

# See separate instructions on how to access the meeting

## TOWN OF BASALT MEETINGS Planning and Zoning Commission Meeting Tuesday, October 3, 2023

**Basalt Town Hall**

**101 Midland Avenue**

- 5:45 PM**      **Commissioner Light Dinner at Town Hall**
- 6:00**          **1**    **Call to Order**
- 6:03**          **2A**   **Approve Minutes**  
                 **2B**   August 15, 2023
- 6:05**          **3A**   **Continued Public Hearing on Jadwin/Black Mountain PUD Sketch Plan Application and Associated Land Use Requests:** for the purpose of considering an application submitted by Jadwin Park, LLC for PUD Sketch Plan, Environmentally Sensitive Area (ESA) Reach II Floodplain Review, Annexation, and associated development review actions necessary to develop sixty-eight (68) residential dwelling units, twelve (12) short-term rental cabins, seven (7) seasonal glamping sites, and associated infrastructure on the property located at 431 Emma Road.
- 3B**    *Recommended Action: Staff Comments; Applicant Comments; Public Comment; P&Z Discussion; Potential Motion*
- 7:15**          **Commissioner Comments and Staff Updates**
- 7:25**          **Adjourn**

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| Items on the agenda are approximate and intended as a guide for the Commission. Times are subject to change, as is the order of the agenda. For deadlines and information required to schedule an item on the agenda, please contact Basalt Town Hall at 927-4701. |
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**TOWN OF BASALT, COLORADO**  
**P&Z MEETING - TUESDAY, OCTOBER 3, 2023**  
**PUBLIC COMMENT ACCESS INSTRUCTIONS**

The Basalt Planning & Zoning Commission will meet in person. The P&Z will conduct a hybrid meeting where the public may attend the meeting to make their comments in person or may join the meeting and make their comments via Zoom.

Directions for viewing and accessing the meeting to provide comment during public the public comment portion of the agenda, or during public hearings is provided below.

**You can watch a live stream of the meeting here:**

on YouTube: <https://www.youtube.com/channel/UCaBozGBsT0GuBNRf4rUI0cA>, or on Grassroots TV at: <https://townofbasalt.ompnetwork.org/>

**Zoom webinar: Tuesday, October 3, 2023 06:00 PM Mountain Time (US and Canada)**  
**Topic: P&Z - 10/03/2023**

**Please click the link to join the webinar: <https://us06web.zoom.us/j/87865530357>**

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(If you are unable to access the meeting using the link or call-in numbers above, e-mail your name, and phone number and item you wish to comment on to [planning@basalt.net](mailto:planning@basalt.net). We will contact you at the appropriate time in the meeting and make other arrangements for you to make your comments.)





## **PLANNING AND ZONING ACTION MINUTES**

**BOARD MEMBERS PRESENT:** Bill Maron, Kyle Oberkoetter, Katie Hostetler, Mike Horvath, Cindy Hirschfeld, and Rob Leavitt.

**BOARD MEMBERS ABSENT:** Eric Vozick.

**STAFF PRESENT:** Michelle Thibeault and James Lindt.

**OTHERS PRESENT:** Bill Reynolds.

**DATE:** 8/15/2023

**MEETING CALLED TO ORDER AT 6:06PM**

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### **AGENDA ITEMS**

1. Call to Order.
2. Eagle County Referral: Mid-Valley Metro District Office and Affordable Housing Location and Extent Referral Comments.
3. Courtesy Referral on Public Works Manual Amendment.
4. Midland Streetscape Update.
5. Commissioner Comments and Staff Updates.
6. Adjourn.

### **EAGLE COUNTY REFERRAL: MID-VALLEY METRO DISTRICT OFFICE AND AFFORDABLE HOUSING LOCATION AND EXTENT REFERRAL COMMENTS.**

James Lindt, Assistant Planning Director, introduced the item to the Commission, and explained that it is a referral letter to Eagle County in regards to Mid-Valley Metro District's proposed development of six new employee housing units and one office unit on their 18- acre property that includes their sewer plant. Lindt stated that the proposed density of this project is less than similar recent developments such as the 10-Acre PUD that the Town provided positive comments on related to them being acceptable outside the Town's Urban Growth Boundary. Lindt explained the Staff recommendation and stated that it is recommended that the residential units be deed-restricted, units be limited to 1,800 square feet, and a buffer be built to mitigate noise and impact from the nearby highway. He explained that this is a letter of recommendation to Eagle County and is open to Commission discussion before it is sent. Lindt introduced Bill Reynolds, Director of Mid Valley Metro District, and asked if there were any questions for the applicant or Staff.

Mike Horvath asked if the proposed parking would be sufficient for the development. Reynolds replied that they do not have many visitors to the office, but that a few spots are proposed for the office unit.

Rob Leavitt asked if Eagle County had requested a traffic study. Reynolds responded that they did not. Leavitt asked if the units would be owned or rented. Reynolds replied that the units will be owned by the district and rented to employees.

Katie Hostetler asked if there is a possibility of a scenario where a unit is not occupied by an employee. Reynolds replied that he is unsure and stated that Eagle County frowns upon outsourcing housing like this to other agencies.

Leavitt commented that he would like to see the use of solar in the development. Reynolds stated that they can investigate that.

Horvath commented on the layout of the curb cuts and layout of the development. He suggested that they be spaced better.

Maron praised the applicant for their desire to build employee housing. He commented that the district should vary the designs of the residential units.

**M/S ROB LEAVITT AND CINDY HIRSCHFELD TO APPROVE THE REFFERAL LETTER WITH THE CONSIDERATION OF SOLAR PANELS AS WRITTEN. MOTION PASSED 5-0.**

**COURTESY REFERRAL ON PUBLIC WORKS MANUAL AMENDMENT.**

Lindt introduced the item and stated that the purpose of this amendment is to reinstitute the language on Structural Soils into the Public Works Manual. He added that the overhaul of the Public Works manual last year unintentionally left out language on Structural Soils. Lindt explained that these soils are important for areas with trees in close proximity to hardscape, and helps trees establish roots without disturbing the hardscape. He added that this language will be important as the Midland Streetscape Project continues.

Mike Horvath commented that the manual should also include a geofabric between road base and Structural Soil to inhibit the migration of fines from the road base into the soil below. Lindt stated that he would pass this consideration on to the Town Arborist, Chris Beiser.

**M/S ROB LEAVITT AND MIKE HORVATH TO APPROVE THE AMMENDMENT TO THE PUBLIC WORKS MANUAL. MOTION PASSED 5-0.**

**MIDLAND STREETSCAPE UPDATE.**

Michelle Thibeault, Planning Director, introduced the item and stated that the Midland Spur was close to completion and that the team is working on the water line down Midland Avenue. She added that there were some delays due to unforeseen issues with the water main, however, the construction team made some adjustments and prevented these issues from shutting off water for businesses on Midland Avenue.

**COMMISSIONER COMMENTS AND STAFF UPDATES.**

Thibeault stated that the Midland Mural Competition is underway, and murals are out on the town. She urged the commission to check them out and cast their vote online.

Thibeault updated the group on the outreach campaign for parking enforcement and stated that it was not very popular with the public.

Thibeault stated that the Wednesday Concerts are going well and that the non-profits at each concert are taking home thousands of dollars. Leavitt asked if the Town had figured out recycling at the concerts. Thibeault stated yes and that she is happy that that is the worst of the problems with the concerts.

Lindt added that there is a presentation next week at Town Council for the Jadwin Application and that P&Z is invited to attend.

Bill Maron added that he believes the Town is liable to be sued over accessibility issues at Town Hall. Rob Leavitt stated his support for Maron's comments.

**M/S KATIE HOSTETLER AND MIKE HORVATH TO ADJOURN THE MEETING AT 6:56PM. MOTION PASSED 5-0**

TOWN OF BASALT

PLANNING AND ZONING COMMISSION

By\_\_\_\_\_

Eric Vozick, Chair

Attest\_\_\_\_\_

Michelle Bonfils Thibeault, Planning Director



## MEMORANDUM

**To:** Chair Vozick and the Basalt Planning and Zoning Commission

**Thru:** Michelle Bonfils Thibeault, AICP Planning Director

**From:** James Lindt, AICP Assistant Planning Director

**Date:** October 3, 2023

**RE:** Jadwin/Black Mountain Development Application (431 Emma Road) PUD Sketch Plan, ESA Review and Annexation Review-Continued Public Hearing

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### I. Purpose

Jadwin Park, LLC ("Applicant"), the property owner of the Jadwin Property is requesting approval of PUD sketch plan, floodplain and environmental ESA reviews, and other associated reviews to develop a mix of multi-family residential units, short-term rental cabins, and glamping pads at 431 Emma Road. Annexation of the property is being concurrently considered. The subject property contains approximately nine acres on Emma Road between the Post Office and the Wastewater Treatment Plant (Figure 1.).

Figure 1.





## **II. Background**

The property subject to the application currently contains a single-family residence, a mobile home, and several outbuildings. The northern portion of the property subject to the application is in Eagle County and the southern portion of the property is in Pitkin County. The main portion of the property that is proposed for development by the Applicant is completely located within the Town's Urban Growth Boundary (UGB). The portion of the property making up the "dog leg" (*approximately 0.84 acres*) along Emma Road that is under the same ownership but outside the UGB is proposed to be dedicated to the Town for a community use, but the Applicant is not proposing to develop on the "dog leg" as part of their application.

The Application proposes the following:

- Sixty-eight (68) residential units
- Twelve (12) short-term rental cabins
- Seven (7) glamping pads
- Associated Internal Access Roads
- Public Trail Connection between the subject property and the existing trail south of the Basalt Post Office
- Public Trail to Roaring Fork River
- Riverside Deck Amenities

See site plan (full size version of Figure 2 was attached on page 47 of Exhibit A in the September 5<sup>th</sup> packet materials) below for location of proposed improvements.

Figure 2.



### III. Procedure

The P&Z shall ultimately make a recommendation to Town Council on the PUD Sketch Plan review pursuant to Town Code Section 16-66. The purpose of the PUD Sketch Plan review process is to familiarize Staff, the P&Z, and Town Council with the proposed development and identify potential conflicts between the proposal, the Town Code, and adopted plans. The Applicant has concurrently applied for ESA reviews, and annexation. The P&Z is the recommending body to Town Council on the ESA and annexation reviews. Upon annexation, the property is required to be zoned in compliance with the Town of Basalt zoning code. Annexation is anticipated to occur immediately prior to granting final development plan approval.

At the September 5<sup>th</sup> meeting, the P&Z received an introduction to the discussion items, heard public comments and provided initial discussion on the Application before continuing the public hearing. At this meeting, Staff recommends that P&Z receive an update on the additional application materials received since the last meeting and the recommendations of BACH and POST, then consider additional Applicant comments, take public comments on the added information, and provide commission discussion. Staff provided draft conditions attached as **Exhibit A** for consideration.



#### IV. Updated Information

At the September 5<sup>th</sup> meeting, it was identified that the Applicant would be providing additional information on the following topics:

1. Emma Road/Midland Avenue Concept Designs for Dedicated Right-Turn Lane on Emma Road and Cost Estimate (attached as **Exhibit B**)
2. Emma Road/Highway 82 Slip Lane Concept Design for Improvements to Turning Radius and Cost Estimate (attached as **Exhibit C**)
3. Operations Plan for Short-Term Rental addressing Parking Management, Amenity Use Hours, Recreation on the Pond, etc. (attached as **Exhibit D**)
4. Plan for Maintaining Privacy for Direct Neighbors (attached as **Exhibit E**)
5. Site Sections Showing where Bridge Abutments could be for a Pedestrian Bridge over the Roaring Fork River (attached as **Exhibit F**)
6. Study of Potential Community Building/Parking that could be Accommodated on "Dog Leg" Property Adjacent to Emma Road (attached as **Exhibit G**)
7. Revised Traffic Study with Technical Adjustments to Respond to Jim Charlier's Comments (attached as **Exhibit H**)

Additionally, BACH and the POST Committee reviewed the Application and made recommendations as are discussed section 5 of this memorandum.

