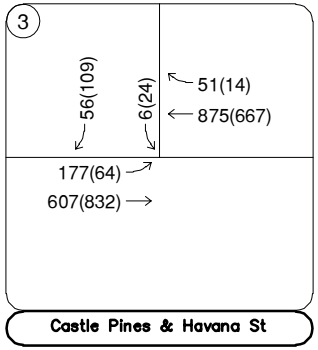
7:15 to 8:15AM
(4:00 to 5:00PM)



Wed, Jan 14, 2026
7:15 to 8:15AM
(4:30 to 5:30PM)

LEGEND

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

FIGURE 3
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
2026 Existing Traffic Volumes

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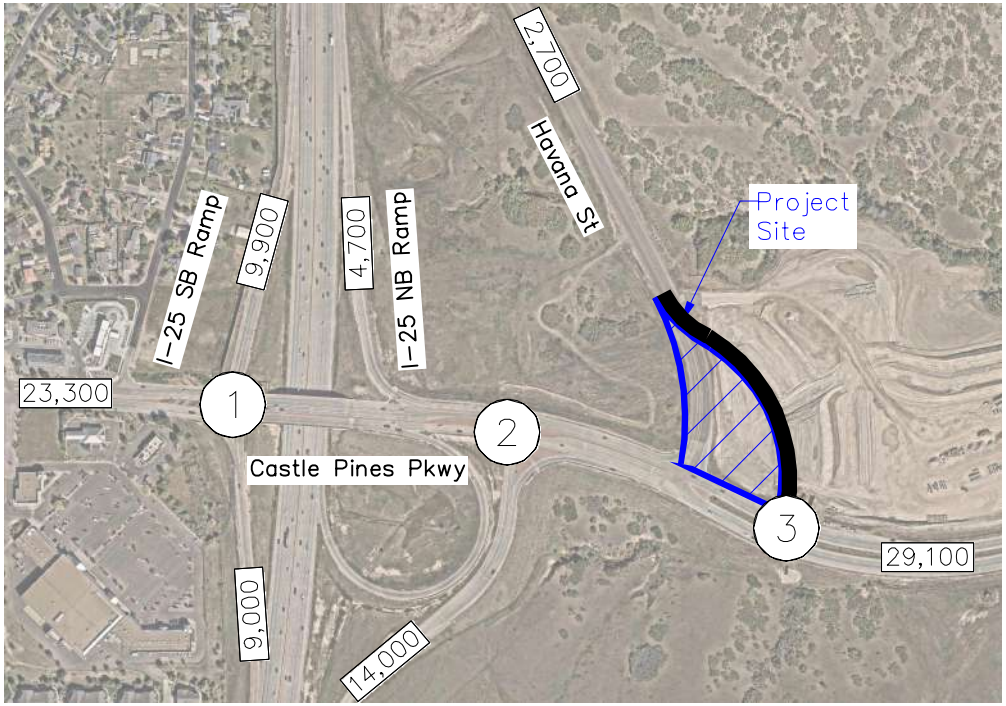

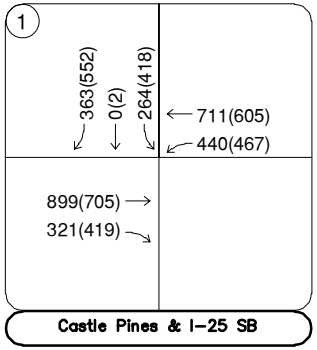

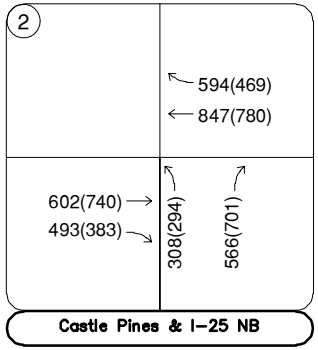

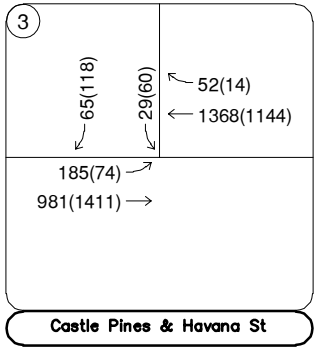

LEGEND

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

FIGURE 4
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
2028 Background Traffic Volumes

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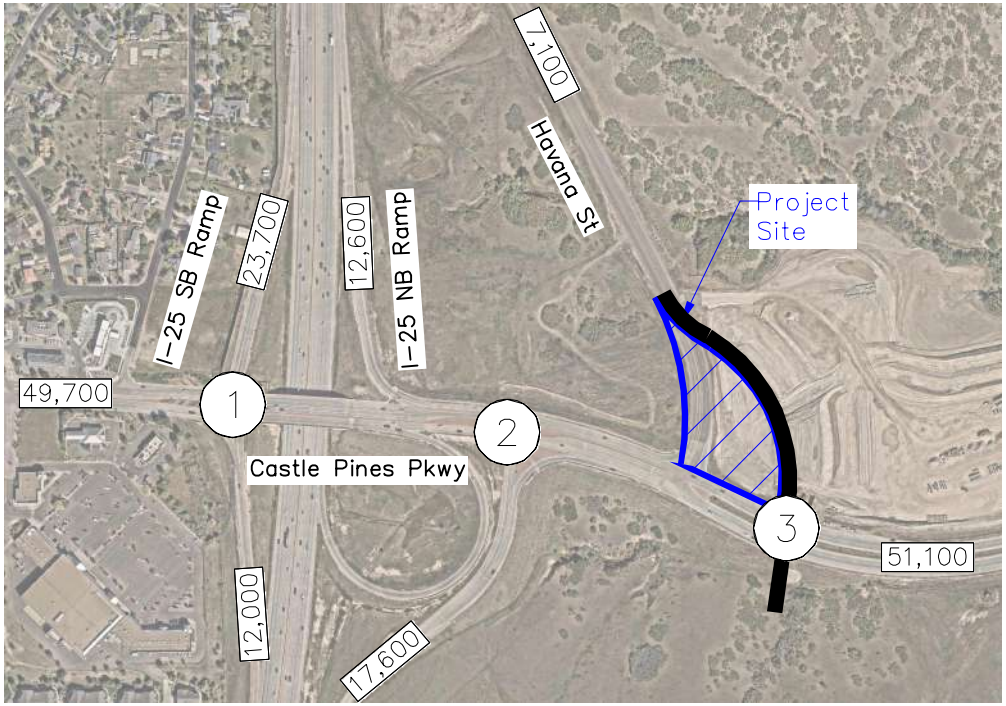

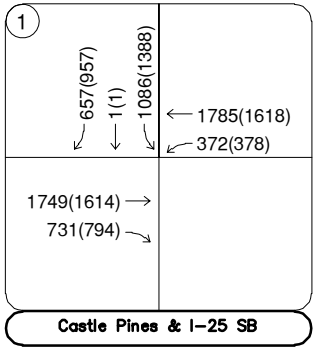

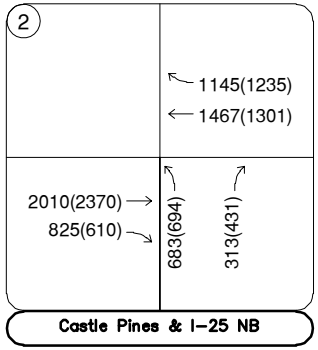

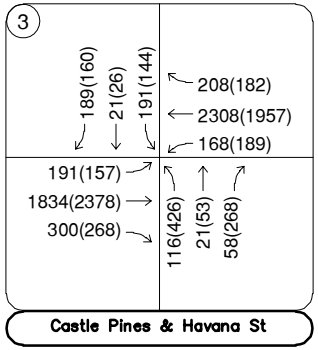

LEGEND

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

FIGURE 5
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
2050 Background Traffic Volumes

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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 Convenience Store/Gas Station (ITE Land Use Code 945) and Automated Car Wash (ITE 948) for traffic associated with the development.

Since the project is a commercial development, pass-by trips are expected. These pass-by trips are vehicles already on the street network that will be attracted to the project site in route to a final destination. The pass-by percentages were obtained from the ITE "Trip Generation Manual", Twelfth Edition which shows a morning peak hour pass-by percentage of 76 percent and an afternoon peak hour pass-by percentage of 75 percent for gas station use.

QuikTrip 4266 & Bubble Bath is expected to generate approximately 5,231 daily weekday driveway trips, with 483 of these trips occurring during the morning peak hour and 499 trips occurring during the afternoon peak hour. Accounting for pass-by, expected net new (non pass-by) trips to the surrounding street network results in approximately 2,126 weekday daily trips, of which 165 trips and 203 trips are anticipated during the weekday morning and afternoon peak hours, respectively. Calculations were based on the procedure and information provided in the ITE *Trip Generation Manual, 12th Edition – Volume 1: User's Guide and Handbook*, 2025. **Table 1** summarizes the estimated trip generation for the site. The trip generation worksheets are included in **Appendix D**.

[1] Institute of Transportation Engineers, *Trip Generation Manual*, Twelfth Edition, Washington DC, 2025.

Table 1 – QuikTrip 4266 & Bubble Bath Traffic Generation

Land Use and Size	Weekday Vehicle Trips						
	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Convenience Store/Gas Station (ITE 945) – 6,445 Square Feet	4,140	214	205	419	197	197	394
Automated Car Wash (ITE 948) – 4,302 Square Feet	1,091	35	29	64	51	54	105
Total Site Generated Trips	**5,231**	**249**	**234**	**483**	**248**	**251**	**499**
Pass-By Trips	**3,105**	**163**	**155**	**318**	**148**	**148**	**296**
Non Pass-By Trips (New Trips)	**2,126**	**86**	**79**	**165**	**100**	**103**	**203**

4.2 Trip Distribution

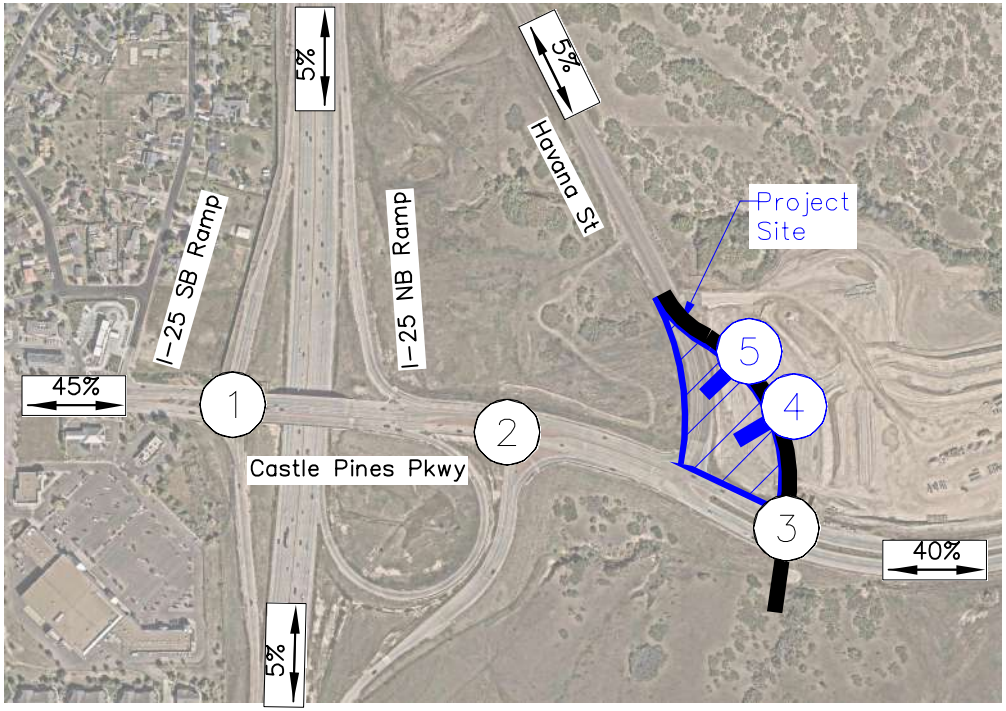
Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns, surrounding demographics, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic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

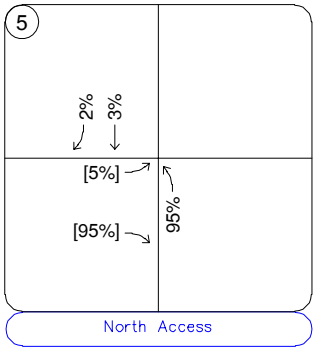
Since the project is a commercial development, a certain amount of traffic attracted to the retail uses will already be passing by the site. This pass-by distribution is a means to quantify the amount of traffic arriving to the site from a given direction and then leaving the site in the same original direction of travel, continuing the driver's trip. The expected weekday morning and afternoon peak hour pass-by trip distributions were calculated based on actual traffic volumes on the surrounding street network. Directional differences in the morning and afternoon peak hours were accounted for in the pass-by distributions as shown in **Figure 7** and **Figure 8** , respectively.

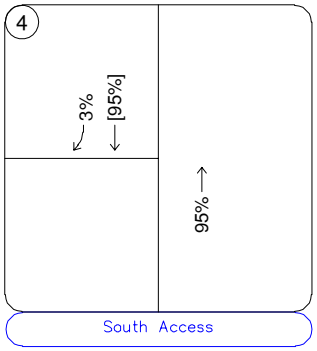
4.3 Traffic Assignment and Total (Background Plus Project) Traffic

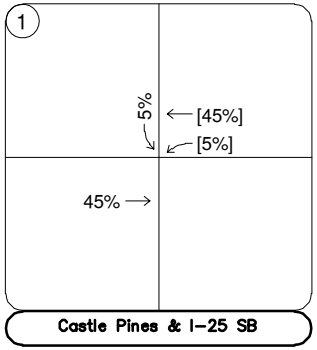
The project traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. The non pass-by traffic assignment is shown in **Figure 9**, with pass-by traffic assignment shown in **Figure 10** and the total traffic assignment (non pass-by + pass-by) provided in **Figure 11**. Site traffic volumes were added to the background volumes to represent estimated total traffic conditions for the short-term 2028 buildout horizon and long-term 2050 planning horizon. These total traffic volumes for the study area are illustrated for the 2028 and 2050 horizon years in **Figure 12** and **Figure 13**, respectively.

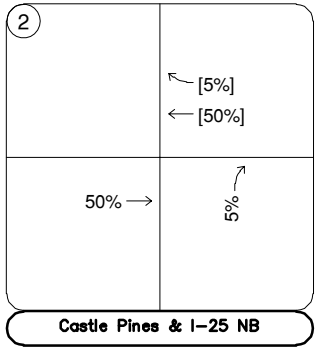
Kimley»Horn NORTH
NTS 096888058

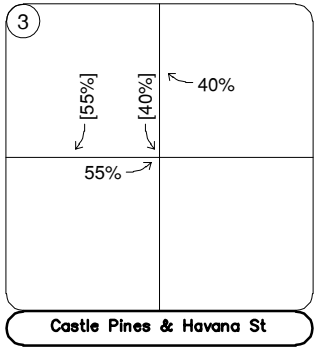












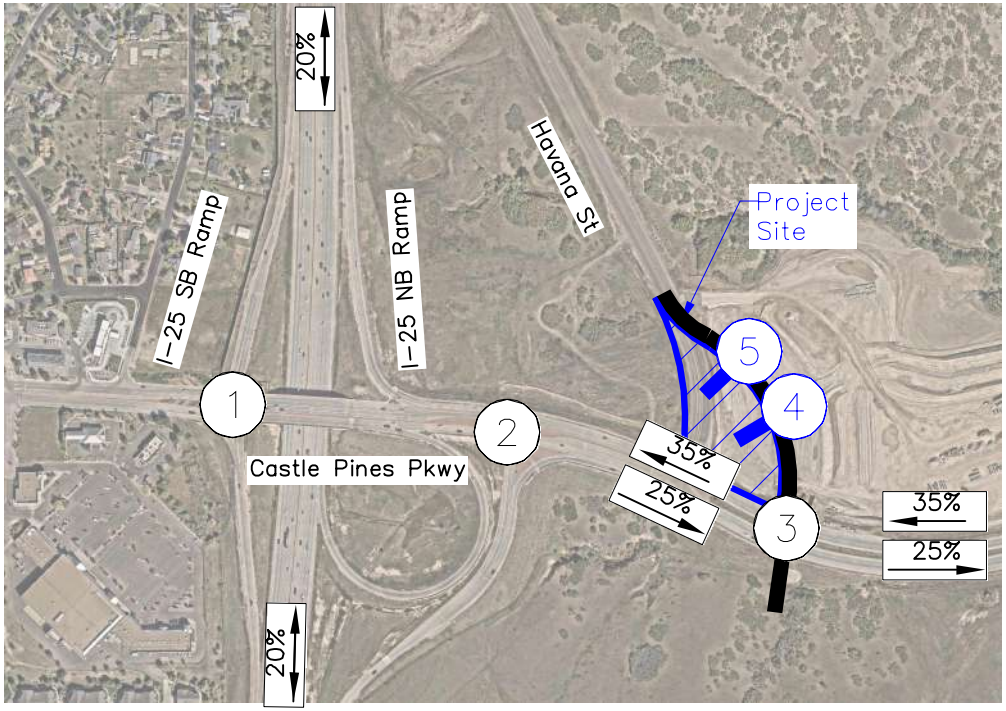
LEGEND

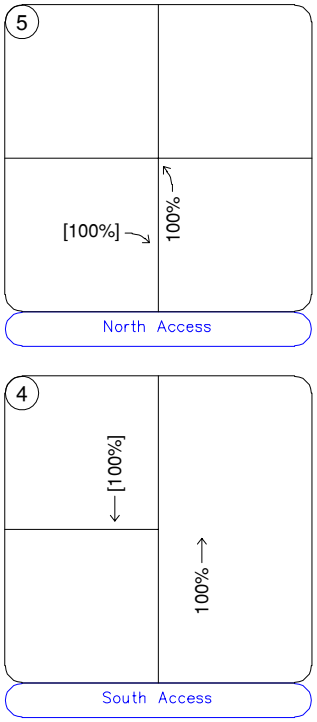
X	Study Area Key Intersection
X	Project Access Intersection
XX%	External Trip Distribution Percentage
XX%[XX%]	Entering[Exiting] Trip Distribution Percentage
	Havana Street Realignment

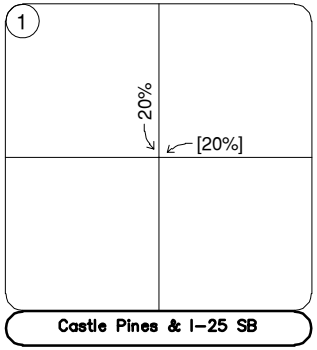
FIGURE 6
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
Non Pass-By Project Trip Distribution

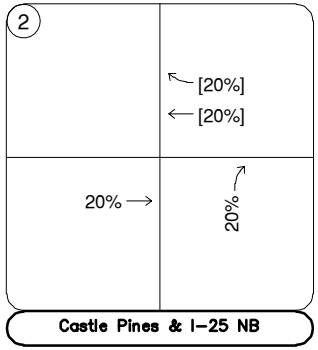
Kimley»Horn

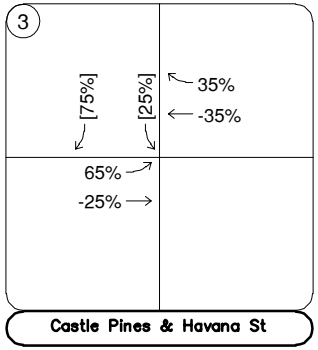
Kimley»Horn NORTH
NTS 096888058











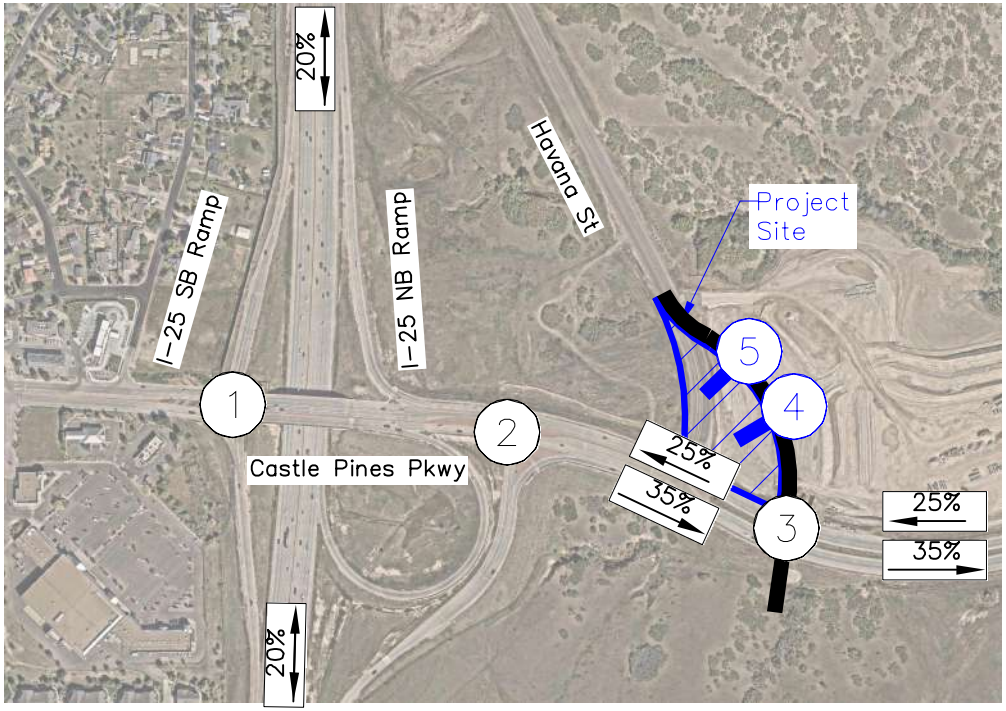
LEGEND

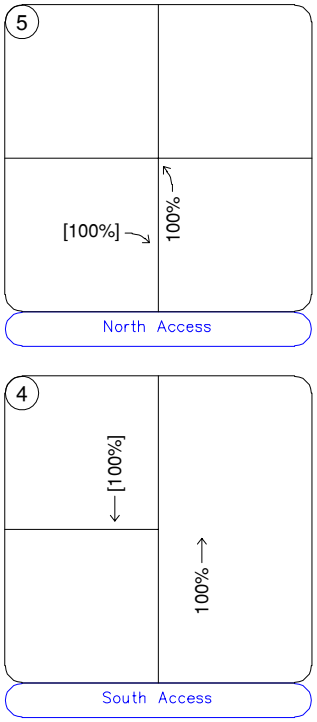
- X — Study Area Key Intersection
- X — Project Access Intersection
- XX% — External Trip Distribution Percentage
- XX%[XX%] — Entering[Exiting] Trip Distribution Percentage
- Havana Street Realignment

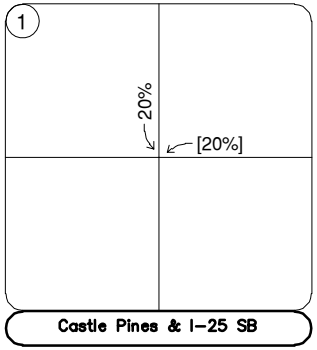
FIGURE 7
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
AM Pass-By Project Trip Distribution

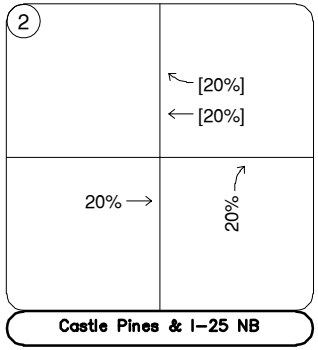
Kimley»Horn

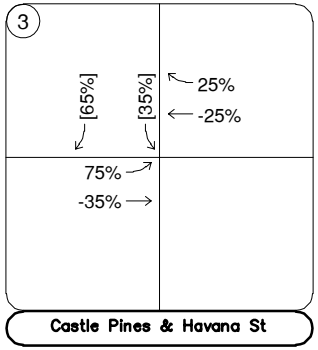
Kimley»Horn
NORTH
NTS 096888058











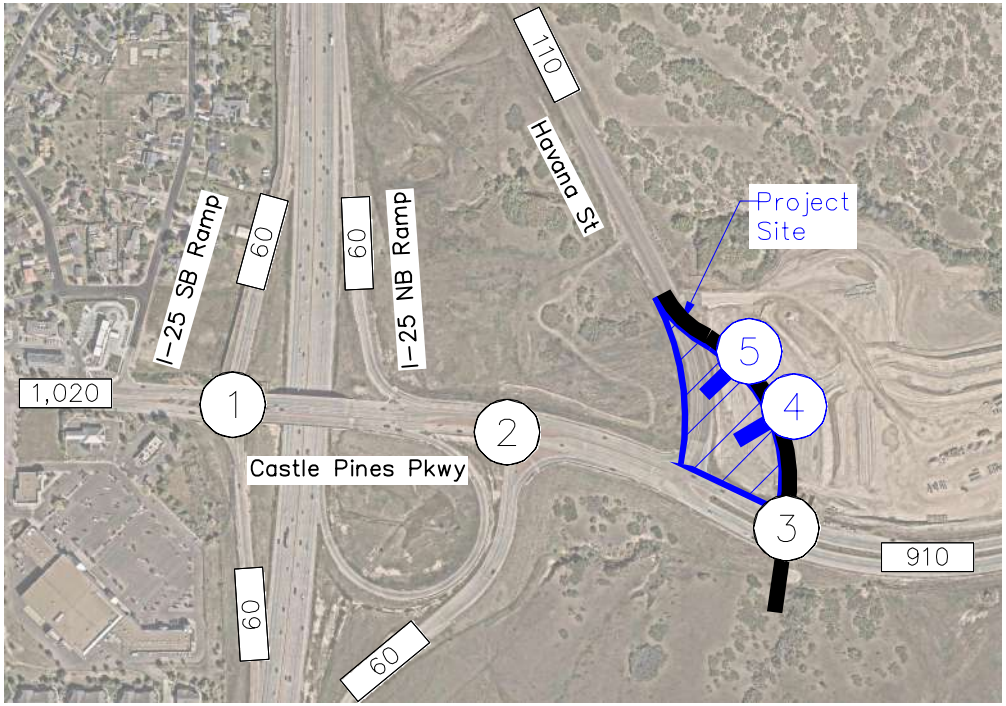
LEGEND

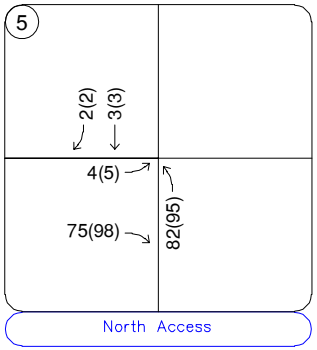
X	Study Area Key Intersection
X	Project Access Intersection
XX%	External Trip Distribution Percentage
XX%[XX%]	Entering[Exiting] Trip Distribution Percentage
	Havana Street Realignment

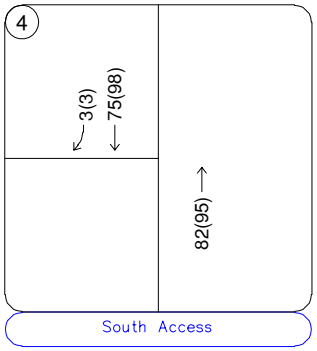
FIGURE 8
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
PM Pass-By Project Trip Distribution

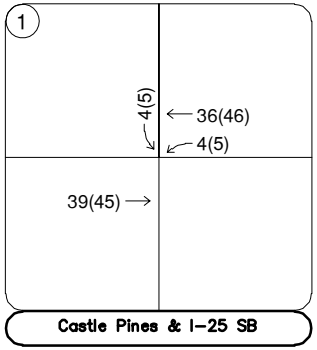
Kimley»Horn

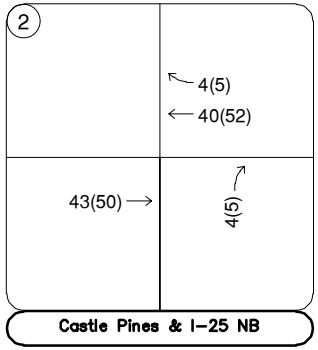
Kimley»Horn NORTH
NTS 096888058

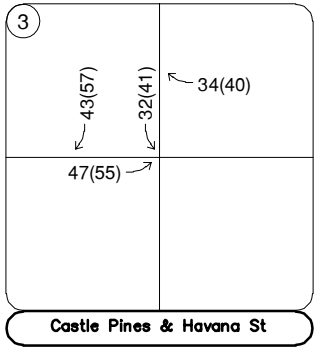












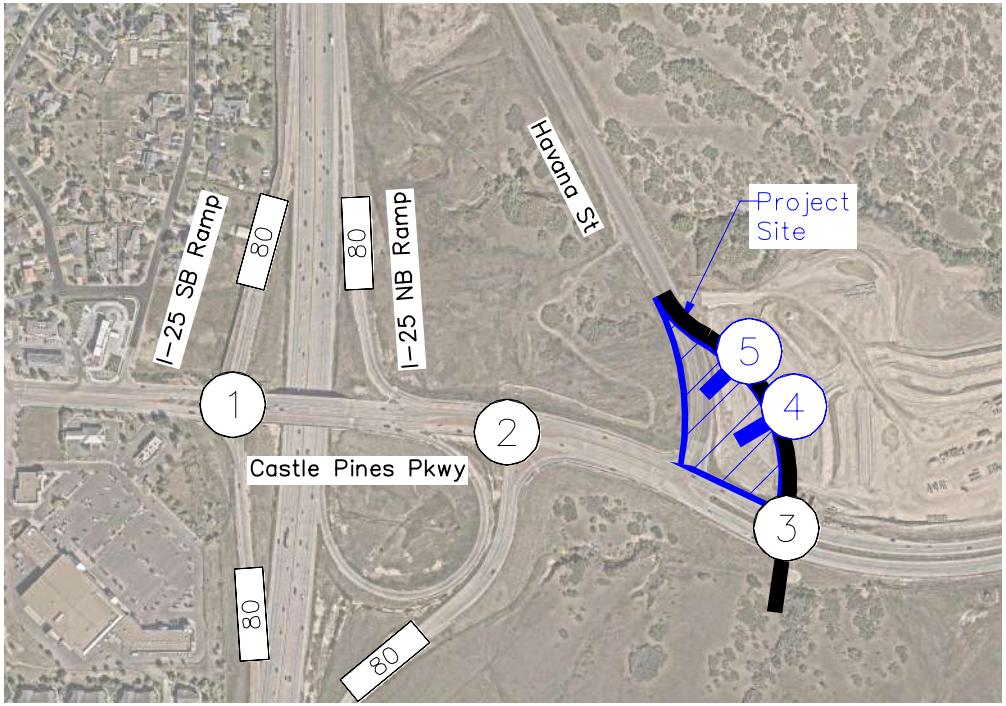
LEGEND

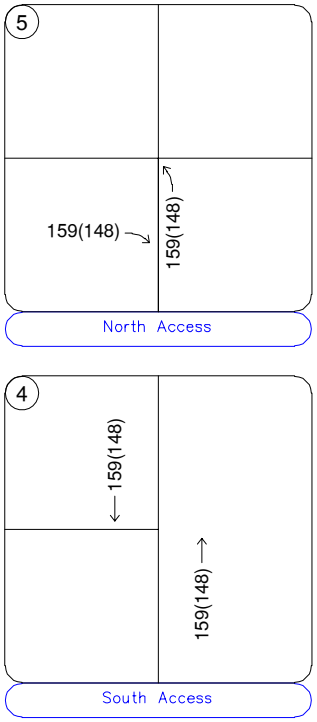
(X)	Study Area Key Intersection
(X)	Project Access Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume
▬	Havana Street Realignment

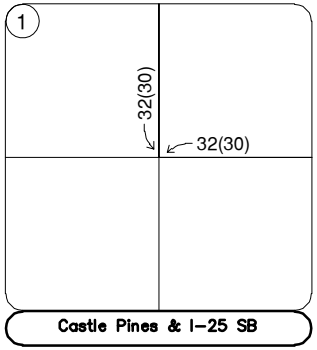
FIGURE 9
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
Non Pass-By Project Traffic Assignment

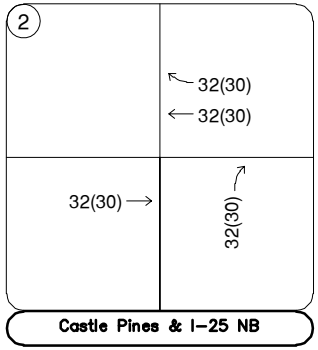
Kimley»Horn

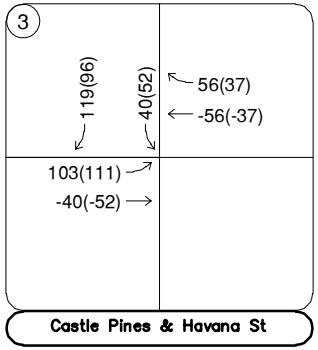
Kimley»Horn NORTH
NTS 096888058











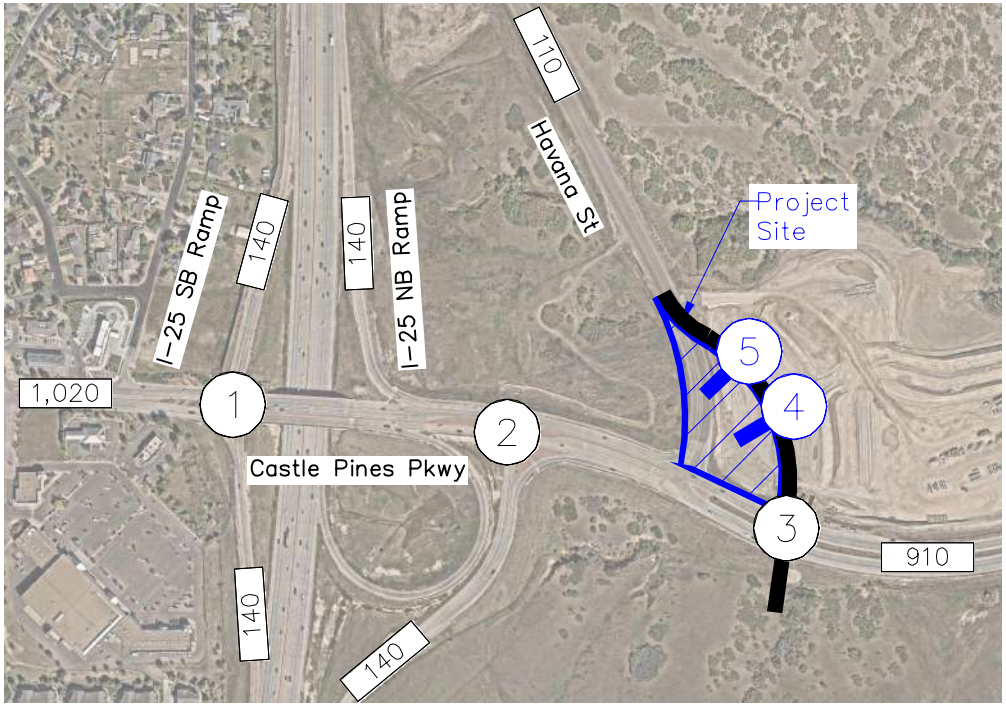
LEGEND

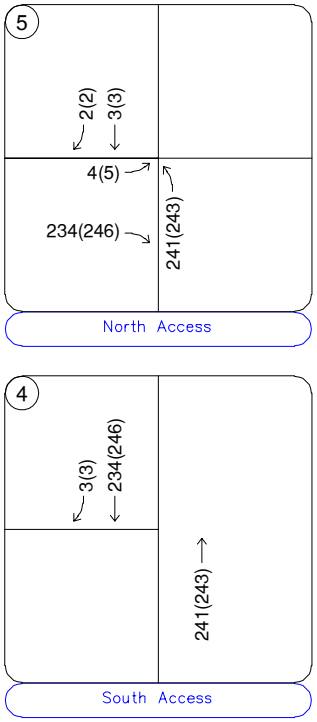
(X)	Study Area Key Intersection
(X)	Project Access Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume
▬	Havana Street Realignment

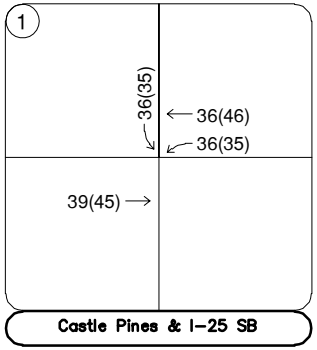
FIGURE 10
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
Pass-By Project Traffic Assignment

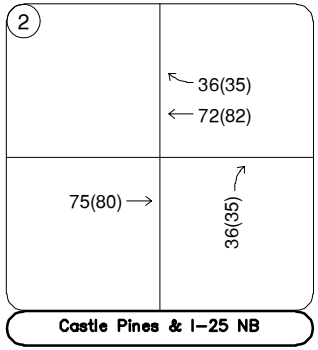
Kimley»Horn

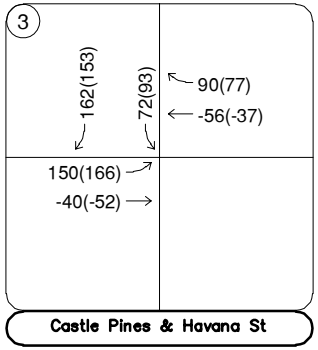
Kimley»Horn NORTH
NTS 096888058











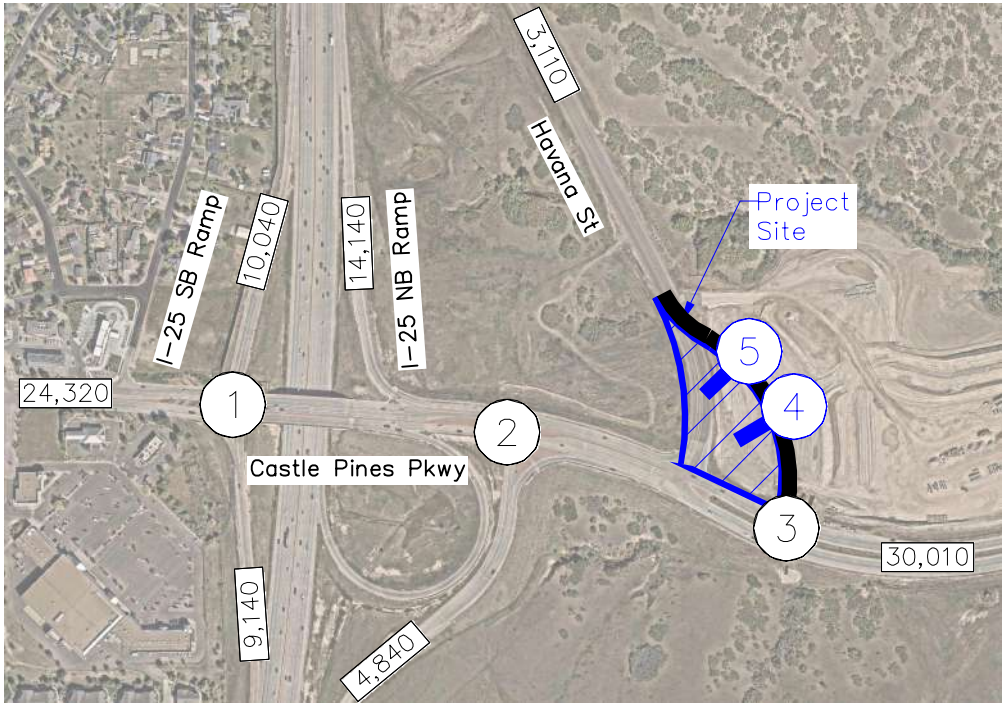
LEGEND

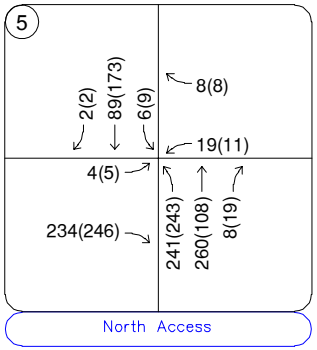
(X)	Study Area Key Intersection
(X)	Project Access Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume
▬	Havana Street Realignment