#### V. Discussion Items with Updates

##### 1. *Transportation System Improvements/Traffic*

As discussed at the last meeting, Town Staff contracted with Charlier and Associates to conduct a third-party review of the Applicant's traffic study on behalf of the Town. Charlier reviewed the traffic study prepared by the Applicant's traffic engineer and recommended some technical adjustments to the analysis included in the study. The Applicant made the adjustments recommended by Charlier (revised Traffic Study Materials attached as **Exhibit H**) and the adjustments did not change the conclusions that the intersections that feed the development will continue to operate at an acceptable level of service with the buildout of the proposed development.

Related to the Emma Road/ Midland Avenue intersection by the Basalt Post Office, the Applicant submitted two options (**Exhibit B**) for a concept design for adding a dedicated right-turn lane on Emma Road at the Emma Road/Midland Avenue intersection as was required during the review of prior development applications on the site. One of the options shows the dedicated right turn lane starting east (up-valley) of the driveway entrance to 251 Emma Road and the other option shows the dedicated right turn lane starting west (down-valley) of the driveway entrance to 251 Emma Road. Staff believes that the option showing the right turn



lane starting up-valley of the 251 Emma Road entrance provides the most community benefit as it allows more queuing space than the option with the right turn lane starting down-valley of the 251 Emma Road entrance. A draft condition (Condition No. 10) is included that the Applicant incorporate making such an improvement in their Preliminary Plan Application and Staff will further evaluate the traffic safety implications of the two options prior to Preliminary Plan review.

Additionally, it was discussed at the last meeting that Charlier and the Roaring Fork Fire Rescue Authority (RFFRA) desired improvements to the Emma Road/ Highway 82 Slip Lane intersection to accommodate additional traffic and emergency service access by the RFFRA's aerial fire apparatus. As such, the Applicant has also provided a draft design (**Exhibit C**) for improvements to the turning radius of this intersection for consideration. Staff has provided a draft condition (Condition No. 10) requiring the Applicant include this intersection improvement in the Preliminary Plan Application as well. Also contained in the draft conditions (Condition No. 10) is the allowance that the Applicant could propose a reimbursement mechanism as part of the Preliminary Plan Application for future developments served by the intersection improvements to reimburse the Applicant for their fair share of the costs associated with these improvements. Prior to Preliminary Plan review, Staff will also consult with CDOT about whether the grass island between the slip lane and the highway can be adjusted slightly to allow an easier turning movement for delivery trucks coming from the development and turning right from Emma Road onto the slip lane to enter the highway as it is currently hampering that turning movement.

As noted at the September 5<sup>th</sup> meeting, Charlier also recommended that it would be desirable for the Applicant to provide a Transportation Demand Management (TDM) Plan to help alleviate traffic and to help ensure some of the assumptions made in the traffic study with regards to multi-modal credits that are assumed in the traffic generation. TDM plans have been required for other significant developments such as Willits Town Center. A draft condition (Condition No. 7h) is included requiring a TDM plan be provided as part of the Preliminary Plan Application.

Related to emergency access, Charlier noted in his analysis that Emma Road provides only one way in and one way out of the area of the development without the potential for a secondary access to the site until the neighboring Stott Property is developed in the future with a secondary connection to Gisella Way as shown in the Master Plan. Charlier expressed that the future secondary access to Gisella Way is important, and that the Town should consider requiring the Applicant to put up financial security for a portion of the Gisella Way connection cost to help ensure that the road connection is made in the future when and if the Stott Property is proposed for redevelopment. The Town has not traditionally required financial security for potential future improvements on private property not controlled by the Applicant. Staff also finds that the Town has the flexibility of ensuring that the



Gisella Way connection is made in the future if the Stott Property is subjected to a future development application as it would require annexation.

## *2. Operations Plan for Short-Term Rental*

The Police Department expressed that the short-term rental cabins and glamping pads may generate more parking demand than proposed parking provided. In response to this concern the Applicant has suggested that an on-site manager and rental agreements will limit the number of vehicles that occupants may bring. Additionally, concerns were expressed about how the short-term rental recreation amenities like the pond will be managed to limit conflicts with the adjacent residential use within the development. As such, Staff required the Applicant to provide a management plan for the short-term rental use. The Applicant provided a draft of the management plan for the short-term rental use attached as **Exhibit D**. The management plan requires limiting the short-term rental guests and their vehicles through their booking system and enforcement by the on-site property manager. The management plan also limits use of the pond from 9 am to dusk and use of the fisherman's parking and the public trail to the river from sunrise to dusk to help limit conflicts. Staff included a draft condition (Condition No. 8) requiring compliance with the short-term rental and property management plan.

## *3. Plan for Maintaining Privacy for Neighboring Properties*

Public comments from the neighboring property owners asked for a plan for how the Applicant is going to address the neighbor's privacy and prevent trespassing on the neighbor's land. The Applicant responded by providing a privacy plan (**Exhibit E**) that includes construction of a wood privacy fence along the eastern property boundary for the multi-family area that is outside of the floodplain and a split rail fence with wire mesh in the floodplain area to prevent trespassing but still allow for floodwaters to pass through it.

## *4. Pedestrian Bridge*

At the September 5<sup>th</sup> meeting it was discussed that in 2020 when the Master Plan was approved there was a desire for a pedestrian bridge connection over the Roaring Fork River to be developed west of the Midland Avenue bridge to encourage a more direct pedestrian connection between the Basalt River Park campus and the Emma Trail that is East Basalt's most direct pedestrian connection to West Basalt. As such, the Master Plan includes a requirement for development of a pedestrian bridge if the number of units on the Jadwin Stott Primary Parcel exceeds eighty (80) dwelling units.

Subsequent to the 2020 Basalt Master Plan adoption, Sopris Engineering has conducted more engineering analysis regarding the potential for a pedestrian bridge over the Roaring Fork River at the Jadwin property and they have concluded that the span of such a bridge would be so significant that it would require the bridge infrastructure to begin well into the center of the Jadwin Property. Therefore, the Applicant has not proposed to provide the bridge and has not proposed more than the eighty (80) units of density that triggers the bridge.



Since the last meeting, Sopris Engineering has submitted a site section (attached as **Exhibit F**) showing the span of the bridge that would be needed and the associated location of where the bridge abutments would have to be to allow for the bridge due to the floodway. Sopris Engineering also provided a comparison between the bridge span that would be needed for a pedestrian bridge on the Jadwin Property and other notable pedestrian bridges in the Roaring Fork Valley (**Exhibit F**). By comparison, the bridge on the Jadwin Property would have to be longer than the pedestrian bridge over the Colorado River adjacent to the Glenwood Hot Springs and the Maroon Creek pedestrian bridge in Aspen. As alluded to at the prior meeting, Staff recommends that the Town have a third-party engineer evaluate Sopris Engineering's conclusion about the bridge span prior to Preliminary Plan review.

#### *5. Public Land Dedication/Daycare*

As introduced at the last meeting, the Master Plan provides direction that a childcare facility should be developed on the Jadwin Stott "Primary Parcel" as a requirement to achieve the minimum density of eighty (80) residential units prescribed in the Master Plan. The Applicant has proposed to dedicate the "dog leg" property (0.84 acres west of the urban growth boundary) to the Town for a community benefitting use in lieu of constructing a daycare on the property. The Application notes that the site constraint of the main sewer line serving Basalt traverses the portion of the property designated as community facility on the future land use map makes it infeasible to locate a daycare in that location.

Additionally, the Applicant has proposed that the vehicular access for a daycare facility should be separated from the residential and short-term rental accesses in order to minimize conflicts between the various traffic generators and as such the Applicant has proposed to dedicate the "dog leg" property along Emma Road to the Town for the Town to either use it as 1) a daycare or 2) other beneficial community uses that the Town deems appropriate.

It was discussed at the last meeting that Staff understands the Applicant's reasons for not locating the daycare in the community facility portion of the site where the main sewer line is located and agrees with the Applicant about potential conflicts of the daycare traffic/use with that of the residential and short-term rental uses. That said, as the "dog leg" parcel is outside the UGB, the Town could not really use it for either a daycare or affordable housing unless a Master Plan amendment were approved to either incorporate it in the UGB or adjust the policy of not annexing property for development that is outside the UGB.

Staff seeks direction on whether future community benefitting development on the "dog leg" is desirable or whether a cash-in-lieu fee be assessed as an alternative. If development on the "dog leg" is desirable, Staff recommends the Applicant be required to apply for a Master Plan amendment to allow development to occur outside of the urban growth boundary and potentially construct the requested



community benefitting building. In the event a Master Plan Amendment cannot be achieved, the Applicant would be required to pay a cash-in-lieu fee. For comparison, the value of construction of the Stott's Mill daycare core and shell was reported at just over \$2 Million.

Staff recommends that P&Z provide direction for the Applicant to order an appraisal of the "dog leg" property prior to Preliminary Plan Application review so that a comparison of community benefit could be made between the Master Plan's requirement for the construction of a childcare facility and the Applicant's proposal to dedicate the "dog leg" property. Draft conditions (Condition Nos. 7a and 7i) have been included requiring the Applicant to submit for a Master Plan Amendment and provide a third-party appraisal of the "dog leg" parcel as part of the Preliminary Plan Application.

P&Z also asked for a concept site study to show what size of community building could be provided on the "dog leg" parcel. A study conducted by the Applicant and attached as **Exhibit G** shows how a one-story community building of 4,000 sf could fit on the "dog leg" with nine (9) parking spaces. In the configuration shown in the study, there is a significant setback of eight (80) feet shown on the east side of the facility and forty (40) feet of setback on the north side. A larger building could likely be accommodated, but this study shows that at least a 4,000 sf facility could be accommodated on the "dog leg".

#### *6. BACH Recommendation*

The Applicant has proposed twenty-four (24) of the sixty-eight (68) residential units as deed-restricted Category 2 rental units. This equates to 35% of the total units. Additionally, as part of the twenty-four (24) deed-restricted units, 27% of the net residential square footage is proposed to be deed-restricted. The Town Code requires 20% of the units and 25% of the residential floor area be deed-restricted in projects that are within the town boundaries. There is also a commercial component to the development in that the cabins are proposed to be short-term lodging. The Town Code establishes that in a mixed-use situation, the greater of the residential and commercial housing mitigation requirements shall be applied and the lesser of the requirements is forgiven. In this case the commercial mitigation would be well lower than the affordable housing required of the residential component of the development so the residential requirements of 20% of the units and 25% of the floor area being deed-restricted would apply.

As mentioned above, the Master Plan encourages consideration of a higher standard related affordable housing for annexation requests. The Basalt Affordable Community Housing (BACH) Commission reviewed the Application and determined that the proposed community housing units satisfy the community housing livability requirements in the Town's Community Housing Guidelines.

BACH considered that other recent projects like the Basalt Center Circle (BCC) Project have deed-restricted 60% of their units to be occupied by local working



residents as their primary residence, but BACH chose not to request mitigation beyond the twenty-four (24) Category 2 units proposed. It was recommended by BACH that the tenants of the current mobile home on the “dog leg” property be given occupancy priority in one of the Category 2 Community Housing Units if they qualify. A condition (Condition No. 9) is included requiring the Preliminary Plan Application to be consistent with the BACH recommendations outlined above.