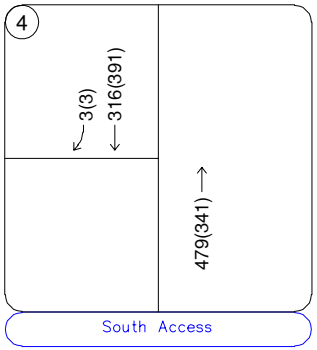
FIGURE 11
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
Total Project Traffic Assignment

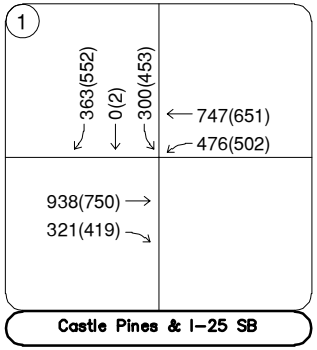
Kimley»Horn

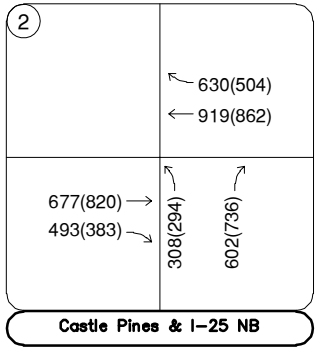
Kimley»Horn NORTH
NTS 096888058

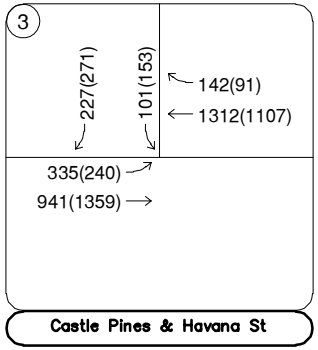












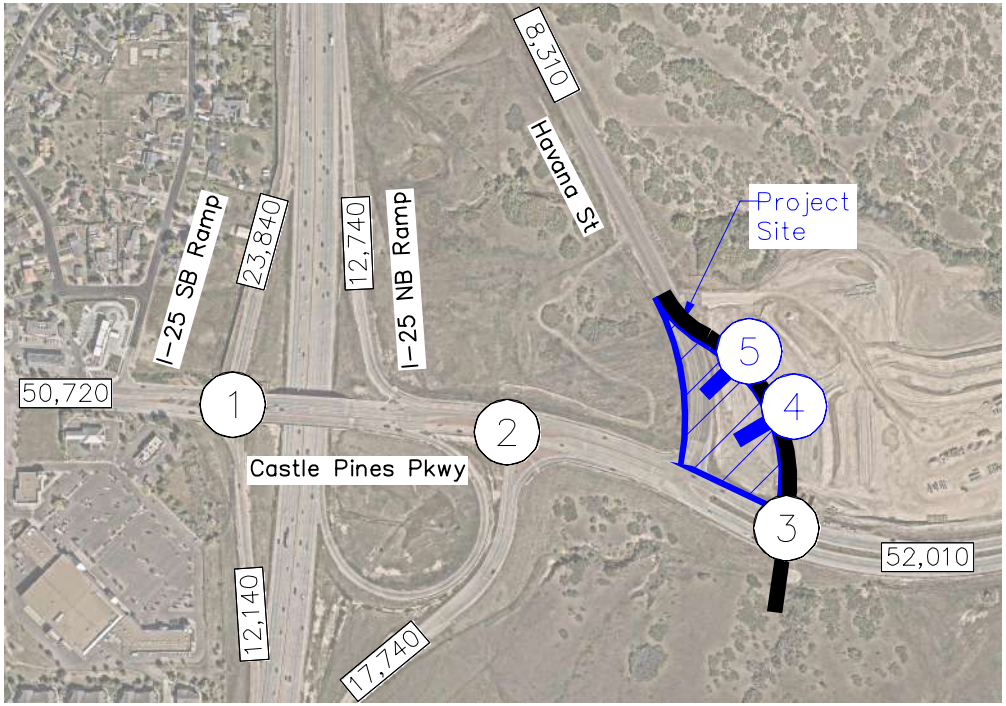
LEGEND

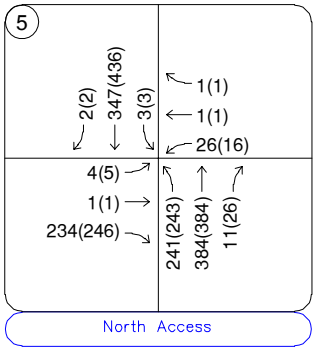
(X)	Study Area Key Intersection
(X)	Project Access Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume
▬	Havana Street Realignment

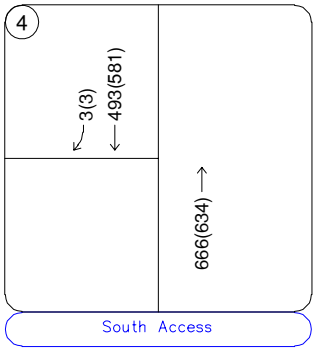
FIGURE 12
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
2028 Total Traffic Volumes

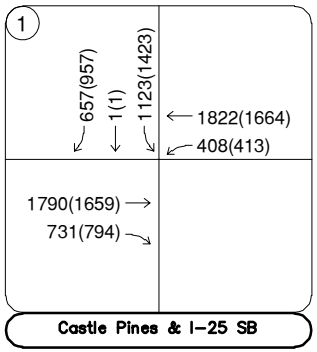
Kimley»Horn

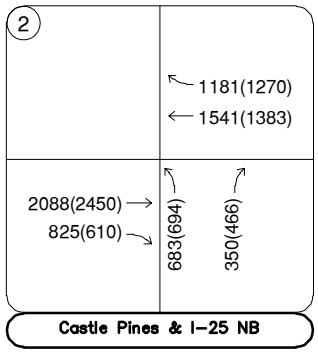
Kimley»Horn NORTH
NTS 096888058

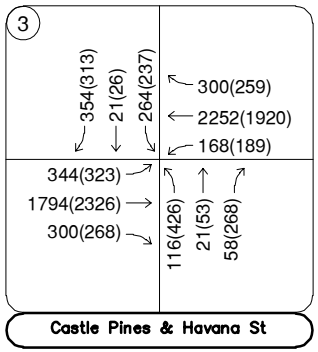












LEGEND

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

FIGURE 13
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
2050 Total Traffic Volumes

Kimley»Horn

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 2028 and 2050 development horizons at the identified key intersections. The acknowledged source for determining overall capacity is 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). For intersections and roadways in this study area and per the City of Castle Pines Traffic Impact Study Criteria, LOS D is the threshold for individual movements for signalized and unsignalized intersections and for the overall LOS for signalized intersections. **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, Seventh Edition, Transportation Research Board, 2022.

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 intersections are defined for the overall intersection.

[2] Transportation Research Board, *Highway Capacity Manual*, Seventh Edition, Washington DC, 2022.

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 E**. 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 2028 horizon analysis years while the HCM urban standard of 0.92 was used as a minimum for the long-term 2050 horizon analysis at intersections where this peak hour was not yet achieved in existing conditions. The existing heavy vehicle percentages obtained from the turning movement counts were also used in each horizon year. The signalized intersection analysis utilizes the observed cycle lengths with optimized phasing and timing. Synchro traffic analysis software was used to analyze the signalized and unsignalized key intersections for HCM level of service.

Castle Pines Parkway and I-25 Southbound Ramps (#1)

The signalized intersection of Castle Pines Parkway and I-25 Southbound Ramps (#1) operates with protected left turn phasing on the westbound approach. The intersection currently operates acceptably at overall LOS C and movement LOS D or better during both peak hours under existing conditions. With project traffic, this intersection is anticipated to continue operating at an acceptable level of service in the buildout 2028 horizon. Of note, the LOS improves between the 2026 existing scenario and the 2028 background scenario because the cycle length was changed from 90 seconds to 120 seconds as done in the Canyonside Subdivision Filing 4 traffic study.

Consistent with the Canyonside Filing 4 traffic study, an additional southbound left turn lane would be needed at this intersection by the 2050 horizon. With the additional southbound left turn lane, this overall intersection is expected to operate acceptably during the peak hours in the 2050 horizon. Of note, in the 2050 horizon, some approaches operate with LOS E and other movements have an LOS F with or without the project and this is due to a high volume of background traffic incorporated from several large-scale master planned developments. The additional background traffic should be monitored over time to note if full predicted volumes will be realized. In order to improve future movement LOS (overall level service is acceptable at LOS D) if these volumes are realized, CDOT and the City of Castle Pines should consider implementing three eastbound through lanes. **Table 3** provides the results of the LOS analysis conducted at this intersection.

Table 3 – Castle Pines Parkway and I-25 Southbound Ramps (#1) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2026 Existing	25.6	C	27.4	C
2028 Background	22.0	C	24.7	C
2028 Background Plus Project	22.7	C	25.1	C
2050 Background #	34.6	D	39.4	D
2050 Background Plus Project #	37.2	D	45.7	D

= Includes additional southbound left turn lane

Castle Pines Parkway and I-25 Northbound Ramps (#2)

The signalized intersection of Castle Pines Parkway and I-25 Northbound Ramps (#2) operates with protective phasing for the northbound left turning movements. The intersection currently operates acceptably at overall LOS C and movement LOS C or better during both peak hours under existing conditions. With project traffic, this intersection is anticipated to continue operating at an acceptable level of service in the buildout 2028 horizon. Of note, the LOS improves between the 2026 existing scenario and the 2028 background scenario because the cycle length was changed from 90 seconds to 120 seconds as done in the Canyonside Subdivision Filing 4 traffic study.

Consistent with the Canyonside Filing 4 traffic study, an additional eastbound through lane for a total of three eastbound through lanes would be needed at this intersection for the purposes of receiving the triple southbound left turn lanes from the southbound ramps by the 2050 horizon. With the third eastbound through lane, the overall intersection is expected to operate acceptably at LOS B during the peak hours in the 2050 horizon. It should be noted that movement LOS E is reported with the northbound left turn movements at this intersection in the background traffic condition in 2050. It should be noted that project traffic does not contribute to this movement, and that it is common for minor approach left turn movements to report LOS E (or even LOS F) during peak hours at the major intersections. This is due to prioritizing the green time and platooning of vehicles along the mainline and because of the time it takes to wait and initiate green time from the minor approach. It is recommended that vehicles wait this extra time from the minor approach to initiate green to avoid disrupting the vehicle progression along Castle Pines Parkway; therefore, additional signal timing modification or other mitigations are not recommended. Table 4 provides the results of the LOS analysis conducted at this intersection.

Table 4 – Castle Pines Parkway and I-25 Northbound Ramps (#2) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2026 Existing	20.5	C	20.6	C
2028 Background	10.8	B	9.9	A
2028 Background Plus Project	14.7	B	9.9	A
2050 Background #	11.8	B	10.7	B
2050 Background Plus Project #	17.5	B	10.9	B

= Includes additional eastbound through lane for a total of three eastbound through lanes

Castle Pines Parkway and Havana Street (#3)

The unsignalized 'T'-intersection of Castle Pines Parkway and Havana Street currently operates under stop control for the southbound approach. The intersection southbound left turning movements operate with a LOS F under existing conditions in the morning peak hour. Havana Street is currently under construction to be realigned approximately 350 feet to the east and will be converted from stop control to signal control. With the realignment, a south leg is planned at this intersection; however, this intersection may operate as a T-intersection without the south leg for a short duration due to the development on the north side of Castle Pines Parkway being constructed prior to the south side. Therefore, in the buildout condition, this intersection was evaluated as T-intersection with signal control. When the south leg is constructed and open for operation, this intersection is expected to operate with three through lanes in each direction along Castle Pines Parkway, one through lane in each direction along Havana Street, left and right turn lanes on all four approaches while the eastbound and northbound approaches will provide dual left turn lanes. With project traffic and the planned intersection interim improvements, this overall intersection is expected to operate acceptably during the peak hours in 2028.

With the ultimate planned improvements, this intersection is expected to continue operating at an overall acceptable level of service throughout the 2050 horizon. Of note, although traffic volumes increase under the total conditions, the overall intersection delay decreases in 2050 because the project adds traffic to movements that already operate with low delay. Since overall delay is a volume-weighted average, shifting more volume onto efficient movements lowers the intersection's total average delay, even with higher total traffic.

Of note, some of the minor street approaches/movements are expected to operate with LOS E or F. A significant amount of background traffic has been incorporated from several development master plans and future traffic volumes should be monitored in the future. Further, it is common for minor approach movements to report LOS E and LOS F at the signalized intersections because it is standard to prioritize the major approaches to maintain signal progression. Further, often times, the minor approaches report lower levels of services due to long wait times to trigger a green light which should be happening in the field to maintain progression along the high volume mainline. Therefore, additional signal timing modification or other mitigations are not recommended. Table 5 provides the results of the LOS analysis conducted at this intersection.

Table 5 – Castle Pines Parkway and Havana Street (#3) LOS Results

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2026 Existing				
Eastbound Left	12.9	B	9.4	A
Southbound Left	79.1	F	34.6	D
Southbound Right	12.9	B	11.8	B
2028 Background	4.8	A	6.1	A
2028 Background Plus Project	12.9	B	12.3	B
2050 Background	33.9	C	50.2	D
2050 Background Plus Project	35.6	D	49.8	D

Project Accesses

With completion of the project, two project accesses are proposed along the west side of Havana Street to serve the new development. It is recommended that a R1-1 "STOP" sign be installed on the eastbound approach for vehicles exiting the development at the north access. The north access along Havana Street will provide full turning movements while aligning with a future access to the overall Canyonside development. The south access along Havana Street will be restricted to right-in only movements. The north access directly fronts the car wash site but will provide cross access to the gas station site due to the southern access restricting left turning movements and exiting right turning movements.

A raised channelized island is proposed within the driveway throat of the south access to restrict this access to right-in only turning movements. Consistent with Canyonside Subdivision Filing 4 master traffic study, it is recommended that the northbound, southbound, and westbound leg of the Havana Street North Access provide a designated left turn lane and a shared through/right turn lane while the northbound approach will have two through lanes. The exiting throat of the north access should provide one full movement egress lane. **Table 6** provides the results of the level of service for the proposed project accesses. Of note, the south access allows right-in only movements and does not have any movements with measurable vehicle delay; therefore, the right-in only movement does not show any vehicle delay. As shown in the table, the project access intersections are anticipated to have all movements operating acceptably during the peak hours during the 2028 buildout year. However, the westbound left turning movements at the north access operate may experience longer vehicle delays during the peak hours in the 2050 long-term horizon. Of note, project traffic does not contribute to this movement, drivers from other

developments can reroute if necessary, and signal control is not appropriate due to intersection spacing offset while also not meeting volume warrants anyways.

Table 6 – Project Access Level of Service Results

Intersection	2028 Total				2050 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
South Access (#4)								
Southbound Approach	0.0	A	0.0	A	0.0	A	0.0	A
North Access (#5)								
Northbound Left	7.9	A	8.2	A	8.9	A	9.4	A
Eastbound Approach	10.4	B	11.5	B	14.2	B	17.0	C
Westbound Left	23.8	C	23.8	C	50.9	F	156.4	F
Westbound Thru/Rt	9.2	A	8.7	A	15.6	C	16.8	C
Southbound Left	7.9	A	7.5	A	7.8	A	7.9	A

5.3 CDOT Auxiliary Turn Lane Warrant & Length Evaluation

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 all I-25 ramps are not anticipated to increase existing access traffic volumes by more than 20 percent, with the maximum expected increase at 7.5 percent during the morning peak hour of the I-25 Southbound Off Ramp (36 project traffic / 478 existing). Therefore, a CDOT access permit is not anticipated to be required in association with this project.

5.4 Vehicle Queuing Analysis

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. Results are shown in the following **Table 7** with calculations provided within the level of service operational sheets of **Appendix E** for unsignalized intersections and **Appendix F** for signalized intersections.

Table 7 – Turn Lane Queuing Analysis Results

Intersection Turn Lane	Existing Turn Lane Length	2028 Calculated Queue (AM/PM)	2028 Recommended Length	2050 Calculated Queue (AM/PM)	2050 Recommended Length
Castle Pines & I-25 SB (#1)					
Eastbound Right	C (700')	57'/74'	C (700')	286'/398'	C (700')
Westbound Left	500' DL	256'/269'	500' DL	230'/243'	500' DL
Southbound Left	C (1,125')	180'/231'	C (1,125')	**492'/614'**	**C / 625' DL**
Southbound L/T/R	350'	180'/235'	350'	**568'/696'**	**700'**
Southbound Right	350'	25'/25'	350'	25'/25'	350'
Castle Pines & I-25 NB (#2)					
Northbound Left	625' DL	140'/110'	625' DL	411'/396'	625' DL
Northbound Right	450' DL	178'/268'	450' DL	201'/267'	450' DL
Castle Pines & Havana (#3)					
Eastbound Left	225'*	56'/25'	225'	**311'**/206'	**325'**
Eastbound Right	DNE	-	-	75'/126'	**150'**
Westbound Left	DNE	-	-	168'/207'	**275'**
Westbound Right	150'*	25'/25'	150'	83'/74'	150'
Northbound Left	DNE	-	-	75'/235'	**300'/C**
Northbound Right	DNE	-	-	25'/100'	**250'**
Southbound Left	400'*	142'/188'	400'	**431'/237'**	**450'**
Southbound Right	350'*	74'/77'	350'	**462'/286'**	**475'**
North Access (#5)					
Northbound Left	75'	25'/25'	75'	25'/25'	75'
Westbound Left	C*	25'/25'	C	25'/25'	C
Westbound Thru/Rt	75'*	25'/25'	75'	25'/25'	75'
Southbound Left	75'*	25'/25'	75'	25'/25'	75'

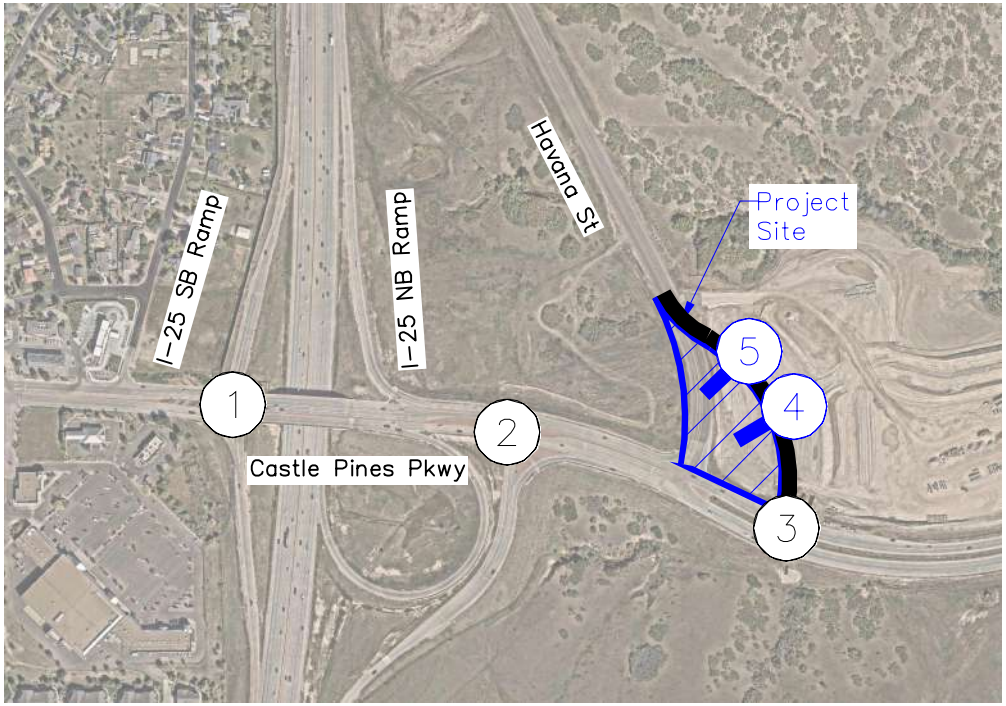
*= As planned in Canyonside Subdivision Filing 4; DNE = Does Not Exist; C = Continuous Lane; **Red** Text = Turn Lane Constraint; **Blue** Text = Recommendation; DL = Dual Lefts

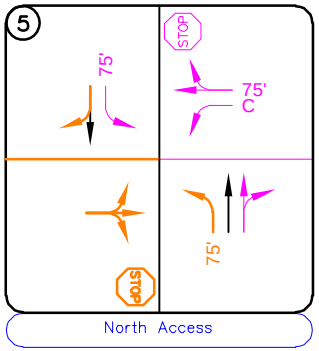
The vehicle queues are all anticipated to remain within the existing or recommended turn lane lengths by the buildout horizon in 2028. By 2050, the southbound left turning movements at the intersection of Castle Pines Parkway and I-25 Southbound Ramps (#1) and the eastbound left turn, southbound left and right turn movements at the intersection of Castle Pines Parkway & Havana Street may extend beyond the existing or planned turn lane lengths. With a high traffic growth rate utilized in this traffic study, it is recommended that traffic volumes be monitored in the future to determine if these three turn lanes need to be extended by the long-term 2050 horizon. The project only contributes approximately 2% of the southbound left turn movements at the Castle Pines Parkway and I-25 Southbound Ramp intersection in 2050 (35 project / 1,423 total).

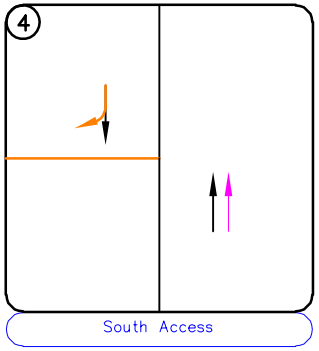
5.5 Improvement Summary

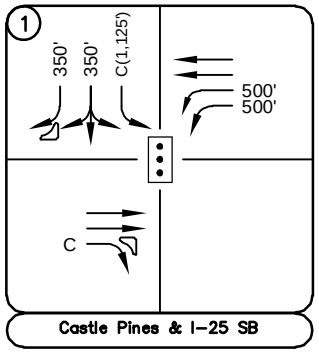
Based on the results of the intersection operational and vehicle queuing analysis, the key intersection recommended improvements and control are shown in **Figure 14** and **Figure 15** for 2028 and 2050, respectively.

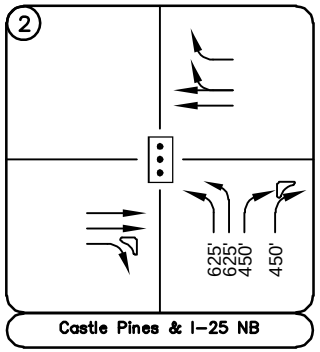
Kimley»Horn NORTH
NTS 096888058

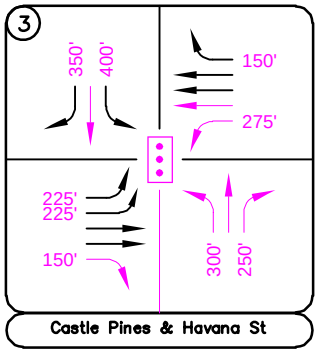












Note: South leg will not be completed by buildout of the project; however, this is the planned improvements shortly after project buildout when surrounding development to the south occurs. 2028 horizon was analyzed without the south leg and movements pertaining to the south leg.

LEGEND

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

FIGURE 14
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
2028 Recommended Geometry & Control

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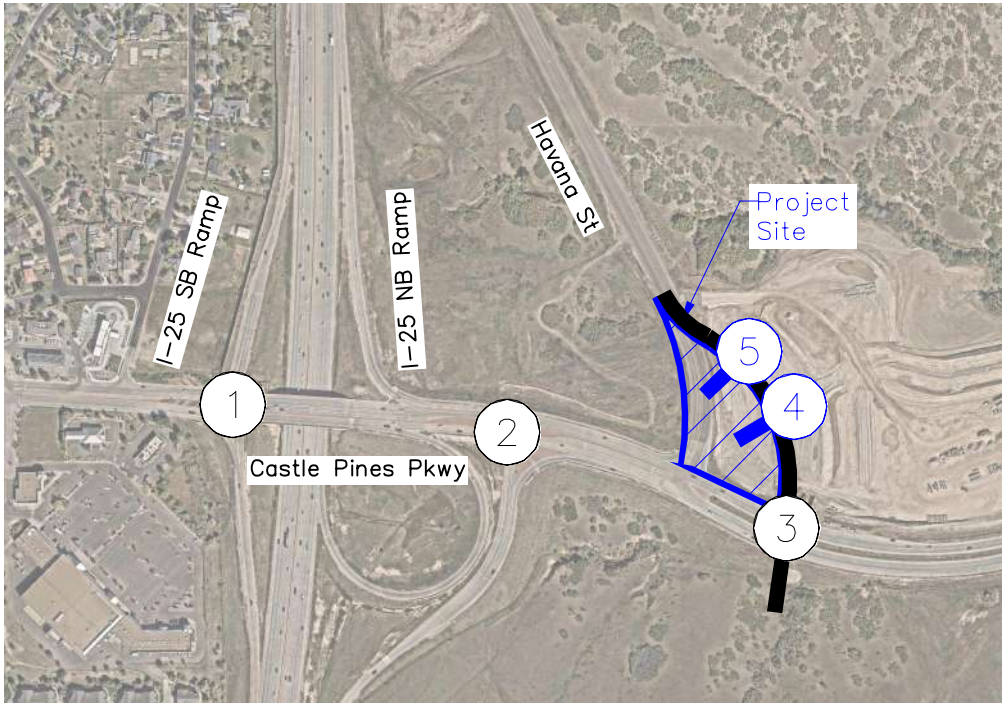
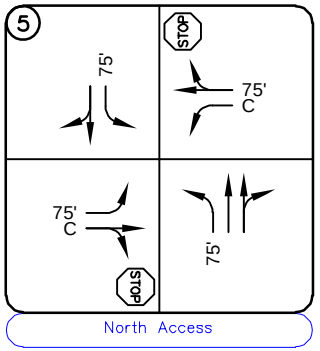
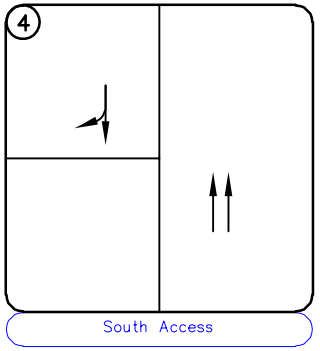
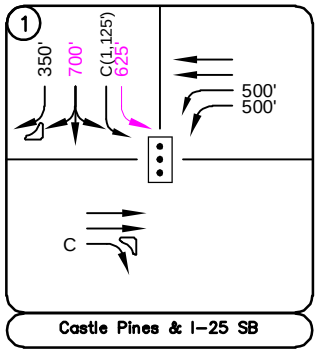
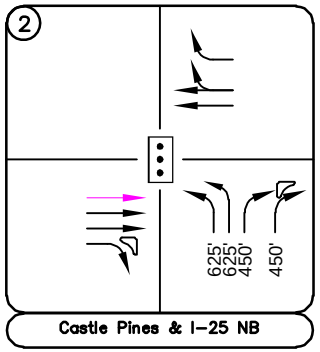
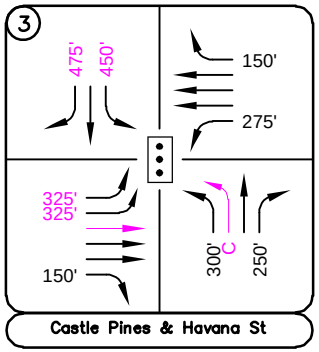












LEGEND

- Study Area Key Intersection
- Project Access Intersection
- Signalized Intersection
- Stop-Controlled Approach
- Improvement by Others
- 100' Turn Lane Length (feet)

FIGURE 15
QuikTrip 4266 & Bubble Bath
Castle Pines, Colorado
2050 Recommended Geometry & Control

Kimley»Horn

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis presented in this report, Kimley-Horn believes QuikTrip 4266 & Bubble Bath 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 conclusions and recommendations:

- With completion of the project, two project accesses are proposed along the west side of Havana Street to serve the new development. It is recommended that a R1-1 “STOP” sign be installed on the eastbound approach for vehicles exiting the development at the north access. The north access along Havana Street will provide full turning movements while aligning with a future access to the overall Canyonside development. The south access along Havana Street will be restricted to right-in only movements. The north access directly fronts the car wash site but will provide cross access to the gas station site due to the southern access restricting left turning movements and exiting right-turn movements. A raised channelized island is proposed within the driveway throat of the south access to restrict this access to right-in only turning movements. Consistent with Canyonside Subdivision Filing 4 master traffic study, it is recommended that the northbound, southbound, and westbound leg of the Havana Street North Access provide a designated left turn lane and a shared through/right turn lane while the northbound approach will have two through lanes. The exiting throat of the north access should provide one full movement egress lane.

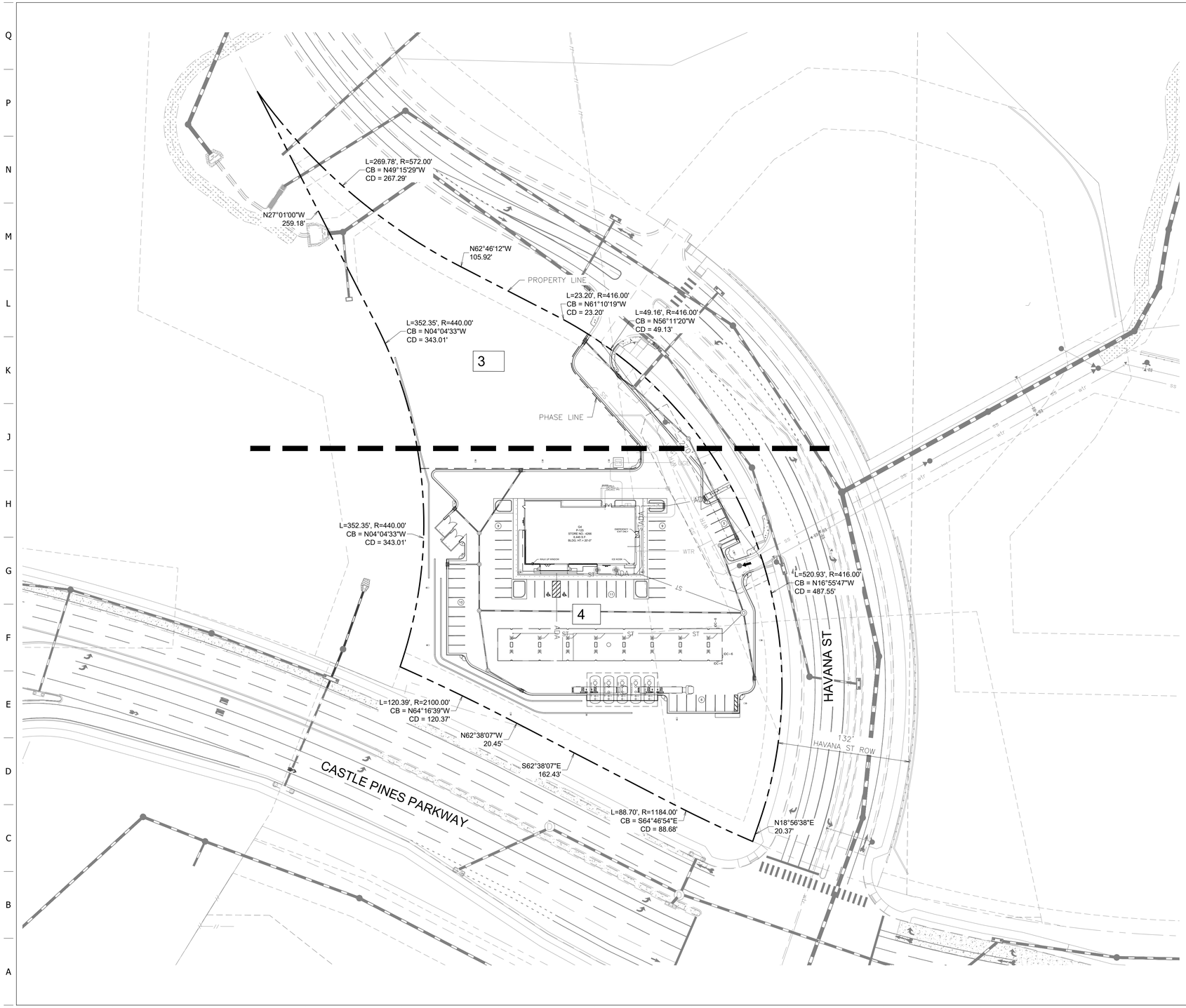
- The planned improvements at the intersection of Castle Pines Parkway and Havana Street outlined by the Canyonside Subdivision Filing 4 Traffic Impact Study, September 2022 should be constructed in association of the overall Canyonside development. Havana Street is currently under construction to be realigned approximately 350 feet to the east and will be converted from stop control to signal control. With the realignment, a south leg is planned at this intersection; however, this intersection may operate as a T-intersection without the south leg for a short duration due to the development on the north side of Castle Pines Parkway being constructed prior to the south side. Therefore, in the buildout condition, this intersection was evaluated as T-intersection with signal control. When the south leg is constructed and open for operation, this intersection is expected to operate with three through lanes in each direction along Castle Pines Parkway, one through lane in each direction along Havana Street,

left and right turn lanes on all four approaches while the eastbound and northbound approaches will provide dual left turn lanes.

- The vehicle queues are all anticipated to remain within the existing or recommended turn lane lengths by the buildout horizon in 2028. By 2050, the southbound left turning movements at the intersection of Castle Pines Parkway and I-25 Southbound Ramps (#1) and the eastbound left turn, southbound left and right turning movements at the intersection of Castle Pines Parkway & Havana Street (#3) may extend beyond the existing or planned turn lane lengths. With a high traffic growth rate utilized in this traffic study, it is recommended that traffic volumes be monitored in the future to determine if these three turn lanes need to be extended by the long-term 2050 horizon. If 2050 planning level traffic projections are realized, an additional southbound left turn lane could be needed at the I-25 Southbound Off Ramp (at Castle Pines Parkway) while the shared left /through/right turn lane may need to be extended from 350 feet to 700 feet. Further, a third eastbound through would be needed at the I-25 Northbound Ramp and Castle Pines Parkway intersection. These improvements are driven by the master development plans surrounding both the northeast and southeast quadrants of the Castle Pines Parkway and I-25 interchange, and the findings are consistent with the Canyonside Subdivision Filing 4 Traffic Impact Study.

- Any onsite or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the City of Castle Pines and the Manual on Uniform Traffic Control Devices (MUTCD) – 11th Edition, 2023.

Appendix A: Conceptual Site Plan



SITE LEGEND

- BOUNDARY LINE
- PHASE LINE
- CONCRETE CURB AND GUTTER
- EXISTING EASEMENT
- NEW CONCRETE SIDEWALK
- MOUNTABLE CURB W/RADIUS PROTECTOR
- PARKING SPACE INDICATOR
- AREA LIGHT
- MULTIPLE PRODUCT DISPENSER WITH CANOPY COLUMNS AND BOLLARDS
- TRANSFORMER
- FUEL SYSTEM ACCESS MANWAY

SITE DATA

ITEM	SQUARE FOOTAGE	PERCENTAGE OF GROSS SITE*
GROSS SITE AREA	154020.82 SF	100%
• BUILDING FOOTPRINT	6445 SF	4.19%
• PARKING AND ROADS (INCLUDING PLANTED INTERIOR PARKING ISLANDS)	66112.33	42.92%
HARDSCAPE TOTAL	72561.52 SF	47.11%
• PLANTED AREA (IF APPLICABLE, INCLUDE PARKING LOT ISLANDS USED FOR STORMWATER DETENTION AND WATER QUALITY PONDS)	75010.11 SF	75010.11 SF
• EXISTING VEGETATION	44152.11	28.67%
• TRAILS AND WALKS	0	0%
• POROUS PAVEMENT	0	0%
LANDSCAPE TOTAL	75010.11 SF	48.70%

ITEM	DESCRIPTION
BUILDING SIZE: 1 STORY	6445 SF TOTAL
PARKING: • REQUIRED • PROVIDED	 46 STALLS, 2 ADA 50 STALLS, 2 ADA, 48 STANDARD

NOTE

1. FOR ALL FUTURE PHASES, THE APPLICANT SHALL SUBMIT A REVISED SITE IMPROVEMENT PLAN OF THE PHASE FOR WHICH A PERMIT IS REQUESTED. THE REVISED SIP SHALL BE APPROVED PRIOR TO ISSUANCE OF A BUILDING PERMIT.