#### *7. POST Recommendation*

The Application proposes the preservation of an open space/recreation area on approximately the north one-third of the property as is called for in the Master Plan. Soft surface trails internal to the site are proposed through the open space/recreation area from both the residential and short-term rental portions of the development. Public parking for the open space/recreation area is proposed on the eastern side of the pond for the public to use the trail, access the river, and fish in the pond. There are also publicly accessible amenities such as outdoor grills and picnic tables proposed east of the pond. Pedestrian access to the river from the short-term rental cabins is from the west side of the pond. Amenities such as seating decks and shade sails are proposed near the river access point.

As noted at the last meeting, Eagle County recommended that development in the riparian area/100-year floodplain be minimized and mitigated to the greatest extent practical. Pitkin County was also not supportive of development in the 100-year floodplain and expressed that they do not support the glamping sites. It was also recommended by Pitkin County that wildlife habitat and corridors not be disturbed, and trail connections be coordinated with Pitkin County Open Space and Trails. Town Staff also walked the site with Rick Lofaro, Executive Director of the Roaring Fork Conservancy to obtain his comments. Lofaro expressed that the site has some unique natural aspects that other riparian development sites do not. It was identified by Lofaro that the area to the northwest of the pond where there is a natural area along the ditch should remain undisturbed and not be accessible to maintain the integrity of the wetlands. The photo below (Figure 4) shows this area. Figure 4.





Lofaro also recommended that the area around the ditch on the northeastern edge of the open space/recreation area be undisturbed and that any trail be field fit to the areas that are already disturbed. There were three areas along the river frontage of the Jadwin property where Lofaro indicated would be acceptable locations for river access as they are already disturbed with concrete riprap and that river access should be limited to these locations. Rather than the deck structures proposed on the plan adjacent to the river, Lofaro also commented that rock steps to the river like what exists at the Basalt River Park at these already disturbed river access points may be a more ecologically friendly solution and provide potential for a sitting area that is desired.

A 40 to 50-foot buffer from the river where there be no disturbance/glamping pads other than the soft surface trails was also recommended by Lofaro. Finally, Lofaro noted that they found a federally protected orchid known as the Ute Lady's Tress in the pasture area north of the lake. Even though the orchid is not protected in Colorado, Lofaro recommended that the glamping pads/trails be field fit so as not to disturb the orchids.

External to the site, the Applicant has proposed to construct a trail connection adjacent to Emma Road to connect the property to the existing trail south of the Post Office. Associated with providing the trail adjacent to Emma Road it has been suggested that the Applicant study the potential to provide a landscaping buffer between the residential component and Emma Road to help limit the impacts of the traffic noise on the on-site uses and to reduce the visual impacts of the development on the Highway 82 corridor.

The Parks, Open Space and Trails (POST) Committee reviewed Lofaro's recommendations and generally agreed. POST also agreed with the comments from Pitkin and Eagle County except that POST felt it was acceptable to allow for the seasonal glamping pads to be situated in the floodplain so long as they are adequately secured to the satisfaction of the Town's hydrologist, setback at least 50 feet from the high water line of the river, and designed in a manner in which they are completely removed from November to June of each year to allow for natural recovery of the vegetation on which they are located. As such, draft conditions (Condition Nos. 7d, 7f, and 15) are included requiring the Preliminary Plan Application to be consistent with Lofaro and POST's comments.

#### *8. Floodplain/Floodway*

The Town's consulting hydrologist, Robert Krehbiel of Matrix Design, has provided referral comments that were included in the packet materials for the September 5<sup>th</sup> meeting. Krehbiel's email expresses that the Colorado Water Conservation Board (CWCB) is in the process of amending the floodplain mapping in the Basalt area, including adjusting the floodplain to be consistent with the floodplain/floodway shown on the Applicant's mapping. Krehbiel notes that he wrote a letter to CWCB recommending such a change to the floodplain. A draft condition (Condition No.



7b) is included for consideration requiring the Applicant to obtain the final approval on the adjustment to the floodplain/floodway shown on their mapping prior to submitting a Preliminary Plan Application.

#### *9. Green Building and Wildfire Mitigation*

The Application proposes the development be completely heated and cooled with electricity. Additionally, the Applicant has proposed to meet the Town's sustainable building regulations and energy code requirements in place at the time of building permit issuance. It is further proposed that buildings within the development will meet the Town's wildfire mitigation requirements in place at the time of building permit issuance. A draft condition (Condition No. 5) is included requiring more details on the building materials as part of the Preliminary Plan Application.

### **VI. Recommendation**

Staff recommends that the P&Z hear presentations from Staff on the additional information provided and the recommendations from BACH and POST, take Applicant comments, consider public comment, and provide commission discussion. The Commission could make a recommendation to the Town Council or continue the public hearing and request additional information.

#### **Attachments:**

Exhibit A- Draft Conditions

Exhibit B- Emma Road/Midland Avenue Concept Design for Dedicated Right-Turn Lane on Emma Road and Cost Estimate

Exhibit C- Emma Road/Highway 82 Slip Lane Concept Design for Improvements to Turning Radius and Cost Estimate

Exhibit D- Management Plan for Short-Term Rental addressing Parking Management, Amenity Use Hours, Recreation on the Pond, etc.

Exhibit E- Plan for Maintaining Privacy for Direct Neighbors

Exhibit F- Site Sections Showing where Bridge Abutments could be for a Pedestrian Bridge over the Roaring Fork River/Bridge Length Comparison

Exhibit G- Study of Potential Community Building/Parking that could be Accommodated on "Dog Leg" Property Adjacent to Emma Road

Exhibit H- Revised Traffic Study Materials with Technical Adjustments to Respond to Jim Charlier's Comments

Exhibit I - Public Correspondence

## **Exhibit A Conditions of Approval**

### **Representations:**

1. The Applicant shall comply with all representations set forth in the Application.
2. The Applicant shall comply with all material representations made in hearings before the Planning and Zoning Commission and Town Council.

### **Development Program:**

3. The Sketch Plan approval is for the following:

68 Multi-family Residential Units  
12 Short-Term Rental Cabins  
7 Seasonal Glamping Pads with Tents

### **Dimensional Requirements:**

4. The dimensional requirements approved for the Sketch Site Plan are as follows:

| Dimensional Requirement |                                                                |                                         |
|-------------------------|----------------------------------------------------------------|-----------------------------------------|
| Zone District           | R-4 MD PUD Area                                                | C-3 PUD Area                            |
| Building Height         | 33' to top of parapet<br>37' to top pf parapet on<br>M3 and M4 | 24' to midpoint<br>28' to ridge         |
| # of Stories            | 3                                                              | 1 and 2 story models                    |
| Front Yard Setback      | 10'                                                            | Per Building Envelopes                  |
| Rear Yard Setback       | 10'                                                            | Per Building Envelopes                  |
| Side Yard Setback       | 5'                                                             | Per Building Envelopes                  |
| Landscaped Open Space   | Greater than 10%                                               | Greater than 30%                        |
| FAR                     | .5:1                                                           | Less than .5:1                          |
| Unit Size               | As shown on Floor<br>Plans dated 8/24/23                       | As show on Floor Plans<br>dated 8/24/23 |

\*- A condition will be included in the Final Plan approvals requiring that the units not be combined.

### **Exterior Materials, Architectural Design, and Colors:**

5. The Applicant shall submit details on the exterior materials as part of the Preliminary Plan Application.

6. The Sketch Plan Application shall be consistent with the character shown on the sketch plans dated 8/24/23. The Applicant shall study the ability to reduce the apparent massing of the free-market, multi-family buildings prior to submittal of a Preliminary Plan Application.

**General Items for Preliminary Plan Review:**

7. In addition to the submittal requirements for a Preliminary PUD Plan Application set forth in the Town Code, the Applicant shall also submit the following items for review as part of the Preliminary Plan Application:
  - a. Master Plan Amendment Application to change the future land use map to permit the dedication of the “dog leg” parcel for development of a community benefitting use adjacent to Emma Road in-lieu of providing a childcare facility in the area of the site dedicated as Community Facility in the 2020 Master Plan.
  - b. Written confirmation from the Colorado Water Conservation Board that the floodplain has been changed as shown on the site plan dated 8/24/23 in the Sketch Plan Application.
  - c. Details on how the glamping pads will be secured in the floodplain as to not become a floating hazard during a flood. Details shall also be included on how the glamping pads will be removable to allow natural recovery of the vegetation under the glamping pads from November to June and demonstrating the glamping pads will be situated at least 50 feet from the high water line of the river.
  - d. Detailed landscaping and berming plan that provides analysis of the potential to include both a separated trail along Emma Road and a landscaped berm between Emma Road and the project. Additionally, the landscaping plan shall also include details on how the trail to the river will be configured for it to also serve as emergency services vehicle access to the river access point. The landscaping plan shall also include details on the public amenities to be provided in the open space adjacent to the public parking on the east side of the pond and details on the riverfront amenities that will be provided in-lieu of the decks shown in the sketch plan application. Associated with the landscaping details the Applicant shall provide a river access and recreation management plan.
  - e. Proposal to address pets (for any user group on the site) related to the development’s interface with wildlife habitat.
  - f. Plan for preserving the area of wetlands around the ditch on the northwestern edge of the pond.
  - g. Complete floor plans on the multi-family buildings. The Applicant shall meet with the Town Building Official prior to the submittal of a Preliminary Plan Application demonstrating compliance with ADA accessibility requirements.
  - h. Transportation Demand Management Plan to demonstrate compliance with the accepted traffic study in regards to multi-modal credits and traffic generation counts.

- i. Third party appraisal performed by a licensed appraiser on the “dog leg” parcel proposed to be dedicated to the Town. The Applicant shall also submit a building study for the “dog leg” property to demonstrate development potential for a community building in consideration of setback requirements and off-street parking requirements.
- j. Site Plan including the location of the municipal well site and associated easements that will be provided. Applicant shall work with the Town Engineer and Public Works Staff to determine the well location. Discussion will occur as part of the Preliminary Plan review about the extent to which the Applicant will contribute to installation of a well.
- k. Details on how the location of the overhead electric lines will be adjusted and a written statement of intent from any adjacent property owner that is needed to provide an easement for such relocation identifying that they are willing to provide the necessary easement.
- l. Fencing Plan for perimeter fencing to prevent residents and public accessing the open space from traversing onto adjacent properties.
- m. Draft Real Estate Transfer Assessment (RETA) Declaration including 1% RETA for transactions under \$1 Million and 2% RETA on transactions of \$1 Million or greater.
- n. Construction management plan addressing storm water controls.

**Parking:**

- 8. The parking in the Preliminary Plan Application shall be consistent with the site plan dated 8/24/23. The Applicant shall also study the location of the ADA parking spaces with the Building Department and Planning Department prior to submitting the Preliminary Plan Application to make sure they are planned in the optimal location. Additionally, the Preliminary Plan Application shall include the parking management strategies that are in the short-term rental and property management plan dated 9/8/23. Additionally, the Preliminary Plan Application shall include, at a minimum, a green ride surcharge similar to that required of Block 11, Willits Town Center and Lot J of the Basalt Commercial Park, a prohibition against storing anything other than an operable vehicle in the parking spaces, and other provisions to ensure that the parking does not negatively impact the area outside of the development. During the Preliminary Plan application review consideration shall be given to whether the Applicant is required to pay the green ride surcharge or whether it can be incorporated into the rent on the units.