APPROVAL CERTIFICATE	
ENGINEERING	INITIALS/DATE
PLANNING	INITIALS/DATE
OWNER	INITIALS/DATE
LESSEE	INITIALS/DATE

PROJECT NO.:096888056

Kimley»Horn

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2 North Nevada Avenue, Suite 900
Colorado Springs, CO 80903 (719) 453-0180

QuikTrip No. 4266

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CASTLE PINES, CO USA
CANYONSIDE SUBDIVISION FILING NO. 4, LOT 1

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PROTOTYPE: P-125 (08/15/2025)
DIVISION:
VERSION: 001
DESIGNED BY:
DRAWN BY:
REVIEWED BY:

REV	DATE	DESCRIPTION
	3/12/26	1ST SUBMITTAL

ORIGINAL ISSUE DATE:

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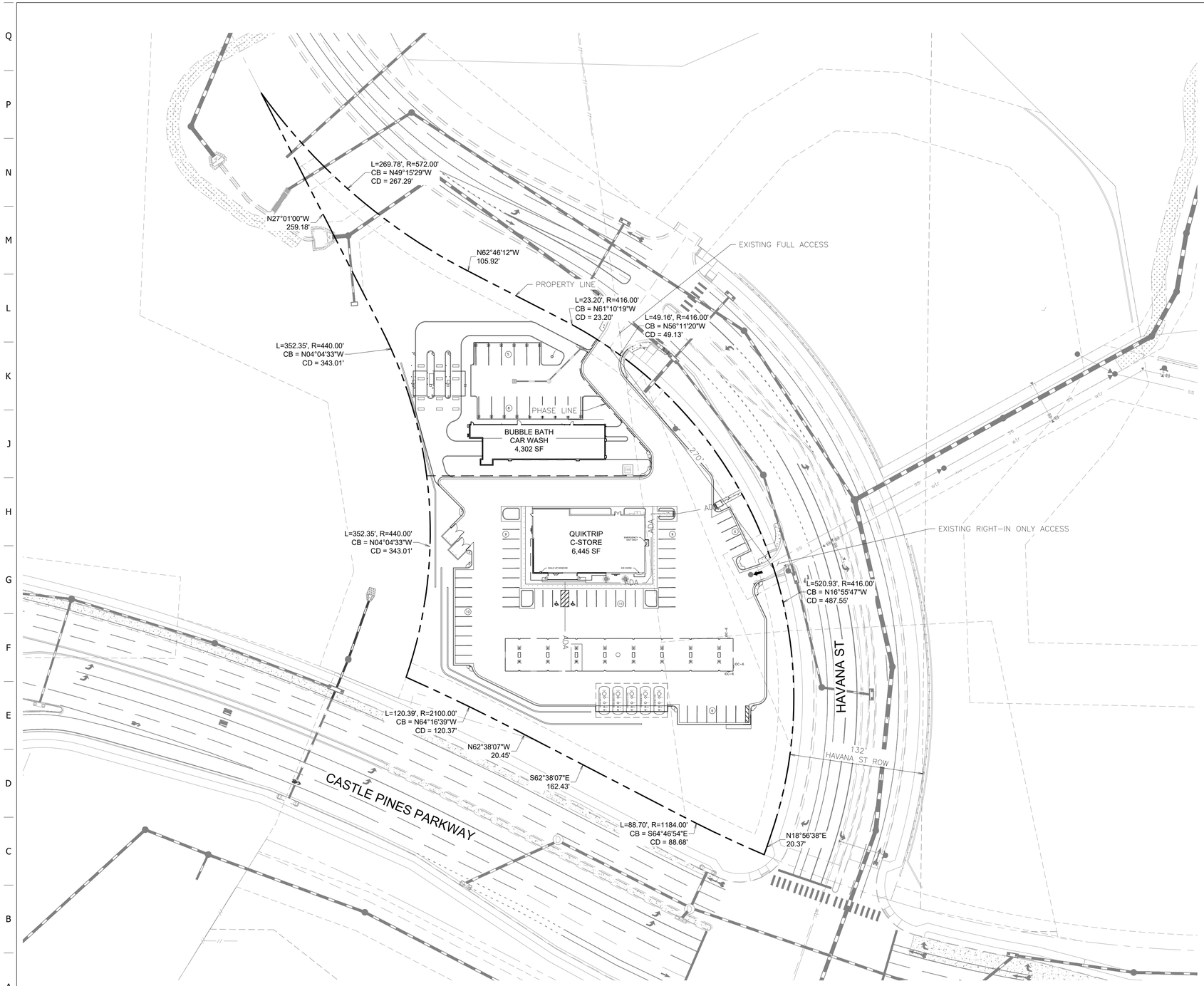
(C100) OVERALL SITE PLAN

SHEET NUMBER:
2
SHEET 2 OF 21



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(C100) OVERALL SITE PLAN

SHEET NUMBER:

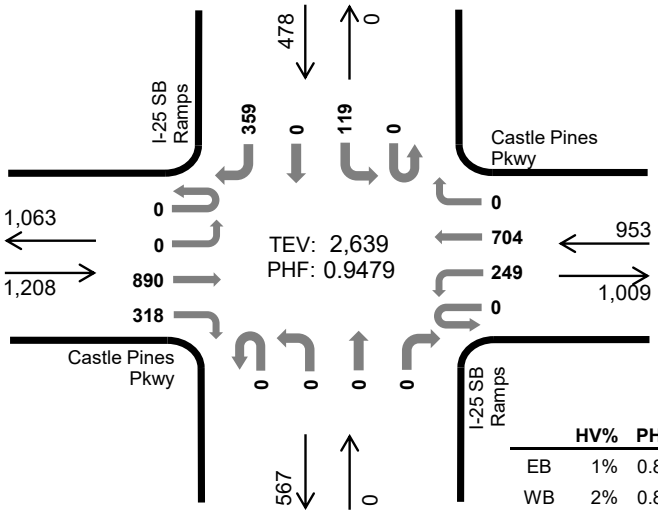
Appendix B: Intersection Count Sheets

I-25 SB Ramps
Castle Pines Pkwy

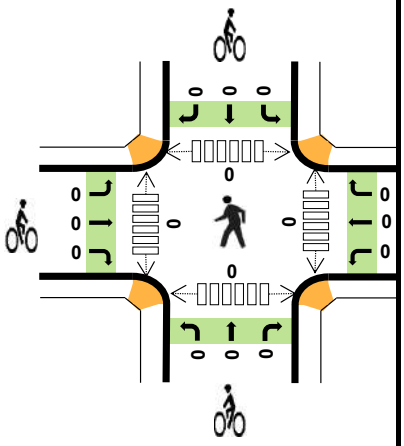
Date: 1/14/2026
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM

N

Peak Hour



	HV%	PHF
EB	1%	0.88
WB	2%	0.86
NB	--	--
SB	4%	0.94
TOTAL	2%	0.95



Peak Hour Count Summaries

Peak Hour Interval Start		Castle Pines Pkwy Eastbound UT	LT	TH	RT	Castle Pines Pkwy Westbound UT	LT	TH	RT	I-25 SB Ramps Northbound UT	LT	TH	RT	I-25 SB Ramps Southbound UT	LT	TH	RT	15-min Total	Rolling Hour Total
7:30 AM		0	0	189	74	0	68	152	0	0	0	0	0	0	30	0	88	601	0
7:45 AM		0	0	222	83	0	61	215	0	0	0	0	0	0	26	0	89	696	0
8:00 AM		0	0	224	73	0	65	176	0	0	0	0	0	0	33	0	85	656	0
8:15 AM		0	0	255	88	0	55	161	0	0	0	0	0	0	30	0	97	686	2,639
Pk Hr	All	0	0	890	318	0	249	704	0	0	0	0	0	0	119	0	359	2,639	
	HV	0	0	9	3	0	7	16	0	0	0	0	0	0	12	0	5	52	
	HV%	-	-	1%	1%	-	3%	2%	-	-	-	-	-	-	10%	-	1%	2%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) E	W	N	S	Total
7:30 AM	1	5	0	7	*13*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	7	4	0	4	*15*	0	0	0	0	*0*	0	0	0	0	*0*
8:00 AM	2	10	0	3	*15*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	2	4	0	3	*9*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	12	23	0	17	*52*	0	0	0	0	*0*	0	0	0	0	*0*

TJ Wethington
(720) 646-1008
tj.wethington@idaxdata.com

Count Summaries - All Vehicles

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				I-25 SB Ramps				I-25 SB Ramps				15-min Total	Rolling Hour Total
	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	179	44	0	41	145	0	0	0	0	0	0	32	3	55	499	0
7:15 AM	0	0	197	62	0	79	140	0	0	0	0	0	0	26	0	80	584	0
7:30 AM	**0**	**0**	**189**	**74**	**0**	**68**	**152**	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**0**	**88**	**601**	**0**
7:45 AM	**0**	**0**	**222**	**83**	**0**	**61**	**215**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	**0**	**89**	**696**	**2,380**
8:00 AM	**0**	**0**	**224**	**73**	**0**	**65**	**176**	**0**	**0**	**0**	**0**	**0**	**0**	**33**	**0**	**85**	**656**	**2,537**
8:15 AM	**0**	**0**	**255**	**88**	**0**	**55**	**161**	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**0**	**97**	**686**	**2,639**
8:30 AM	0	0	244	95	0	54	91	0	0	0	0	0	0	27	0	64	575	2,613
8:45 AM	0	0	139	86	0	66	111	0	0	0	0	0	0	31	1	70	504	2,421
Count Total	0	0	1,649	605	0	489	1,191	0	0	0	0	0	0	235	4	628	4,801	
Pk Hr All	**0**	**0**	**890**	**318**	**0**	**249**	**704**	**0**	**0**	**0**	**0**	**0**	**0**	**119**	**0**	**359**	**2,639**	
Pk Hr HV	**0**	**0**	**9**	**3**	**0**	**7**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**5**	**52**	
Pk Hr HV%	**-**	**-**	**1%**	**1%**	**-**	**3%**	**2%**	**-**	**-**	**-**	**-**	**-**	**-**	**10%**	**-**	**1%**	**2%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	1	5	0	6	*12*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	6	3	0	9	*18*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**1**	**5**	**0**	**7**	**13**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**7**	**4**	**0**	**4**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**2**	**10**	**0**	**3**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	**2**	**4**	**0**	**3**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	6	4	0	6	*16*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	3	4	0	6	*13*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	28	39	0	44	*111*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**12**	**23**	**0**	**17**	***52***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**

TJ Wethington
(720) 646-1008

tj.wethington@idaxdata.com

Count Summaries - Heavy Vehicles

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				I-25 SB Ramps				I-25 SB Ramps				15-min Total	Rolling Hour Total
	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	1	0	0	1	4	0	0	0	0	0	0	1	1	4	12	0
7:15 AM	0	0	4	2	0	2	1	0	0	0	0	0	0	4	0	5	18	0
7:30 AM	**0**	**0**	**1**	**0**	**0**	**1**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**2**	**13**	**0**
7:45 AM	**0**	**0**	**5**	**2**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**15**	**58**
8:00 AM	**0**	**0**	**1**	**1**	**0**	**3**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**15**	**61**
8:15 AM	**0**	**0**	**2**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**9**	**52**
8:30 AM	0	0	2	4	0	1	3	0	0	0	0	0	0	3	0	3	16	55
8:45 AM	0	0	2	1	0	0	4	0	0	0	0	0	0	1	0	5	13	53
Count Total	0	0	18	10	0	11	28	0	0	0	0	0	0	21	1	22	111	
Pk Hr Heavy	**0**	**0**	**9**	**3**	**0**	**7**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**5**	**52**	

Count Summaries - Bikes

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				I-25 SB Ramps				I-25 SB Ramps				15-min Total	Rolling Hour Total
	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	0	0	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**	**0**	**0**	**0**	**0**
7:45 AM	**0**	**0**	**0**	**0**	**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**	**0**	**0**	**0**	**0**
8:15 AM	**0**	**0**	**0**	**0**	**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	0	0	0	0
8:45 AM	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	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

TJ Wethington
(720) 646-1008

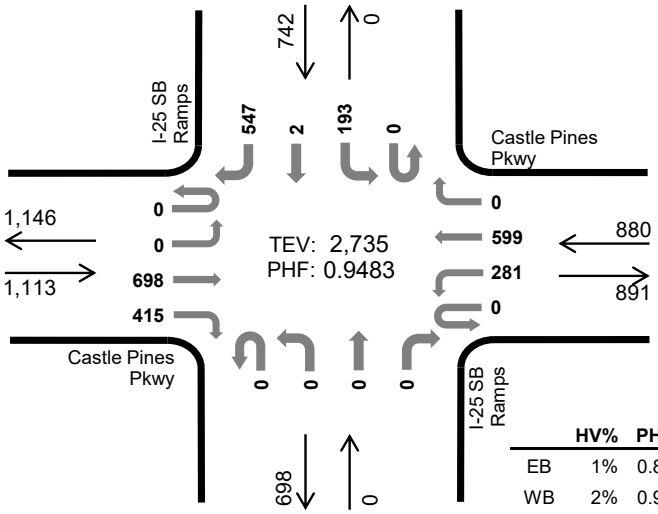
tj.wethington@idaxdata.com

I-25 SB Ramps
Castle Pines Pkwy

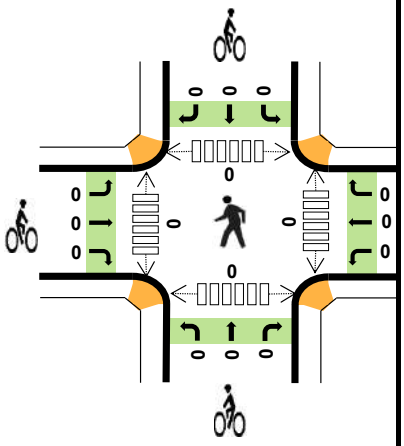
Date: 1/14/2026
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM

N

Peak Hour



	HV%	PHF
EB	1%	0.85
WB	2%	0.94
NB	--	--
SB	1%	0.96
TOTAL	1%	0.95



Peak Hour Count Summaries

Peak Hour Interval Start		Castle Pines Pkwy Eastbound UT	LT	TH	RT	Castle Pines Pkwy Westbound UT	LT	TH	RT	I-25 SB Ramps Northbound UT	LT	TH	RT	I-25 SB Ramps Southbound UT	LT	TH	RT	15-min Total	Rolling Hour Total
4:00 PM		0	0	216	113	0	64	139	0	0	0	0	0	0	52	1	136	721	0
4:15 PM		0	0	152	111	0	66	150	0	0	0	0	0	0	51	0	141	671	0
4:30 PM		0	0	183	90	0	76	150	0	0	0	0	0	0	43	0	124	666	0
4:45 PM		0	0	147	101	0	75	160	0	0	0	0	0	0	47	1	146	677	2,735
Pk Hr	All	0	0	698	415	0	281	599	0	0	0	0	0	0	193	2	547	2,735	
	HV	0	0	10	6	0	9	8	0	0	0	0	0	0	2	0	3	38	
	HV%	-	-	1%	1%	-	3%	1%	-	-	-	-	-	-	1%	0%	1%	1%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) E	W	N	S	Total
4:00 PM	12	5	0	2	*19*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	3	3	0	1	*7*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	1	6	0	1	*8*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	0	3	0	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	16	17	0	5	*38*	0	0	0	0	*0*	0	0	0	0	*0*

TJ Wethington
(720) 646-1008
tj.wethington@idaxdata.com

Count Summaries - All Vehicles

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				I-25 SB Ramps				I-25 SB Ramps				15-min Total	Rolling Hour Total
	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**	**216**	**113**	**0**	**64**	**139**	**0**	**0**	**0**	**0**	**0**	**0**	**52**	**1**	**136**	**721**	0
4:15 PM	**0**	**0**	**152**	**111**	**0**	**66**	**150**	**0**	**0**	**0**	**0**	**0**	**0**	**51**	**0**	**141**	**671**	**0**
4:30 PM	**0**	**0**	**183**	**90**	**0**	**76**	**150**	**0**	**0**	**0**	**0**	**0**	**0**	**43**	**0**	**124**	**666**	**0**
4:45 PM	**0**	**0**	**147**	**101**	**0**	**75**	**160**	**0**	**0**	**0**	**0**	**0**	**0**	**47**	**1**	**146**	**677**	**2,735**
5:00 PM	0	0	145	125	0	62	133	0	0	0	0	0	0	64	0	135	664	2,678
5:15 PM	0	0	160	101	0	80	129	0	0	0	0	0	0	50	0	157	677	2,684
5:30 PM	0	0	131	103	1	76	103	0	0	0	0	0	0	58	0	123	595	2,613
5:45 PM	0	0	129	78	0	62	117	0	0	0	0	0	0	60	1	141	588	2,524
Count Total	0	0	1,263	822	1	561	1,081	0	0	0	0	0	0	425	3	1,103	5,259	
Pk Hr All	**0**	**0**	**698**	**415**	**0**	**281**	**599**	**0**	**0**	**0**	**0**	**0**	**0**	**193**	**2**	**547**	**2,735**	
Pk Hr HV	**0**	**0**	**10**	**6**	**0**	**9**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**38**	
Pk Hr HV%	**-**	**-**	**1%**	**1%**	**-**	**3%**	**1%**	**-**	**-**	**-**	**-**	**-**	**-**	**1%**	**0%**	**1%**	**1%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	**12**	**5**	**0**	**2**	**19**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:15 PM	**3**	**3**	**0**	**1**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:30 PM	**1**	**6**	**0**	**1**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**0**	**3**	**0**	**1**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	1	2	0	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	2	4	0	0	*6*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	1	0	0	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	2	1	0	2	*5*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	22	24	0	9	*55*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**16**	**17**	**0**	**5**	***38***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**

TJ Wethington
(720) 646-1008

tj.wethington@idaxdata.com

Count Summaries - Heavy Vehicles

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				I-25 SB Ramps				I-25 SB Ramps				15-min Total	Rolling Hour Total
	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**	**9**	**3**	**0**	**2**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**19**	0
4:15 PM	**0**	**0**	**1**	**2**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**7**	**0**
4:30 PM	**0**	**0**	**0**	**1**	**0**	**3**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**8**	**0**
4:45 PM	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**38**
5:00 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	1	4	23
5:15 PM	0	0	1	1	0	2	2	0	0	0	0	0	0	0	0	0	6	22
5:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	16
5:45 PM	0	0	0	2	0	0	1	0	0	0	0	0	0	0	1	1	5	17
Count Total	0	0	13	9	0	11	13	0	0	0	0	0	0	2	1	6	55	
Pk Hr Heavy	**0**	**0**	**10**	**6**	**0**	**9**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**38**	

Count Summaries - Bikes

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				I-25 SB Ramps				I-25 SB Ramps				15-min Total	Rolling Hour Total
	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	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

TJ Wethington
(720) 646-1008

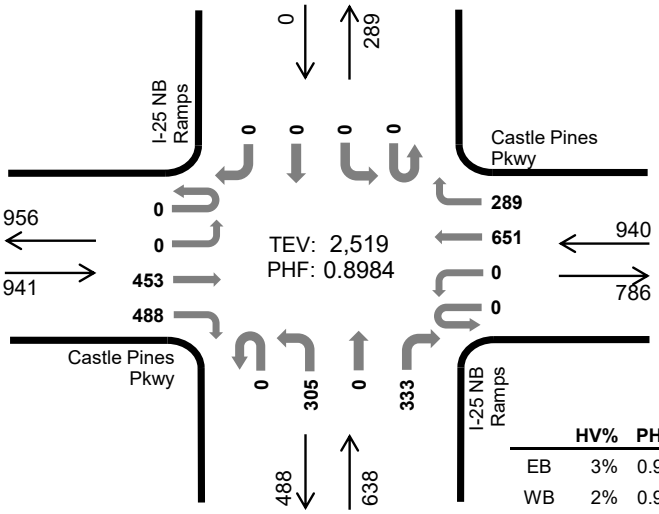
tj.wethington@idaxdata.com

I-25 NB Ramps
Castle Pines Pkwy

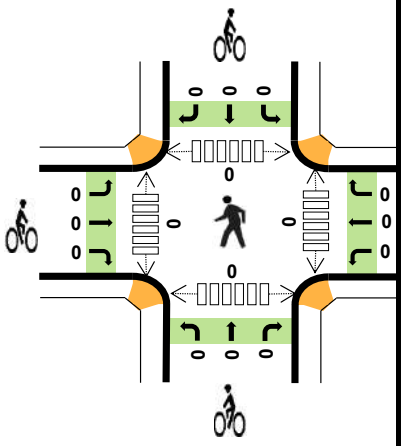
Date: 1/14/2026
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM

N

Peak Hour



	HV%	PHF
EB	3%	0.93
WB	2%	0.95
NB	3%	0.79
SB	--	--
TOTAL	3%	0.90



Peak Hour Count Summaries

Peak Hour Interval Start		Castle Pines Pkwy Eastbound UT	LT	TH	RT	Castle Pines Pkwy Westbound UT	LT	TH	RT	I-25 NB Ramps Northbound UT	LT	TH	RT	I-25 NB Ramps Southbound UT	LT	TH	RT	15-min Total	Rolling Hour Total
7:15 AM		0	0	94	131	0	0	153	74	0	67	0	117	0	0	0	0	636	0
7:30 AM		0	0	99	114	0	0	159	77	0	62	0	74	0	0	0	0	585	0
7:45 AM		0	0	135	116	0	0	177	71	0	97	0	105	0	0	0	0	701	0
8:00 AM		0	0	125	127	0	0	162	67	0	79	0	37	0	0	0	0	597	2,519
Pk Hr	All	0	0	453	488	0	0	651	289	0	305	0	333	0	0	0	0	2,519	
	HV	0	0	20	5	0	0	15	5	0	7	0	15	0	0	0	0	67	
	HV%	-	-	4%	1%	-	-	2%	2%	-	2%	-	5%	-	-	-	-	3%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) E	W	N	S	Total
7:15 AM	9	4	1	0	*14*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	6	3	9	0	*18*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	9	2	9	0	*20*	0	0	0	0	*0*	0	0	0	0	*0*
8:00 AM	1	11	3	0	*15*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	25	20	22	0	*67*	0	0	0	0	*0*	0	0	0	0	*0*

TJ Wethington
(720) 646-1008
tj.wethington@idaxdata.com

Count Summaries - All Vehicles

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				I-25 NB Ramps				I-25 NB Ramps				15-min Total	Rolling Hour Total
	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	74	138	0	0	123	68	0	62	0	72	0	0	0	0	537	0
7:15 AM	**0**	**0**	**94**	**131**	**0**	**0**	**153**	**74**	**0**	**67**	**0**	**117**	**0**	**0**	**0**	**0**	**636**	**0**
7:30 AM	**0**	**0**	**99**	**114**	**0**	**0**	**159**	**77**	**0**	**62**	**0**	**74**	**0**	**0**	**0**	**0**	**585**	**0**
7:45 AM	**0**	**0**	**135**	**116**	**0**	**0**	**177**	**71**	**0**	**97**	**0**	**105**	**0**	**0**	**0**	**0**	**701**	**2,459**
8:00 AM	**0**	**0**	**125**	**127**	**0**	**0**	**162**	**67**	**0**	**79**	**0**	**37**	**0**	**0**	**0**	**0**	**597**	**2,519**
8:15 AM	0	0	140	150	0	0	143	49	0	74	0	56	0	0	0	0	612	2,495
8:30 AM	0	0	124	148	0	0	93	54	0	52	0	54	0	0	0	0	525	2,435
8:45 AM	0	0	79	90	0	0	126	61	0	50	0	62	0	0	0	0	468	2,202
Count Total	0	0	870	1,014	0	0	1,136	521	0	543	0	577	0	0	0	0	4,661	
Pk Hr All	**0**	**0**	**453**	**488**	**0**	**0**	**651**	**289**	**0**	**305**	**0**	**333**	**0**	**0**	**0**	**0**	**2,519**	
Pk Hr HV	**0**	**0**	**20**	**5**	**0**	**0**	**15**	**5**	**0**	**7**	**0**	**15**	**0**	**0**	**0**	**0**	**67**	
Pk Hr HV%	**-**	**-**	**4%**	**1%**	**-**	**-**	**2%**	**2%**	**-**	**2%**	**-**	**5%**	**-**	**-**	**-**	**-**	**3%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	0	4	4	0	*8*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**9**	**4**	**1**	**0**	**14**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:30 AM	**6**	**3**	**9**	**0**	**18**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**9**	**2**	**9**	**0**	**20**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**1**	**11**	**3**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	4	6	3	0	*13*	0	0	0	0	*0*	0	0	2	0	*2*
8:30 AM	7	4	6	0	*17*	0	0	0	0	*0*	0	0	1	0	*1*
8:45 AM	3	4	6	0	*13*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	39	38	41	0	*118*	0	0	0	0	*0*	0	0	3	0	*3*
Peak Hour	**25**	**20**	**22**	**0**	***67***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**

TJ Wethington
(720) 646-1008

tj.wethington@idaxdata.com

Count Summaries - Heavy Vehicles

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				I-25 NB Ramps				I-25 NB Ramps				15-min Total	Rolling Hour Total
	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	3	1	0	2	0	2	0	0	0	0	8	0
7:15 AM	**0**	**0**	**8**	**1**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**14**	**0**
7:30 AM	**0**	**0**	**5**	**1**	**0**	**0**	**1**	**2**	**0**	**4**	**0**	**5**	**0**	**0**	**0**	**0**	**18**	**0**
7:45 AM	**0**	**0**	**6**	**3**	**0**	**0**	**1**	**1**	**0**	**3**	**0**	**6**	**0**	**0**	**0**	**0**	**20**	**60**
8:00 AM	**0**	**0**	**1**	**0**	**0**	**0**	**10**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**15**	**67**
8:15 AM	0	0	3	1	0	0	5	1	0	0	0	3	0	0	0	0	13	66
8:30 AM	0	0	6	1	0	0	2	2	0	2	0	4	0	0	0	0	17	65
8:45 AM	0	0	2	1	0	0	2	2	0	1	0	5	0	0	0	0	13	58
Count Total	0	0	31	8	0	0	27	11	0	12	0	29	0	0	0	0	118	
Pk Hr Heavy	**0**	**0**	**20**	**5**	**0**	**0**	**15**	**5**	**0**	**7**	**0**	**15**	**0**	**0**	**0**	**0**	**67**	

Count Summaries - Bikes

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				I-25 NB Ramps				I-25 NB Ramps				15-min Total	Rolling Hour Total
	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**	**0**	**0**	**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**	**0**	**0**	**0**	**0**
7:45 AM	**0**	**0**	**0**	**0**	**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**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	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	0	0	0	0
8:45 AM	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	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

TJ Wethington
(720) 646-1008

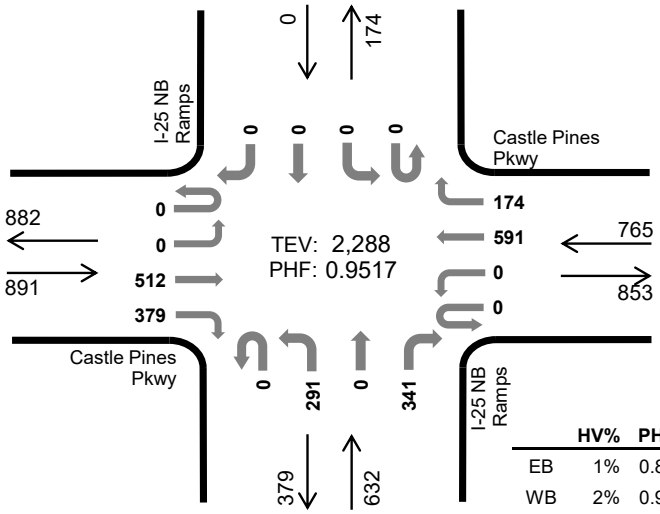
tj.wethington@idaxdata.com

I-25 NB Ramps
Castle Pines Pkwy

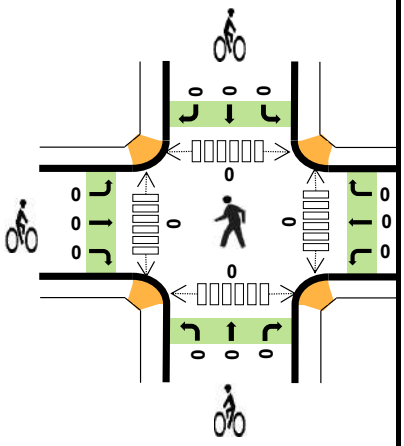
Date: 1/14/2026
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM

N

Peak Hour



	HV%	PHF
EB	1%	0.83
WB	2%	0.91
NB	1%	0.89
SB	--	--
TOTAL	2%	0.95



Peak Hour Count Summaries

Peak Hour Interval Start		Castle Pines Pkwy Eastbound UT	LT	TH	RT	Castle Pines Pkwy Westbound UT	LT	TH	RT	I-25 NB Ramps Northbound UT	LT	TH	RT	I-25 NB Ramps Southbound UT	LT	TH	RT	15-min Total	Rolling Hour Total
4:00 PM		0	0	141	126	0	0	132	44	0	70	0	81	0	0	0	0	594	0
4:15 PM		0	0	113	88	0	0	146	40	0	67	0	82	0	0	0	0	536	0
4:30 PM		0	0	145	85	0	0	145	48	0	83	0	95	0	0	0	0	601	0
4:45 PM		0	0	113	80	0	0	168	42	0	71	0	83	0	0	0	0	557	2,288
Pk Hr	All	0	0	512	379	0	0	591	174	0	291	0	341	0	0	0	0	2,288	
	HV	0	0	2	9	0	0	14	1	0	4	0	5	0	0	0	0	35	
	HV%	-	-	0%	2%	-	-	2%	1%	-	1%	-	1%	-	-	-	-	2%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries include heavy vehicles, but exclude bicycles in overall count.*

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) E	W	N	S	Total
4:00 PM	9	2	4	0	*15*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	1	4	0	0	*5*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	0	5	2	0	*7*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	1	4	3	0	*8*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	11	15	9	0	*35*	0	0	0	0	*0*	0	0	0	0	*0*

TJ Wethington
(720) 646-1008
tj.wethington@idaxdata.com

Count Summaries - All Vehicles

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				I-25 NB Ramps				I-25 NB Ramps				15-min Total	Rolling Hour Total
	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**	**141**	**126**	**0**	**0**	**132**	**44**	**0**	**70**	**0**	**81**	**0**	**0**	**0**	**0**	**594**	0
4:15 PM	**0**	**0**	**113**	**88**	**0**	**0**	**146**	**40**	**0**	**67**	**0**	**82**	**0**	**0**	**0**	**0**	**536**	**0**
4:30 PM	**0**	**0**	**145**	**85**	**0**	**0**	**145**	**48**	**0**	**83**	**0**	**95**	**0**	**0**	**0**	**0**	**601**	**0**
4:45 PM	**0**	**0**	**113**	**80**	**0**	**0**	**168**	**42**	**0**	**71**	**0**	**83**	**0**	**0**	**0**	**0**	**557**	**2,288**
5:00 PM	0	0	136	73	0	0	133	45	0	59	0	81	0	0	0	0	527	2,221
5:15 PM	0	0	139	72	0	0	154	44	0	56	0	92	0	0	0	0	557	2,242
5:30 PM	0	0	121	68	0	0	124	53	0	54	0	87	0	0	0	0	507	2,148
5:45 PM	0	0	120	70	0	0	115	44	0	66	0	69	0	0	0	0	484	2,075
Count Total	0	0	1,028	662	0	0	1,117	360	0	526	0	670	0	0	0	0	4,363	
Pk Hr All	**0**	**0**	**512**	**379**	**0**	**0**	**591**	**174**	**0**	**291**	**0**	**341**	**0**	**0**	**0**	**0**	**2,288**	
Pk Hr HV	**0**	**0**	**2**	**9**	**0**	**0**	**14**	**1**	**0**	**4**	**0**	**5**	**0**	**0**	**0**	**0**	**35**	
Pk Hr HV%	**-**	**-**	**0%**	**2%**	**-**	**-**	**2%**	**1%**	**-**	**1%**	**-**	**1%**	**-**	**-**	**-**	**-**	**2%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	**9**	**2**	**4**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:15 PM	**1**	**4**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:30 PM	**0**	**5**	**2**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**1**	**4**	**3**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	1	0	2	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	2	3	2	0	*7*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	1	2	0	0	*3*	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	15	20	13	0	*48*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**11**	**15**	**9**	**0**	***35***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**

TJ Wethington
(720) 646-1008

tj.wethington@idaxdata.com

Count Summaries - Heavy Vehicles

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				I-25 NB Ramps				I-25 NB Ramps				15-min Total	Rolling Hour Total
	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**	**1**	**8**	**0**	**0**	**1**	**1**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**15**	0
4:15 PM	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**7**	**0**
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**8**	**35**
5:00 PM	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	3	23
5:15 PM	0	0	1	1	0	0	2	1	0	1	0	1	0	0	0	0	7	25
5:30 PM	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	3	21
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
Count Total	0	0	3	12	0	0	18	2	0	6	0	7	0	0	0	0	48	
Pk Hr Heavy	**0**	**0**	**2**	**9**	**0**	**0**	**14**	**1**	**0**	**4**	**0**	**5**	**0**	**0**	**0**	**0**	**35**	

Count Summaries - Bikes

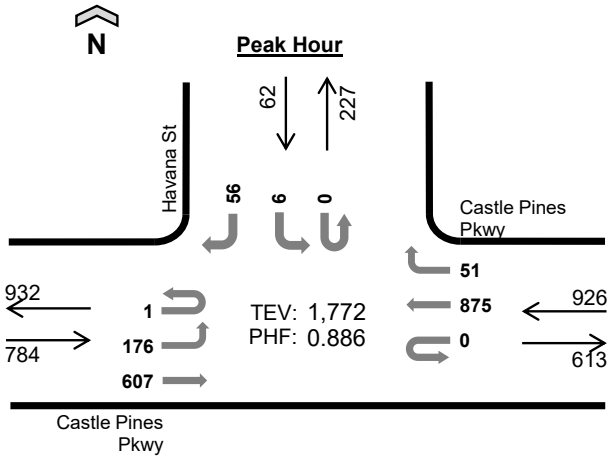
Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				I-25 NB Ramps				I-25 NB Ramps				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**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	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

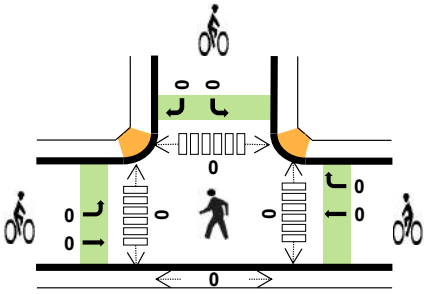
TJ Wethington
(720) 646-1008

tj.wethington@idaxdata.com

Havana St
Castle Pines Pkwy

Date: 1/14/2026
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV%	PHF
EB	4%	0.82
WB	2%	0.94
NB	--	--
SB	3%	0.82
TOTAL	3%	0.89

Peak Hour Count Summaries

Peak Hour Interval Start		Castle Pines Pkwy				Castle Pines Pkwy				n/a				Havana St				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:15 AM		1	37	172	0	0	0	208	9	0	0	0	0	0	2	0	9	438	0
7:30 AM		0	43	131	0	0	0	221	24	0	0	0	0	0	1	0	14	434	0
7:45 AM		0	61	179	0	0	0	231	10	0	0	0	0	0	1	0	18	500	0
8:00 AM		0	35	125	0	0	0	215	8	0	0	0	0	0	2	0	15	400	1,772
Pk Hr	All	1	176	607	0	0	0	875	51	0	0	0	0	0	6	0	56	1,772	
	HV	0	3	32	0	0	0	19	1	0	0	0	0	0	1	0	1	57	
	HV%	0%	2%	5%	-	-	-	2%	2%	-	-	-	-	-	17%	-	2%	3%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries 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	E	W	N	S	Total
7:15 AM	8	4	0	0	*12*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	10	4	0	1	*15*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	12	2	0	0	*14*	0	0	0	0	*0*	0	0	0	0	*0*
8:00 AM	5	10	0	1	*16*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	35	20	0	2	*57*	0	0	0	0	*0*	0	0	0	0	*0*

TJ Wethington
(720) 646-1008
tj.wethington@idaxdata.com

Count Summaries - All Vehicles

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				n/a				Havana St				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	1	24	124	0	0	0	184	8	0	0	0	0	0	6	0	15	362	0
7:15 AM	**1**	**37**	**172**	**0**	**0**	**0**	**208**	**9**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**9**	**438**	**0**
7:30 AM	**0**	**43**	**131**	**0**	**0**	**0**	**221**	**24**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**14**	**434**	**0**
7:45 AM	**0**	**61**	**179**	**0**	**0**	**0**	**231**	**10**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**18**	**500**	**1,734**
8:00 AM	**0**	**35**	**125**	**0**	**0**	**0**	**215**	**8**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**15**	**400**	**1,772**
8:15 AM	1	32	164	0	0	0	184	8	0	0	0	0	0	10	0	12	411	1,745
8:30 AM	1	27	148	0	0	0	134	6	0	0	0	0	0	4	0	12	332	1,643
8:45 AM	0	32	109	0	1	0	167	6	0	0	0	0	0	5	0	16	336	1,479
Count Total	4	291	1,152	0	1	0	1,544	79	0	0	0	0	0	31	0	111	3,213	
Pk Hr All	**1**	**176**	**607**	**0**	**0**	**0**	**875**	**51**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**56**	**1,772**	
Pk Hr HV	**0**	**3**	**32**	**0**	**0**	**0**	**19**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**57**	
Pk Hr HV%	**0%**	**2%**	**5%**	**-**	**-**	**-**	**2%**	**2%**	**-**	**-**	**-**	**-**	**-**	**17%**	**-**	**2%**	**3%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
7:00 AM	3	3	0	2	*8*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**8**	**4**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:30 AM	**10**	**4**	**0**	**1**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:45 AM	**12**	**2**	**0**	**0**	**14**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	**5**	**10**	**0**	**1**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	6	7	0	1	*14*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	9	3	0	1	*13*	0	0	0	0	*0*	1	0	0	0	*1*
8:45 AM	7	5	0	1	*13*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	60	38	0	7	*105*	0	0	0	0	*0*	1	0	0	0	*1*
Peak Hour	**35**	**20**	**0**	**2**	***57***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**

TJ Wethington
(720) 646-1008

tj.wethington@idaxdata.com

Count Summaries - Heavy Vehicles

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				n/a				Havana St				15-min Total	Rolling Hour Total
	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	3	0	0	0	3	0	0	0	0	0	0	1	0	1	8	0
7:15 AM	**0**	**0**	**8**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**
7:30 AM	**0**	**0**	**10**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**15**	**0**
7:45 AM	**0**	**2**	**10**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**49**
8:00 AM	**0**	**1**	**4**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**16**	**57**
8:15 AM	0	0	6	0	0	0	6	1	0	0	0	0	0	1	0	0	14	59
8:30 AM	0	0	9	0	0	0	3	0	0	0	0	0	0	1	0	0	13	57
8:45 AM	0	1	6	0	1	0	4	0	0	0	0	0	0	0	0	1	13	56
Count Total	0	4	56	0	1	0	35	2	0	0	0	0	0	4	0	3	105	
Pk Hr Heavy	**0**	**3**	**32**	**0**	**0**	**0**	**19**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**57**	

Count Summaries - Bikes

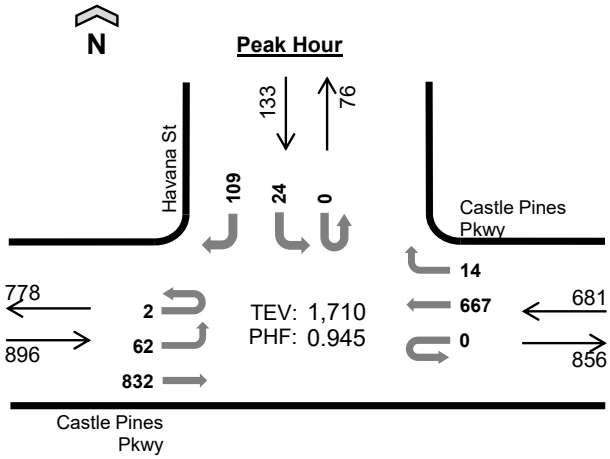
Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				n/a				Havana St				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**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**	**0**	**0**	**0**	**0**
7:45 AM	**0**	**0**	**0**	**0**	**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**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	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	0	0	0	0
8:45 AM	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	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

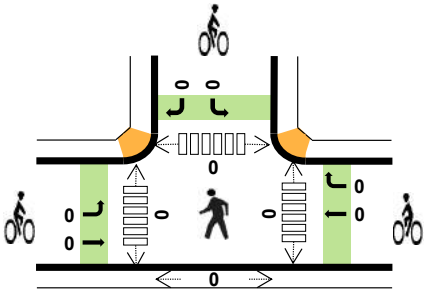
TJ Wethington
(720) 646-1008

tj.wethington@idaxdata.com

Havana St
Castle Pines Pkwy

Date: 1/14/2026
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV%	PHF
EB	1%	0.93
WB	1%	0.90
NB	--	--
SB	1%	0.71
TOTAL	1%	0.95

Peak Hour Count Summaries

Peak Hour Interval Start		Castle Pines Pkwy				Castle Pines Pkwy				n/a				Havana St				15-min Total	Rolling Hour Total
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM		0	22	220	0	0	0	167	5	0	0	0	0	0	3	0	22	439	0
4:45 PM		0	15	189	0	0	0	186	4	0	0	0	0	0	2	0	27	423	0
5:00 PM		0	16	195	0	0	0	153	0	0	0	0	0	0	7	0	25	396	0
5:15 PM		2	9	228	0	0	0	161	5	0	0	0	0	0	12	0	35	452	1,710
Pk Hr	All	2	62	832	0	0	0	667	14	0	0	0	0	0	24	0	109	1,710	
	HV	0	0	6	0	0	0	10	0	0	0	0	0	0	0	0	1	17	
	HV%	0%	0%	1%	-	-	-	1%	0%	-	-	-	-	-	0%	-	1%	1%	

Note: For complete count summary (all intervals), see following pages.
*** Heavy Vehicle Classifications include FHWA Classes 4-13.*
*** Count Summaries 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	E	W	N	S	Total
4:30 PM	1	5	0	0	*6*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	2	4	0	0	*6*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	1	0	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	2	1	0	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	6	10	0	1	*17*	0	0	0	0	*0*	0	0	0	0	*0*

TJ Wethington
(720) 646-1008
tj.wethington@idaxdata.com

Count Summaries - All Vehicles

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				n/a				Havana St				15-min Total	Rolling Hour Total
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	1	14	207	0	0	0	152	5	0	0	0	0	0	7	0	23	409	0
4:15 PM	2	21	171	0	0	0	163	3	0	0	0	0	0	5	0	21	386	0
4:30 PM	**0**	**22**	**220**	**0**	**0**	**0**	**167**	**5**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**22**	**439**	**0**
4:45 PM	**0**	**15**	**189**	**0**	**0**	**0**	**186**	**4**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**27**	**423**	**1,657**
5:00 PM	**0**	**16**	**195**	**0**	**0**	**0**	**153**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**25**	**396**	**1,644**
5:15 PM	**2**	**9**	**228**	**0**	**0**	**0**	**161**	**5**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**35**	**452**	**1,710**
5:30 PM	0	26	179	0	0	0	161	1	0	0	0	0	0	6	0	19	392	1,663
5:45 PM	1	27	153	0	0	0	125	11	0	0	0	0	0	5	0	31	353	1,593
Count Total	6	150	1,542	0	0	0	1,268	34	0	0	0	0	0	47	0	203	3,250	
Pk Hr All	**2**	**62**	**832**	**0**	**0**	**0**	**667**	**14**	**0**	**0**	**0**	**0**	**0**	**24**	**0**	**109**	**1,710**	
Pk Hr HV	**0**	**0**	**6**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**17**	
Pk Hr HV%	**0%**	**0%**	**1%**	**-**	**-**	**-**	**1%**	**0%**	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**1%**	**1%**	

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	E	W	N	S	Total
4:00 PM	3	2	0	0	*5*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	3	0	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**1**	**5**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:45 PM	**2**	**4**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	**2**	**1**	**0**	**1**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	1	2	0	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	10	18	0	3	*31*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**6**	**10**	**0**	**1**	***17***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**

TJ Wethington
(720) 646-1008

tj.wethington@idaxdata.com

Count Summaries - Heavy Vehicles

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				n/a				Havana St				15-min Total	Rolling Hour Total
	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	3	0	0	0	2	0	0	0	0	0	0	0	0	0	5	0
4:15 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	1	4	0
4:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**
4:45 PM	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**21**
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**17**
5:15 PM	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	**17**
5:30 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	1	0	0	4	15
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	10
Count Total	0	0	10	0	0	0	18	0	0	0	0	0	0	1	0	2	31	
Pk Hr Heavy	**0**	**0**	**6**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**17**	

Count Summaries - Bikes

Interval Start	Castle Pines Pkwy				Castle Pines Pkwy				n/a				Havana St				15-min Total	Rolling Hour Total
	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	
Pk Hr Bike	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

TJ Wethington
(720) 646-1008

tj.wethington@idaxdata.com

Appendix C:

Future Traffic Projections

Adjacent Master Traffic Study Excerpts

DRCOG Traffic Projections: QT 4266 Castle Pines & Bubble Bath

#	Location	2020	2050	Growth Factor	Annual Growth	Volume Removed	New 2050 Volume	New Growth Factor	New Growth Rate
1	Castle Pines Pkwy btwn I-25 NB On-Ramp (WB) and I-25 NB Off-Ramp	28,000	46,000	1.64	1.67%	20,075	25,925	0.93	-0.26%
2	Castle Pines Pkwy btwn I-25 NB Ramps & Havana St	12,000	41,000	3.42	4.18%	24,439	16,561	1.38	1.08%
3	Castle Pines Pkwy btwn Havana St & Canyonside Blvd	11,000	40,000	3.64	4.40%	23,671	16,329	1.48	1.33%
	Total	51,000	127,000	2.49	3.09%	68,185	58,815	1.15	0.48%

Includes North Canyons PA-2, North Canyons PA-3, Shea Canyons Phase I, Shea Canyons Phase II, and Canyonside Filing 4 Trip Generation (see Table 4, Canyonside Filing 4 TIS), and uses the daily external projected trips of 34,913 daily trips and distributes those trips to the network based on the percentages provided in Table 2 of the Canyonside Filing 4 TIS.