**Affordable Housing:**

- 9. The Preliminary Plan Application shall include the twenty (24) deed-restricted Category 2 affordable housing units consistent with the floor plans dated 8/24/23. The Preliminary Plan application shall also include draft Category 2 deed restriction for consideration during the Preliminary Plan Review. Occupancy priority in one of the deed-restricted units shall be provided to the

tenants of the mobile home on the “dog leg” parcel if they were to qualify per the Community Housing Guideline requirements as they may be amended.

**Intersection Improvements:**

10. The Applicant shall include making the intersection improvements to the Midland Avenue/Emma Road and Highway 82 Slip Lane/Emma Road intersections shown on the drawings dated 9/20/23, prepared by Sopris Engineering in the Preliminary Plan Application. The Applicant shall demonstrate that these improvements can be completely accomplished in the right-of-way and the Applicant may propose details regarding fair-share reimbursement from other future developments that would benefit from the improvements for consideration as part of the Preliminary Plan Application. The two (2) options for improvements to the Midland Avenue/Emma Road intersection will be evaluated and one option selected prior to the Preliminary Plan Application.

**Development and Building Fees:**

11. The Applicant shall pay all applicable development review fees, as calculated by the Town Planner, prior to building permit issuance, (including but not limited to the payment of parkland dedication and school land dedication fees). The Applicant shall also pay all applicable building permit fees as calculated by the Town Building Official prior to building permit issuance.

**Fire Protection Authority Comments:**

12. The Applicant shall demonstrate compliance with the comments provided by Assistant Fire Marshal, Brooke Stott, dated 7/3/23 as part of the Preliminary Plan Application.

**Basalt Sanitation District Comments:**

13. The Applicant shall demonstrate compliance with Basalt Sanitation District's rules and regulations. The Applicant shall also pay tap fees for each unit at the time of building permit issuance.
14. The Applicant shall submit a request for inclusion into the Basalt Sanitation District prior to Preliminary Plan Application.

**Coordination with Pitkin County Open Space and Trails and Colorado Parks and Wildlife:**

15. The Applicant shall examine the location of the currently disturbed areas in the proposed open space in preparing the site plan for the Preliminary Plan Application to locate the trails and glamping pads in locations where they will

not impact the Ute Ladies Tress or other significant vegetation/wildlife habitat. Once the Preliminary Plan site plan is developed, the Applicant shall meet with Pitkin County Open Space and Trails and Colorado Parks and Wildlife to obtain their feedback.

**Environmental/Green Building:**

16. The Applicant shall demonstrate compliance with the Town's SBR regulations as part of the Preliminary Plan Application.
17. The Applicant shall demonstrate compliance with the Town's Wildfire Mitigation requirements as part of the Preliminary Plan Application.

**Exterior Lighting Plan:**

18. The Applicant shall submit an exterior lighting and site lighting plan demonstrating compliance with the Town's lighting code as part of the Preliminary Plan Application. In formulating the exterior and site lighting plan, the Applicant shall strive for creating a balance between limiting lighting near the open space area, while ensuring that there is sufficient lighting for pedestrians and residents in this area to feel comfortable walking through the development.

**Mail and Trash:**

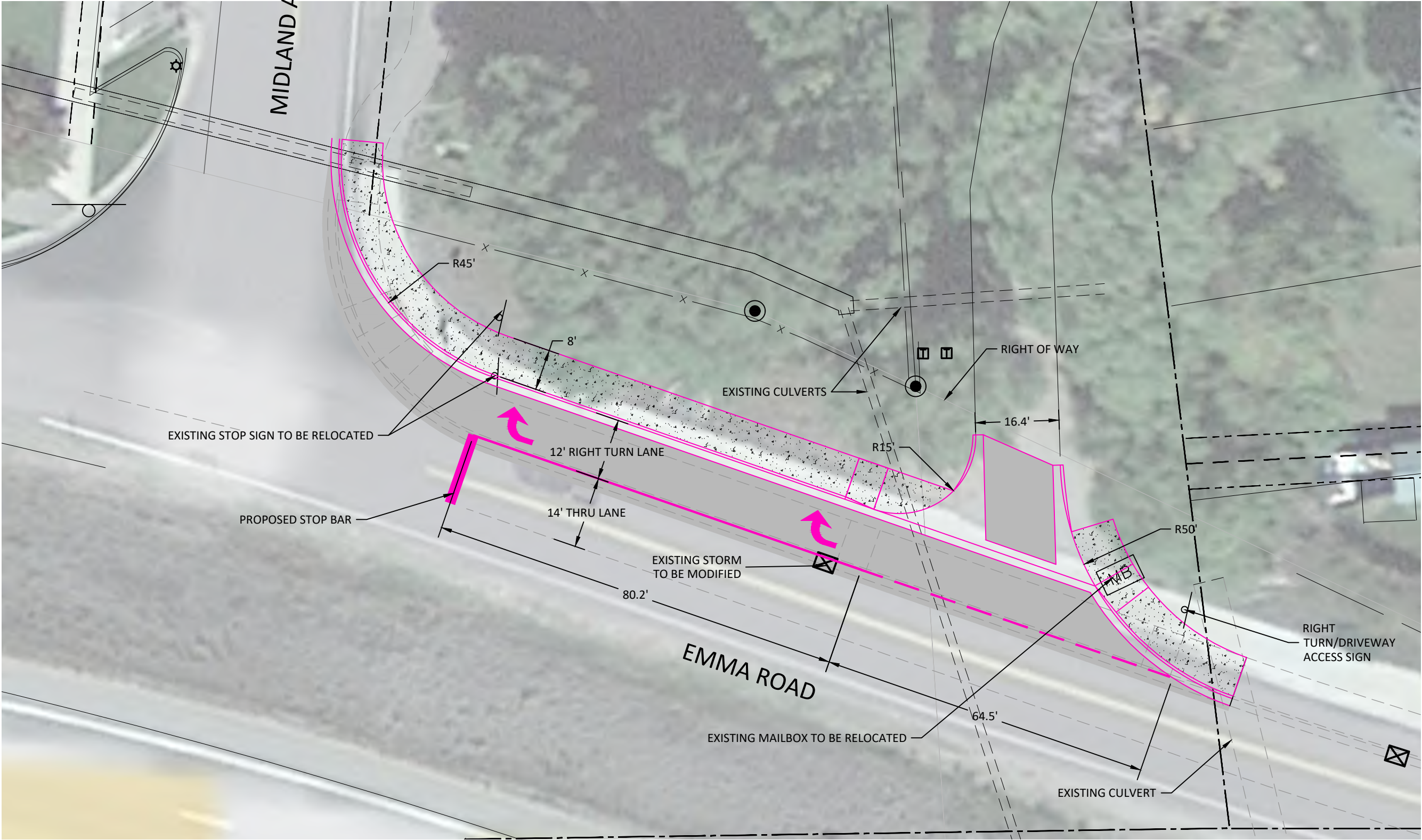
19. The Applicant shall meet with the representatives from the Post Office and the local trash service that they plan to use to service the development prior to submittal of the Preliminary Plan Application to ensure that the mail and trash, recycling, and compost facilities are located in an acceptable manner.

**Access, Emergency Access and Public Easements:**

20. As the roads within the development are proposed to be private roads, the Applicant shall provide details as part of the Preliminary Plan Application on all access, emergency access, and public access easements that are proposed to be dedicated to assure acceptable public access.

**Vested Rights:**

21. Approval of the Sketch Plan does not grant vested property rights. Vested Rights are granted at the time of Final Plan Review. The Preliminary Plan Application shall be submitted within one year of approval of the Sketch Plan Application or the sketch plan approval shall be null and void. The Town Planner may approve extensions to the sketch plan approval in writing.



SCALE 1"=20'



**SOPRIS ENGINEERING LLC**  
502 MAIN STREET • SUITE A3 • CARBONDALE CO 81623  
(970) 704-0311 • soprisengineering.com

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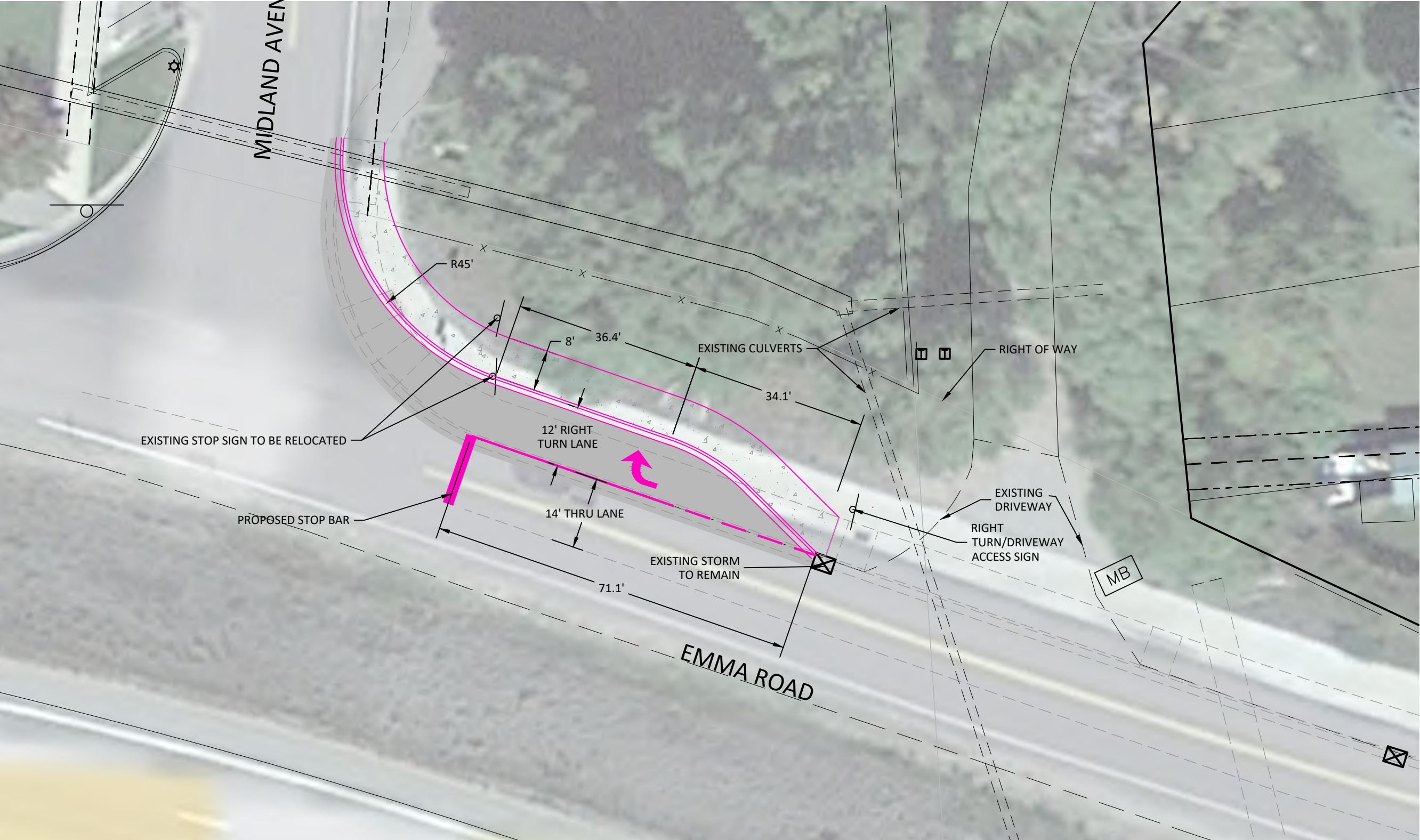
**BLACK MOUNTAIN**  
BASALT, COLORADO