Location 1 Volume Removed:

Per Canyonside Filing 4 TIS, at Location 1 listed above, 45% entering distribution would occur in the EB direction and 70% exiting distribution would occur in the WB direction. This results in a net of ~57.5% of these trips (45%+70% / 2 (for two directions of travel)). 57.5% of 34,913 ~20,100 daily trips.

Location 2 Volume Removed:

Per Canyonside Filing 4 TIS, at Location 2 listed above, 70% entering and exiting distribution. 70% of 34,913 ~24,400 daily trips.

Location 3 Volume Removed:

Per Canyonside Filing 4 TIS, at Location 3 listed above, approximately 16% of the trips in Table 3 (to the right) are from Filing 4 (1,090 + 545 + 4,615 = 6,250; 6,250 / 39068 = 15.99%). 70% of the 6,250 trips to Filing 4 would go onto Havana St from the West---4,375--and 30% from the East--1,875. The remaining trips in Location 3 from the Canyonside Filing 4 TIS would be from North Canyons and Shea Canyons developments. Assuming all 25% from Hess Rd for North Canyons and Shea Canyons would have been removed prior to this location (25% of 32,818 = 8,205), this area would have 26,488 daily trips from Table 3 generated in this location (39,068 - 8,205 - 4,375 = 26,488 total trips), including internal capture. Multiplying this value by 89.4% (34,913 / 39,068 = 89.4% of trips are external trips) to remove interally captured trips, 23,671 trips from these developments would be expected to be generated by these uses in this location.

Table 3. 2025 Canyonside Filing 4 Trip Generation Summary

Land Use	ITE Code	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Multi-Family Residential	220	200 DU	1,090	19	53	72	54	34	88
Multi-Family Residential	220	100 DU	545	9	27	36	27	17	44
Gas Station & C-Store	960	20 FP	4,615	281	281	562	230	230	460
Other Canyons Vehicle Trips (Table 1)			*32,818*	*1,236*	*1,546*	*2,782*	*1,756*	*1,469*	*3,225*
Total Canyons Vehicle-Trips			***39,068***	***1,545***	***1,907***	***3,452***	***2,067***	***1,750***	***3,817***
Internal Capture Trip Reduction			4,155	105	105	210	341	341	682
Net Canyons Vehicle-Trips			***34,913***	***1,440***	***1,802***	***3,242***	***1,726***	***1,409***	***3,135***

The proposed land uses in Filing 4 are anticipated to interact with other portions of The Canyons, increasing the internal trip-making frequency expected in the 2025 Background Traffic scenario. Internal capture reductions were estimated using methodologies from *NCHRP 684*. Using this methodology, the total internal capture rates for The Canyons would be 11 percent, 6 percent, and 18 percent for daily, AM peak hour, and PM peak hour scenarios, respectively.

Compared to the 2025 Background Traffic scenario (**Table 1**), the addition of proposed land uses in Canyonside Filing 4 is expected to generate approximately 4,590 new external daily trips, including about 665 AM trips and 340 PM trips. In total, The Canyons would generate about 34,900 daily external trips, including about 3,245 AM trips and 3,135 PM trips.

It should be noted that previous studies assumed only commercial land uses in Canyonside Filing 4. Changing the proposed land uses from commercial to a mix of commercial and residential land uses generally reduces the overall trip generation associated with Filing 4.

Trip Distribution and Traffic Assignment

External vehicle-trips to/from the proposed land uses in Canyonside Filing 4 are anticipated to follow the same trip distribution patterns as assumed for North Canyons (also defined in **Table 2**):

- Castle Pines Parkway (West of Lagae Road): 3%
- Lagae Road (South of Castle Pines Parkway): 1%
- Village Square Drive (South of Castle Pines Parkway): 1%
- I-25 North (via Castle Pines Parkway): 40%
- I-25 South (via Castle Pines Parkway): 25%
- Havana Street (North of Castle Pines Parkway): 5%
- Hess Road (East of Canyonside Boulevard): 25%

CANYONSIDE SUBDIVISION FILING 4

TRAFFIC IMPACT STUDY

Castle Pines, Colorado

COLORADO REGISTERED
LYLE E. DeVRIES
37203
PROFESSIONAL ENGINEER

2-2-23

Prepared for:

North Canyons LLLP
3033 East 1st Avenue, Suite 725
Denver, CO 80206

Prepared by:

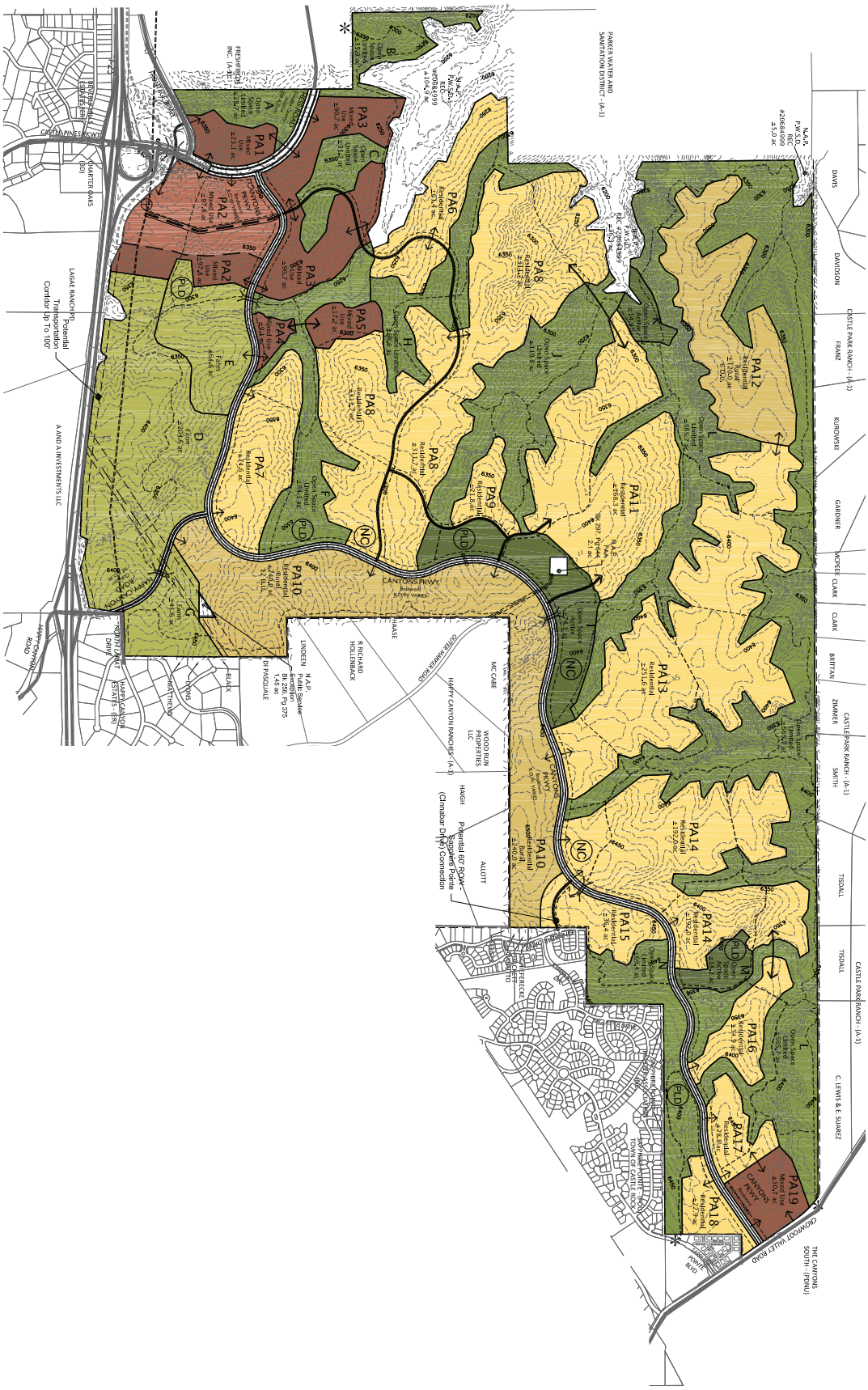
Felsburg Holt & Ullevig
6400 S Fiddlers Green Circle, Suite 1500
Greenwood Village, CO 80111
303.721.1440

Project Manager: Paul F. Brown, PE, PTOE

FELSBURG HOLT & ULLEVIG
connecting & enhancing communities

FHU Reference No. 122020-01

July 2022
Revised September 2022



NORTH

FIGURE 1

The Canyons Planned Development (2009)

Canyons PA-1 TIS, Havana Realignment 122-020-01 9/1/22

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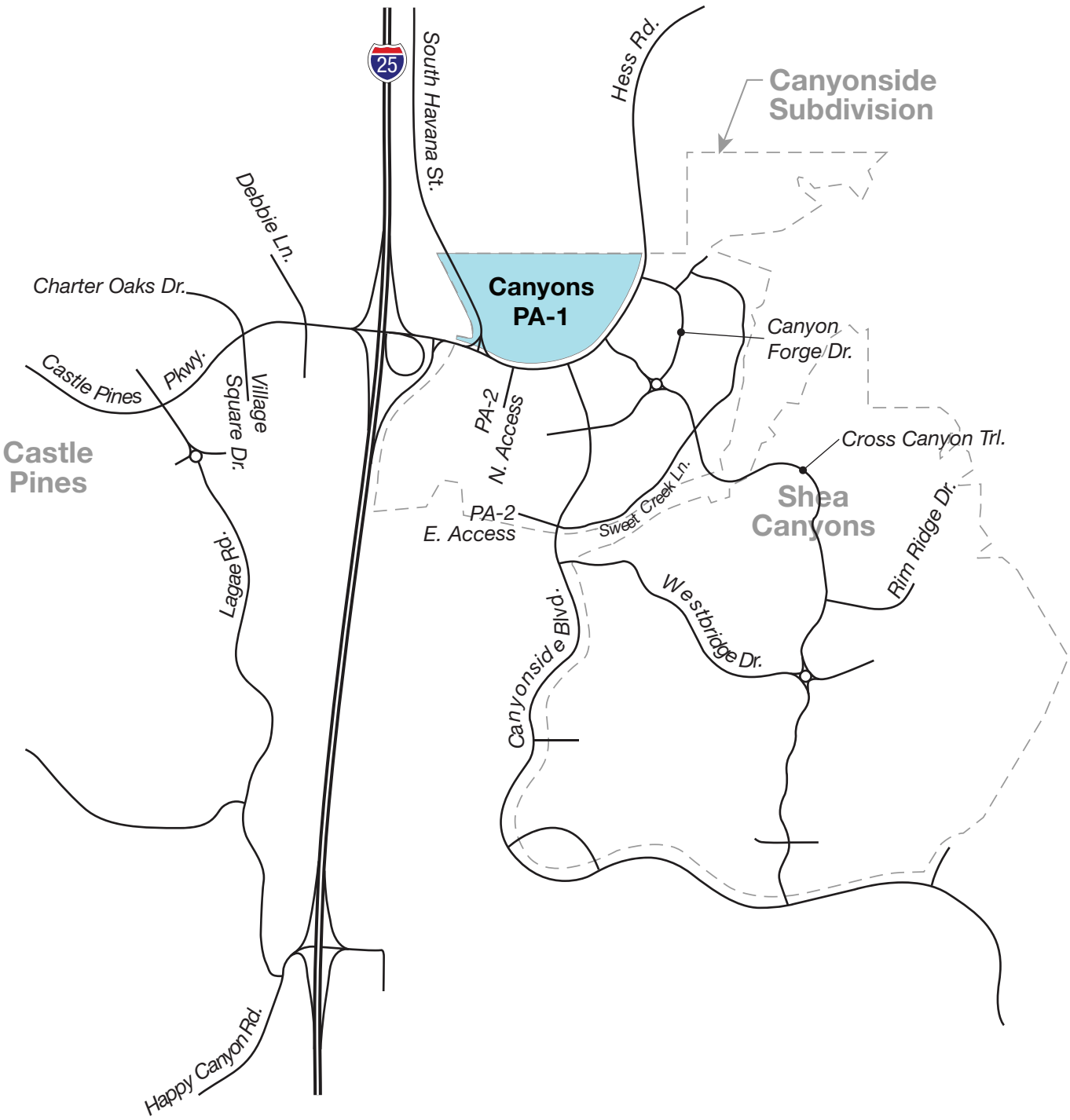
NOTE: Drawing Not to Scale



NORTH

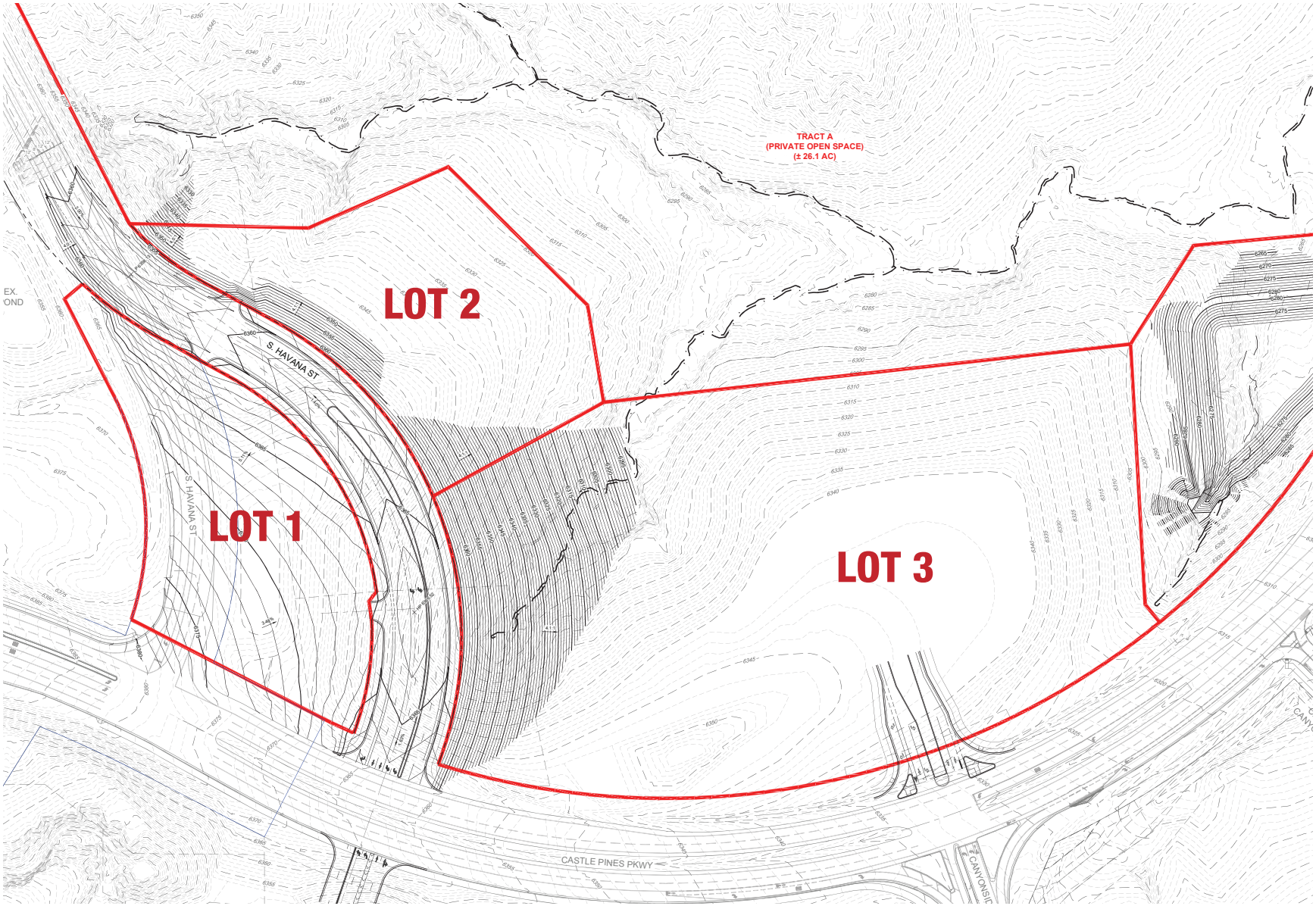
FELSBURG HOLT & ULLEVIG

NOTE: Drawing Not to Scale

FIGURE 2

Canyonside Subdivision Vicinity Map

Canyons PA-1 TIS, Havana Realignment 122-020-01 9/1/22



NORTH

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NOTE: Drawing Not to Scale

FIGURE 3

Canyonside PA-1 Site Plan

Canyons PA-1 TIS, Havana Realignment 122-020-01 9/1/22

Table 1. 2025 Canyons Development Trip Generation Summary

Land Use	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
North Canyons PA-2								
Commercial – Retail/Entertainment	31 KSF	2,715	104	64	168	110	119	229
Office	69 KSF	745	79	13	92	13	68	81
Hotel	50.4 KSF	505	22	19	41	19	21	40
North Canyons PA-3								
Commercial – Retail/Entertainment	129.9 KSF	5,150	193	175	368	329	273	602
Office	100 KSF	2,660	167	40	207	66	190	256
Single-Family Residential	86 DU	950	20	57	77	58	33	91
Multi-Family Residential	484 DU	2,895	48	146	194	147	92	239
Shea Canyons Phase I								
Commercial – Retail	30 KSF	2,655	104	63	167	107	116	223
Single-Family Residential	1,099 DU	10,465	203	604	807	675	395	1,070
Multi-Family (Low-Rise) Residential	48 DU	325	6	18	24	20	11	31
Shea Canyons Phase II								
Single-Family Residential	251 DU	2,490	48	141	189	157	92	249
Elementary School	668 Stu.	1,263	242	206	448	55	59	114
Gross Vehicle-Trips		***32,818***	***1,236***	***1,546***	***2,782***	***1,756***	***1,469***	***3,225***
Internal Capture Trip Reduction		2,494	103	103	206	214	214	428
Net Vehicle-Trips		***30,324***	***1,133***	***1,443***	***2,576***	***1,542***	***1,255***	***2,797***

Table 2. 2025 Canyons Development Trip Distribution

External Origin/Destination	North Canyons (PA-2 & PA-3)	Shea Canyons
Castle Pines Parkway (West of I-25)	3%	5%
Lagae Road (South of Castle Pines Parkway)	1%	0%
Village Square Drive (South of Castle Pines Parkway)	1%	0%
I-25 (North via Castle Pines Parkway)	40%	40%
I-25 (South via Castle Pines Parkway)	25%	25%
Havana Street (North of Castle Pines Parkway)	5%	5%
Hess Road (East of Canyonside Boulevard)	25%	25%

Table 3. 2025 Canyonside Filing 4 Trip Generation Summary

Land Use	ITE Code	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Multi-Family Residential	220	200 DU	1,090	19	53	72	54	34	88
Multi-Family Residential	220	100 DU	545	9	27	36	27	17	44
Gas Station & C-Store	960	20 FP	4,615	281	281	562	230	230	460
*Other Canyons Vehicle Trips (**Table 1**)*			*32,818*	*1,236*	*1,546*	*2,782*	*1,756*	*1,469*	*3,225*
Total Canyons Vehicle-Trips			***39,068***	***1,545***	***1,907***	***3,452***	***2,067***	***1,750***	***3,817***
Internal Capture Trip Reduction			4,155	105	105	210	341	341	682
Net Canyons Vehicle-Trips			***34,913***	***1,440***	***1,802***	***3,242***	***1,726***	***1,409***	***3,135***

The proposed land uses in Filing 4 are anticipated to interact with other portions of The Canyons, increasing the internal trip-making frequency expected in the 2025 Background Traffic scenario. Internal capture reductions were estimated using methodologies from *NCHRP 684*. Using this methodology, the total internal capture rates for The Canyons would be 11 percent, 6 percent, and 18 percent for daily, AM peak hour, and PM peak hour scenarios, respectively.

Compared to the 2025 Background Traffic scenario (**Table 1**), the addition of proposed land uses in Canyonside Filing 4 is expected to generate approximately 4,590 new external daily trips, including about 665 AM trips and 340 PM trips. In total, The Canyons would generate about 34,900 daily external trips, including about 3,245 AM trips and 3,135 PM trips.

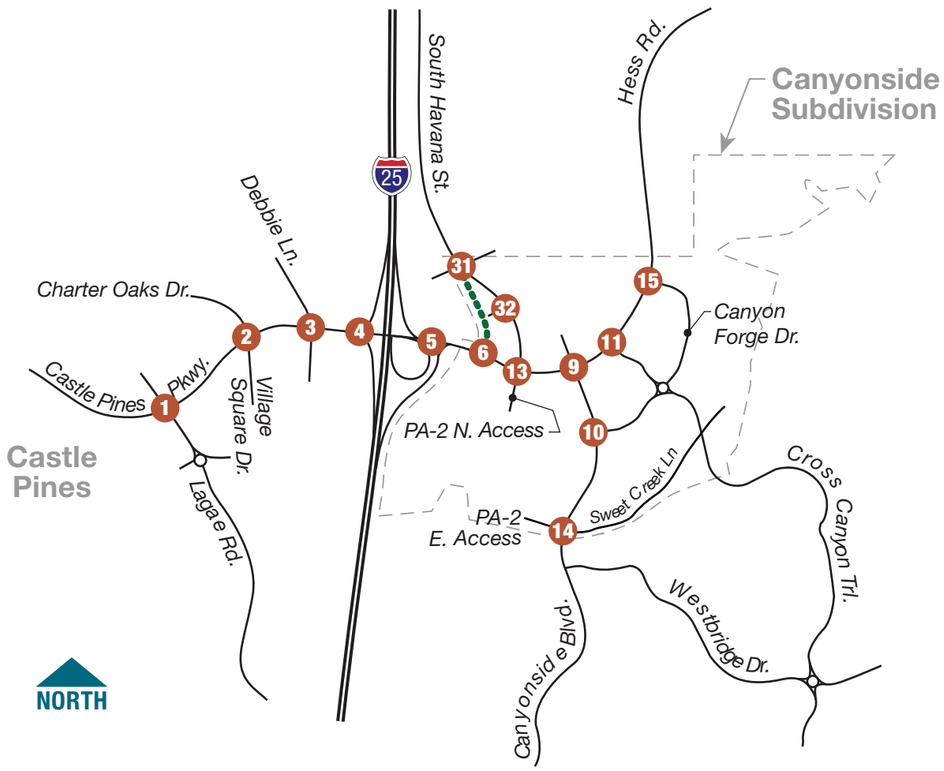
It should be noted that previous studies assumed only commercial land uses in Canyonside Filing 4. Changing the proposed land uses from commercial to a mix of commercial and residential land uses generally reduces the overall trip generation associated with Filing 4.

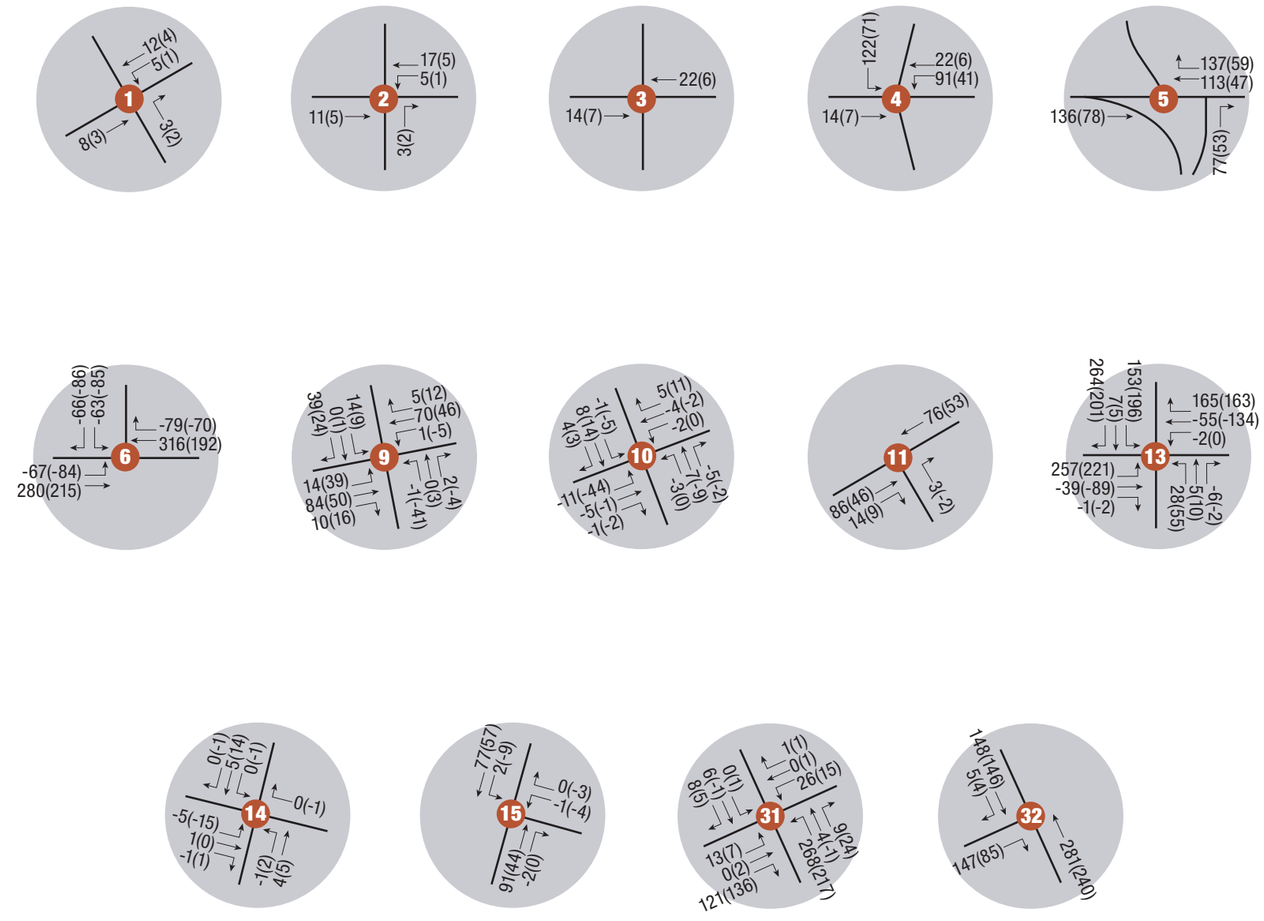
Trip Distribution and Traffic Assignment

External vehicle-trips to/from the proposed land uses in Canyonside Filing 4 are anticipated to follow the same trip distribution patterns as assumed for North Canyons (also defined in **Table 2**):

- Castle Pines Parkway (West of Lagae Road): 3%
- Lagae Road (South of Castle Pines Parkway): 1%
- Village Square Drive (South of Castle Pines Parkway): 1%
- I-25 North (via Castle Pines Parkway): 40%
- I-25 South (via Castle Pines Parkway): 25%
- Havana Street (North of Castle Pines Parkway): 5%
- Hess Road (East of Canyonside Boulevard): 25%

Vehicle-trips associated with internal trip capture do not follow the same trip distribution assumptions as net vehicle-trips. Internal trips between North Canyons planning areas and Shea Canyons were assigned to the roadway network separately from the net vehicle-trips using engineering judgment to determine the shortest paths between origins and destinations. **Figure 8** displays peak hour traffic volumes associated with the proposed Canyonside Filing 4 development (and Havana Street realignment) in 2025. Negative turning movements indicated that background traffic volumes would shift due to changes in internal trip-making patterns or roadway realignment.





LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
*(*)	=	Volume is less than 5 vehicles per hour (vph)
●●●●●●●	=	Roadway to be Realigned

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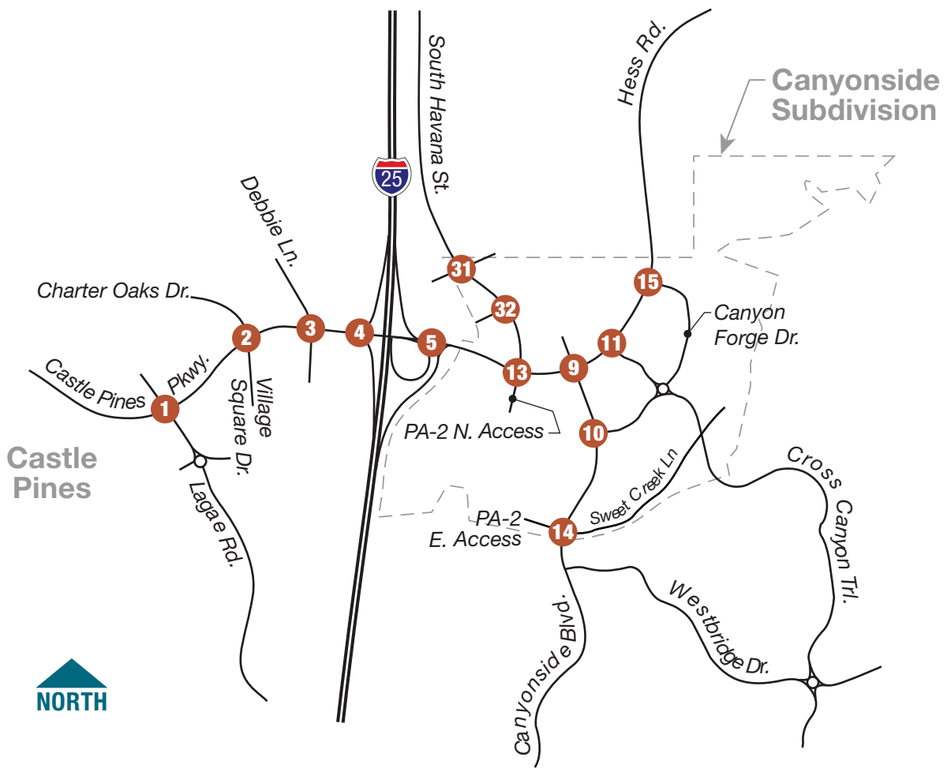
NOTE: Drawing Not to Scale

FIGURE 8

2025 Canyons PA-1 Site Generated Traffic Volumes



LEGEND

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

*(*) = Volume is less than 5 vehicles per hour (vph)

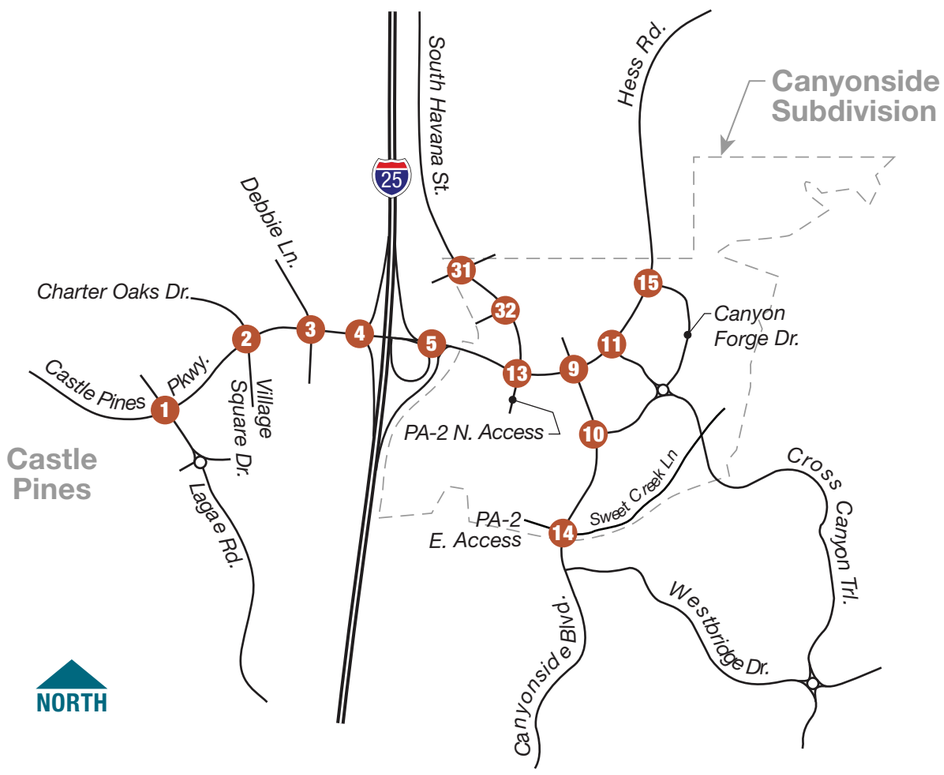
FELSBURG HOLT & ULLEVIG

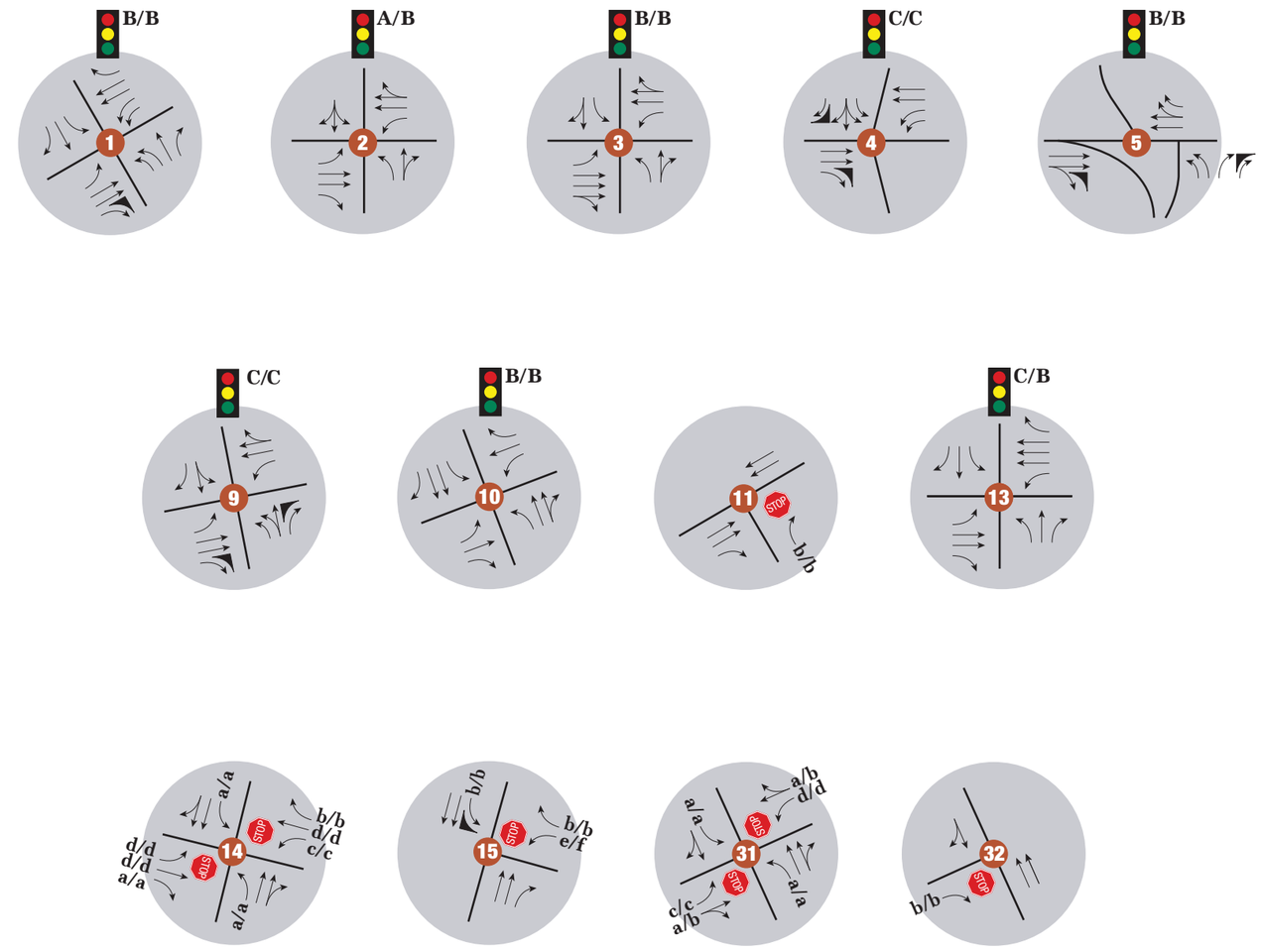
NOTE: Drawing Not to Scale

FIGURE 9

2025 Total Traffic Volumes

Canyons PA-1 TIS, Havana Realignment 122-020-01 9/1/22





LEGEND

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

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

STOP = Stop Sign

= Traffic Signal

= Improvement

FELSBURG HOLT & ULLEVIG

NOTE: Drawing Not to Scale

FIGURE 10

2025 Total Traffic Conditions

Canyons PA-1 TIS, Havana Realignment 122-020-01 9/12/22

Table 4. 2040 Canyons Development Trip Generation Summary

Land Use	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
North Canyons PA-2								
Commercial – Retail/Entertainment	31 KSF	16,135	195	120	315	709	724	1,433
Office	714 KSF	7,145	600	98	698	118	619	737
Hotel	201.6 KSF	3,515	125	91	216	143	141	284
Multi-Family Residential	630 DU	3,435	59	168	227	170	108	278
North Canyons PA-3								
Commercial – Retail/Entertainment	129.9 KSF	5,150	193	175	368	329	273	602
Office	100 KSF	2,660	167	40	207	66	190	256
Single-Family Residential	86 DU	950	20	57	77	58	33	91
Multi-Family Residential	484 DU	2,895	48	146	194	147	92	239
Shea Canyons Phase I								
Commercial – Retail	30 KSF	2,655	104	63	167	107	116	223
Single-Family Residential	1,099 DU	10,465	203	604	807	675	395	1,070
Multi-Family Residential	48 DU	325	6	18	24	20	11	31
Shea Canyons Phase II								
Single Family Residential	744 DU	7,065	137	407	544	456	267	723
Multi-Family Residential	109 DU	785	12	40	52	40	24	64
Elementary School	668 Stu.	1,263	242	206	448	55	59	114
Canyons 2nd PD Amendment								
Commercial – Retail/Entertainment	109 KSF	6,375	128	79	207	278	302	580
Single-Family Residential	1,012 DU	9,705	187	558	745	624	366	990
Multi-Family Residential	488 DU	3,250	52	169	221	171	102	273
High School	2,500 Stu.	5,075	702	598	1,300	172	178	350
Gross Vehicle-Trips		***88,848***	***3,180***	***3,637***	***6,817***	***4,338***	***4,000***	***8,338***
Internal Capture Trip Reduction		9,692	209	209	418	764	764	1,528
Net Vehicle-Trips		***79,156***	***2,971***	***3,428***	***6,399***	***3,574***	***3,236***	***6,810***

III.B. 2040 Filing 4 Development and Traffic

The development assumptions for the proposed land uses in Canyonside Filing 4 would not change relative to the descriptions provided in **Section II.B**. Access and site-generated trips associated with Canyonside East are described in the following subsections.

Havana Street Realignment

As described in **Section II.B**, Havana Street would be realigned to the east, removing the existing Castle Pines Parkway & Havana Street intersection (#6) and creating a new four-leg full-movement intersection at the PA-2 North Access (#13). This new intersection should be signalized.

Proposed Site Accesses

Proposed access locations to Canyonside Filing 4 would not change compared to the 2025 assumptions found in **Section II.B**. However, some changes to the access intersections may be necessary to accommodate increased forecasted volumes in 2040.

Canyonside Boulevard: To accommodate The Canyonside Filing 4 access, the Castle Pines Parkway & Canyonside Boulevard intersection (#9) would require construction of a dedicated EB left-turn lane. The third NB left-turn lane would be shared with through movements, and the third WB through lane would be shared with right-turns. Additionally, to service the increased demand of EB right-turns, a second right-turn lane should be constructed. Both right-turn lanes should be signalized and operate with overlap phasing concurrent with NB left-turns.

Havana Street: A new, full-movement intersection (#31) would be constructed along Havana Street north of Castle Pines Parkway to provide full-movement driveway access to Canyonside Filing 4. No changes to this access configuration are recommended compared to 2025 scenario.

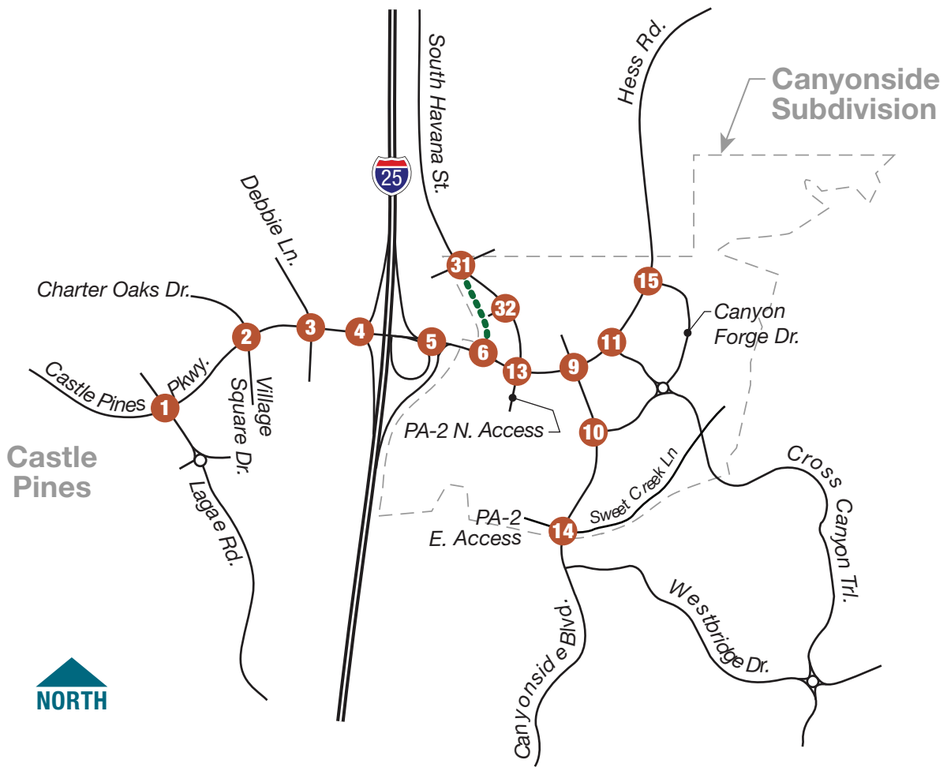
Site Trip Generation

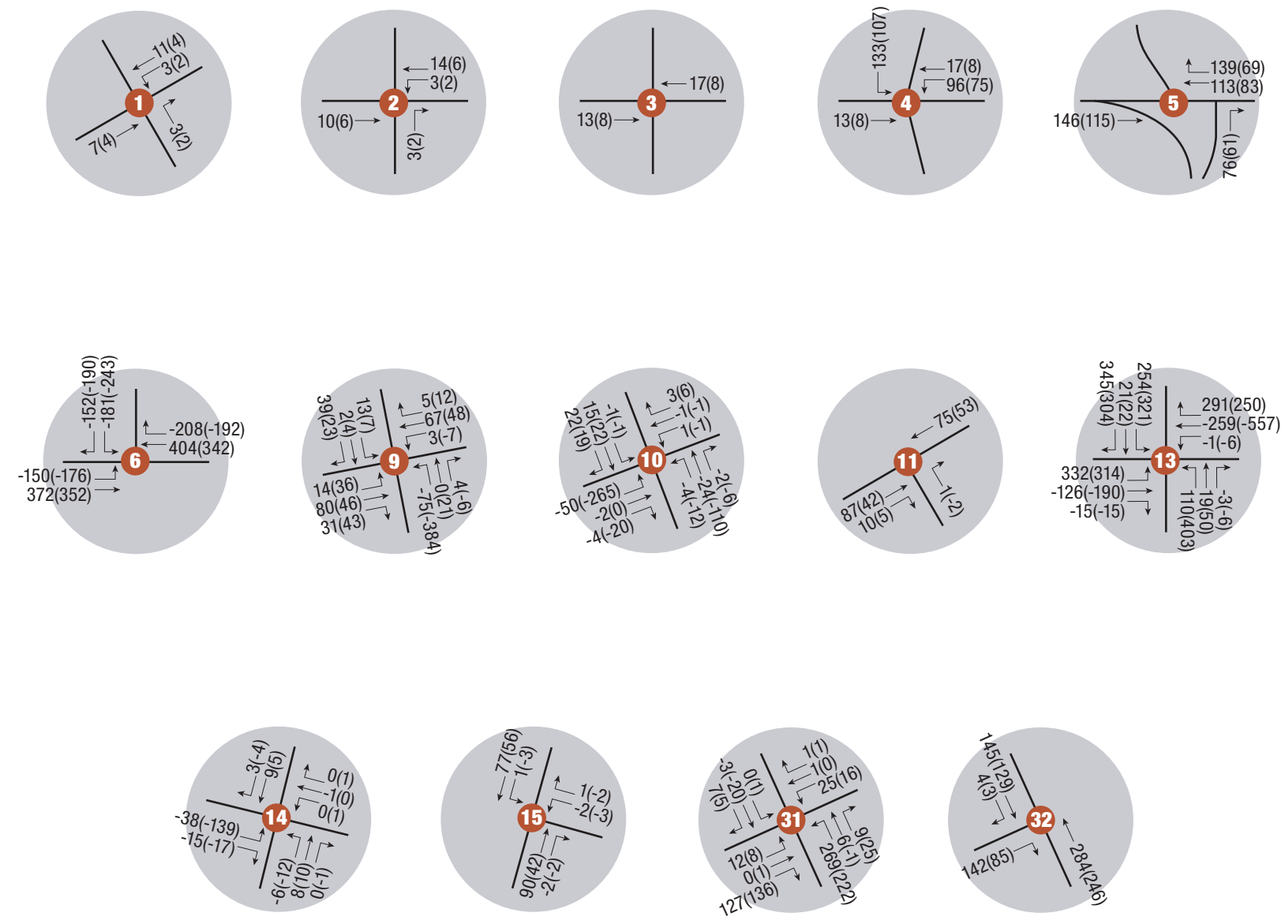
The gross total trip generation characteristics associated with the proposed land uses in Canyonside Filing 4 would not change relative to those presented in **Table 3**. However, increased background development within The Canyons would result in slight changes to internal trip-making patterns. **Table 6** presents the vehicle-trip generation information for Canyons PA-1 in 2040.

Table 6. 2040 Canyonside Filing 4 Trip Generation Summary

Land Use	ITE Code	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Multi-Family Residential	220	200 DU	1.090	19	53	72	54	34	88
Multi-Family Residential	220	100 DU	545	9	27	36	27	17	44
Gas Station & C-Store	960	20 FP	4,615	281	281	562	230	230	460
*Other Canyons Vehicle Trips (**Table 4**)*			*88,848*	*3,180*	*3,637*	*6,817*	*4,338*	*4,000*	*8,338*
Total Canyons Vehicle-Trips			***95,098***	***3,489***	***3,998***	***7,487***	***4,649***	***4,281***	***8,930***
Internal Capture Trip Reduction			11,352	211	211	422	887	887	1,774
Net Canyons Vehicle-Trips			***83,746***	***3,278***	***3,787***	***7,065***	***3,762***	***3,394***	***7,156***

Interactions between the proposed Filing 4 land uses and other portions of The Canyons would result in increased internal trip-making frequency compared to what is expected in the 2040 Background Traffic scenario. The total internal capture rates for The Canyons would be 12 percent, 6 percent, and 20 percent for daily, AM peak hour, and PM peak hour scenarios, respectively.





LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
*(*)	=	Volume is less than 5 vehicles per hour (vph)
●●●●●●●	=	Roadway to be Realigned

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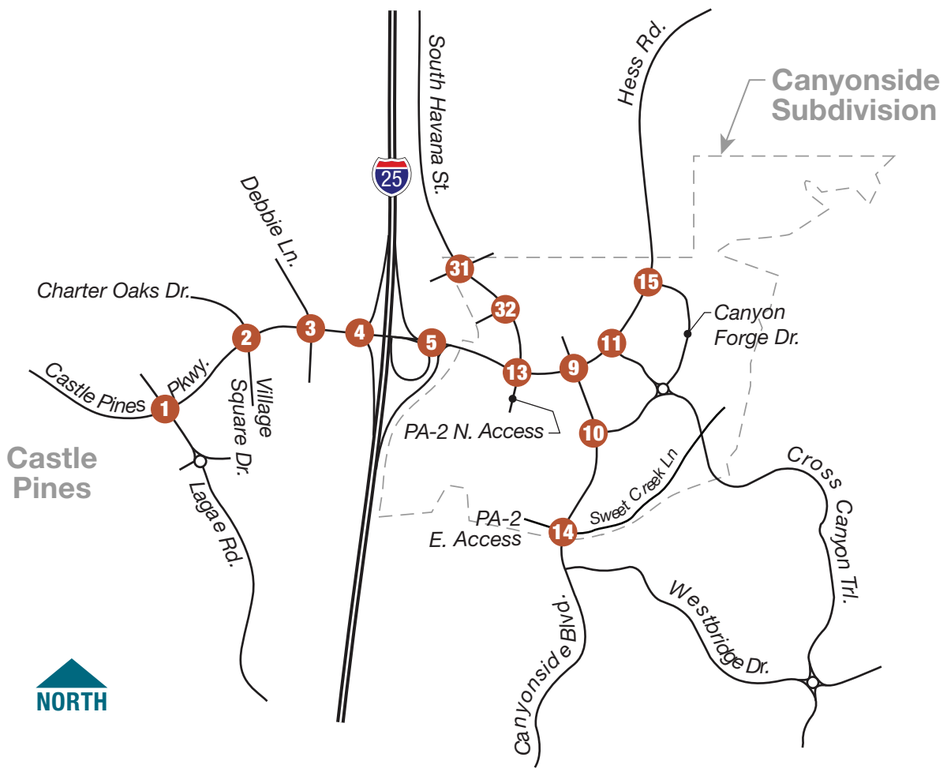
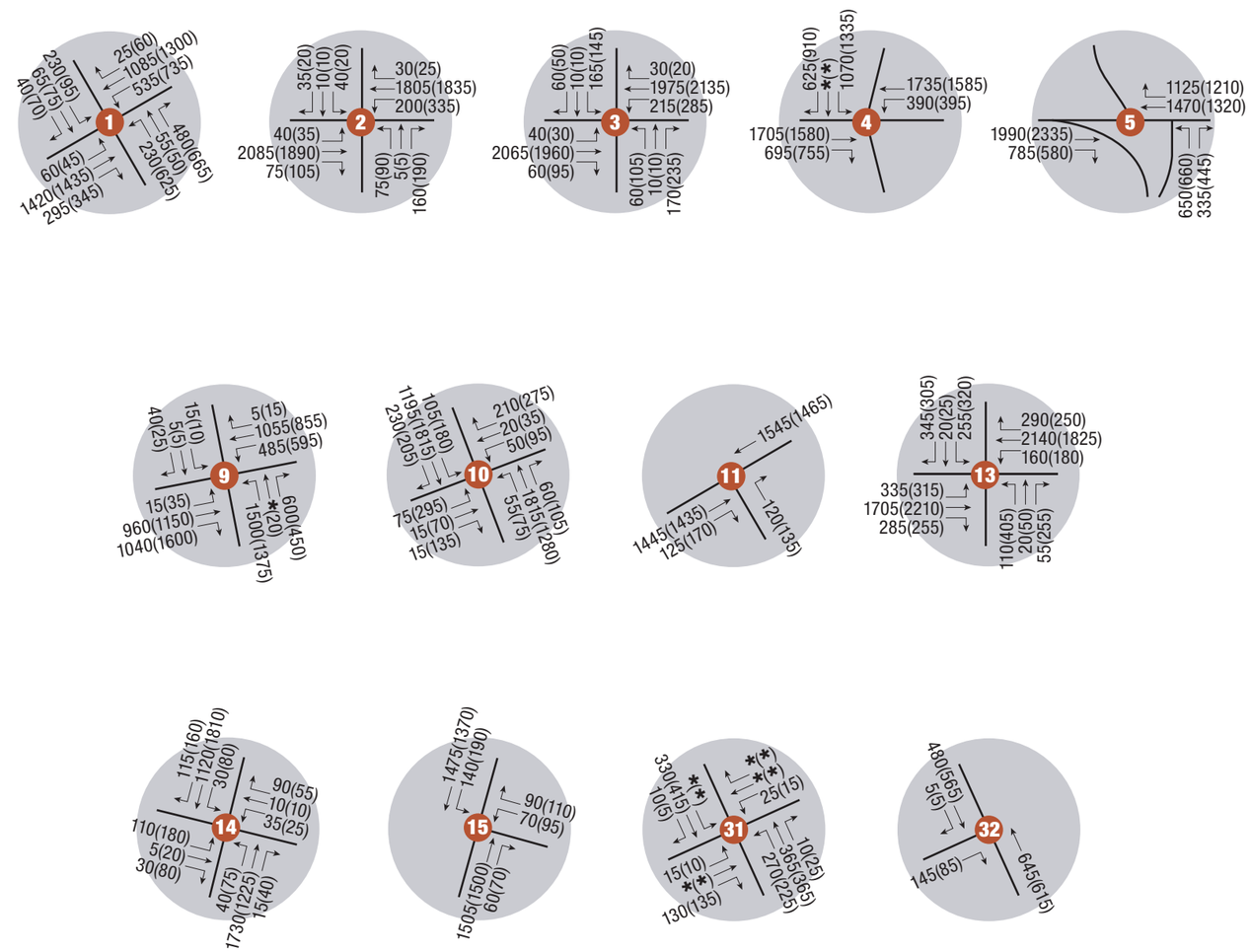
NOTE: Drawing Not to Scale

FIGURE 13

2040 Canyons PA-1 Site Generated Traffic Volumes





LEGEND

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

*(*) = Volume is less than 5 vehicles per hour (vph)

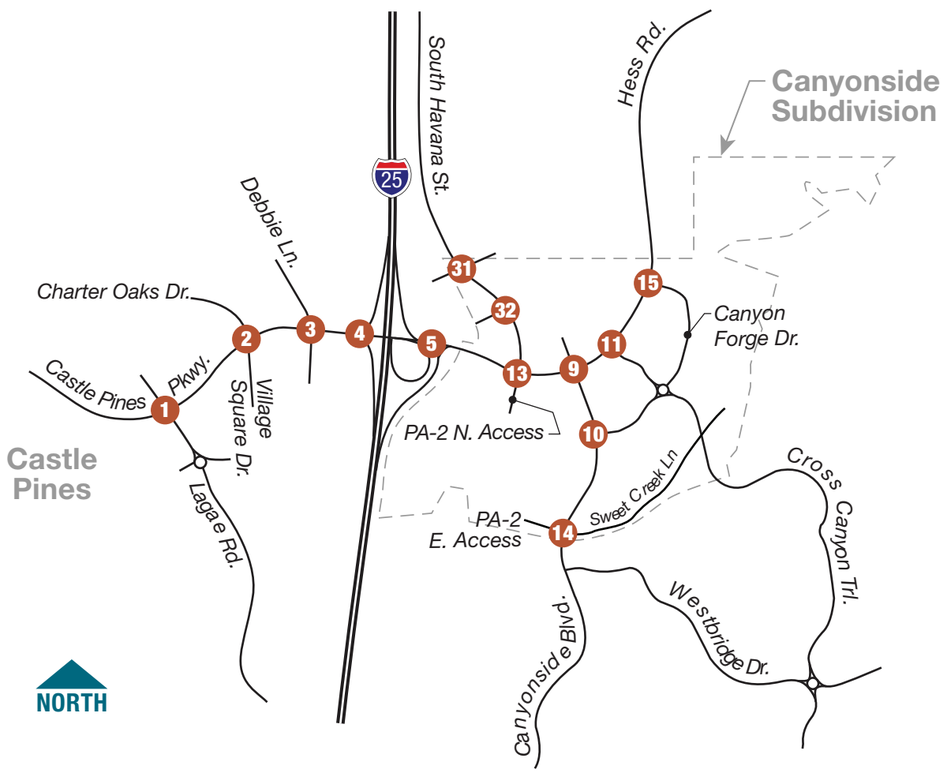
FELSBURG HOLT & ULLEVIG

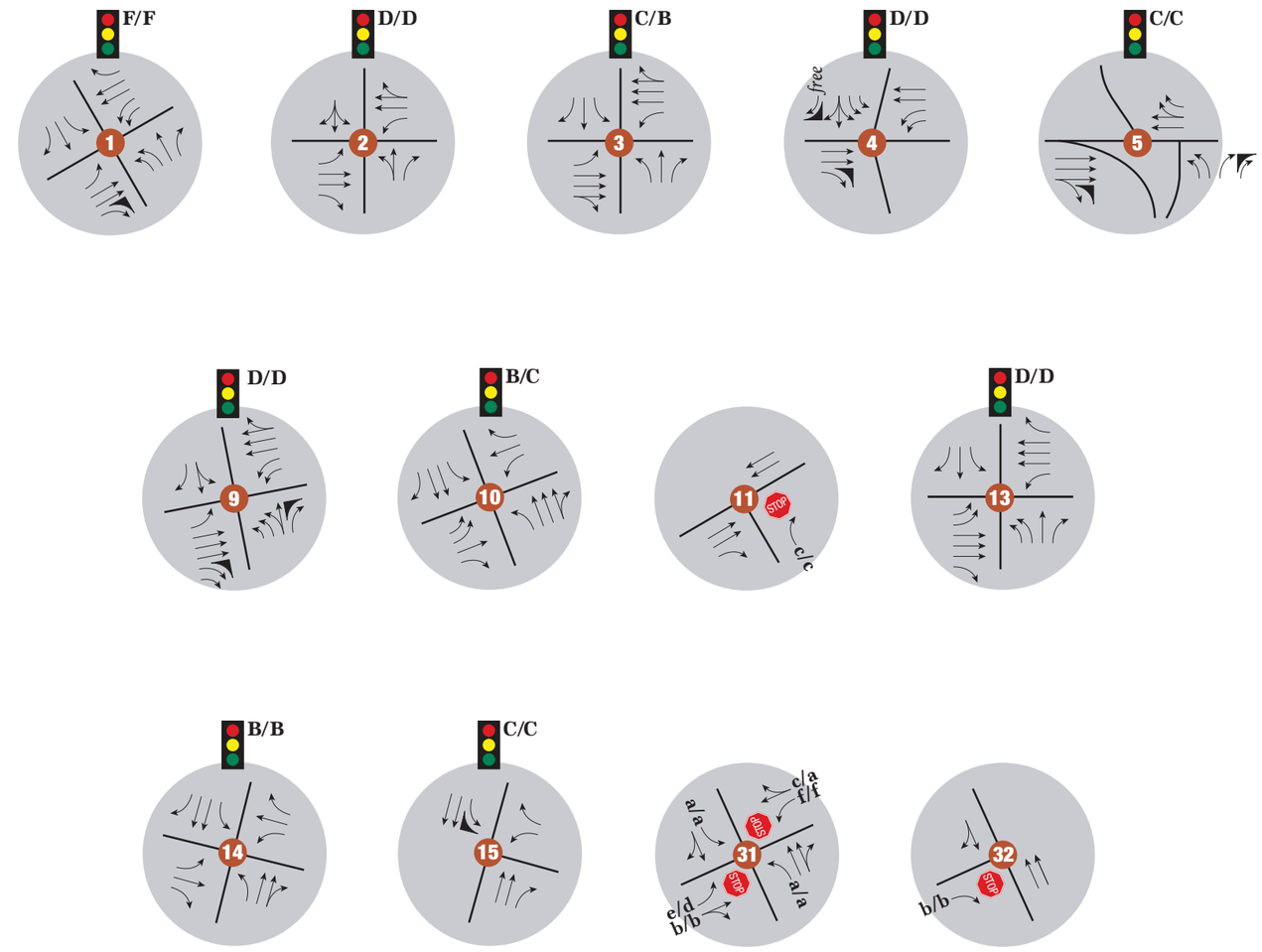
NOTE: Drawing Not to Scale

FIGURE 14

2040 Total Traffic Volumes

Canyons PA-1 TIS, Havana Realignment 122-020-01 9/1/22





LEGEND

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

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

STOP = Stop Sign

= Traffic Signal

= Improvement

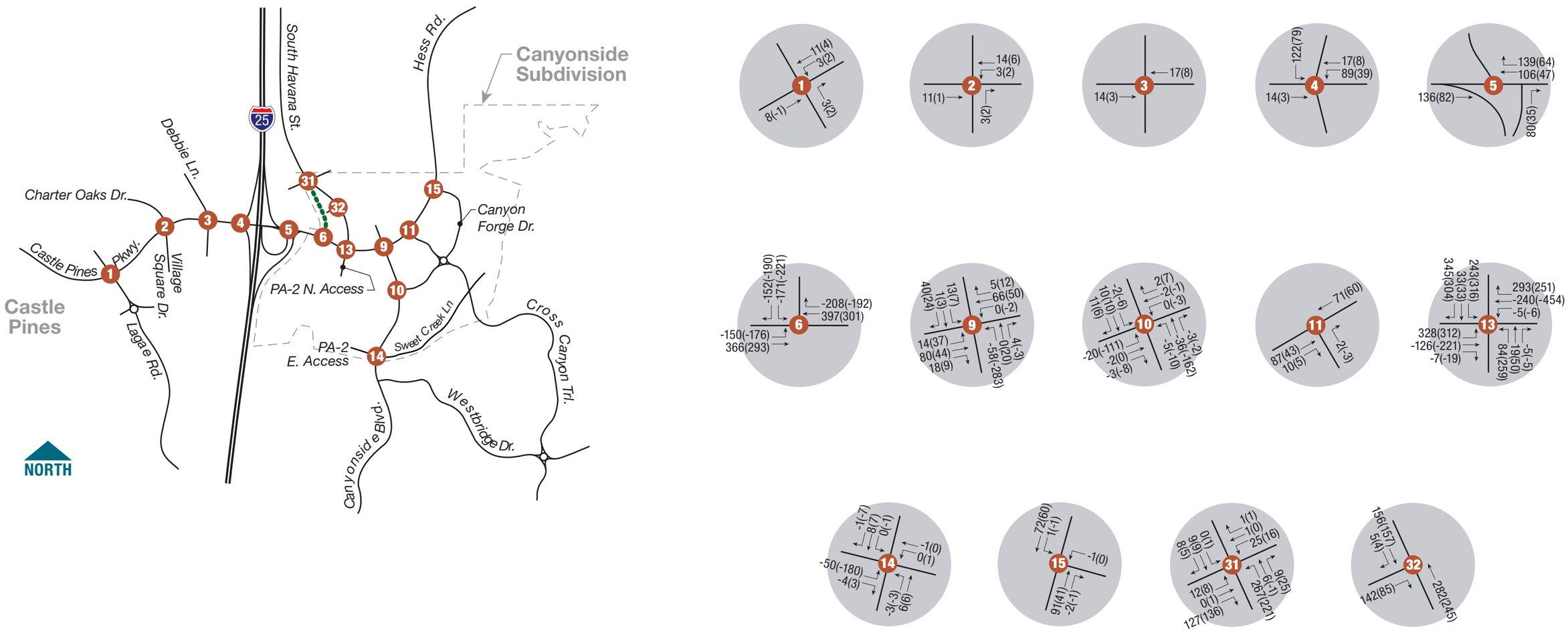
FELSBURG HOLT & ULLEVIG

NOTE: Drawing Not to Scale

FIGURE 15

2040 Total Traffic Conditions

Canyons PA-1 TIS, Havana Realignment 122-020-01 9/12/22



LEGEND

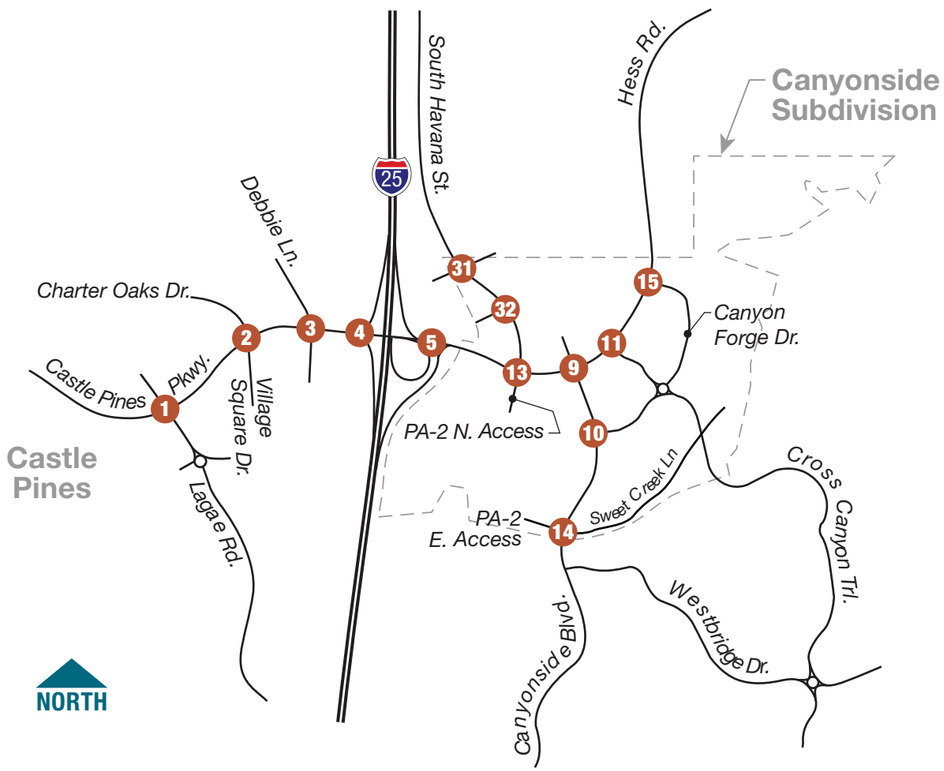
XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
*(*)	=	Volume is less than 5 vehicles per hour (vph)
●●●●●●●	=	Roadway to be Realigned

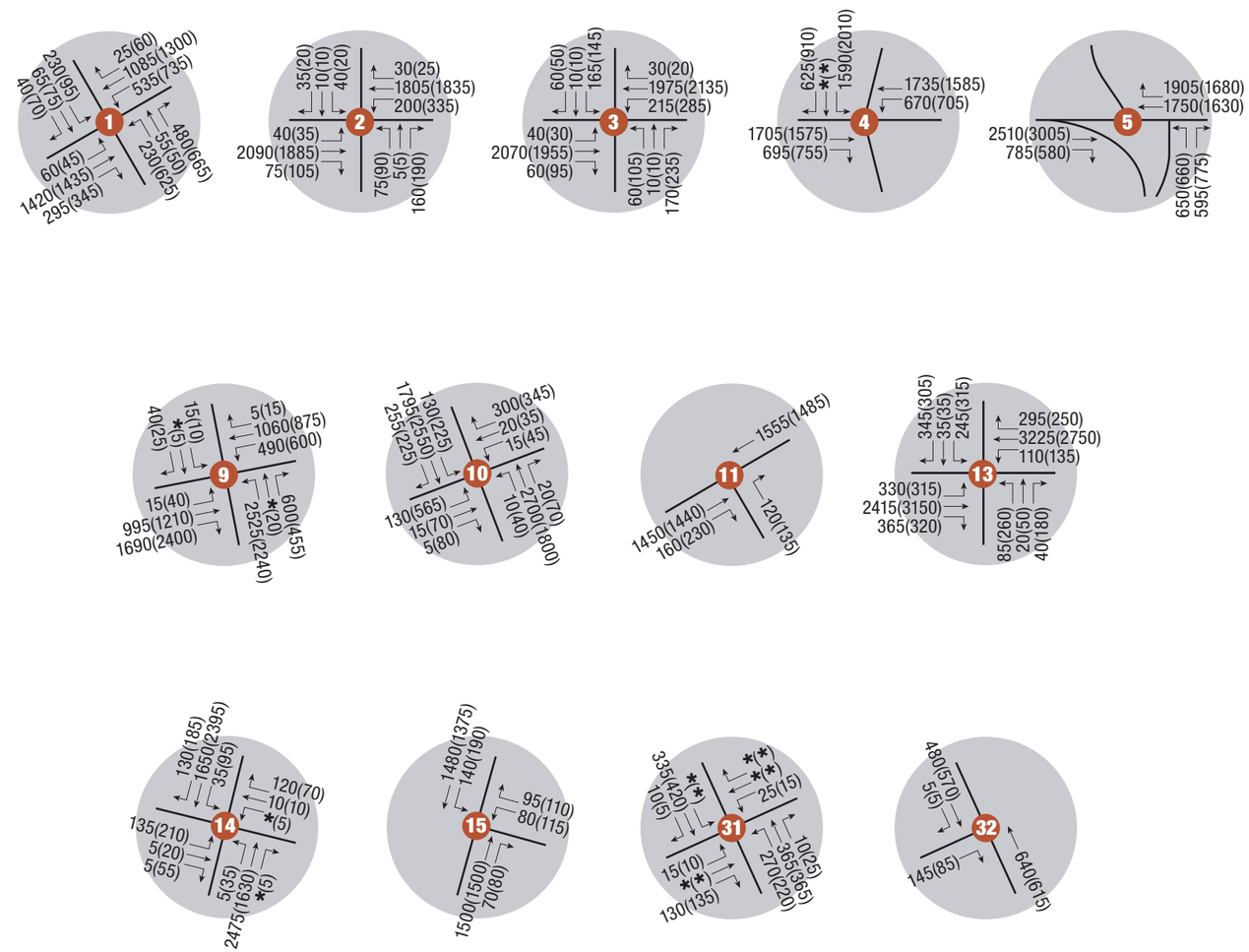
FELSBURG HOLT & ULLEVIG

NOTE: Drawing Not to Scale

FIGURE 18

2040 Canyons PA-1 Site Generated Traffic Volumes - Sensitivity Analysis





LEGEND

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

*(*) = Volume is less than 5 vehicles per hour (vph)

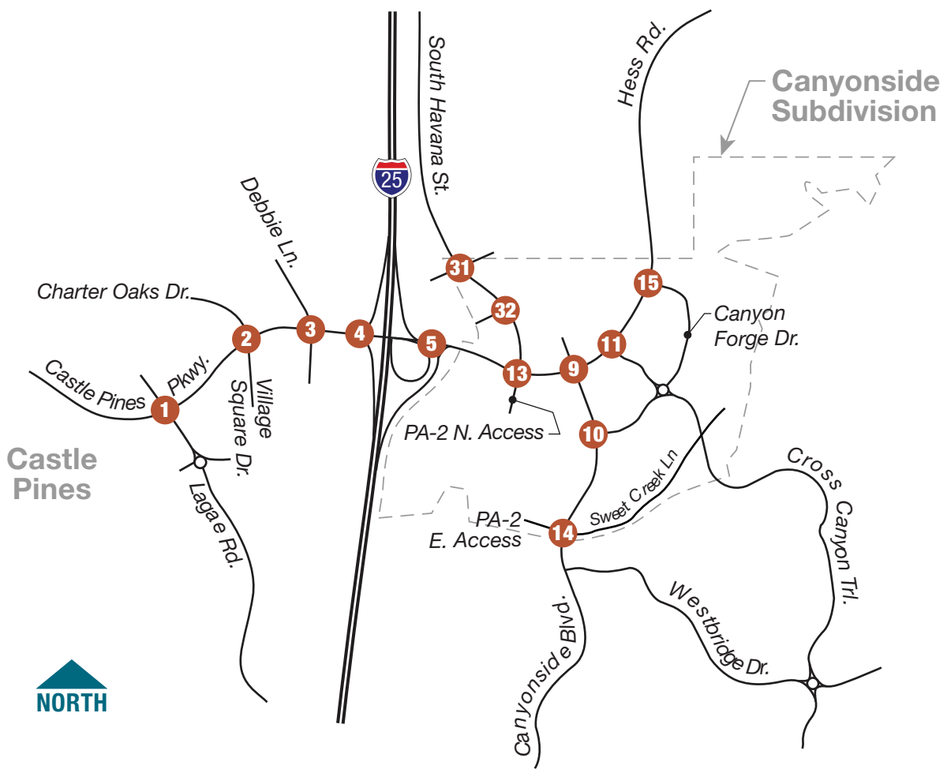
FELSBURG HOLT & ULLEVIG

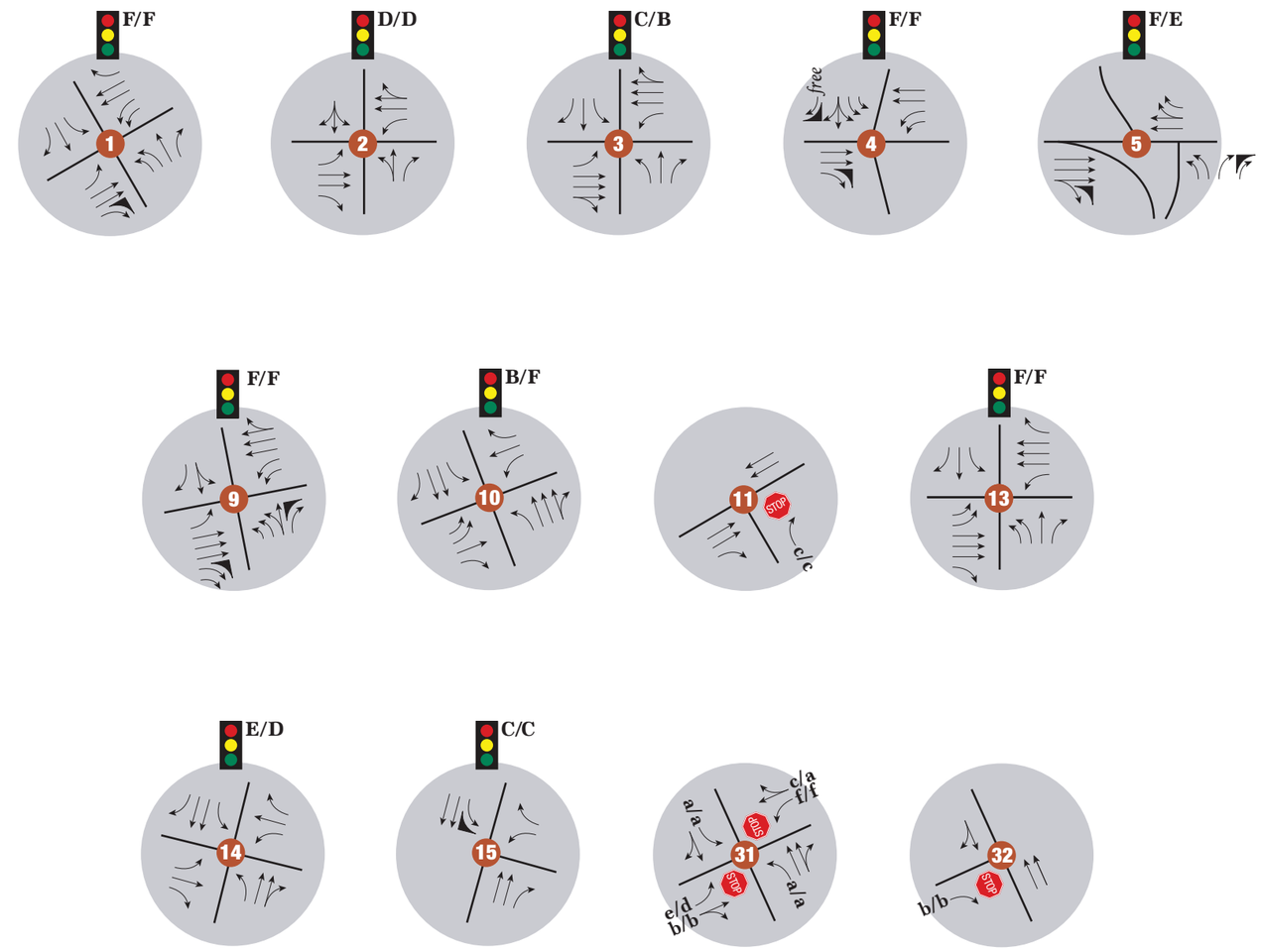
NOTE: Drawing Not to Scale

FIGURE 19

2040 Total Traffic Volumes - Sensitivity Analysis

Canyons PA-1 TIS, Havana Realignment 122-020-01 9/1/22





LEGEND

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

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

STOP = Stop Sign

= Traffic Signal

= Improvement

FELSBURG HOLT & ULLEVIG

NOTE: Drawing Not to Scale

FIGURE 20

2040 Total Traffic Conditions - Sensitivity Analysis

Canyons PA-1 TIS, Havana Realignment 122-020-01 9/12/22

Appendix D: Trip Generation Worksheets

Fueling Positions Daily Trip Generation Calculations

	TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		EXTRA FACTOR REDUCTION		INTERNAL CAPTURE		PASS-BY CAPTURE		NEW EXTERNAL VEHICLE TRIPS		
	Land Use + Code	Source	Scale	ITE Unit	Equation/Rate	Entering %	Exiting %	In	Out	Total	Factor	MR Trips	Factor	Extra Trips	Rate	IC Trips	Rate	PB Trips	Net New In	Out	Total
1	(945) Convenience Store/Gas Station	ITE 12th Ed	16	VFP	T = 203.35(X)	50%	50%	1,627	1,627	3,254	0.0%	0	0.0%	0	Excluded	0	75.0%	2,441	407	406	813
2	(948) Automated Car Wash	ITE 12th Ed	4.3	KSF	T = 253.51(X)	50%	50%	546	545	1,091	0.0%	0	0.0%	0	Excluded	0	0.0%	0	546	545	1,091
							Total:	2,173	2,172	4,345	0.0%	0	0.0%	0	0.0%	0	56.2%	2,441	953	951	1,904