MIDLAND/EMMA RIGHT TURN CONCEPT 1

DATE: 09-20-23  
JOB NO. 32190  
SHEET 1 OF 1

| BLACK MOUNTAIN PUD -EMMA/MIDLAND RIGHT TURN COST ESTIMATE-OPTION 1 |          |      |              |               |
|--------------------------------------------------------------------|----------|------|--------------|---------------|
| ITEM                                                               | QUANTITY | UNIT | UNIT COST    | TOTAL COST    |
| <b>General:</b>                                                    |          |      |              |               |
| PLOT                                                               |          |      |              |               |
| G1 MOBILIZATION                                                    | JOB      | LS   | \$ 5,000.00  | \$ 5,000.00   |
| G2 TRAFFIC CONTROL                                                 | JOB      | LS   | \$ 12,000.00 | \$ 12,000.00  |
| G3 CLEAR AND GRUB/STRIP TOPSOIL                                    | JOB      | LS   | \$ 2,000.00  | \$ 2,000.00   |
| G4 EROSION AND DUST CONTROL                                        | JOB      | LS   | \$ 2,500.00  | \$ 2,600.00   |
| Subtotal General                                                   |          |      |              | \$ 21,600.00  |
| <b>Demolition:</b>                                                 |          |      |              |               |
| D1 SAWCUT AND REMOVE EXISTING CONCRETE VALLEY PAN/FILLET/CURB      | 2090     | SF   | \$ 3.50      | \$ 7,315.00   |
| D2 SAWCUT AND REMOVE EXISTING ASPHALT                              | 840      | SF   | \$ 5.00      | \$ 4,200.00   |
| Subtotal Demolition                                                |          |      |              | \$ 11,515.00  |
| <b>Street and Sidewalk Improvements:</b>                           |          |      |              |               |
| S1 IMPORT                                                          | 110      | CY   | \$ 55.00     | \$ 6,050.00   |
| S2 ASPHALT                                                         | 62       | TON  | \$ 200.00    | \$ 12,400.00  |
| S3 CURB AND GUTTER                                                 | 227      | LF   | \$ 45.00     | \$ 10,215.00  |
| S4 SIDEWALK                                                        | 1,490    | SF   | \$ 8.00      | \$ 11,920.00  |
| S5 VALLEY PAN/FILLETS                                              | 220      | SF   | \$ 12.00     | \$ 2,640.00   |
| S6 CLASS 6 ABC                                                     | 90       | CY   | \$ 91.00     | \$ 8,190.00   |
| S7 RELOCATE EXISTING STOP SIGN                                     | 1        | EA   | \$ 450.00    | \$ 450.00     |
| S8 INSTALL NEW RIGHT TURN SIGN                                     | 1        | EA   | \$ 800.00    | \$ 800.00     |
| S9 RELOCATE EXISTING MAILBOX                                       | 1        | EA   | \$ 450.00    | \$ 450.00     |
| S10 STRIPING/PAVEMENT MARKINGS                                     | JOB      | LS   | \$ 2,500.00  | \$ 2,500.00   |
| S11 HANDICAP RAMPS (CONCRETE IS INCLUDED IN SIDEWALK)              | 2        | EA   | \$ 900.00    | \$ 1,800.00   |
| Subtotal Street Improvements                                       |          |      |              | \$ 57,415.00  |
| <b>Drainage Improvements:</b>                                      |          |      |              |               |
| DR1 MODIFY EXISTING INLET                                          | 1        | EA   | \$ 8,500.00  | \$ 8,500.00   |
| Subtotal Drainage                                                  |          |      |              | \$ 8,500.00   |
| <b>Utility Company and Civil Fees:</b>                             |          |      |              |               |
| F1 DESIGN, SURVEY, CONSTRUCTION OBSERVATION, TESTING AND AS BUILTS | JOB      | LS   | \$ 18,000.00 | \$ 18,000.00  |
| Subtotal Fees                                                      |          |      |              | \$ 18,000.00  |
| Subtotal All                                                       |          |      |              | \$ 117,030.00 |
| 15% Contingency                                                    |          |      |              | \$ 17,554.50  |
| Total                                                              |          |      |              | \$ 134,584.50 |





SCALE 1"=20'



**SOPRIS ENGINEERING LLC**  
502 MAIN STREET • SUITE A3 • CARBONDALE CO 81623  
(970) 704-0311 • [soprisengineering.com](http://soprisengineering.com)

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**BLACK MOUNTAIN**  
BASALT, COLORADO

MIDLAND/EMMA RIGHT TURN CONCEPT 2

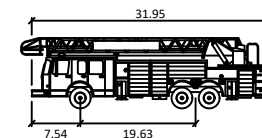
DATE: 09-20-23

JOB NO. 32190

SHEET 1 OF 1

| BLACK MOUNTAIN PUD -EMMA/MIDLAND RIGHT TURN COST ESTIMATE-OPTION 2 |                                                                 |          |      |              |              |
|--------------------------------------------------------------------|-----------------------------------------------------------------|----------|------|--------------|--------------|
| ITEM                                                               |                                                                 | QUANTITY | UNIT | UNIT COST    | TOTAL COST   |
| <b>General:</b>                                                    |                                                                 |          |      |              |              |
|                                                                    |                                                                 |          | PLOT |              |              |
| G1                                                                 | MOBILIZATION                                                    | JOB      | LS   | \$ 3,000.00  | \$ 3,000.00  |
| G2                                                                 | TRAFFIC CONTROL                                                 | JOB      | LS   | \$ 10,000.00 | \$ 10,000.00 |
| G3                                                                 | CLEAR AND GRUB/STRIP TOPSOIL                                    | JOB      | LS   | \$ 2,000.00  | \$ 2,000.00  |
| G4                                                                 | EROSION AND DUST CONTROL                                        | JOB      | LS   | \$ 2,500.00  | \$ 2,600.00  |
| Subtotal General                                                   |                                                                 |          |      |              | \$ 17,600.00 |
| <b>Demolition:</b>                                                 |                                                                 |          |      |              |              |
| D1                                                                 | SAWCUT AND REMOVE EXISTING CONCRETE VALLEY PAN/FILLET/CURB      | 1370     | SF   | \$ 3.50      | \$ 4,795.00  |
| D2                                                                 | SAWCUT AND REMOVE EXISTING ASPHALT                              | 242      | SF   | \$ 5.00      | \$ 1,210.00  |
| Subtotal Demolition                                                |                                                                 |          |      |              | \$ 6,005.00  |
| <b>Street and Sidewalk Improvements:</b>                           |                                                                 |          |      |              |              |
| S1                                                                 | IMPORT                                                          | 80       | CY   | \$ 55.00     | \$ 4,400.00  |
| S2                                                                 | ASPHALT PATCH                                                   | 33       | TON  | \$ 250.00    | \$ 8,250.00  |
| S3                                                                 | CURB AND GUTTER                                                 | 135      | LF   | \$ 45.00     | \$ 6,075.00  |
| S4                                                                 | SIDEWALK                                                        | 1,035    | SF   | \$ 8.00      | \$ 8,280.00  |
| S5                                                                 | VALLEY PAN/FILLETS                                              | 0        | SF   | \$ 12.00     | \$ -         |
| S6                                                                 | CLASS 6 ABC                                                     | 50       | CY   | \$ 91.00     | \$ 4,550.00  |
| S7                                                                 | RELOCATE EXISTING STOP SIGN                                     | 1        | EA   | \$ 450.00    | \$ 450.00    |
| S8                                                                 | INSTALL NEW RIGHT TURN SIGN                                     | 1        | EA   | \$ 800.00    | \$ 800.00    |
| S9                                                                 | RELOCATE EXISTING MAILBOX                                       | 0        | EA   | \$ 450.00    | \$ -         |
| S10                                                                | STRIPING/PAVEMENT MARKINGS                                      | JOB      | LS   | \$ 2,500.00  | \$ 2,500.00  |
| S11                                                                | HANDICAP RAMPS (CONCRETE IS INCLUDED IN SIDEWALK)               | 0        | EA   | \$ 900.00    | \$ -         |
| Subtotal Street Improvements                                       |                                                                 |          |      |              | \$ 35,305.00 |
| <b>Utility Company and Civil Fees:</b>                             |                                                                 |          |      |              |              |
| F1                                                                 | DESIGN, SURVEY, CONSTRUCTION OBSERVATION, TESTING AND AS BUILTS | JOB      | LS   | \$ 9,000.00  | \$ 9,000.00  |
| Subtotal Fees                                                      |                                                                 |          |      |              | \$ 9,000.00  |
| Subtotal All                                                       |                                                                 |          |      |              | \$ 67,910.00 |
| 15% Contingency                                                    |                                                                 |          |      |              | \$ 10,186.50 |
| Total                                                              |                                                                 |          |      |              | \$ 78,096.50 |





|                                    |                                  |
|------------------------------------|----------------------------------|
| BLACK MOUNTAIN<br>BASALT, COLORADO | EMMA ROAD/SLIP LANE INTERSECTION |
|------------------------------------|----------------------------------|

## EMMA ROAD/SLIP LANE INTERSECTION

DATE: 09-20-23  
JOB NO. 32190  
SHEET 1 OF 1

| BLACK MOUNTAIN PUD -EMMA/SLIP LANE INTERSECTION COST ESTIMATE      |          |      |              |                      |
|--------------------------------------------------------------------|----------|------|--------------|----------------------|
| ITEM                                                               | QUANTITY | UNIT | UNIT COST    | TOTAL COST           |
| <b>General:</b>                                                    |          |      |              |                      |
| PLOT                                                               |          |      |              |                      |
| G1 MOBILIZATION                                                    | JOB      | LS   | \$ 5,500.00  | \$ 5,500.00          |
| G2 TRAFFIC CONTROL                                                 | JOB      | LS   | \$ 10,000.00 | \$ 10,000.00         |
| G3 CLEAR AND GRUB/STRIP TOPSOIL                                    | JOB      | LS   | \$ 2,000.00  | \$ 2,000.00          |
| G4 EROSION AND DUST CONTROL                                        | JOB      | LS   | \$ 2,500.00  | \$ 2,600.00          |
| Subtotal General                                                   |          |      |              | \$ 20,100.00         |
| <b>Demolition:</b>                                                 |          |      |              |                      |
| D1 SAWCUT AND REMOVE EXISTING CURB AND ASPHALT                     | 670      | SF   | \$ 5.00      | \$ 3,350.00          |
| Subtotal Demolition                                                |          |      |              | \$ 3,350.00          |
| <b>Street and Sidewalk Improvements:</b>                           |          |      |              |                      |
| S1 PULVARIZE, WET AND COMPACT EXISTING ASPHALT                     | 760      | SY   | \$ 25.00     | \$ 19,000.00         |
| S2 4" ASPHALT                                                      | 210      | TON  | \$ 200.00    | \$ 42,000.00         |
| S3 CURB AND GUTTER                                                 | 60       | LF   | \$ 55.00     | \$ 3,300.00          |
| S4 CLASS 6 ABC (INCLUDING SHOULDER)                                | 280      | CY   | \$ 91.00     | \$ 25,480.00         |
| S5 RELOCATE EXISTING STOP SIGN                                     | 1        | EA   | \$ 450.00    | \$ 450.00            |
| S6 STRIPING/PAVEMENT MARKINGS                                      | JOB      | LS   | \$ 2,000.00  | \$ 2,000.00          |
| Subtotal Street Improvements                                       |          |      |              | \$ 92,230.00         |
| <b>Utility Company and Civil Fees:</b>                             |          |      |              |                      |
| F1 DESIGN, SURVEY, CONSTRUCTION OBSERVATION, TESTING AND AS BUILTS | JOB      | LS   | \$ 18,000.00 | \$ 18,000.00         |
| Subtotal Fees                                                      |          |      |              | \$ 18,000.00         |
| Subtotal All                                                       |          |      |              | \$ 133,680.00        |
| 15% Contingency                                                    |          |      |              | \$ 20,052.00         |
| <b>Total</b>                                                       |          |      |              | <b>\$ 153,732.00</b> |



## **SHORT TERM RENTAL AND PROPERTY MANAGEMENT PLAN**

There will be a Master HOA and subsidiary HOA(s). The Master HOA will employ a full-time, on-site property manager who will have enforcement authority and responsibility. The Board of the Master HOA will be responsible for adopting Rules & Regulations concerning all aspects of usage and operation of project amenities, including but not limited to, hours of operation, parking, noise control, and signage.

### Parking:

- All parking within the project will be assigned;
- All STR advertising and booking systems will require acknowledgement that occupants of STRs are only allowed one vehicle on-site except with specific permission.
- Guest check-in will be seamless. STR guests will have an assigned parking space & illustrative map sent via txt or email prior to their arrival, avoiding any vehicle idling issues at check-in. Guests will be sent a keyless entry code to enter their room directly without requiring face-to-face check in. There are 8 extra parking spaces which can be assigned in special circumstances.
- Trailers, parking on the streets, and RVs will be prohibited;
- There are six public parking spaces for fisherman river access;

### Signage:

- There will be signs at the private amenity space and near the pond limiting use of those areas to owners (and their guests when accompanied by an owner). Rules will be adopted concerning the types & limits of usage of the pond and amenity space;
- There will be signs in the fisherman parking area limiting the parking to fishermen and directing them to the trails to the river. Boat portage and trailers will be prohibited;
- There will be additional signage, landscaping features and privacy barriers throughout the property to direct STR guests as well as any visitors or long-term tenants.

### Hours of Operation:

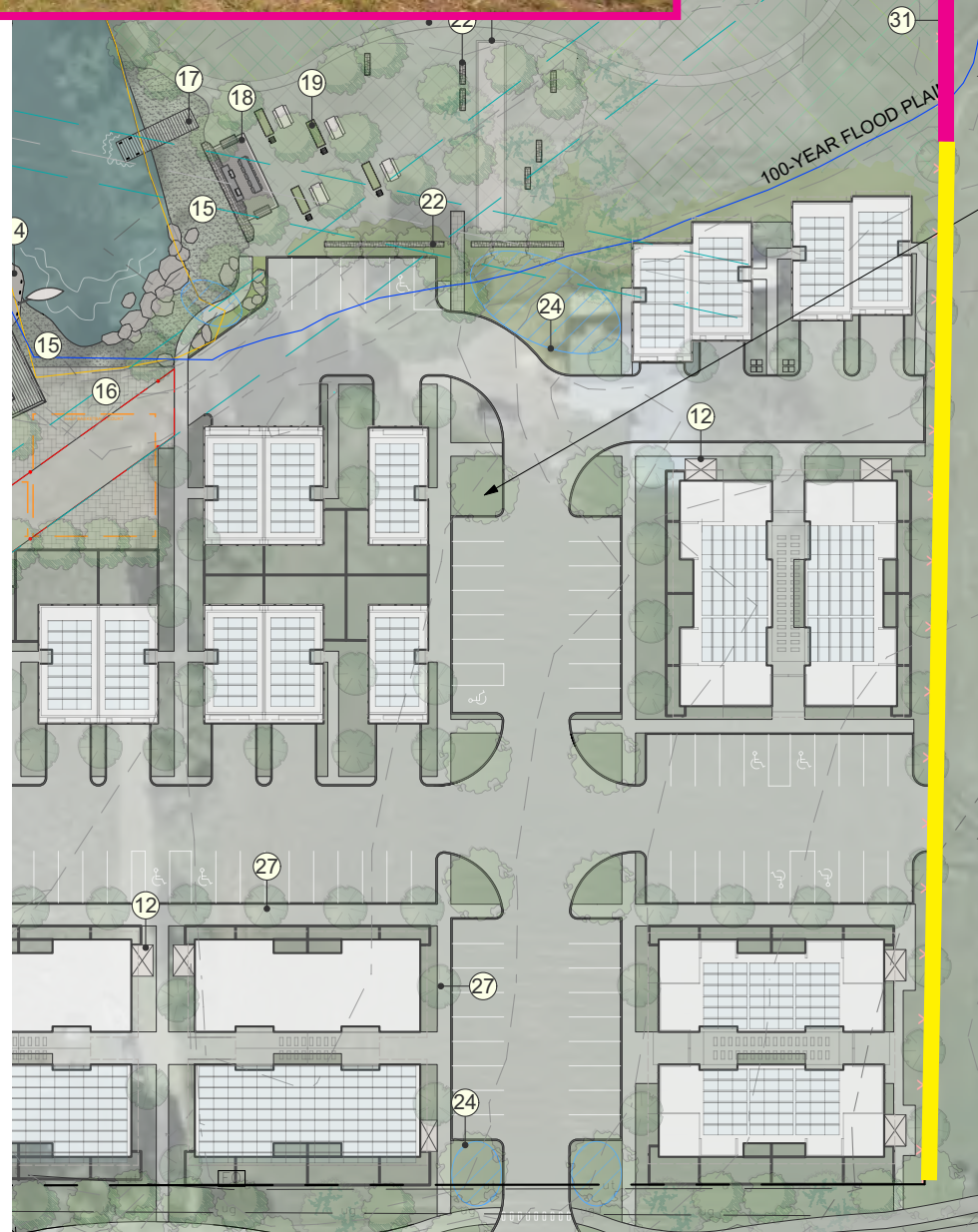
- Public use of the fisherman's parking and the trail to and from the river will be limited to Sunrise to dusk;
- Project resident and STR guest use of the pond and amenity space will be limited to 9:00AM to dusk

## **Black Mountain: Draft Parking Plan Narrative**

The Jadwin Parcel's draft parking plan, also known as Black Mountain, provides the gross overall parking count compliant with the proposed underlying zone districts respective of; R4-MD townhome and multi-family prescriptive parking counts per unit type (83 stalls), community housing prescriptive parking counts per unit types (50 stalls), and C-1 parking counts per unit (21 stalls). The gross of which is 154 stalls required with 163 stalls provided.

After accounting for the distribution of parking required at each individual building, and the location of the 163 gross stalls provided, the applicant proposes using the R4-MD requirement for all multi-family building's distributed parking, including the Community Housing M1 and M2 budlings proposed. This allows for a lesser parking to be distributed to the Community Housing units than what would be required (38 stalls provided) and an excess of parking to be distributed elsewhere in the overall plan above the requirement for multi-family and townhomes that are not Community Housing (98 stalls provided). This would bring our total required parking for the M1-M4 structures to 94 stalls which would allow for an additional 2 stalls of guest/flex parking.

The Fishing Cabins and Glamping Sites have a combined total of 25 parking spaces with a requirement of 21 Stalls per Chapter 16, Article V, Sec. 16-91 parking regulations.

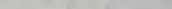
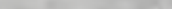


PINK: Fencing will have to ensure it does not impede the flood plain. Design team will design a split rail type rustic fence with a dog-proofing wire mesh. Wire will have to be large enough to get approved by the Town's water engineer.

YELLOW: Fencing will be solid privacy fence. The design team will review the plans to ensure enough room to also plant screening trees such as columnar evergreens to screen above fence height.



## JADWIN PARCEL PARKING DISTRIBUTION

- 
-  TOWN BOUNDARY  
 PARCEL PROPERTY LINE  
 COUNTY LINE  
 PAINTED CURB + NO PARKING SIGNAGE AND/OR OTHER SOLUTION  
 LANDSCAPE SOLUTION AND/OR OTHER PARKING DETERENT  
 FIRE LANE



BUSHES



BOULDERS



BERMS

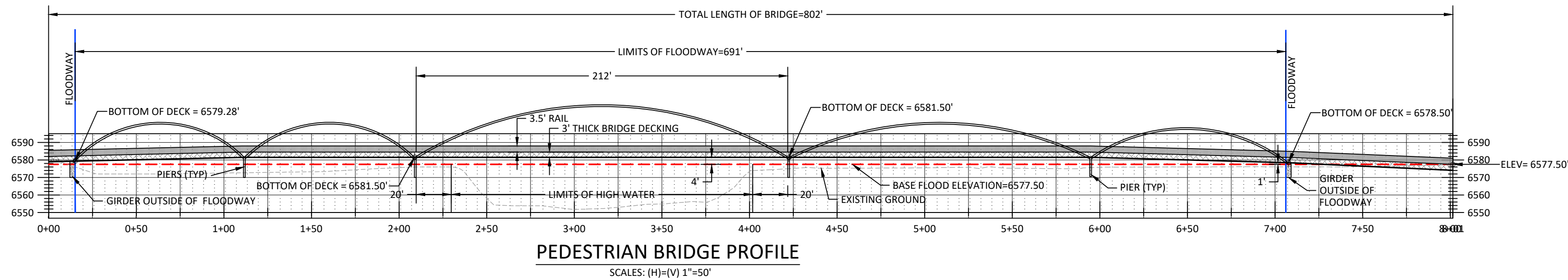
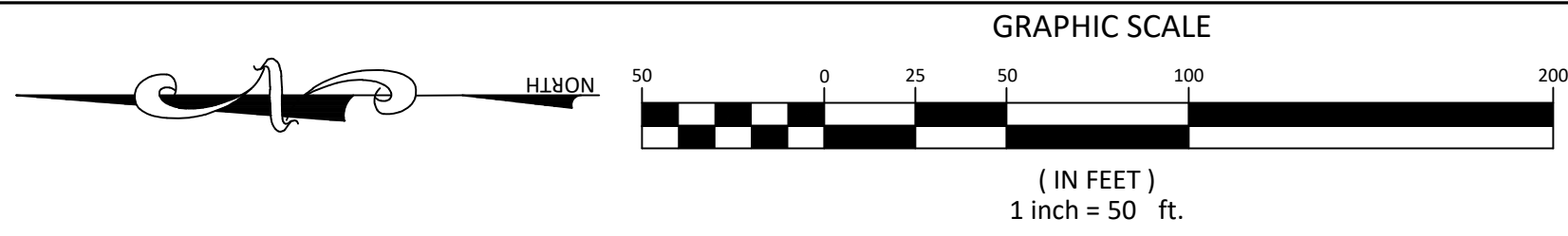


bldg seed architects

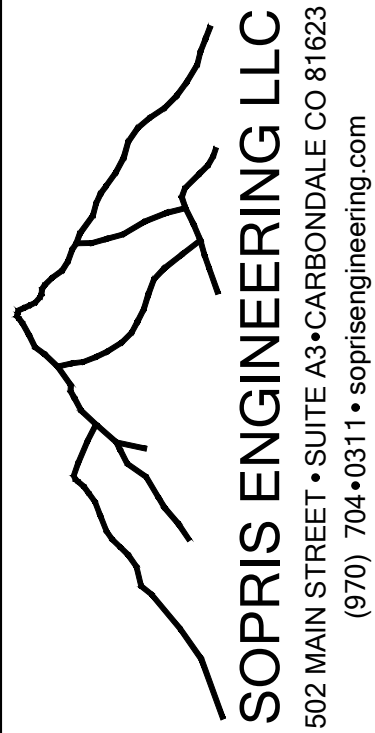
## PARKING DISTRIBUTION AND NO PARKING AREAS