Building Size Daily Trip Generation Calculations

	TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		EXTRA FACTOR REDUCTION		INTERNAL CAPTURE		PASS-BY CAPTURE		NEW EXTERNAL VEHICLE TRIPS		
	Land Use + Code	Source	Scale	ITE Unit	Equation/Rate	Entering %	Exiting %	In	Out	Total	Factor	MR Trips	Factor	Extra Trips	Rate	IC Trips	Rate	PB Trips	Net New In	Out	Total
1	(945) Convenience Store/Gas Station	ITE 12th Ed	6.45	KSF	T = 642.41(X)	50%	50%	2,070	2,070	4,140	0.0%	0	0.0%	0	Excluded	0	75.0%	3,105	518	517	1,035
2	(948) Automated Car Wash	ITE 12th Ed	4.3	KSF	T = 253.51(X)	50%	50%	546	545	1,091	0.0%	0	0.0%	0	Excluded	0	0.0%	0	546	545	1,091
							Total:	2,616	2,615	5,231	0.0%	0	0.0%	0	0.0%	0	59.4%	3,105	1,064	1,062	2,126

Fueling Positions AM Peak Hour Trip Generation Calculations

	TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		EXTRA FACTOR REDUCTION		INTERNAL CAPTURE		PASS-BY CAPTURE		NEW EXTERNAL VEHICLE TRIPS		
	Land Use + Code	Source	Scale	ITE Unit	Equation/Rate	Entering %	Exiting %	In	Out	Total	Factor	MR Trips	Factor	Extra Trips	Rate	IC Trips	Rate	PB Trips	Net New In	Out	Total
1	(945) Convenience Store/Gas Station	ITE 12th Ed	16	VFP	T = 23.21(X)	50%	50%	186	185	371	0.0%	0	0.0%	0	Excluded	0	76.0%	282	45	44	89
2	(948) Automated Car Wash	ITE 12th Ed	4.3	KSF	T = 14.89(X)	55%	45%	35	29	64	0.0%	0	0.0%	0	Excluded	0	0.0%	0	35	29	64
							Total:	221	214	435	0.0%	0	0.0%	0	0.0%	0	64.8%	282	80	73	153

Building Size AM Peak Hour Trip Generation Calculations

	TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		EXTRA FACTOR REDUCTION		INTERNAL CAPTURE		PASS-BY CAPTURE		NEW EXTERNAL VEHICLE TRIPS		
	Land Use + Code	Source	Scale	ITE Unit	Equation/Rate	Entering %	Exiting %	In	Out	Total	Factor	MR Trips	Factor	Extra Trips	Rate	IC Trips	Rate	PB Trips	Net New In	Out	Total
1	(945) Convenience Store/Gas Station	ITE 12th Ed	6.45	KSF	T = 64.97(X)	51%	49%	214	205	419	0.0%	0	0.0%	0	Excluded	0	76.0%	318	51	50	101
2	(948) Automated Car Wash	ITE 12th Ed	4.3	KSF	T = 14.89(X)	55%	45%	35	29	64	0.0%	0	0.0%	0	Excluded	0	0.0%	0	35	29	64
							Total:	249	234	483	0.0%	0	0.0%	0	0.0%	0	65.8%	318	86	79	165

Fueling Positions PM Peak Hour Trip Generation Calculations

	TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		EXTRA FACTOR REDUCTION		INTERNAL CAPTURE		PASS-BY CAPTURE		NEW EXTERNAL VEHICLE TRIPS		
	Land Use + Code	Source	Scale	ITE Unit	Equation/Rate	Entering %	Exiting %	In	Out	Total	Factor	MR Trips	Factor	Extra Trips	Rate	IC Trips	Rate	PB Trips	Net New In	Out	Total
1	(945) Convenience Store/Gas Station	ITE 12th Ed	16	VFP	T = 21.08(X)	50%	50%	169	168	337	0.0%	0	0.0%	0	Excluded	0	75.0%	253	42	42	84
2	(948) Automated Car Wash	ITE 12th Ed	4.3	KSF	T = 24.4(X)	49%	51%	51	54	105	0.0%	0	0.0%	0	Excluded	0	0.0%	0	51	54	105
							Total:	220	222	442	0.0%	0	0.0%	0	0.0%	0	57.2%	253	93	96	189

Building Size PM Peak Hour Trip Generation Calculations

	TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		EXTRA FACTOR REDUCTION		INTERNAL CAPTURE		PASS-BY CAPTURE		NEW EXTERNAL VEHICLE TRIPS		
	Land Use + Code	Source	Scale	ITE Unit	Equation/Rate	Entering %	Exiting %	In	Out	Total	Factor	MR Trips	Factor	Extra Trips	Rate	IC Trips	Rate	PB Trips	Net New In	Out	Total
1	(945) Convenience Store/Gas Station	ITE 12th Ed	6.45	KSF	T = 61.09(X)	50%	50%	197	197	394	0.0%	0	0.0%	0	Excluded	0	75.0%	296	49	49	98
2	(948) Automated Car Wash	ITE 12th Ed	4.3	KSF	T = 24.4(X)	49%	51%	51	54	105	0.0%	0	0.0%	0	Excluded	0	0.0%	0	51	54	105
							Total:	248	251	499	0.0%	0	0.0%	0	0.0%	0	59.3%	296	100	103	203

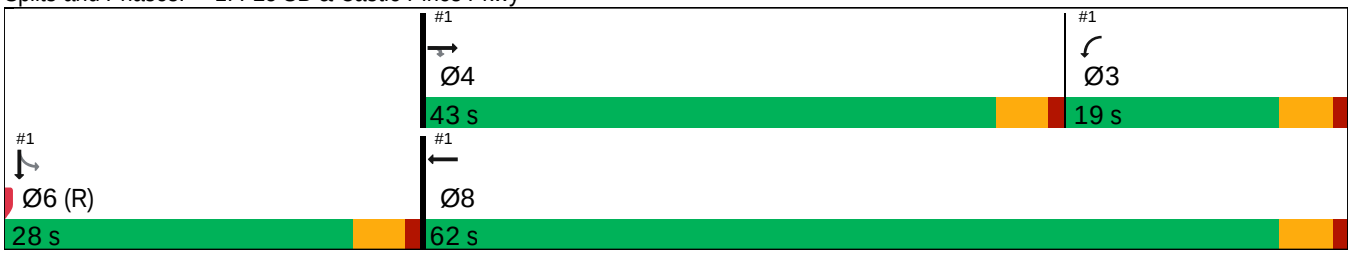
Appendix E: Intersection Analysis Worksheets

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	890	318	249	704	119	0	359
Future Volume (vph)	890	318	249	704	119	0	359
Turn Type	NA	Perm	Prot	NA	Perm	NA	Free
Protected Phases	4		3	8		6	
Permitted Phases		4			6		Free
Detector Phase	4	4	3	8	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	9.5	22.5	22.5	22.5	
Total Split (s)	43.0	43.0	19.0	62.0	28.0	28.0	
Total Split (%)	47.8%	47.8%	21.1%	68.9%	31.1%	31.1%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	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	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	None	None	None	None	C-Max	C-Max	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 75 (83%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-25 SB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	890	318	249	704	0	0	0	0	119	0	359
Future Volume (veh/h)	0	890	318	249	704	0	0	0	0	119	0	359
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1841	1841	1841
Adj Flow Rate, veh/h	0	937	0	262	741	0				125	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				4	4	4
Cap, veh/h	0	1165		348	1700	0				1478	0	
Arrive On Green	0.00	0.33	0.00	0.10	0.48	0.00				0.42	0.00	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				3506	0	1560
Grp Volume(v), veh/h	0	937	0	262	741	0				125	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1753	0	1560
Q Serve(g_s), s	0.0	21.7	0.0	6.6	12.4	0.0				1.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	21.7	0.0	6.6	12.4	0.0				1.9	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1165		348	1700	0				1478	0	
V/C Ratio(X)	0.00	0.80		0.75	0.44	0.00				0.08	0.00	
Avail Cap(c_a), veh/h	0	1520		557	2270	0				1478	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.86	0.86	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	27.6	0.0	39.4	15.5	0.0				15.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.5	0.0	2.9	0.2	0.0				0.1	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	9.2	0.0	2.9	4.6	0.0				0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	30.1	0.0	42.2	15.6	0.0				15.7	0.0	0.0
LnGrp LOS		C		D	B					B		
Approach Vol, veh/h		937			1003						125	
Approach Delay, s/veh		30.1			22.6						15.7	
Approach LOS		C			C						B	

Timer - Assigned Phs		3	4		6		8					
Phs Duration (G+Y+Rc), s		13.6	34.0		42.4		47.6					
Change Period (Y+Rc), s		4.5	4.5		4.5		4.5					
Max Green Setting (Gmax), s		14.5	38.5		23.5		57.5					
Max Q Clear Time (g_c+I1), s		8.6	23.7		3.9		14.4					
Green Ext Time (p_c), s		0.4	5.8		0.3		5.5					

Intersection Summary	
HCM 7th Control Delay, s/veh	25.6
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

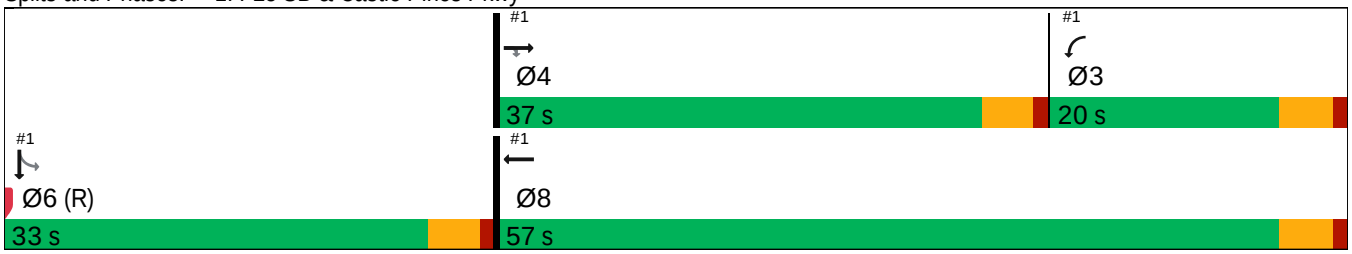
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	698	415	281	599	193	2	547
Future Volume (vph)	698	415	281	599	193	2	547
Turn Type	NA	Perm	Prot	NA	Perm	NA	Free
Protected Phases	4		3	8		6	
Permitted Phases		4			6		Free
Detector Phase	4	4	3	8	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	9.5	22.5	22.5	22.5	
Total Split (s)	37.0	37.0	20.0	57.0	33.0	33.0	
Total Split (%)	41.1%	41.1%	22.2%	63.3%	36.7%	36.7%	
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	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	None	None	None	None	C-Max	C-Max	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 77 (86%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-25 SB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	698	415	281	599	0	0	0	0	193	2	547
Future Volume (veh/h)	0	698	415	281	599	0	0	0	0	193	2	547
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	735	0	296	631	0				204	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	929		384	1502	0				1701	0	
Arrive On Green	0.00	0.26	0.00	0.11	0.42	0.00				0.48	0.00	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				3563	0	1585
Grp Volume(v), veh/h	0	735	0	296	631	0				204	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1781	0	1585
Q Serve(g_s), s	0.0	17.3	0.0	7.5	11.2	0.0				2.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	17.3	0.0	7.5	11.2	0.0				2.9	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	929		384	1502	0				1701	0	
V/C Ratio(X)	0.00	0.79		0.77	0.42	0.00				0.12	0.00	
Avail Cap(c_a), veh/h	0	1283		595	2073	0				1701	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.86	0.86	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	30.9	0.0	38.9	18.2	0.0				13.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.4	0.0	2.8	0.2	0.0				0.1	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	7.5	0.0	3.2	4.3	0.0				1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	33.3	0.0	41.7	18.4	0.0				13.2	0.0	0.0
LnGrp LOS		C		D	B					B		
Approach Vol, veh/h		735			927						204	
Approach Delay, s/veh		33.3			25.9						13.2	
Approach LOS		C			C						B	

Timer - Assigned Phs		3	4		6		8					
Phs Duration (G+Y+Rc), s		14.5	28.0		47.5		42.5					
Change Period (Y+Rc), s		4.5	4.5		4.5		4.5					
Max Green Setting (Gmax), s		15.5	32.5		28.5		52.5					
Max Q Clear Time (g_c+I1), s		9.5	19.3		4.9		13.2					
Green Ext Time (p_c), s		0.5	4.2		0.7		4.5					

Intersection Summary	
HCM 7th Control Delay, s/veh	27.4
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

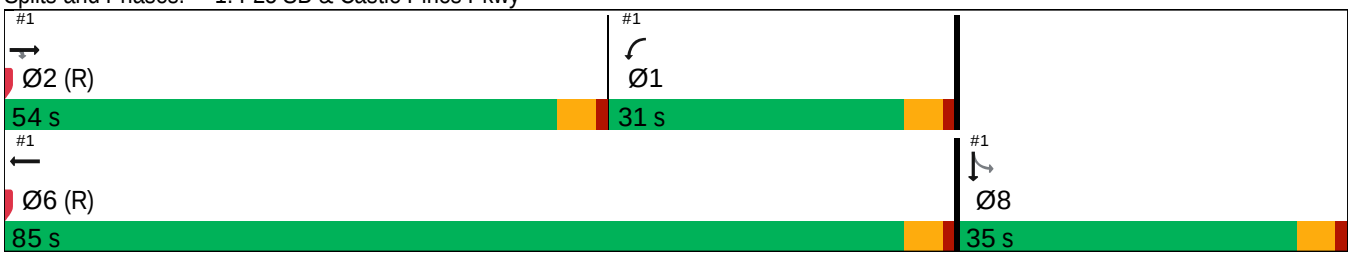
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	899	321	440	711	264	0	363
Future Volume (vph)	899	321	440	711	264	0	363
Turn Type	NA	Perm	Prot	NA	Perm	NA	Free
Protected Phases	2		1	6		8	
Permitted Phases		2			8		Free
Detector Phase	2	2	1	6	8	8	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	
Total Split (s)	54.0	54.0	31.0	85.0	35.0	35.0	
Total Split (%)	45.0%	45.0%	25.8%	70.8%	29.2%	29.2%	
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	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 108 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-25 SB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	899	321	440	711	0	0	0	0	264	0	363
Future Volume (veh/h)	0	899	321	440	711	0	0	0	0	264	0	363
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1841	1841	1841
Adj Flow Rate, veh/h	0	946	0	463	748	0				278	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				4	4	4
Cap, veh/h	0	1466		763	2384	0				891	0	
Arrive On Green	0.00	0.41	0.00	0.44	1.00	0.00				0.25	0.00	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				3506	0	1560
Grp Volume(v), veh/h	0	946	0	463	748	0				278	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1753	0	1560
Q Serve(g_s), s	0.0	25.6	0.0	12.3	0.0	0.0				7.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	25.6	0.0	12.3	0.0	0.0				7.7	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1466		763	2384	0				891	0	
V/C Ratio(X)	0.00	0.65		0.61	0.31	0.00				0.31	0.00	
Avail Cap(c_a), veh/h	0	1466		763	2384	0				891	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.85	0.85	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	28.2	0.0	29.5	0.0	0.0				36.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.2	0.0	1.2	0.3	0.0				0.9	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	11.2	0.0	4.3	0.1	0.0				3.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	30.4	0.0	30.7	0.3	0.0				37.2	0.0	0.0
LnGrp LOS		C		C	A					D		
Approach Vol, veh/h		946			1211						278	
Approach Delay, s/veh		30.4			11.9						37.2	
Approach LOS		C			B						D	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	31.0	54.0				85.0		35.0				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	26.5	49.5				80.5		30.5				
Max Q Clear Time (g_c+I1), s	14.3	27.6				2.0		9.7				
Green Ext Time (p_c), s	1.3	7.1				5.7		0.9				

Intersection Summary												
HCM 7th Control Delay, s/veh			22.0									
HCM 7th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

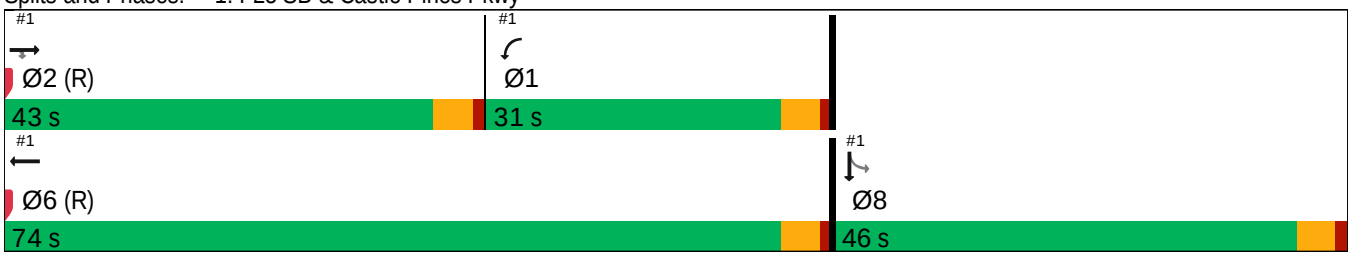
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	705	419	467	605	418	2	552
Future Volume (vph)	705	419	467	605	418	2	552
Turn Type	NA	Perm	Prot	NA	Perm	NA	Free
Protected Phases	2		1	6		8	
Permitted Phases		2			8		Free
Detector Phase	2	2	1	6	8	8	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	
Total Split (s)	43.0	43.0	31.0	74.0	46.0	46.0	
Total Split (%)	35.8%	35.8%	25.8%	61.7%	38.3%	38.3%	
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	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 107 (89%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-25 SB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	705	419	467	605	0	0	0	0	418	2	552
Future Volume (veh/h)	0	705	419	467	605	0	0	0	0	418	2	552
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	742	0	492	637	0				441	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1140		763	2058	0				1232	0	
Arrive On Green	0.00	0.32	0.00	0.44	1.00	0.00				0.35	0.00	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				3563	0	1585
Grp Volume(v), veh/h	0	742	0	492	637	0				441	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1781	0	1585
Q Serve(g_s), s	0.0	21.5	0.0	13.3	0.0	0.0				11.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	21.5	0.0	13.3	0.0	0.0				11.1	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1140		763	2058	0				1232	0	
V/C Ratio(X)	0.00	0.65		0.64	0.31	0.00				0.36	0.00	
Avail Cap(c_a), veh/h	0	1140		763	2058	0				1232	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.89	0.89	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	35.0	0.0	29.8	0.0	0.0				29.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.9	0.0	1.7	0.3	0.0				0.8	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	9.7	0.0	4.6	0.1	0.0				4.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	37.9	0.0	31.5	0.3	0.0				30.1	0.0	0.0
LnGrp LOS		D		C	A					C		
Approach Vol, veh/h		742			1129						441	
Approach Delay, s/veh		37.9			13.9						30.1	
Approach LOS		D			B						C	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	31.0	43.0				74.0		46.0				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	26.5	38.5				69.5		41.5				
Max Q Clear Time (g_c+I1), s	15.3	23.5				2.0		13.1				
Green Ext Time (p_c), s	1.4	4.5				4.7		1.6				

Intersection Summary	
HCM 7th Control Delay, s/veh	24.7
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

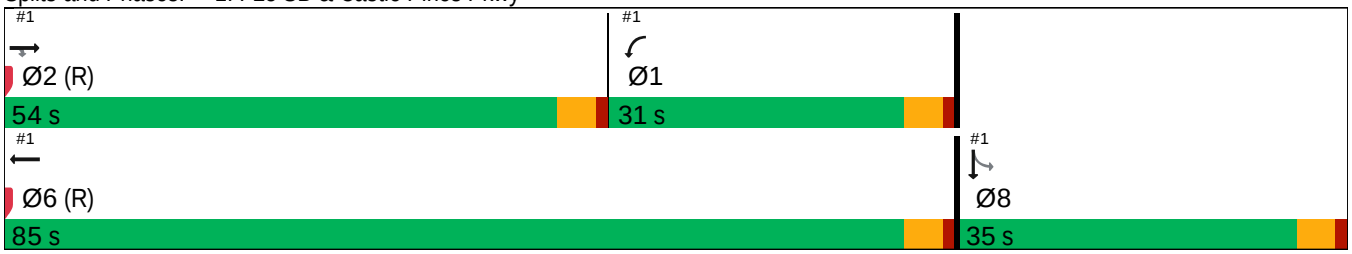
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	938	321	476	747	300	0	363
Future Volume (vph)	938	321	476	747	300	0	363
Turn Type	NA	Perm	Prot	NA	Perm	NA	Free
Protected Phases	2		1	6		8	
Permitted Phases		2			8		Free
Detector Phase	2	2	1	6	8	8	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	
Total Split (s)	54.0	54.0	31.0	85.0	35.0	35.0	
Total Split (%)	45.0%	45.0%	25.8%	70.8%	29.2%	29.2%	
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	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 108 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-25 SB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	938	321	476	747	0	0	0	0	300	0	363
Future Volume (veh/h)	0	938	321	476	747	0	0	0	0	300	0	363
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1841	1841	1841
Adj Flow Rate, veh/h	0	987	0	501	786	0				316	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				4	4	4
Cap, veh/h	0	1466		763	2384	0				891	0	
Arrive On Green	0.00	0.41	0.00	0.44	1.00	0.00				0.25	0.00	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				3506	0	1560
Grp Volume(v), veh/h	0	987	0	501	786	0				316	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1753	0	1560
Q Serve(g_s), s	0.0	27.1	0.0	13.7	0.0	0.0				8.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	27.1	0.0	13.7	0.0	0.0				8.9	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1466		763	2384	0				891	0	
V/C Ratio(X)	0.00	0.67		0.66	0.33	0.00				0.35	0.00	
Avail Cap(c_a), veh/h	0	1466		763	2384	0				891	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.82	0.82	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	28.7	0.0	29.9	0.0	0.0				36.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.5	0.0	1.7	0.3	0.0				1.1	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	11.9	0.0	4.7	0.1	0.0				4.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	31.2	0.0	31.6	0.3	0.0				37.8	0.0	0.0
LnGrp LOS		C		C	A					D		
Approach Vol, veh/h		987			1287						316	
Approach Delay, s/veh		31.2			12.5						37.8	
Approach LOS		C			B						D	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	31.0	54.0				85.0		35.0				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	26.5	49.5				80.5		30.5				
Max Q Clear Time (g_c+I1), s	15.7	29.1				2.0		10.9				
Green Ext Time (p_c), s	1.4	7.3				6.1		1.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	22.7
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

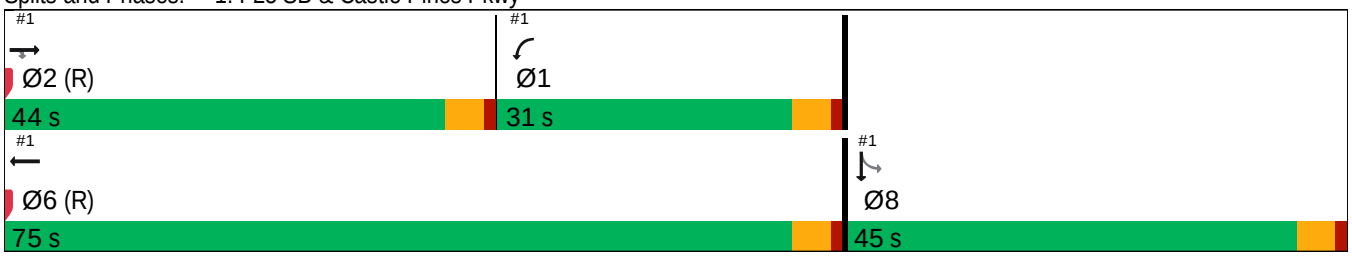
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	750	419	502	651	453	2	552
Future Volume (vph)	750	419	502	651	453	2	552
Turn Type	NA	Perm	Prot	NA	Perm	NA	Free
Protected Phases	2		1	6		8	
Permitted Phases		2			8		Free
Detector Phase	2	2	1	6	8	8	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	
Total Split (s)	44.0	44.0	31.0	75.0	45.0	45.0	
Total Split (%)	36.7%	36.7%	25.8%	62.5%	37.5%	37.5%	
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	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 107 (89%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-25 SB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	750	419	502	651	0	0	0	0	453	2	552
Future Volume (veh/h)	0	750	419	502	651	0	0	0	0	453	2	552
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	789	0	528	685	0				478	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1170		763	2088	0				1202	0	
Arrive On Green	0.00	0.33	0.00	0.44	1.00	0.00				0.34	0.00	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				3563	0	1585
Grp Volume(v), veh/h	0	789	0	528	685	0				478	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1781	0	1585
Q Serve(g_s), s	0.0	23.0	0.0	14.7	0.0	0.0				12.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	23.0	0.0	14.7	0.0	0.0				12.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1170		763	2088	0				1202	0	
V/C Ratio(X)	0.00	0.67		0.69	0.33	0.00				0.40	0.00	
Avail Cap(c_a), veh/h	0	1170		763	2088	0				1202	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.86	0.86	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	34.7	0.0	30.2	0.0	0.0				30.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.1	0.0	2.3	0.4	0.0				1.0	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	10.4	0.0	5.0	0.1	0.0				5.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	37.8	0.0	32.5	0.4	0.0				31.4	0.0	0.0
LnGrp LOS		D		C	A					C		
Approach Vol, veh/h		789			1213						478	
Approach Delay, s/veh		37.8			14.4						31.4	
Approach LOS		D			B						C	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	31.0	44.0				75.0		45.0				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	26.5	39.5				70.5		40.5				
Max Q Clear Time (g_c+I1), s	16.7	25.0				2.0		14.3				
Green Ext Time (p_c), s	1.4	4.8				5.1		1.8				

Intersection Summary	
HCM 7th Control Delay, s/veh	25.1
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

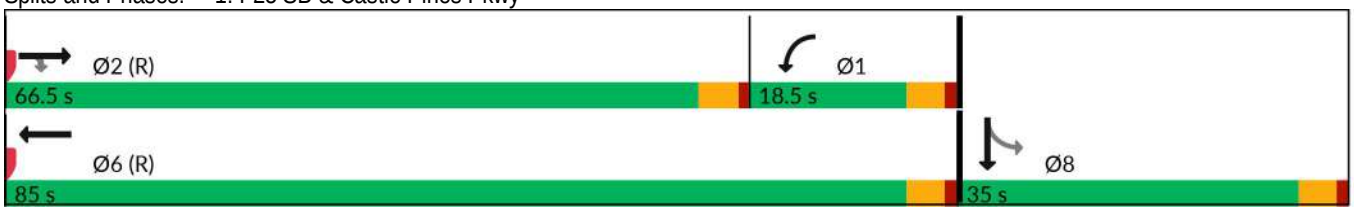
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	1749	731	372	1785	1086	1	657
Future Volume (vph)	1749	731	372	1785	1086	1	657
Turn Type	NA	Perm	Prot	NA	Perm	NA	Free
Protected Phases	2		1	6		8	
Permitted Phases		2			8		Free
Detector Phase	2	2	1	6	8	8	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	
Total Split (s)	66.5	66.5	18.5	85.0	35.0	35.0	
Total Split (%)	55.4%	55.4%	15.4%	70.8%	29.2%	29.2%	
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	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	None	None	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-25 SB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1749	731	372	1785	0	0	0	0	1086	1	657
Future Volume (veh/h)	0	1749	731	372	1785	0	0	0	0	1086	1	657
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1841	1841	1841
Adj Flow Rate, veh/h	0	1841	0	392	1879	0				1144	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				4	4	4
Cap, veh/h	0	1836		449	2431	0				1267	0	
Arrive On Green	0.00	0.52	0.00	0.17	0.91	0.00				0.24	0.00	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				5259	0	1560
Grp Volume(v), veh/h	0	1841	0	392	1879	0				1144	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1753	0	1560
Q Serve(g_s), s	0.0	62.0	0.0	13.3	19.3	0.0				25.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	62.0	0.0	13.3	19.3	0.0				25.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1836		449	2431	0				1267	0	
V/C Ratio(X)	0.00	1.00		0.87	0.77	0.00				0.90	0.00	
Avail Cap(c_a), veh/h	0	1836		449	2431	0				1337	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.36	0.36	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	29.0	0.0	48.7	2.6	0.0				44.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	21.6	0.0	7.1	0.9	0.0				8.5	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	30.6	0.0	5.8	2.6	0.0				11.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	50.6	0.0	55.8	3.5	0.0				52.7	0.0	0.0
LnGrp LOS		F		E	A					D		
Approach Vol, veh/h		1841			2271						1144	
Approach Delay, s/veh		50.6			12.5						52.7	
Approach LOS		D			B						D	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	20.1	66.5				86.6		33.4				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	14.0	62.0				80.5		30.5				
Max Q Clear Time (g_c+I1), s	15.3	64.0				21.3		27.3				
Green Ext Time (p_c), s	0.0	0.0				26.1		1.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			34.6									
HCM 7th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

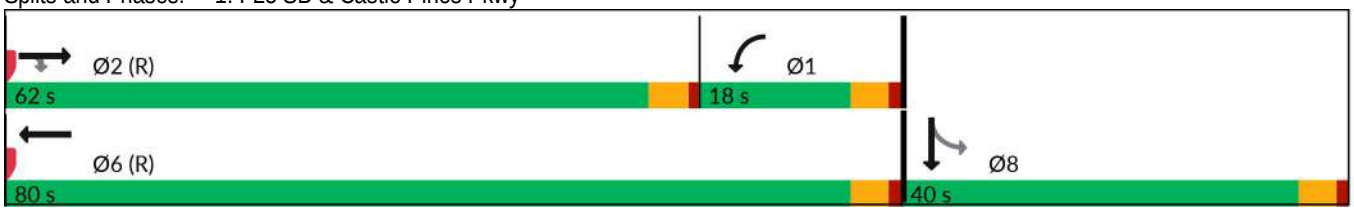
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	1614	794	378	1618	1388	1	957
Future Volume (vph)	1614	794	378	1618	1388	1	957
Turn Type	NA	Perm	Prot	NA	Perm	NA	Free
Protected Phases	2		1	6		8	
Permitted Phases		2			8		Free
Detector Phase	2	2	1	6	8	8	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	
Total Split (s)	62.0	62.0	18.0	80.0	40.0	40.0	
Total Split (%)	51.7%	51.7%	15.0%	66.7%	33.3%	33.3%	
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	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	None	None	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 112 (93%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-25 SB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1614	794	378	1618	0	0	0	0	1388	1	957
Future Volume (veh/h)	0	1614	794	378	1618	0	0	0	0	1388	1	957
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1699	0	398	1703	0				1462	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1703		403	2251	0				1559	0	
Arrive On Green	0.00	0.48	0.00	0.16	0.84	0.00				0.29	0.00	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				5344	0	1585
Grp Volume(v), veh/h	0	1699	0	398	1703	0				1462	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1781	0	1585
Q Serve(g_s), s	0.0	57.3	0.0	13.8	25.0	0.0				32.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	57.3	0.0	13.8	25.0	0.0				32.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1703		403	2251	0				1559	0	
V/C Ratio(X)	0.00	1.00		0.99	0.76	0.00				0.94	0.00	
Avail Cap(c_a), veh/h	0	1703		403	2251	0				1581	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.43	0.43	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	31.2	0.0	50.6	5.4	0.0				41.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	21.3	0.0	26.2	1.1	0.0				11.0	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	28.6	0.0	7.0	4.4	0.0				15.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	52.5	0.0	76.8	6.5	0.0				52.5	0.0	0.0
LnGrp LOS		D		E	A					D		
Approach Vol, veh/h		1699			2101						1462	
Approach Delay, s/veh		52.5			19.8						52.5	
Approach LOS		D			B						D	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	18.5	62.0				80.5		39.5				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	13.5	57.5				75.5		35.5				
Max Q Clear Time (g_c+I1), s	15.8	59.3				27.0		34.0				
Green Ext Time (p_c), s	0.0	0.0				20.2		1.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			39.4									
HCM 7th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

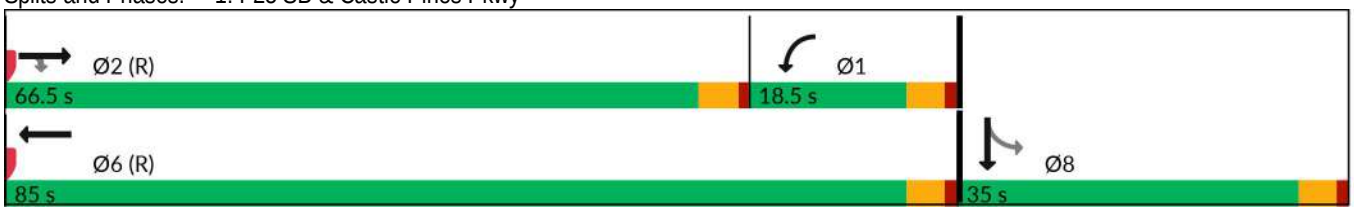
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	1790	731	408	1822	1123	1	657
Future Volume (vph)	1790	731	408	1822	1123	1	657
Turn Type	NA	Perm	Prot	NA	Perm	NA	Free
Protected Phases	2		1	6		8	
Permitted Phases		2			8		Free
Detector Phase	2	2	1	6	8	8	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	
Total Split (s)	66.5	66.5	18.5	85.0	35.0	35.0	
Total Split (%)	55.4%	55.4%	15.4%	70.8%	29.2%	29.2%	
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	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	None	None	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 112 (93%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-25 SB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1790	731	408	1822	0	0	0	0	1123	1	657
Future Volume (veh/h)	0	1790	731	408	1822	0	0	0	0	1123	1	657
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1841	1841	1841
Adj Flow Rate, veh/h	0	1884	0	429	1918	0				1183	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				4	4	4
Cap, veh/h	0	1836		433	2414	0				1292	0	
Arrive On Green	0.00	0.52	0.00	0.25	1.00	0.00				0.25	0.00	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				5259	0	1560
Grp Volume(v), veh/h	0	1884	0	429	1918	0				1183	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1753	0	1560
Q Serve(g_s), s	0.0	62.0	0.0	14.9	0.0	0.0				26.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	62.0	0.0	14.9	0.0	0.0				26.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1836		433	2414	0				1292	0	
V/C Ratio(X)	0.00	1.03		0.99	0.79	0.00				0.92	0.00	
Avail Cap(c_a), veh/h	0	1836		433	2414	0				1337	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.30	0.30	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	29.0	0.0	44.9	0.0	0.0				44.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	27.9	0.0	21.6	0.9	0.0				9.8	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	32.2	0.0	6.6	0.3	0.0				12.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	56.9	0.0	66.6	0.9	0.0				53.9	0.0	0.0
LnGrp LOS		F		E	A					D		
Approach Vol, veh/h		1884			2347						1183	
Approach Delay, s/veh		56.9			12.9						53.9	
Approach LOS		E			B						D	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	19.5	66.5				86.0		34.0				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	14.0	62.0				80.5		30.5				
Max Q Clear Time (g_c+I1), s	16.9	64.0				2.0		28.3				
Green Ext Time (p_c), s	0.0	0.0				29.9		1.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	37.2
HCM 7th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

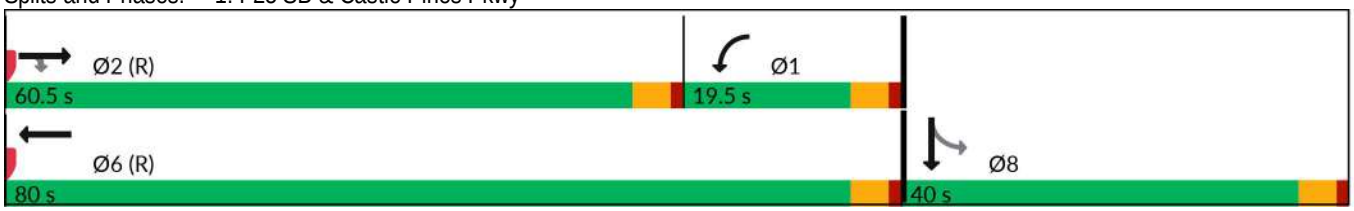
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	1659	794	413	1664	1423	1	957
Future Volume (vph)	1659	794	413	1664	1423	1	957
Turn Type	NA	Perm	Prot	NA	Perm	NA	Free
Protected Phases	2		1	6		8	
Permitted Phases		2			8		Free
Detector Phase	2	2	1	6	8	8	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5	
Total Split (s)	60.5	60.5	19.5	80.0	40.0	40.0	
Total Split (%)	50.4%	50.4%	16.3%	66.7%	33.3%	33.3%	
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	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	C-Max	C-Max	None	C-Max	None	None	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 112 (93%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 1: I-25 SB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1659	794	413	1664	0	0	0	0	1423	1	957
Future Volume (veh/h)	0	1659	794	413	1664	0	0	0	0	1423	1	957
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1746	0	435	1752	0				1499	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1658		436	2240	0				1574	0	
Arrive On Green	0.00	0.47	0.00	0.17	0.84	0.00				0.29	0.00	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				5344	0	1585
Grp Volume(v), veh/h	0	1746	0	435	1752	0				1499	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1781	0	1585
Q Serve(g_s), s	0.0	56.0	0.0	15.1	27.8	0.0				33.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	56.0	0.0	15.1	27.8	0.0				33.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1658		436	2240	0				1574	0	
V/C Ratio(X)	0.00	1.05		1.00	0.78	0.00				0.95	0.00	
Avail Cap(c_a), veh/h	0	1658		436	2240	0				1581	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.38	0.38	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	32.0	0.0	49.9	5.8	0.0				41.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	37.5	0.0	25.9	1.1	0.0				13.0	0.0	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
%ile BackOfQ(50%),veh/ln	0.0	31.8	0.0	7.6	4.7	0.0				16.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	69.5	0.0	75.8	6.9	0.0				54.5	0.0	0.0
LnGrp LOS		F		E	A					D		
Approach Vol, veh/h		1746			2187						1499	
Approach Delay, s/veh		69.5			20.6						54.5	
Approach LOS		E			C						D	

Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	19.6	60.5				80.1		39.9				
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5				
Max Green Setting (Gmax), s	15.0	56.0				75.5		35.5				
Max Q Clear Time (g_c+I1), s	17.1	58.0				29.8		35.0				
Green Ext Time (p_c), s	0.0	0.0				20.7		0.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			45.7									
HCM 7th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