BLACK MOUNTAIN CONCEPT 2023.09.25





- NOTES:
- BASE FLOOD ELEVATION (BFE)=6577.5'
  - BOTTOM OF BRIDGE DECKING SET AT 4' ABOVE BFE IN MAIN CHANNEL OF RIVER
  - BOTTOM OF BRIDGE DECKING SET AT MIN 1' ABOVE BFE AT FLOODWAY LINE
  - BRIDGE DECKING IS 3- FEET THICK
  - 3.5' HANDRAIL ON TOP OF BRIDGE DECKING



|             |        |
|-------------|--------|
| DATE:       | 9/8/23 |
| JOB NO.     | 32190  |
| DESIGNED BY |        |
| DRAWN BY    |        |
| CHECKED BY  |        |

BLACK MOUNTAIN  
BASALT, COLORADO

| DATE | REVISION |
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TITLE  
PEDESTRIAN BRIDGE  
EXHIBIT

## James Lindt

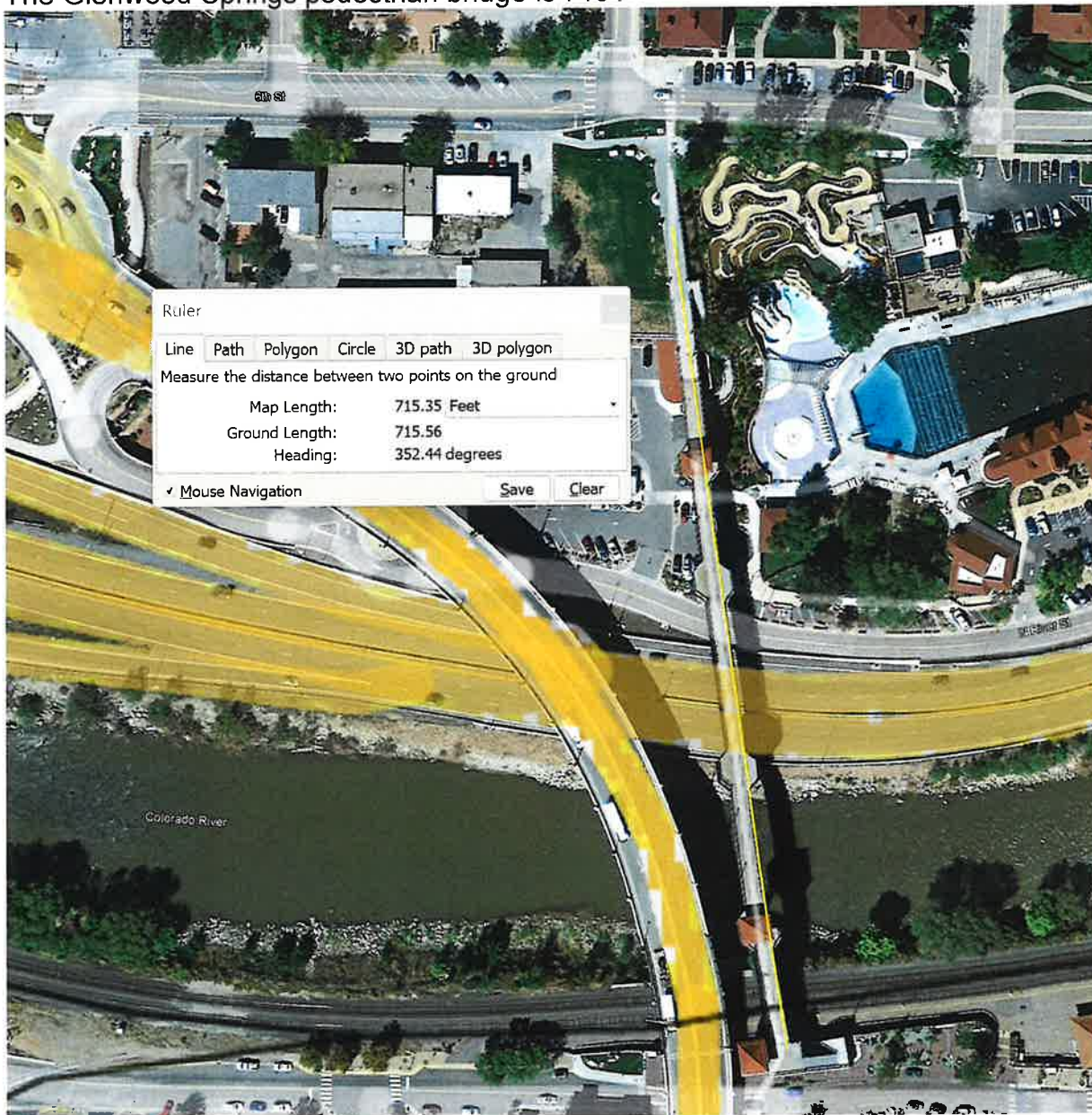
**From:** Stephanie Helfenbein <stephanie@sopriseng.com>  
**Sent:** Tuesday, September 12, 2023 7:31 AM  
**To:** James Lindt  
**Cc:** Heather Henry; ynichol; Ramsey Fulton; bridger smith  
**Subject:** Re: Submittal Items for next P&Z 9/19

Caution: Sender from outside domain.

James-

The bridge length for the pedestrian bridge from Black Mountain across the river would be just over 800'. As discussed yesterday see below for references of other pedestrian bridge lengths in the valley.

The Glenwood Springs pedestrian bridge is 715':



The Maroon Creek pedestrian bridge is 630':



**Stephanie Helfenbein**  
Project Manager/Principal  
Sopris Engineering, LLC

EMAIL IS THE BEST WAY TO CONTACT ME

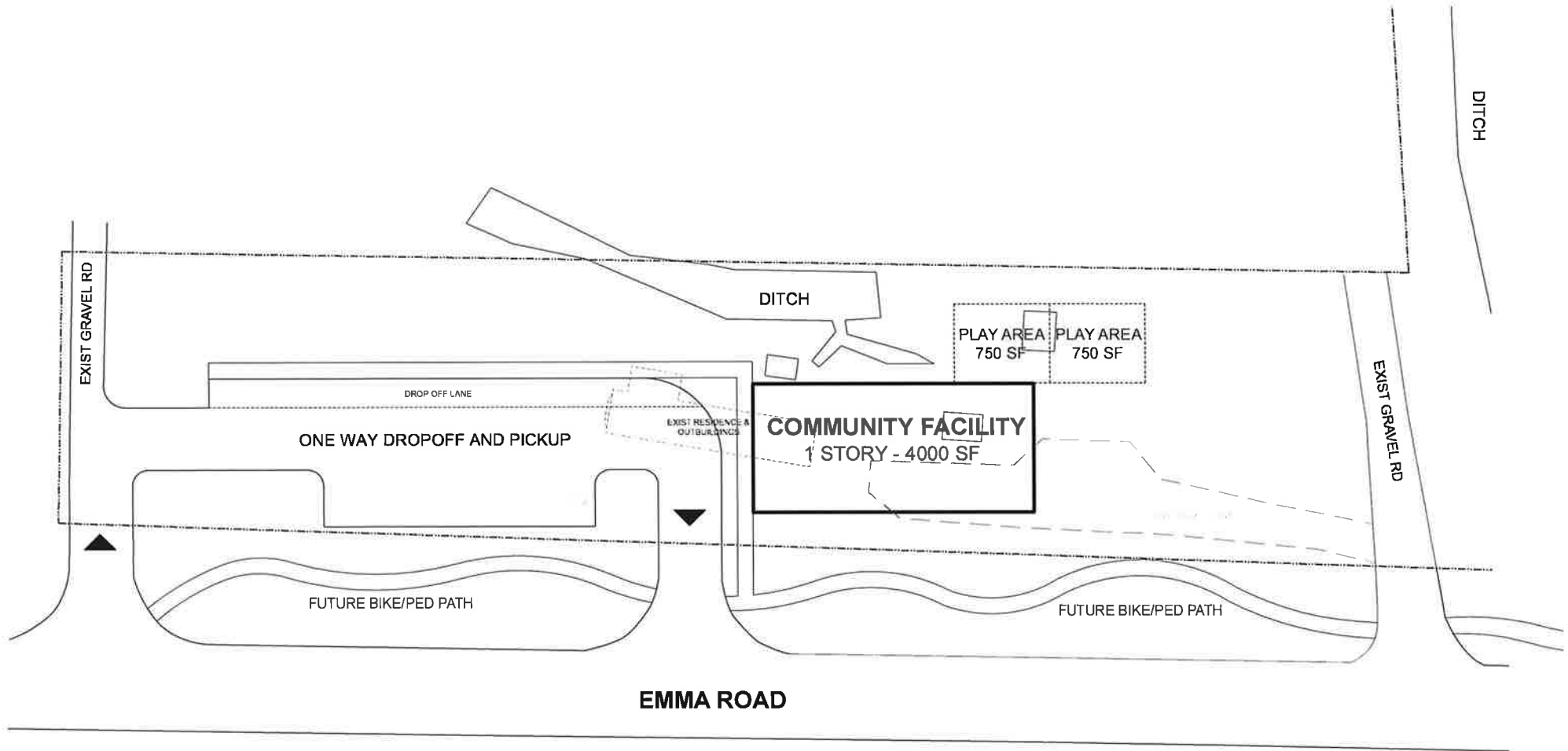
Phone: 970.704.0593

Cell/Text: 970.379.9258

---

**From:** "bridger smith" <smith.bridger@gmail.com>  
**To:** "James Lindt" <james.lindt@basalt.net>

Exhibit G- Study of Potential  
Community Building/Parking on  
"Dog Leg" Parcel



# **BLACK MOUNTAIN**

## Traffic Impact Study

Prepared for:

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Prepared by:

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FHU Reference No. 122629-01

September 2023

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## I. INTRODUCTION

A new residential project is being proposed along the north side of Emma Road in the Town of Basalt, Colorado, with a mix of multifamily dwelling units, short-term rental cabins, and camping sites for fly fishing. A portion of the property will be dedicated to the Town for a civic amenity. The project is specifically located along Emma Road to the west of Midland Avenue. Emma Road parallels State Highway (SH) 82 and provides direct access to a few residential properties, while also accommodating access for the Basalt Sanitation District Waste Water Treatment Plant.

Emma Road has some unique characteristics. It is used for a portion of the Emma Trail, which continues to the east and west of the project site. Adjacent to the site, Emma Road includes a one-way entrance ramp onto westbound SH 82 that provides convenient access for Emma Road users and for surrounding neighborhoods and businesses that want to proceed toward the west on SH 82.

The project, called Black Mountain, is proposed to include 68 multifamily homes, 12 short-term rental cabins, and 7 seasonal tent pads. For the purposes of this analysis, the civic amenity is considered to be a 3,500-square-foot (sf) daycare center. The Black Mountain development site is an integral part of the 2020 Basalt Master Plan.