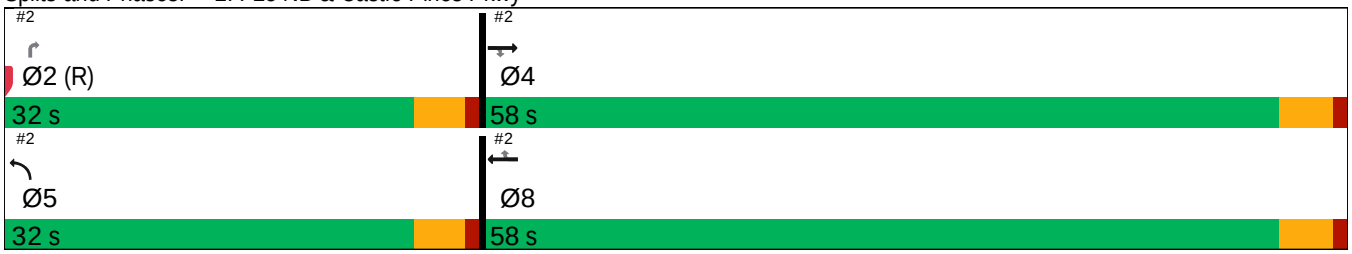
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	453	488	651	289	305	333
Future Volume (vph)	453	488	651	289	305	333
Turn Type	NA	Perm	NA	Perm	Prot	Perm
Protected Phases	4		8		5	
Permitted Phases		4		8		2
Detector Phase	4	4	8	8	5	2
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	9.5	22.5
Total Split (s)	58.0	58.0	58.0	58.0	32.0	32.0
Total Split (%)	64.4%	64.4%	64.4%	64.4%	35.6%	35.6%
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	None	None	None	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBR and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-25 NB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	453	488	0	651	289	305	0	333	0	0	0
Future Volume (veh/h)	0	453	488	0	651	289	305	0	333	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1870	1870	1856	0	1856			
Adj Flow Rate, veh/h	0	503	0	0	723	321	339	0	370			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	0	3	3	0	2	2	3	0	3			
Cap, veh/h	0	1004		0	1065	451	2110	0	1703			
Arrive On Green	0.00	0.48	0.00	0.00	0.28	0.28	0.62	0.00	0.62			
Sat Flow, veh/h	0	3618	1572	0	3741	1585	3428	0	2768			
Grp Volume(v), veh/h	0	503	0	0	723	321	339	0	370			
Grp Sat Flow(s),veh/h/ln	0	1763	1572	0	1870	1585	1714	0	1384			
Q Serve(g_s), s	0.0	8.8	0.0	0.0	15.4	16.3	3.8	0.0	5.3			
Cycle Q Clear(g_c), s	0.0	8.8	0.0	0.0	15.4	16.3	3.8	0.0	5.3			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	1004		0	1065	451	2110	0	1703			
V/C Ratio(X)	0.00	0.50		0.00	0.68	0.71	0.16	0.00	0.22			
Avail Cap(c_a), veh/h	0	2096		0	2224	942	2110	0	1703			
HCM Platoon Ratio	1.00	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.69	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	19.2	0.0	0.0	28.5	28.9	7.4	0.0	7.7			
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.8	2.1	0.0	0.0	0.1			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.1	0.0	0.0	6.8	6.3	1.3	0.0	1.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	19.5	0.0	0.0	29.3	31.0	7.4	0.0	7.8			
LnGrp LOS		B			C	C	A		A			
Approach Vol, veh/h		503			1044			709				
Approach Delay, s/veh		19.5			29.8			7.6				
Approach LOS		B			C			A				

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		59.9		30.1				30.1				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		27.5		53.5				53.5				
Max Q Clear Time (g_c+I1), s		7.3		10.8				18.3				
Green Ext Time (p_c), s		2.7		3.8				7.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	20.5
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

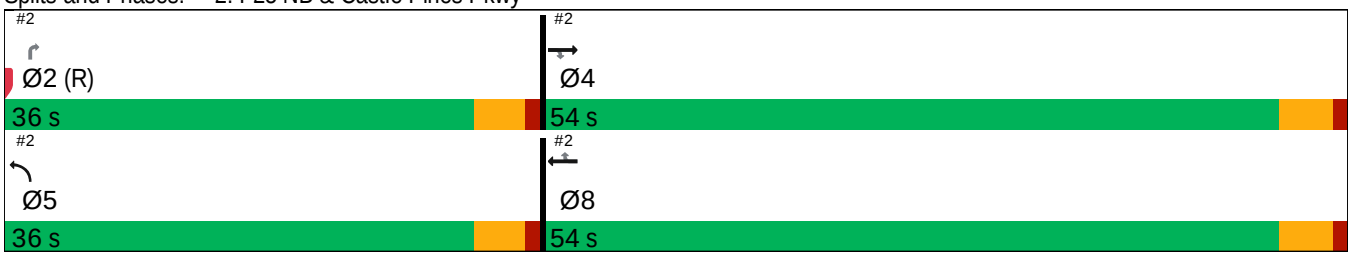
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	512	379	591	174	291	341
Future Volume (vph)	512	379	591	174	291	341
Turn Type	NA	Perm	NA	Perm	Prot	Perm
Protected Phases	4		8		5	
Permitted Phases		4		8		2
Detector Phase	4	4	8	8	5	2
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	9.5	22.5
Total Split (s)	54.0	54.0	54.0	54.0	36.0	36.0
Total Split (%)	60.0%	60.0%	60.0%	60.0%	40.0%	40.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	None	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBR and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-25 NB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	512	379	0	591	174	291	0	341	0	0	0
Future Volume (veh/h)	0	512	379	0	591	174	291	0	341	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	539	0	0	622	183	306	0	359			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	838		0	882	374	2295	0	1853			
Arrive On Green	0.00	0.47	0.00	0.00	0.24	0.24	0.66	0.00	0.66			
Sat Flow, veh/h	0	3647	1585	0	3741	1585	3456	0	2790			
Grp Volume(v), veh/h	0	539	0	0	622	183	306	0	359			
Grp Sat Flow(s),veh/h/ln	0	1777	1585	0	1870	1585	1728	0	1395			
Q Serve(g_s), s	0.0	10.4	0.0	0.0	13.7	9.0	2.9	0.0	4.5			
Cycle Q Clear(g_c), s	0.0	10.4	0.0	0.0	13.7	9.0	2.9	0.0	4.5			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	838		0	882	374	2295	0	1853			
V/C Ratio(X)	0.00	0.64		0.00	0.70	0.49	0.13	0.00	0.19			
Avail Cap(c_a), veh/h	0	1955		0	2057	872	2295	0	1853			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.77	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	20.9	0.0	0.0	31.5	29.7	5.6	0.0	5.8			
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	1.0	1.0	0.0	0.0	0.1			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.4	0.0	0.0	6.2	3.5	0.9	0.0	1.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	21.5	0.0	0.0	32.6	30.7	5.6	0.0	5.9			
LnGrp LOS		C			C	C	A		A			
Approach Vol, veh/h		539			805			665				
Approach Delay, s/veh		21.5			32.1			5.7				
Approach LOS		C			C			A				

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		64.3		25.7				25.7				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		31.5		49.5				49.5				
Max Q Clear Time (g_c+I1), s		6.5		12.4				15.7				
Green Ext Time (p_c), s		2.6		4.1				5.5				

Intersection Summary	
HCM 7th Control Delay, s/veh	20.6
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

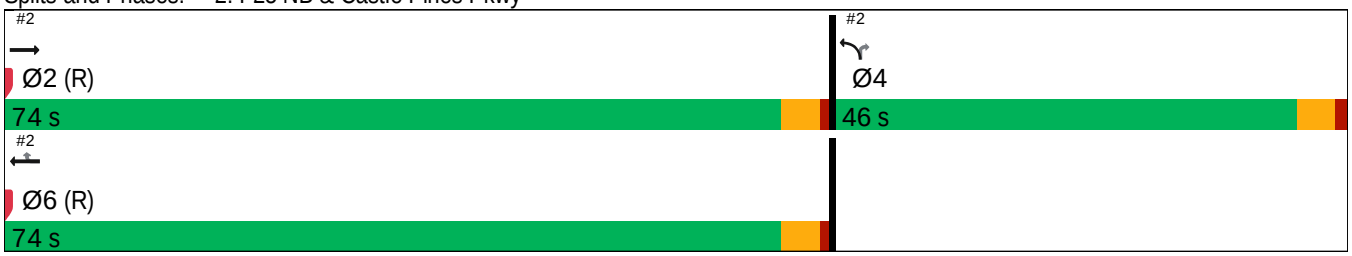
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	602	493	847	594	308	566
Future Volume (vph)	602	493	847	594	308	566
Turn Type	NA	Free	NA	Perm	Prot	Perm
Protected Phases	2		6		4	
Permitted Phases		Free		6		4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	74.0		74.0	74.0	46.0	46.0
Total Split (%)	61.7%		61.7%	61.7%	38.3%	38.3%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 114 (95%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-25 NB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	602	493	0	847	594	308	0	566	0	0	0
Future Volume (veh/h)	0	602	493	0	847	594	308	0	566	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1870	1870	1856	0	1856			
Adj Flow Rate, veh/h	0	669	0	0	1131	534	342	0	629			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	0	3	3	0	2	2	3	0	3			
Cap, veh/h	0	2042		0	2167	918	1186	0	957			
Arrive On Green	0.00	1.00	0.00	0.00	1.00	1.00	0.35	0.00	0.35			
Sat Flow, veh/h	0	3618	1572	0	3741	1585	3428	0	2768			
Grp Volume(v), veh/h	0	669	0	0	1131	534	342	0	629			
Grp Sat Flow(s),veh/h/ln	0	1763	1572	0	1870	1585	1714	0	1384			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	8.7	0.0	23.1			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	8.7	0.0	23.1			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2042		0	2167	918	1186	0	957			
V/C Ratio(X)	0.00	0.33		0.00	0.52	0.58	0.29	0.00	0.66			
Avail Cap(c_a), veh/h	0	2042		0	2167	918	1186	0	957			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.76	0.00	0.00	0.93	0.93	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	28.5	0.0	33.2			
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.8	2.5	0.6	0.0	3.5			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.3	0.6	3.7	0.0	8.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.3	0.0	0.0	0.8	2.5	29.1	0.0	36.8			
LnGrp LOS		A			A	A	C		D			
Approach Vol, veh/h		669			1665			971				
Approach Delay, s/veh		0.3			1.4			34.1				
Approach LOS		A			A			C				

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		74.0		46.0		74.0						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		69.5		41.5		69.5						
Max Q Clear Time (g_c+I1), s		2.0		25.1		2.0						
Green Ext Time (p_c), s		5.5		3.8		16.3						

Intersection Summary	
HCM 7th Control Delay, s/veh	10.8
HCM 7th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

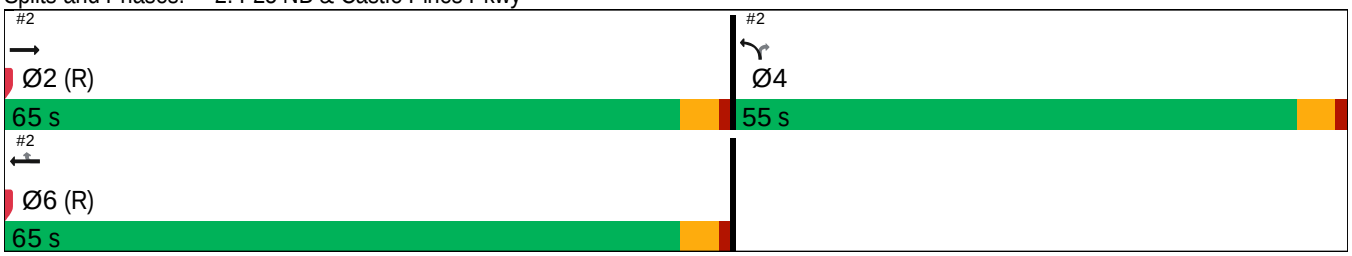
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	740	383	780	469	294	701
Future Volume (vph)	740	383	780	469	294	701
Turn Type	NA	Free	NA	Perm	Prot	Perm
Protected Phases	2		6		4	
Permitted Phases		Free		6		4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	65.0		65.0	65.0	55.0	55.0
Total Split (%)	54.2%		54.2%	54.2%	45.8%	45.8%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 117 (98%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-25 NB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	740	383	0	780	469	294	0	701	0	0	0
Future Volume (veh/h)	0	740	383	0	780	469	294	0	701	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	779	0	0	905	438	309	0	738			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	1792		0	1886	799	1454	0	1174			
Arrive On Green	0.00	1.00	0.00	0.00	1.00	1.00	0.42	0.00	0.42			
Sat Flow, veh/h	0	3647	1585	0	3741	1585	3456	0	2790			
Grp Volume(v), veh/h	0	779	0	0	905	438	309	0	738			
Grp Sat Flow(s),veh/h/ln	0	1777	1585	0	1870	1585	1728	0	1395			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.0	25.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.0	25.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	1792		0	1886	799	1454	0	1174			
V/C Ratio(X)	0.00	0.43		0.00	0.48	0.55	0.21	0.00	0.63			
Avail Cap(c_a), veh/h	0	1792		0	1886	799	1454	0	1174			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.78	0.00	0.00	0.96	0.96	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	22.1	0.0	27.4			
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.8	2.6	0.3	0.0	2.6			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.2	0.6	2.9	0.0	8.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.6	0.0	0.0	0.8	2.6	22.4	0.0	29.9			
LnGrp LOS		A			A	A	C		C			
Approach Vol, veh/h		779			1343			1047				
Approach Delay, s/veh		0.6			1.4			27.7				
Approach LOS		A			A			C				

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		65.0		55.0		65.0						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		60.5		50.5		60.5						
Max Q Clear Time (g_c+I1), s		2.0		27.0		2.0						
Green Ext Time (p_c), s		6.7		4.6		11.0						

Intersection Summary	
HCM 7th Control Delay, s/veh	9.9
HCM 7th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

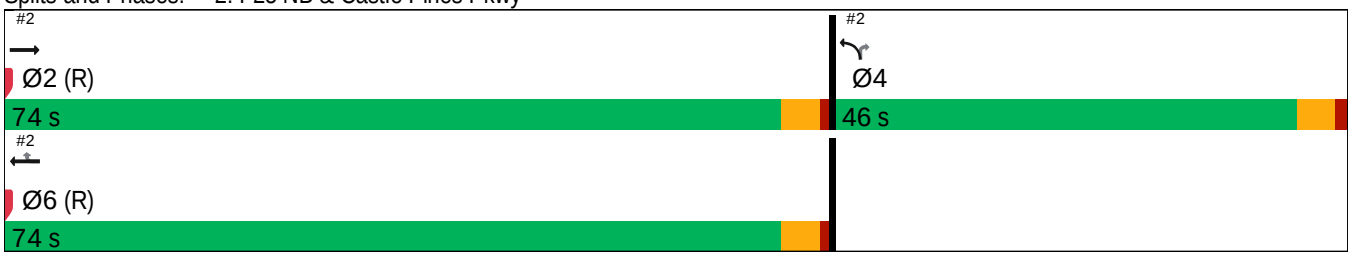
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	677	493	919	630	308	602
Future Volume (vph)	677	493	919	630	308	602
Turn Type	NA	Free	NA	Perm	Prot	Perm
Protected Phases	2		6		4	
Permitted Phases		Free		6		4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	74.0		74.0	74.0	46.0	46.0
Total Split (%)	61.7%		61.7%	61.7%	38.3%	38.3%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 114 (95%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-25 NB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	677	493	0	919	630	308	0	602	0	0	0
Future Volume (veh/h)	0	677	493	0	919	630	308	0	602	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1870	1870	1856	0	1856			
Adj Flow Rate, veh/h	0	752	0	0	1211	574	342	0	669			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	0	3	3	0	2	2	3	0	3			
Cap, veh/h	0	2042		0	2167	918	1186	0	957			
Arrive On Green	0.00	1.00	0.00	0.00	0.77	0.77	0.35	0.00	0.35			
Sat Flow, veh/h	0	3618	1572	0	3741	1585	3428	0	2768			
Grp Volume(v), veh/h	0	752	0	0	1211	574	342	0	669			
Grp Sat Flow(s),veh/h/ln	0	1763	1572	0	1870	1585	1714	0	1384			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	15.7	19.3	8.7	0.0	25.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	15.7	19.3	8.7	0.0	25.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2042		0	2167	918	1186	0	957			
V/C Ratio(X)	0.00	0.37		0.00	0.56	0.63	0.29	0.00	0.70			
Avail Cap(c_a), veh/h	0	2042		0	2167	918	1186	0	957			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.73	0.00	0.00	0.89	0.89	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	7.6	8.0	28.5	0.0	33.9			
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.9	2.9	0.6	0.0	4.2			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	4.8	5.1	3.7	0.0	8.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.4	0.0	0.0	8.5	10.9	29.1	0.0	38.1			
LnGrp LOS		A			A	B	C		D			
Approach Vol, veh/h		752			1785			1011				
Approach Delay, s/veh		0.4			9.3			35.1				
Approach LOS		A			A			D				

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		74.0		46.0		74.0						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		69.5		41.5		69.5						
Max Q Clear Time (g_c+I1), s		2.0		27.0		21.3						
Green Ext Time (p_c), s		6.4		3.8		17.3						

Intersection Summary	
HCM 7th Control Delay, s/veh	14.7
HCM 7th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

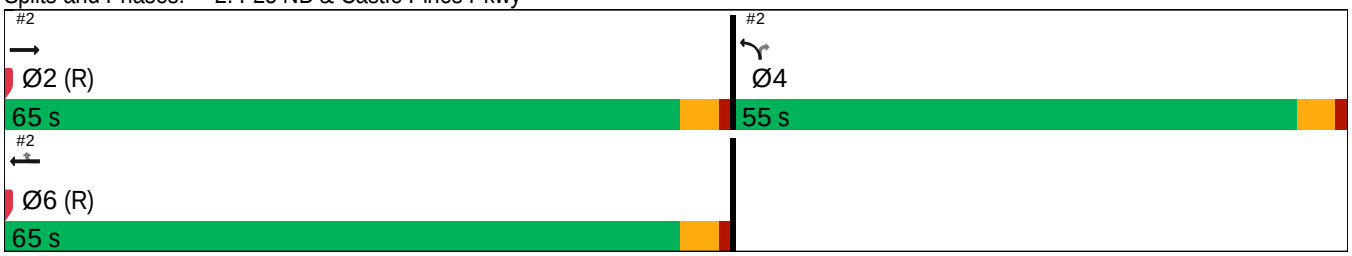
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	820	383	862	504	294	736
Future Volume (vph)	820	383	862	504	294	736
Turn Type	NA	Free	NA	Perm	Prot	Perm
Protected Phases	2		6		4	
Permitted Phases		Free		6		4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	65.0		65.0	65.0	55.0	55.0
Total Split (%)	54.2%		54.2%	54.2%	45.8%	45.8%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 117 (98%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-25 NB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	820	383	0	862	504	294	0	736	0	0	0
Future Volume (veh/h)	0	820	383	0	862	504	294	0	736	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	863	0	0	985	479	309	0	775			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	1792		0	1886	799	1454	0	1174			
Arrive On Green	0.00	1.00	0.00	0.00	1.00	1.00	0.42	0.00	0.42			
Sat Flow, veh/h	0	3647	1585	0	3741	1585	3456	0	2790			
Grp Volume(v), veh/h	0	863	0	0	985	479	309	0	775			
Grp Sat Flow(s),veh/h/ln	0	1777	1585	0	1870	1585	1728	0	1395			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.0	26.7			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.0	26.7			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	1792		0	1886	799	1454	0	1174			
V/C Ratio(X)	0.00	0.48		0.00	0.52	0.60	0.21	0.00	0.66			
Avail Cap(c_a), veh/h	0	1792		0	1886	799	1454	0	1174			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.75	0.00	0.00	0.93	0.93	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	22.1	0.0	27.9			
Incr Delay (d2), s/veh	0.0	0.7	0.0	0.0	1.0	3.1	0.3	0.0	2.9			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	0.3	0.7	2.9	0.0	9.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.7	0.0	0.0	1.0	3.1	22.4	0.0	30.8			
LnGrp LOS		A			A	A	C		C			
Approach Vol, veh/h		863			1464			1084				
Approach Delay, s/veh		0.7			1.7			28.4				
Approach LOS		A			A			C				

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		65.0		55.0		65.0						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		60.5		50.5		60.5						
Max Q Clear Time (g_c+I1), s		2.0		28.7		2.0						
Green Ext Time (p_c), s		7.7		4.7		12.7						

Intersection Summary	
HCM 7th Control Delay, s/veh	9.9
HCM 7th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

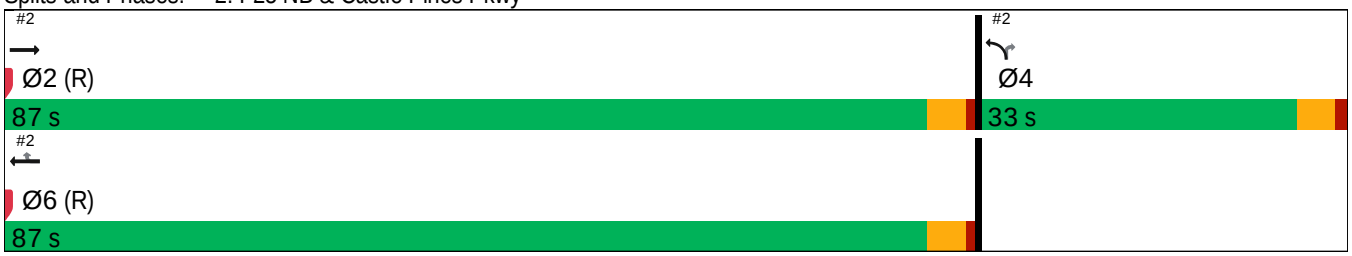
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2010	825	1467	1145	683	313
Future Volume (vph)	2010	825	1467	1145	683	313
Turn Type	NA	Free	NA	Perm	Prot	Perm
Protected Phases	2		6		4	
Permitted Phases		Free		6		4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	87.0		87.0	87.0	33.0	33.0
Total Split (%)	72.5%		72.5%	72.5%	27.5%	27.5%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 104 (87%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-25 NB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2010	825	0	1467	1145	683	0	313	0	0	0
Future Volume (veh/h)	0	2010	825	0	1467	1145	683	0	313	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1870	1870	1856	0	1856			
Adj Flow Rate, veh/h	0	2185	0	0	2043	947	742	0	340			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	3	3	0	2	2	3	0	3			
Cap, veh/h	0	3483		0	2572	1090	814	0	657			
Arrive On Green	0.00	1.00	0.00	0.00	0.91	0.91	0.24	0.00	0.24			
Sat Flow, veh/h	0	5233	1572	0	3741	1585	3428	0	2768			
Grp Volume(v), veh/h	0	2185	0	0	2043	947	742	0	340			
Grp Sat Flow(s),veh/h/ln	0	1689	1572	0	1870	1585	1714	0	1384			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	20.5	29.9	25.3	0.0	12.8			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	20.5	29.9	25.3	0.0	12.8			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3483		0	2572	1090	814	0	657			
V/C Ratio(X)	0.00	0.63		0.00	0.79	0.87	0.91	0.00	0.52			
Avail Cap(c_a), veh/h	0	3483		0	2572	1090	814	0	657			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.09	0.00	0.00	0.43	0.43	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	2.5	2.9	44.5	0.0	39.8			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	1.1	4.4	16.2	0.0	2.9			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	2.9	3.7	12.5	0.0	4.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.1	0.0	0.0	3.6	7.3	60.7	0.0	42.7			
LnGrp LOS		A			A	A	E		D			
Approach Vol, veh/h		2185			2990			1082				
Approach Delay, s/veh		0.1			4.8			55.0				
Approach LOS		A			A			E				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	87.0	33.0	87.0
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	82.5	28.5	82.5
Max Q Clear Time (g_c+I1), s	2.0	27.3	31.9
Green Ext Time (p_c), s	39.5	0.6	39.8

Intersection Summary	
HCM 7th Control Delay, s/veh	11.8
HCM 7th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

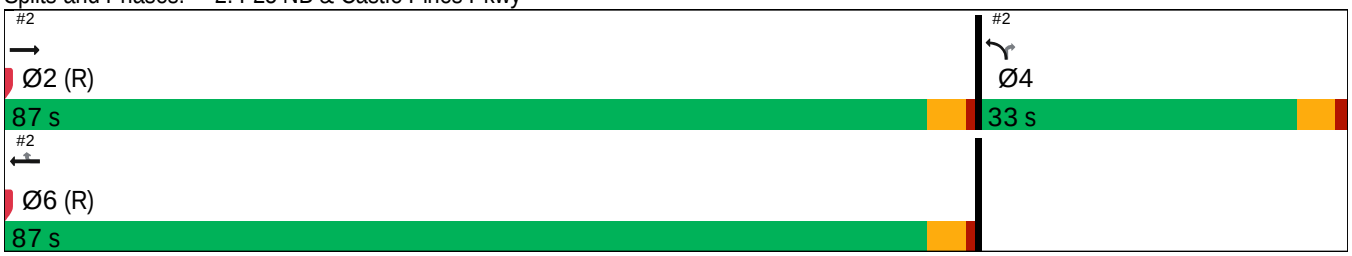
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2370	610	1301	1235	694	431
Future Volume (vph)	2370	610	1301	1235	694	431
Turn Type	NA	Free	NA	Perm	Prot	Perm
Protected Phases	2		6		4	
Permitted Phases		Free		6		4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	87.0		87.0	87.0	33.0	33.0
Total Split (%)	72.5%		72.5%	72.5%	27.5%	27.5%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 1 (1%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-25 NB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2370	610	0	1301	1235	694	0	431	0	0	0
Future Volume (veh/h)	0	2370	610	0	1301	1235	694	0	431	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	2495	0	0	1985	890	731	0	454			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	3510		0	2572	1090	821	0	663			
Arrive On Green	0.00	1.00	0.00	0.00	1.00	1.00	0.24	0.00	0.24			
Sat Flow, veh/h	0	5274	1585	0	3741	1585	3456	0	2790			
Grp Volume(v), veh/h	0	2495	0	0	1985	890	731	0	454			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1870	1585	1728	0	1395			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	24.5	0.0	17.8			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	24.5	0.0	17.8			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3510		0	2572	1090	821	0	663			
V/C Ratio(X)	0.00	0.71		0.00	0.77	0.82	0.89	0.00	0.69			
Avail Cap(c_a), veh/h	0	3510		0	2572	1090	821	0	663			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.09	0.00	0.00	0.52	0.52	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	44.2	0.0	41.7			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	1.2	3.7	13.9	0.0	5.7			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.4	1.1	12.0	0.0	6.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.1	0.0	0.0	1.2	3.7	58.2	0.0	47.4			
LnGrp LOS		A			A	A	E		D			
Approach Vol, veh/h		2495			2875			1185				
Approach Delay, s/veh		0.1			2.0			54.0				
Approach LOS		A			A			D				

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		87.0		33.0		87.0						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		82.5		28.5		82.5						
Max Q Clear Time (g_c+I1), s		2.0		26.5		2.0						
Green Ext Time (p_c), s		50.8		1.1		52.7						

Intersection Summary												
HCM 7th Control Delay, s/veh			10.7									
HCM 7th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.

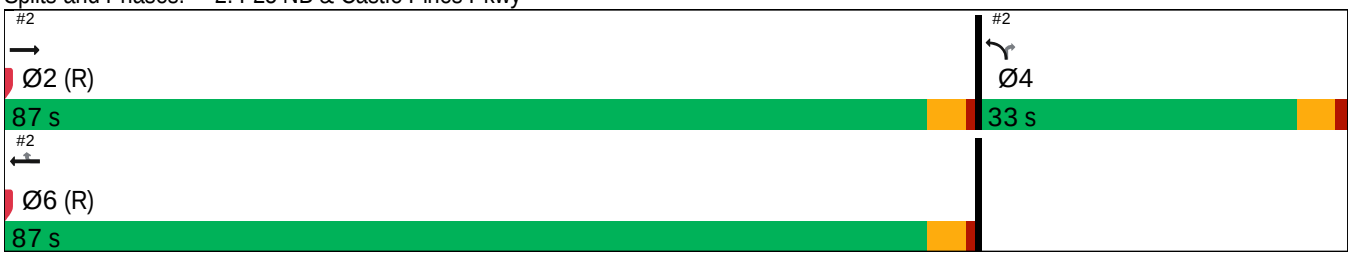
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2088	825	1541	1181	683	350
Future Volume (vph)	2088	825	1541	1181	683	350
Turn Type	NA	Free	NA	Perm	Prot	Perm
Protected Phases	2		6		4	
Permitted Phases		Free		6		4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	87.0		87.0	87.0	33.0	33.0
Total Split (%)	72.5%		72.5%	72.5%	27.5%	27.5%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 104 (87%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-25 NB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2088	825	0	1541	1181	683	0	350	0	0	0
Future Volume (veh/h)	0	2088	825	0	1541	1181	683	0	350	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1870	1870	1856	0	1856			
Adj Flow Rate, veh/h	0	2270	0	0	2122	986	742	0	380			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	3	3	0	2	2	3	0	3			
Cap, veh/h	0	3483		0	2572	1090	814	0	657			
Arrive On Green	0.00	1.00	0.00	0.00	0.69	0.69	0.24	0.00	0.24			
Sat Flow, veh/h	0	5233	1572	0	3741	1585	3428	0	2768			
Grp Volume(v), veh/h	0	2270	0	0	2122	986	742	0	380			
Grp Sat Flow(s),veh/h/ln	0	1689	1572	0	1870	1585	1714	0	1384			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	49.2	61.7	25.3	0.0	14.6			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	49.2	61.7	25.3	0.0	14.6			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3483		0	2572	1090	814	0	657			
V/C Ratio(X)	0.00	0.65		0.00	0.83	0.90	0.91	0.00	0.58			
Avail Cap(c_a), veh/h	0	3483		0	2572	1090	814	0	657			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.09	0.00	0.00	0.36	0.36	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	13.5	15.5	44.5	0.0	40.4			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	1.2	5.1	16.2	0.0	3.7			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	18.9	21.2	12.5	0.0	5.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.1	0.0	0.0	14.7	20.6	60.7	0.0	44.1			
LnGrp LOS		A			B	C	E		D			
Approach Vol, veh/h		2270			3108			1122				
Approach Delay, s/veh		0.1			16.6			55.1				
Approach LOS		A			B			E				

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		87.0		33.0		87.0						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		82.5		28.5		82.5						
Max Q Clear Time (g_c+I1), s		2.0		27.3		63.7						
Green Ext Time (p_c), s		42.6		0.7		17.3						

Intersection Summary												
HCM 7th Control Delay, s/veh			17.5									
HCM 7th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.

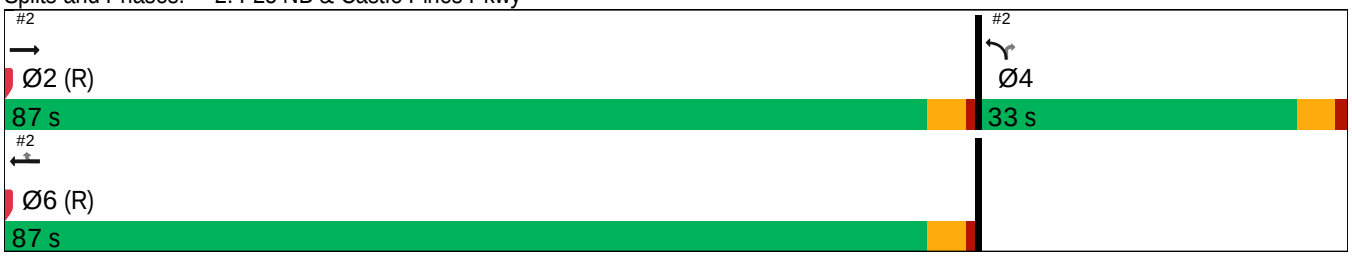
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2450	610	1383	1270	694	466
Future Volume (vph)	2450	610	1383	1270	694	466
Turn Type	NA	Free	NA	Perm	Prot	Perm
Protected Phases	2		6		4	
Permitted Phases		Free		6		4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	87.0		87.0	87.0	33.0	33.0
Total Split (%)	72.5%		72.5%	72.5%	27.5%	27.5%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max		C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 1 (1%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 2: I-25 NB & Castle Pines Pkwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2450	610	0	1383	1270	694	0	466	0	0	0
Future Volume (veh/h)	0	2450	610	0	1383	1270	694	0	466	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	2579	0	0	2065	931	731	0	491			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	3510		0	2572	1090	821	0	663			
Arrive On Green	0.00	1.00	0.00	0.00	1.00	1.00	0.24	0.00	0.24			
Sat Flow, veh/h	0	5274	1585	0	3741	1585	3456	0	2790			
Grp Volume(v), veh/h	0	2579	0	0	2065	931	731	0	491			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1870	1585	1728	0	1395			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	24.5	0.0	19.5			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	24.5	0.0	19.5			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3510		0	2572	1090	821	0	663			
V/C Ratio(X)	0.00	0.73		0.00	0.80	0.85	0.89	0.00	0.74			
Avail Cap(c_a), veh/h	0	3510		0	2572	1090	821	0	663			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.09	0.00	0.00	0.48	0.48	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	44.2	0.0	42.3			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	1.3	4.4	13.9	0.0	7.3			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.5	1.3	12.0	0.0	7.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.1	0.0	0.0	1.3	4.4	58.2	0.0	49.7			
LnGrp LOS		A			A	A	E		D			
Approach Vol, veh/h		2579			2996			1222				
Approach Delay, s/veh		0.1			2.3			54.7				
Approach LOS		A			A			D				

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		87.0		33.0		87.0						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		82.5		28.5		82.5						
Max Q Clear Time (g_c+I1), s		2.0		26.5		2.0						
Green Ext Time (p_c), s		53.8		1.1		56.4						

Intersection Summary												
HCM 7th Control Delay, s/veh			10.9									
HCM 7th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.

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

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	177	607	875	51	6	56
Future Vol, veh/h	177	607	875	51	6	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	500	0	450
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	4	4	2	2	3	3
Mvmt Flow	199	682	983	57	7	63

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1040	0	-	0	1722	492
Stage 1	-	-	-	-	983	-
Stage 2	-	-	-	-	739	-
Critical Hdwy	4.18	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.24	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	652	-	-	-	79	520
Stage 1	-	-	-	-	321	-
Stage 2	-	-	-	-	431	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	652	-	-	-	55	520
Mov Cap-2 Maneuver	-	-	-	-	55	-
Stage 1	-	-	-	-	223	-
Stage 2	-	-	-	-	431	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.92	0	19.28
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	652	-	-	-	55	520
HCM Lane V/C Ratio	0.305	-	-	-	0.122	0.121
HCM Ctrl Dly (s/v)	12.9	-	-	-	79.1	12.9
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	1.3	-	-	-	0.4	0.4

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	64	832	667	14	24	109
Future Vol, veh/h	64	832	667	14	24	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	500	0	450
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	876	702	15	25	115

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	717	0	-	0	1275	351
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	573	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	880	-	-	-	159	645
Stage 1	-	-	-	-	453	-
Stage 2	-	-	-	-	528	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	880	-	-	-	147	645
Mov Cap-2 Maneuver	-	-	-	-	147	-
Stage 1	-	-	-	-	418	-
Stage 2	-	-	-	-	528	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.67	0	15.9
HCM LOS			C

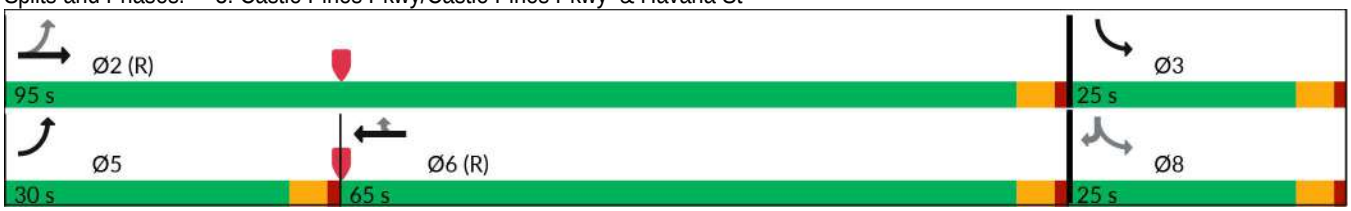
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	880	-	-	-	147	645
HCM Lane V/C Ratio	0.077	-	-	-	0.172	0.178
HCM Ctrl Dly (s/v)	9.4	-	-	-	34.6	11.8
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6	0.6

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	185	981	1368	52	29	65
Future Volume (vph)	185	981	1368	52	29	65
Turn Type	pm+pt	NA	NA	Perm	pm+pt	Perm
Protected Phases	5	2	6		3	
Permitted Phases	2			6	8	8
Detector Phase	5	2	6	6	3	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	30.0	95.0	65.0	65.0	25.0	25.0
Total Split (%)	25.0%	79.2%	54.2%	54.2%	20.8%	20.8%
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	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Castle Pines Pkwy/Castle Pines Pkwy & Havana St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	185	981	1368	52	29	65
Future Volume (veh/h)	185	981	1368	52	29	65
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	1841	1841	1870	1870	1856	1856
Adj Flow Rate, veh/h	208	1102	1537	58	33	73
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	4	2	2	3	3
Cap, veh/h	683	3018	4002	1242	110	98
Arrive On Green	0.08	1.00	0.78	0.78	0.06	0.06
Sat Flow, veh/h	3401	3589	5274	1585	1767	1572
Grp Volume(v), veh/h	208	1102	1537	58	33	73
Grp Sat Flow(s),veh/h/ln	1700	1749	1702	1585	1767	1572
Q Serve(g_s), s	1.3	0.0	11.2	1.0	2.1	5.5
Cycle Q Clear(g_c), s	1.3	0.0	11.2	1.0	2.1	5.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	683	3018	4002	1242	110	98
V/C Ratio(X)	0.30	0.37	0.38	0.05	0.30	0.75
Avail Cap(c_a), veh/h	1264	3018	4002	1242	302	269
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	2.6	0.0	4.0	2.9	53.8	55.3
Incr Delay (d2), s/veh	0.2	0.3	0.3	0.1	1.5	10.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	3.0	0.3	1.0	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	2.8	0.3	4.3	3.0	55.3	66.1
LnGrp LOS	A	A	A	A	E	E
Approach Vol, veh/h		1310	1595		106	
Approach Delay, s/veh		0.7	4.2		62.7	
Approach LOS		A	A		E	

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		108.0			9.5	98.6		12.0
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		90.5			25.5	60.5		20.5
Max Q Clear Time (g_c+I1), s		2.0			3.3	13.2		7.5
Green Ext Time (p_c), s		11.3			0.7	16.0		0.2

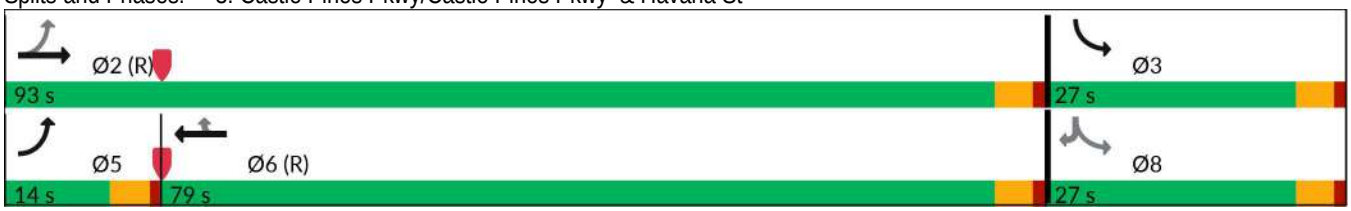
Intersection Summary	
HCM 7th Control Delay, s/veh	4.8
HCM 7th LOS	A

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	74	1411	1144	14	60	118
Future Volume (vph)	74	1411	1144	14	60	118
Turn Type	pm+pt	NA	NA	Perm	pm+pt	Perm
Protected Phases	5	2	6		3	
Permitted Phases	2			6	8	8
Detector Phase	5	2	6	6	3	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	14.0	93.0	79.0	79.0	27.0	27.0
Total Split (%)	11.7%	77.5%	65.8%	65.8%	22.5%	22.5%
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	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Castle Pines Pkwy/Castle Pines Pkwy & Havana St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	74	1411	1144	14	60	118
Future Volume (veh/h)	74	1411	1144	14	60	118
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	78	1485	1204	15	63	124
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	854	2945	3842	1193	172	153
Arrive On Green	0.08	1.00	0.75	0.75	0.10	0.10
Sat Flow, veh/h	3456	3647	5274	1585	1781	1585
Grp Volume(v), veh/h	78	1485	1204	15	63	124
Grp Sat Flow(s),veh/h/ln	1728	1777	1702	1585	1781	1585
Q Serve(g_s), s	0.5	0.0	9.2	0.3	4.0	9.2
Cycle Q Clear(g_c), s	0.5	0.0	9.2	0.3	4.0	9.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	854	2945	3842	1193	172	153
V/C Ratio(X)	0.09	0.50	0.31	0.01	0.37	0.81
Avail Cap(c_a), veh/h	994	2945	3842	1193	334	297
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	2.7	0.0	4.8	3.7	50.8	53.1
Incr Delay (d2), s/veh	0.0	0.5	0.2	0.0	1.3	9.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	2.7	0.1	1.8	4.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	2.8	0.5	5.0	3.7	52.1	63.0
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		1563	1219		187	
Approach Delay, s/veh		0.6	5.0		59.3	
Approach LOS		A	A		E	

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		103.9			9.1	94.8		16.1
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		88.5			9.5	74.5		22.5
Max Q Clear Time (g_c+I1), s		2.0			2.5	11.2		11.2
Green Ext Time (p_c), s		19.7			0.1	11.1		0.4

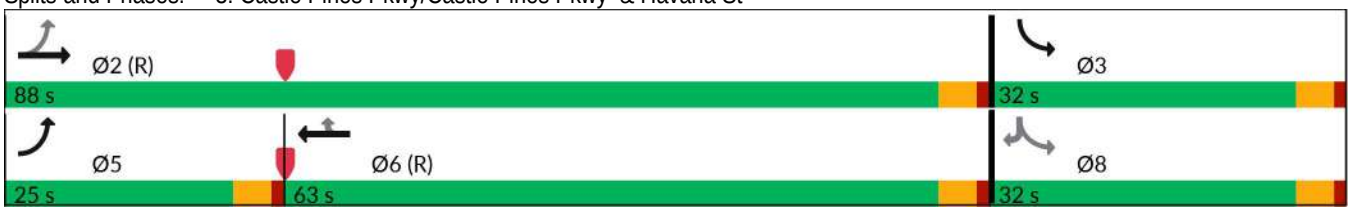
Intersection Summary	
HCM 7th Control Delay, s/veh	6.1
HCM 7th LOS	A

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	335	941	1312	142	101	227
Future Volume (vph)	335	941	1312	142	101	227
Turn Type	pm+pt	NA	NA	Perm	pm+pt	Perm
Protected Phases	5	2	6		3	
Permitted Phases	2			6	8	8
Detector Phase	5	2	6	6	3	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	25.0	88.0	63.0	63.0	32.0	32.0
Total Split (%)	20.8%	73.3%	52.5%	52.5%	26.7%	26.7%
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	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Castle Pines Pkwy/Castle Pines Pkwy & Havana St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	335	941	1312	142	101	227
Future Volume (veh/h)	335	941	1312	142	101	227
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	1841	1841	1870	1870	1856	1856
Adj Flow Rate, veh/h	376	1057	1474	160	113	255
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	4	2	2	3	3
Cap, veh/h	627	2603	3287	1020	320	284
Arrive On Green	0.13	1.00	0.64	0.64	0.18	0.18
Sat Flow, veh/h	3401	3589	5274	1585	1767	1572
Grp Volume(v), veh/h	376	1057	1474	160	113	255
Grp Sat Flow(s),veh/h/ln	1700	1749	1702	1585	1767	1572
Q Serve(g_s), s	4.4	0.0	17.4	4.8	6.7	19.0
Cycle Q Clear(g_c), s	4.4	0.0	17.4	4.8	6.7	19.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	627	2603	3287	1020	320	284
V/C Ratio(X)	0.60	0.41	0.45	0.16	0.35	0.90
Avail Cap(c_a), veh/h	994	2603	3287	1020	405	360
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.5	0.0	10.7	8.5	43.0	48.1
Incr Delay (d2), s/veh	0.8	0.4	0.4	0.3	0.7	20.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.2	6.0	1.6	3.0	9.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	9.3	0.4	11.2	8.8	43.7	68.7
LnGrp LOS	A	A	B	A	D	E
Approach Vol, veh/h		1433	1634		368	
Approach Delay, s/veh		2.7	10.9		61.0	
Approach LOS		A	B		E	

Timer - Assigned Phs	2		5	6	8
Phs Duration (G+Y+Rc), s	93.8		12.1	81.7	26.2
Change Period (Y+Rc), s	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s	83.5		20.5	58.5	27.5
Max Q Clear Time (g_c+I1), s	2.0		6.4	19.4	21.0
Green Ext Time (p_c), s	10.6		1.2	14.9	0.7

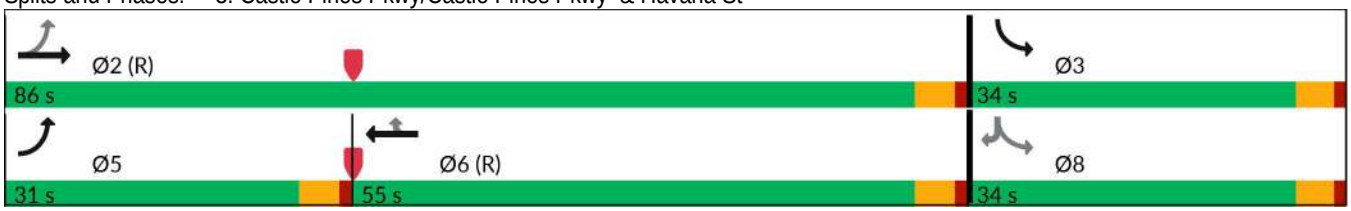
Intersection Summary	
HCM 7th Control Delay, s/veh	12.9
HCM 7th LOS	B

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	240	1359	1107	91	153	271
Future Volume (vph)	240	1359	1107	91	153	271
Turn Type	pm+pt	NA	NA	Perm	pm+pt	Perm
Protected Phases	5	2	6		3	
Permitted Phases	2			6	8	8
Detector Phase	5	2	6	6	3	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5
Total Split (s)	31.0	86.0	55.0	55.0	34.0	34.0
Total Split (%)	25.8%	71.7%	45.8%	45.8%	28.3%	28.3%
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	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Castle Pines Pkwy/Castle Pines Pkwy & Havana St



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	240	1359	1107	91	153	271
Future Volume (veh/h)	240	1359	1107	91	153	271
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
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	253	1431	1165	96	161	285
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	741	2579	3271	1015	355	316
Arrive On Green	0.10	1.00	0.64	0.64	0.20	0.20
Sat Flow, veh/h	3456	3647	5274	1585	1781	1585
Grp Volume(v), veh/h	253	1431	1165	96	161	285
Grp Sat Flow(s),veh/h/ln	1728	1777	1702	1585	1781	1585
Q Serve(g_s), s	2.9	0.0	12.7	2.8	9.5	21.1
Cycle Q Clear(g_c), s	2.9	0.0	12.7	2.8	9.5	21.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	741	2579	3271	1015	355	316
V/C Ratio(X)	0.34	0.55	0.36	0.09	0.45	0.90
Avail Cap(c_a), veh/h	1339	2579	3271	1015	438	390
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.6	0.0	10.0	8.2	42.3	46.9
Incr Delay (d2), s/veh	0.2	0.7	0.3	0.2	0.9	20.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.3	4.4	0.9	4.3	10.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	6.8	0.7	10.3	8.4	43.2	67.6
LnGrp LOS	A	A	B	A	D	E
Approach Vol, veh/h		1684	1261		446	
Approach Delay, s/veh		1.6	10.2		58.8	
Approach LOS		A	B		E	

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		91.6			10.2	81.4		28.4
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		81.5			26.5	50.5		29.5
Max Q Clear Time (g_c+I1), s		2.0			4.9	14.7		23.1
Green Ext Time (p_c), s		18.1			0.8	10.2		0.8

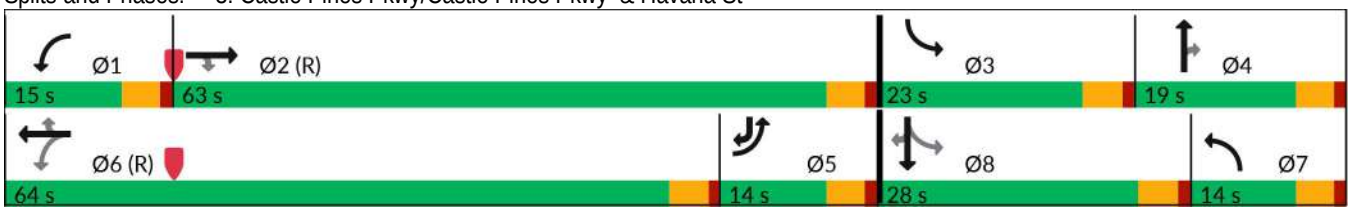
Intersection Summary	
HCM 7th Control Delay, s/veh	12.3
HCM 7th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	1834	300	168	2308	208	116	21	58	191	21	189
Future Volume (vph)	191	1834	300	168	2308	208	116	21	58	191	21	189
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases			2	6		6			4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	14.0	63.0	63.0	15.0	64.0	64.0	14.0	19.0	19.0	23.0	28.0	14.0
Total Split (%)	11.7%	52.5%	52.5%	12.5%	53.3%	53.3%	11.7%	15.8%	15.8%	19.2%	23.3%	11.7%
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	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	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	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	4.5
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 10 (8%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 3: Castle Pines Pkwy/Castle Pines Pkwy & Havana St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	1834	300	168	2308	208	116	21	58	191	21	189
Future Volume (veh/h)	191	1834	300	168	2308	208	116	21	58	191	21	189
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1841	1841	1870	1870	1870	1870	1870	1870	1870	1856	1870	1856
Adj Flow Rate, veh/h	208	1993	326	183	2509	226	126	23	63	208	23	205
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, %	4	4	2	2	2	2	2	2	2	3	2	3
Cap, veh/h	558	2928	923	214	2532	786	513	106	90	296	78	323
Arrive On Green	0.16	0.58	0.58	0.08	0.50	0.50	0.15	0.06	0.06	0.13	0.04	0.04
Sat Flow, veh/h	3401	5025	1585	1781	5106	1585	3456	1870	1585	1767	1870	1572
Grp Volume(v), veh/h	208	1993	326	183	2509	226	126	23	63	208	23	205
Grp Sat Flow(s),veh/h/ln	1700	1675	1585	1781	1702	1585	1728	1870	1585	1767	1870	1572
Q Serve(g_s), s	6.5	32.9	6.0	7.2	58.4	5.9	3.9	1.4	4.7	13.9	1.4	0.0
Cycle Q Clear(g_c), s	6.5	32.9	6.0	7.2	58.4	5.9	3.9	1.4	4.7	13.9	1.4	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	558	2928	923	214	2532	786	513	106	90	296	78	323
V/C Ratio(X)	0.37	0.68	0.35	0.85	0.99	0.29	0.25	0.22	0.70	0.70	0.30	0.63
Avail Cap(c_a), veh/h	558	2928	923	233	2532	786	513	226	192	332	366	566
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)	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.7	17.3	2.8	27.3	30.0	6.1	45.2	54.0	55.6	51.0	55.8	43.5
Incr Delay (d2), s/veh	0.3	1.0	0.8	23.9	15.9	0.9	0.2	1.0	9.4	5.7	2.1	2.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	12.4	4.0	4.3	25.9	3.5	1.7	0.7	2.1	6.5	0.7	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.0	18.3	3.6	51.2	45.9	7.0	45.4	55.1	65.0	56.7	57.9	45.6
LnGrp LOS	D	B	A	D	D	A	D	E	E	E	E	D
Approach Vol, veh/h		2527			2918			212			436	
Approach Delay, s/veh		18.6			43.2			52.3			51.5	
Approach LOS		B			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	74.4	20.5	11.3	24.2	64.0	22.3	9.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	58.5	18.5	14.5	9.5	59.5	9.5	23.5
Max Q Clear Time (g_c+I1), s	9.2	34.9	15.9	6.7	8.5	60.4	5.9	3.4
Green Ext Time (p_c), s	0.1	17.8	0.1	0.1	0.1	0.0	0.1	0.7

Intersection Summary	
HCM 7th Control Delay, s/veh	33.9
HCM 7th LOS	C

Notes

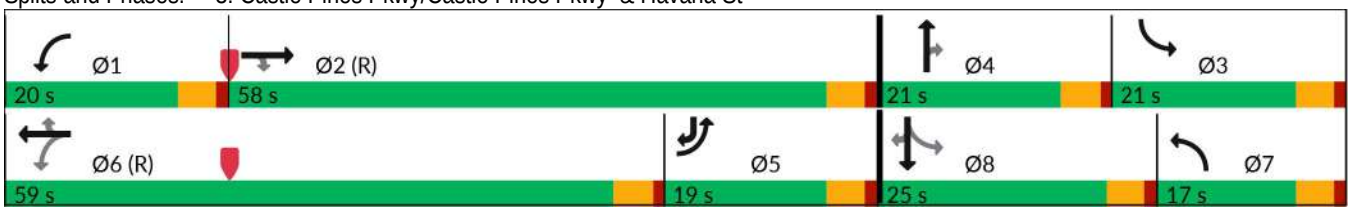
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	2378	268	189	1957	182	426	53	268	144	26	160
Future Volume (vph)	157	2378	268	189	1957	182	426	53	268	144	26	160
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases			2	6		6			4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	19.0	58.0	58.0	20.0	59.0	59.0	17.0	21.0	21.0	21.0	25.0	19.0
Total Split (%)	15.8%	48.3%	48.3%	16.7%	49.2%	49.2%	14.2%	17.5%	17.5%	17.5%	20.8%	15.8%
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	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	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	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	4.5
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 113 (94%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

Splits and Phases: 3: Castle Pines Pkwy/Castle Pines Pkwy & Havana St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	2378	268	189	1957	182	426	53	268	144	26	160
Future Volume (veh/h)	157	2378	268	189	1957	182	426	53	268	144	26	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	165	2503	291	205	2060	192	463	58	291	152	28	168
Peak Hour Factor	0.95	0.95	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.95	0.92	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	782	2976	924	234	2319	720	442	203	172	183	78	425
Arrive On Green	0.23	0.58	0.58	0.10	0.45	0.45	0.13	0.11	0.11	0.06	0.04	0.04
Sat Flow, veh/h	3456	5106	1585	1781	5106	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	165	2503	291	205	2060	192	463	58	291	152	28	168
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	4.7	48.1	5.8	9.5	44.3	9.0	15.4	3.4	10.5	5.1	1.7	0.0
Cycle Q Clear(g_c), s	4.7	48.1	5.8	9.5	44.3	9.0	15.4	3.4	10.5	5.1	1.7	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	782	2976	924	234	2319	720	442	203	172	183	78	425
V/C Ratio(X)	0.21	0.84	0.32	0.88	0.89	0.27	1.05	0.29	1.69	0.83	0.36	0.40
Avail Cap(c_a), veh/h	782	2976	924	290	2319	720	442	257	218	318	320	629
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)	0.64	0.64	0.64	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	20.5	3.4	31.9	30.0	20.3	52.3	49.2	34.8	54.0	55.9	36.0
Incr Delay (d2), s/veh	0.1	2.0	0.6	21.3	5.6	0.9	55.7	0.8	335.6	9.4	2.8	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	2.0	18.6	3.5	5.3	18.3	3.5	10.1	1.6	20.0	4.9	0.9	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	37.8	22.5	3.9	53.2	35.5	21.2	108.0	50.0	370.4	63.4	58.7	36.6
LnGrp LOS	D	C	A	D	D	C	F	D	F	E	E	D
Approach Vol, veh/h		2959			2457			812			348	
Approach Delay, s/veh		21.5			35.9			197.9			50.1	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	74.4	11.8	17.5	31.6	59.0	19.9	9.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	53.5	16.5	16.5	14.5	54.5	12.5	20.5
Max Q Clear Time (g_c+I1), s	11.5	50.1	7.1	12.5	6.7	46.3	17.4	3.7
Green Ext Time (p_c), s	0.2	3.2	0.2	0.5	0.3	7.0	0.0	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	50.2
HCM 7th LOS	D

Notes

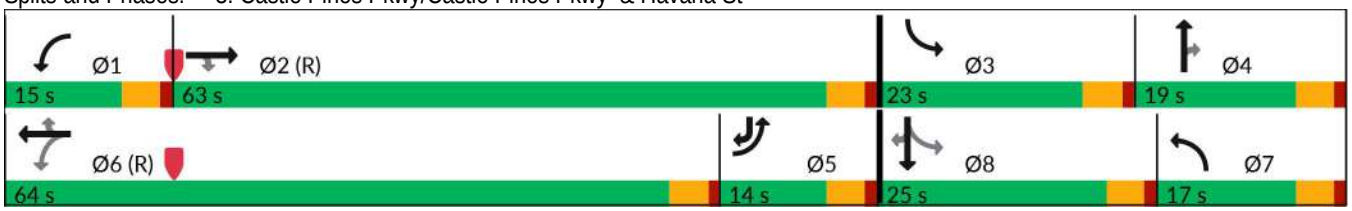
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	344	1794	300	168	2252	300	116	21	58	264	21	354
Future Volume (vph)	344	1794	300	168	2252	300	116	21	58	264	21	354
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases			2	6		6			4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	14.0	63.0	63.0	15.0	64.0	64.0	17.0	19.0	19.0	23.0	25.0	14.0
Total Split (%)	11.7%	52.5%	52.5%	12.5%	53.3%	53.3%	14.2%	15.8%	15.8%	19.2%	20.8%	11.7%
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	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	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	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	4.5
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 10 (8%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 3: Castle Pines Pkwy/Castle Pines Pkwy & Havana St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	344	1794	300	168	2252	300	116	21	58	264	21	354
Future Volume (veh/h)	344	1794	300	168	2252	300	116	21	58	264	21	354
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	1841	1841	1870	1870	1870	1870	1870	1870	1870	1856	1870	1856
Adj Flow Rate, veh/h	374	1950	326	183	2448	326	126	23	63	287	23	385
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, %	4	4	2	2	2	2	2	2	2	3	2	3
Cap, veh/h	487	2823	890	215	2532	786	315	106	90	332	224	414
Arrive On Green	0.14	0.56	0.56	0.08	0.50	0.50	0.09	0.06	0.06	0.15	0.12	0.12
Sat Flow, veh/h	3401	5025	1585	1781	5106	1585	3456	1870	1585	1767	1870	1572
Grp Volume(v), veh/h	374	1950	326	183	2448	326	126	23	63	287	23	385
Grp Sat Flow(s),veh/h/ln	1700	1675	1585	1781	1702	1585	1728	1870	1585	1767	1870	1572
Q Serve(g_s), s	12.7	33.3	8.5	7.2	55.7	8.5	4.1	1.4	4.7	18.5	1.3	11.5
Cycle Q Clear(g_c), s	12.7	33.3	8.5	7.2	55.7	8.5	4.1	1.4	4.7	18.5	1.3	11.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	487	2823	890	215	2532	786	315	106	90	332	224	414
V/C Ratio(X)	0.77	0.69	0.37	0.85	0.97	0.41	0.40	0.22	0.70	0.86	0.10	0.93
Avail Cap(c_a), veh/h	487	2823	890	233	2532	786	360	226	192	332	320	494
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)	0.72	0.72	0.72	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	18.8	5.6	27.3	29.3	5.7	51.4	54.0	55.6	51.1	47.1	43.2
Incr Delay (d2), s/veh	5.3	1.0	0.8	23.8	11.7	1.6	0.8	1.0	9.4	20.2	0.2	22.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	12.7	4.4	4.3	23.8	0.4	1.8	0.7	2.1	10.4	0.6	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	54.8	19.8	6.4	51.1	41.0	7.3	52.3	55.1	65.0	71.3	47.3	65.5
LnGrp LOS	D	B	A	D	D	A	D	E	E	E	D	E
Approach Vol, veh/h		2650			2957			212			695	
Approach Delay, s/veh		23.1			37.9			56.4			67.3	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	71.9	23.0	11.3	21.7	64.0	15.4	18.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	58.5	18.5	14.5	9.5	59.5	12.5	20.5
Max Q Clear Time (g_c+I1), s	9.2	35.3	20.5	6.7	14.7	57.7	6.1	13.5
Green Ext Time (p_c), s	0.1	17.3	0.0	0.1	0.0	1.7	0.2	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	35.6
HCM 7th LOS	D

Notes

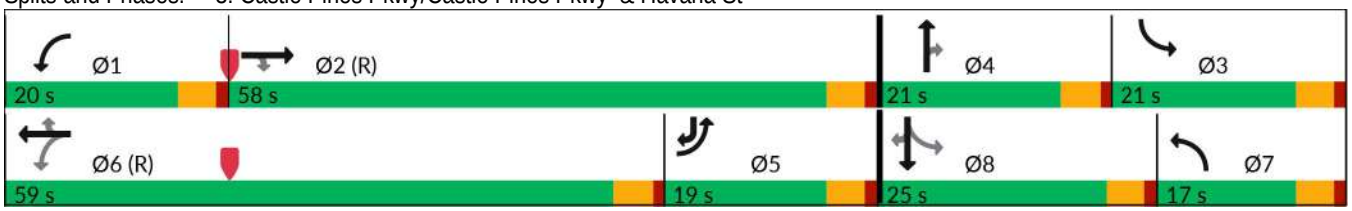
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	323	2326	268	189	1920	259	426	53	268	237	26	313
Future Volume (vph)	323	2326	268	189	1920	259	426	53	268	237	26	313
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	5
Permitted Phases			2	6		6			4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	5
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5
Total Split (s)	19.0	58.0	58.0	20.0	59.0	59.0	17.0	21.0	21.0	21.0	25.0	19.0
Total Split (%)	15.8%	48.3%	48.3%	16.7%	49.2%	49.2%	14.2%	17.5%	17.5%	17.5%	20.8%	15.8%
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	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	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	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	4.5
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 113 (94%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 3: Castle Pines Pkwy/Castle Pines Pkwy & Havana St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	323	2326	268	189	1920	259	426	53	268	237	26	313
Future Volume (veh/h)	323	2326	268	189	1920	259	426	53	268	237	26	313
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
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	340	2448	291	205	2021	273	463	58	291	249	28	329
Peak Hour Factor	0.95	0.95	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.95	0.92	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	615	2729	847	234	2319	720	579	203	172	278	94	362
Arrive On Green	0.18	0.53	0.53	0.10	0.45	0.45	0.17	0.11	0.11	0.11	0.05	0.05
Sat Flow, veh/h	3456	5106	1585	1781	5106	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	340	2448	291	205	2021	273	463	58	291	249	28	329
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	10.8	51.5	6.0	9.5	42.9	13.6	15.5	3.4	10.5	10.9	1.7	2.9
Cycle Q Clear(g_c), s	10.8	51.5	6.0	9.5	42.9	13.6	15.5	3.4	10.5	10.9	1.7	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	615	2729	847	234	2319	720	579	203	172	278	94	362
V/C Ratio(X)	0.55	0.90	0.34	0.88	0.87	0.38	0.80	0.29	1.69	0.90	0.30	0.91
Avail Cap(c_a), veh/h	615	2729	847	290	2319	720	579	257	218	327	320	553
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)	0.60	0.60	0.60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	25.0	3.7	31.9	29.6	21.6	48.0	49.2	34.8	50.5	54.9	45.1
Incr Delay (d2), s/veh	0.6	3.2	0.7	21.3	4.9	1.5	7.8	0.8	335.6	23.4	1.7	13.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	20.6	4.0	5.3	17.6	5.3	7.3	1.6	20.0	9.1	0.9	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.6	28.2	4.3	53.2	34.4	23.1	55.8	50.0	370.4	73.9	56.7	58.8
LnGrp LOS	D	C	A	D	C	C	E	D	F	E	E	E
Approach Vol, veh/h		3079			2499			812			606	
Approach Delay, s/veh		27.9			34.7			168.1			64.9	
Approach LOS		C			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	68.6	17.6	17.5	25.8	59.0	24.6	10.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	15.5	53.5	16.5	16.5	14.5	54.5	12.5	20.5
Max Q Clear Time (g_c+I1), s	11.5	53.5	12.9	12.5	12.8	44.9	17.5	4.9
Green Ext Time (p_c), s	0.2	0.0	0.2	0.5	0.2	8.1	0.0	1.1

Intersection Summary	
HCM 7th Control Delay, s/veh	49.8
HCM 7th LOS	D

Notes

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

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	234	19	0	8	241	260	8	6	89	2
Future Vol, veh/h	4	0	234	19	0	8	241	260	8	6	89	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	75	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	254	21	0	9	262	283	9	7	97	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	776	926	98	921	923	146	99	0	0	291	0	0
Stage 1	111	111	-	811	811	-	-	-	-	-	-	-
Stage 2	665	815	-	110	112	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	301	268	958	238	269	876	1493	-	-	1269	-	-
Stage 1	894	803	-	340	392	-	-	-	-	-	-	-
Stage 2	416	390	-	895	802	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	244	220	958	143	221	876	1493	-	-	1269	-	-
Mov Cap-2 Maneuver	294	275	-	212	272	-	-	-	-	-	-	-
Stage 1	889	799	-	281	323	-	-	-	-	-	-	-
Stage 2	340	322	-	654	798	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.41	19.49	3.75	0.49
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1493	-	-	923	212	876	1269	-	-
HCM Lane V/C Ratio	0.175	-	-	0.28	0.098	0.01	0.005	-	-
HCM Ctrl Dly (s/v)	7.9	-	-	10.4	23.8	9.2	7.9	-	-
HCM Lane LOS	A	-	-	B	C	A	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	1.2	0.3	0	0	-	-

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	246	11	0	8	243	108	19	9	173	2
Future Vol, veh/h	5	0	246	11	0	8	243	108	19	9	173	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	75	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	267	12	0	9	264	117	21	10	188	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	796	875	189	864	866	69	190	0	0	138	0	0
Stage 1	209	209	-	656	656	-	-	-	-	-	-	-
Stage 2	587	666	-	208	210	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	291	287	852	261	291	980	1382	-	-	1444	-	-
Stage 1	793	729	-	422	461	-	-	-	-	-	-	-
Stage 2	464	456	-	794	728	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	232	231	852	144	233	980	1382	-	-	1444	-	-
Mov Cap-2 Maneuver	308	304	-	204	292	-	-	-	-	-	-	-
Stage 1	787	724	-	341	373	-	-	-	-	-	-	-
Stage 2	372	369	-	541	723	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.53	17.42	5.4	0.37
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1382	-	-	823	204	980	1444	-	-
HCM Lane V/C Ratio	0.191	-	-	0.331	0.059	0.009	0.007	-	-
HCM Ctrl Dly (s/v)	8.2	-	-	11.5	23.8	8.7	7.5	-	-
HCM Lane LOS	A	-	-	B	C	A	A	-	-
HCM 95th %tile Q(veh)	0.7	-	-	1.5	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	234	26	1	1	241	384	11	3	347	2
Future Vol, veh/h	4	1	234	26	1	1	241	384	11	3	347	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	75	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	1	254	28	1	1	262	417	12	3	377	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1118	1338	378	1332	1333	215	379	0	0	429	0	0
Stage 1	385	385	-	947	947	-	-	-	-	-	-	-
Stage 2	733	953	-	384	386	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	211	173	668	144	174	*991	1177	-	-	1268	-	-
Stage 1	637	610	-	337	381	-	-	-	-	-	-	-
Stage 2	465	378	-	638	609	-	-	-	-	-	-	-
Platoon blocked, %	0	0		0	0	0		-	-	0	-	-
Mov Cap-1 Maneuver	163	134	668	69	135	*991	1177	-	-	1268	-	-
Mov Cap-2 Maneuver	274	230	-	106	207	-	-	-	-	-	-	-
Stage 1	636	609	-	262	296	-	-	-	-	-	-	-
Stage 2	360	294	-	393	608	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.25	48.41	3.38	0.07
HCM LOS	B	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1177	-	-	647	106	342	1268	-	-
HCM Lane V/C Ratio	0.222	-	-	0.402	0.267	0.006	0.003	-	-
HCM Ctrl Dly (s/v)	8.9	-	-	14.2	50.9	15.6	7.8	-	-
HCM Lane LOS	A	-	-	B	F	C	A	-	-
HCM 95th %tile Q(veh)	0.9	-	-	1.9	1	0	0	-	-

Notes

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

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1	246	16	1	1	243	384	26	3	436	2
Future Vol, veh/h	5	1	246	16	1	1	243	384	26	3	436	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	75	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	1	267	17	1	1	264	417	28	3	474	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1219	1455	475	1441	1442	223	476	0	0	446	0	0
Stage 1	482	482	-	960	960	-	-	-	-	-	-	-
Stage 2	738	974	-	481	483	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	176	145	589	118	148	*991	1084	-	-	1249	-	-
Stage 1	565	553	-	331	375	-	-	-	-	-	-	-
Stage 2	462	369	-	565	552	-	-	-	-	-	-	-
Platoon blocked, %	0	0		0	0	0		-	-	0	-	-
Mov Cap-1 Maneuver	132	109	589	49	112	*991	1084	-	-	1249	-	-
Mov Cap-2 Maneuver	251	210	-	39	181	-	-	-	-	-	-	-
Stage 1	563	551	-	250	284	-	-	-	-	-	-	-
Stage 2	348	279	-	307	551	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	17.04	140.94	3.49	0.05
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1084	-	-	569	39	306	1249	-	-
HCM Lane V/C Ratio	0.244	-	-	0.481	0.444	0.007	0.003	-	-
HCM Ctrl Dly (s/v)	9.4	-	-	17	156.4	16.8	7.9	-	-
HCM Lane LOS	A	-	-	C	F	C	A	-	-
HCM 95th %tile Q(veh)	1	-	-	2.6	1.5	0	0	-	-

Notes

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

Appendix F: Queue Analysis Worksheets

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	987	338	501	786	158	158	382
v/c Ratio	0.68	0.40	0.66	0.33	0.38	0.38	0.25
Control Delay (s/veh)	31.6	3.8	42.9	7.5	40.1	40.1	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.6	3.8	42.9	7.5	40.1	40.1	0.4
Queue Length 50th (ft)	327	0	195	99	110	110	0
Queue Length 95th (ft)	404	57	256	118	180	180	0
Internal Link Dist (ft)	731			809		637	
Turn Bay Length (ft)			500		350		350
Base Capacity (vph)	1459	851	758	2374	419	419	1553
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.40	0.66	0.33	0.38	0.38	0.25

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	789	441	528	685	238	241	581
v/c Ratio	0.68	0.54	0.70	0.33	0.42	0.42	0.37
Control Delay (s/veh)	38.3	5.4	39.1	10.3	33.5	33.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	38.3	5.4	39.1	10.3	33.5	33.6	0.7
Queue Length 50th (ft)	281	0	207	94	151	153	0
Queue Length 95th (ft)	353	74	269	113	231	235	0
Internal Link Dist (ft)	731			809		637	
Turn Bay Length (ft)			500		350		350
Base Capacity (vph)	1164	816	758	2079	567	569	1583
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.54	0.70	0.33	0.42	0.42	0.37

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1884	769	429	1918	792	391	692
v/c Ratio	1.03	0.72	1.07	0.81	0.99	0.97	0.45
Control Delay (s/veh)	58.6	10.5	99.6	15.3	73.7	83.5	0.9
Queue Delay	0.0	0.0	0.0	0.7	0.0	0.0	0.0
Total Delay (s/veh)	58.6	10.5	99.6	16.0	73.7	83.5	0.9
Queue Length 50th (ft)	~835	128	~192	431	347	341	0
Queue Length 95th (ft)	#977	286	m#230	629	#492	#568	0
Internal Link Dist (ft)	731			809		637	
Turn Bay Length (ft)			500		350		350
Base Capacity (vph)	1828	1073	400	2374	802	402	1553
Starvation Cap Reductn	0	0	0	184	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.72	1.07	0.88	0.99	0.97	0.45

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	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1746	836	435	1752	1004	495	1007
v/c Ratio	1.06	0.80	1.01	0.79	1.05	1.04	0.64
Control Delay (s/veh)	70.9	15.3	81.9	15.0	85.7	93.0	2.0
Queue Delay	4.7	0.0	0.0	0.4	0.0	0.0	0.0
Total Delay (s/veh)	75.6	15.3	81.9	15.5	85.7	93.0	2.0
Queue Length 50th (ft)	~793	187	~180	418	~474	~461	0
Queue Length 95th (ft)	#934	398	m#243	615	#614	#696	0
Internal Link Dist (ft)	731			809		637	
Turn Bay Length (ft)			500		350		350
Base Capacity (vph)	1651	1039	429	2226	952	477	1583
Starvation Cap Reductn	0	0	0	139	0	0	0
Spillback Cap Reductn	18	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.80	1.01	0.84	1.05	1.04	0.64

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	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	752	548	1196	525	342	669
v/c Ratio	0.37	0.35	0.62	0.50	0.29	0.57
Control Delay (s/veh)	4.4	0.5	10.8	5.0	29.4	16.4
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay (s/veh)	4.4	0.5	10.8	5.2	29.4	16.4
Queue Length 50th (ft)	75	0	318	169	101	111
Queue Length 95th (ft)	91	0	409	326	140	178
Internal Link Dist (ft)	809		508			
Turn Bay Length (ft)					625	450
Base Capacity (vph)	2029	1568	1931	1055	1175	1184
Starvation Cap Reductn	0	0	38	120	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.35	0.63	0.56	0.29	0.57

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	863	403	1003	435	309	775
v/c Ratio	0.48	0.25	0.59	0.46	0.21	0.60
Control Delay (s/veh)	11.8	0.3	16.8	5.0	22.6	21.7
Queue Delay	0.0	0.0	0.1	0.2	0.0	0.0
Total Delay (s/veh)	11.8	0.3	17.0	5.1	22.6	21.7
Queue Length 50th (ft)	144	0	292	114	78	196
Queue Length 95th (ft)	171	0	378	214	110	268
Internal Link Dist (ft)	809		508			
Turn Bay Length (ft)					625	450
Base Capacity (vph)	1784	1583	1691	942	1444	1288
Starvation Cap Reductn	0	0	107	86	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.25	0.63	0.51	0.21	0.60

Intersection Summary

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	2270	897	2060	899	742	380
v/c Ratio	0.66	0.57	0.90	0.71	0.92	0.57
Control Delay (s/veh)	4.2	0.4	10.6	5.1	62.2	41.8
Queue Delay	0.0	0.0	1.5	1.4	0.0	0.0
Total Delay (s/veh)	4.3	0.4	12.1	6.6	62.2	41.8
Queue Length 50th (ft)	243	0	136	52	297	143
Queue Length 95th (ft)	m133	m0	m175	m96	#411	201
Internal Link Dist (ft)	809		508			
Turn Bay Length (ft)					625	450
Base Capacity (vph)	3462	1568	2280	1271	807	671
Starvation Cap Reductn	0	0	97	195	0	0
Spillback Cap Reductn	97	0	66	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.57	0.94	0.84	0.92	0.57

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.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	2579	642	1937	856	731	491
v/c Ratio	0.74	0.41	0.85	0.68	0.90	0.73
Control Delay (s/veh)	16.4	0.1	21.6	6.5	59.3	48.3
Queue Delay	1.2	0.0	47.3	3.6	0.0	0.0
Total Delay (s/veh)	17.6	0.1	68.8	10.0	59.3	48.3
Queue Length 50th (ft)	578	0	759	482	288	198
Queue Length 95th (ft)	m521	m0	873	m614	#396	267
Internal Link Dist (ft)	809		508			
Turn Bay Length (ft)					625	450
Base Capacity (vph)	3495	1583	2269	1258	815	672
Starvation Cap Reductn	631	0	755	303	0	0
Spillback Cap Reductn	279	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.41	1.28	0.90	0.90	0.73

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.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	376	1057	1474	160	113	255
v/c Ratio	0.59	0.37	0.42	0.14	0.60	0.64
Control Delay (s/veh)	10.1	2.0	8.9	1.6	63.6	13.7
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.1	2.1	8.9	1.6	63.6	13.7
Queue Length 50th (ft)	19	39	158	0	87	0
Queue Length 95th (ft)	56	64	247	25	142	74
Internal Link Dist (ft)		508	807		530	
Turn Bay Length (ft)	225					150
Base Capacity (vph)	889	2836	3541	1150	401	555
Starvation Cap Reductn	0	662	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	0.42	0.49	0.42	0.14	0.28	0.46

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	253	1431	1165	96	161	285
v/c Ratio	0.34	0.51	0.33	0.09	0.69	0.62
Control Delay (s/veh)	2.1	2.2	8.2	1.8	63.9	11.5
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay (s/veh)	2.1	2.3	8.2	1.8	63.9	11.5
Queue Length 50th (ft)	4	29	120	0	123	0
Queue Length 95th (ft)	11	118	178	20	188	77
Internal Link Dist (ft)		508	807		643	
Turn Bay Length (ft)	225					150
Base Capacity (vph)	1170	2802	3515	1123	435	604
Starvation Cap Reductn	0	342	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	0.22	0.58	0.33	0.09	0.37	0.47

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	374	1950	326	183	2448	326	126	23	63	287	23	385
v/c Ratio	1.41	0.72	0.35	0.69	0.84	0.32	0.21	0.21	0.29	1.06	0.21	1.27
Control Delay (s/veh)	236.8	18.9	4.3	37.9	25.1	4.9	44.4	57.8	3.2	120.9	57.8	177.7
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	236.8	19.1	4.3	37.9	25.1	4.9	44.4	57.8	3.2	120.9	57.8	177.7
Queue Length 50th (ft)	~208	427	14	85	572	31	45	18	0	~251	18	~279
Queue Length 95th (ft)	#311	530	76	168	676	83	75	45	0	#431	45	#462
Internal Link Dist (ft)		508			807			326			530	
Turn Bay Length (ft)	225		150	175								150
Base Capacity (vph)	266	2696	941	268	2922	1010	589	225	310	270	318	302
Starvation Cap Reductn	0	193	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	1.41	0.78	0.35	0.68	0.84	0.32	0.21	0.10	0.20	1.06	0.07	1.27

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)	340	2448	291	205	2021	273	463	58	291	249	28	329
v/c Ratio	0.82	1.01	0.36	0.78	0.85	0.32	0.57	0.37	0.75	0.66	0.25	0.89
Control Delay (s/veh)	61.1	47.9	14.8	46.6	32.9	5.5	44.9	57.1	20.3	50.3	58.3	59.1
Queue Delay	0.0	15.4	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	2.1
Total Delay (s/veh)	61.1	63.3	14.8	46.6	34.4	5.5	44.9	57.1	20.3	50.3	58.3	61.2
Queue Length 50th (ft)	127	~763	68	104	516	22	171	44	11	156	21	178
Queue Length 95th (ft)	#206	#874	m126	#207	588	74	235	84	100	237	52	286
Internal Link Dist (ft)		508			807			221			643	
Turn Bay Length (ft)	225		150	175								150
Base Capacity (vph)	414	2419	817	290	2374	858	809	256	455	376	318	369
Starvation Cap Reductn	0	98	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	181	0	0	0	0	0	0	9
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	1.05	0.36	0.71	0.92	0.32	0.57	0.23	0.64	0.66	0.09	0.91

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
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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.