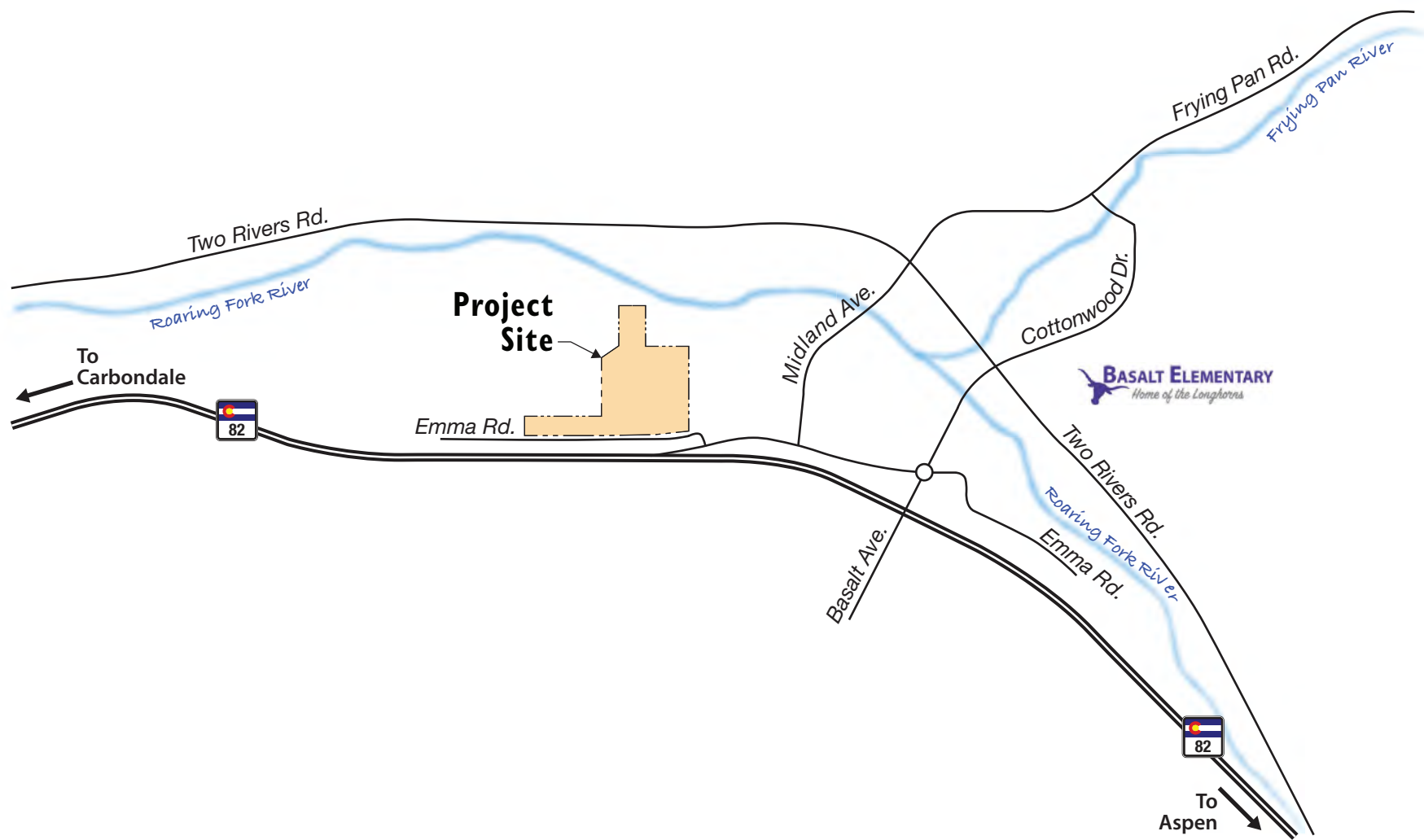
Vehicular access for the project is proposed along Emma Road at two access points associated with the residential land uses, along with a one-way pair of access proposed for the daycare facility. **Figure I** shows the location of the project site in relation to the surrounding roadway network.

The purpose of this Traffic Impact Study (TIS) is to determine the anticipated traffic volumes associated with the proposed development and the impact it will have to the adjacent roadway network. Per discussions with the Town of Basalt and the Colorado Department of Transportation (CDOT), operational analyses are concentrated at four intersections surrounding the project site: 1) SH 82 at Basalt Avenue, 2) Emma Road at Basalt Avenue, 3) Emma Road at Midland Avenue, and 4) the Emma Road intersection adjacent to the westbound SH 82 entrance ramp. Analyses are also conducted for the four access points for the project along Emma Road.

The following specific elements are included in this TIS:

- Existing daily traffic volume data
- Existing AM and PM peak hour vehicle turning movements at the four project intersections
- Evaluation of existing operational conditions
- Estimates of Background traffic volumes for Build-Out of the site (2026) and a Long-Range analysis, which is 20 years beyond the Build-Out timeframe (2046)
- Evaluation of projected Background operational conditions for the Build-Out and Long-Range timeframes
- Trip generation estimates for the proposed land uses
- Analysis of project impacts and access evaluation for the Build-Out and Long-Range periods
- Evaluation of potential auxiliary lane or geometric requirements
- Recommendations for improvements

The following sections of this report provide specific information on each of these issues.



## II. EXISTING CONDITIONS

### II.A. Land Use

Black Mountain is proposing to construct their project along the north side of Emma Road approximately 900' to the west of Midland Avenue in the Town of Basalt, Colorado. Surrounding this parcel are a variety of existing land uses.

**West** – A few residential homes exist directly adjacent to the Black Mountain property, with some vacant land and the Basalt Sanitation District Wastewater Treatment Plant to the west of these homes.

**East** – A private residence is located on what is called the Stott property. Directly to the east of the Stott property and along the west side of Midland Avenue is a US Post Office and the Basalt Regional Library. On the east side of Midland Avenue is a mobile home residential community with a few commercial businesses along Emma Road to the east of an existing roundabout.

**Northeast** – To the northeast of the project site are many Basalt residential dwelling units and commercial businesses along Midland Avenue and Two Rivers Road. The Basalt Elementary and Middle Schools are located directly to the east of the project site adjacent to the Basalt Avenue/Cottonwood Drive/Two Rivers Road intersection.

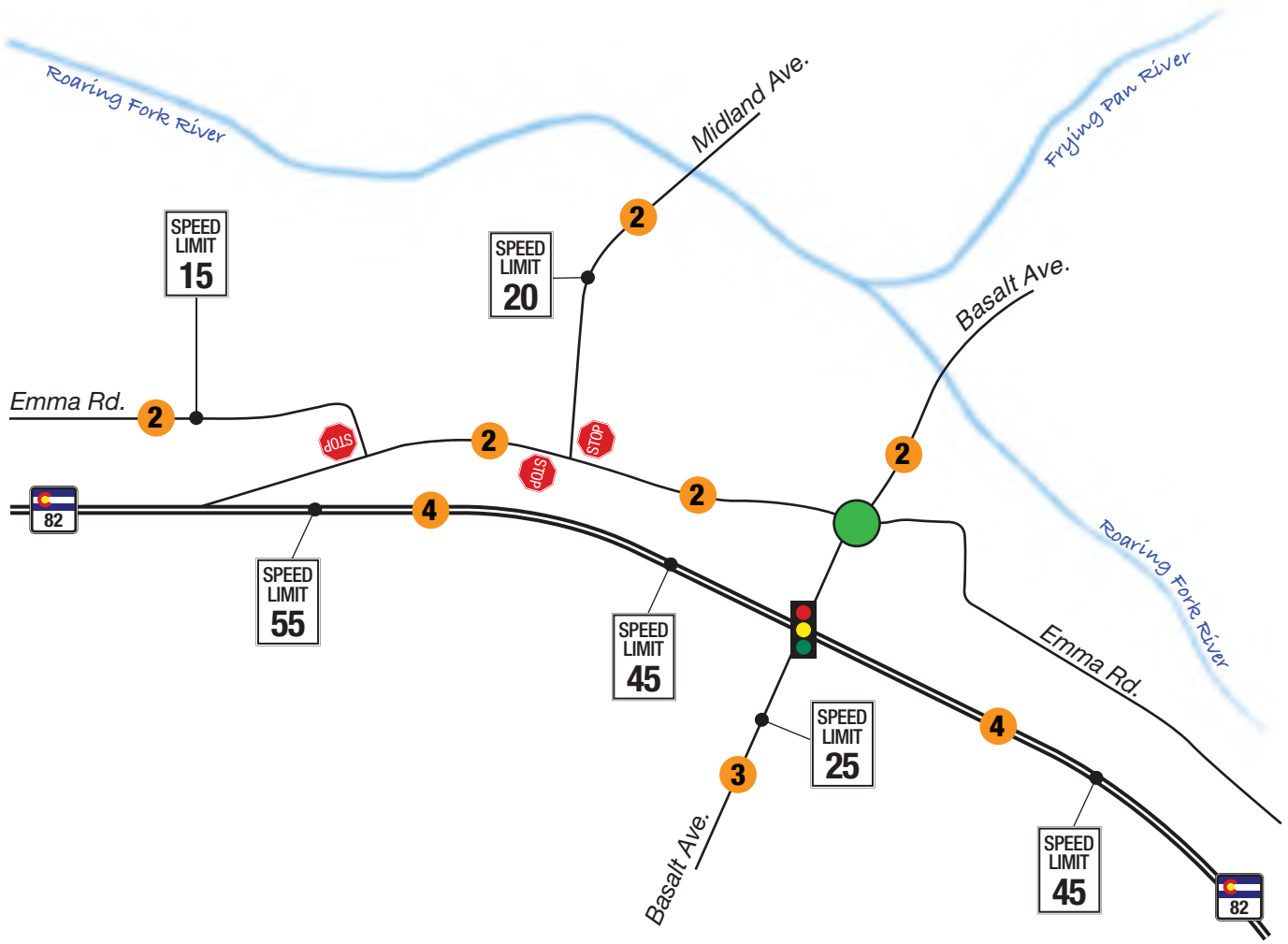
**South/Southeast** – Residential and commercial parcels also exist along either side of Basalt Avenue to the south of SH 82. Undeveloped land exists directly to the south of the Black Mountain boundary across SH 82. Access to Basalt High School is obtained along Basalt Avenue and Southside Drive.

**Surrounding Basalt** – Most of the land surrounding the Town of Basalt consists of mountainous terrain, with several communities lining the SH 82 corridor between Carbondale and Aspen.

### II.B. Roadway System

The existing roadway system in the study area includes the following primary facilities (see **Figure 2**):

- **SH 82**, a four-lane regional highway, provides travel continuity between Glenwood Springs and Aspen, with further connectivity over Independence Pass toward US 24 near Leadville. SH 82 is a CDOT owned and maintained roadway with classification as an Expressway. Left turn and right turn auxiliary lanes exist at its intersection with Basalt Avenue, which is controlled by a traffic signal. The posted speed limit is 55 miles per hour (mph) near the project site with a reduction to 45 mph at the Basalt Avenue intersection. To the west of Basalt Avenue is a one-way entrance ramp for vehicles on Emma Road to proceed onto westbound SH 82.
- **Basalt Avenue** is a two-lane street with connections to the north and south of SH 82 into varying Town of Basalt areas where many residential and commercial destinations exist. Directly to the north of SH 82 is a single lane roundabout that connects Basalt Avenue to Emma Road. The posted speed limit to the south of SH 82 is 25 mph; none was evident to the north of SH 82.
- To the west of Basalt Avenue is **Midland Avenue**, a two-lane Town street with immediate access to the US Post Office and Basalt Regional Library adjacent to Emma Road. Midland Avenue proceeds north across the Roaring Fork River with connection to Two Rivers Road and varying residential and commercial businesses. The posted speed limit on Midland Avenue is 20 mph.
- **Emma Road** is a 2-lane street with an east/west orientation. It extends from west of the project site (a dead-end) to east of the Basalt Avenue roundabout. A posted speed limit was not evident near Midland Avenue, but it is posted for 15 mph adjacent to Black Mountain. Emma Road has stop signs on its east/west approaches at Midland Avenue.



**LEGEND**

-  = Number of Through Lanes
-  = Posted Speed Limit
-  = Stop Sign
-  = Traffic Signal
-  = Roundabout

## II.C. Traffic Volumes

Peak hour traffic volumes were recorded on a typical weekday, November 30, 2022, at the four project intersections noted in **Section I**. Intersection movements have the following characteristics:

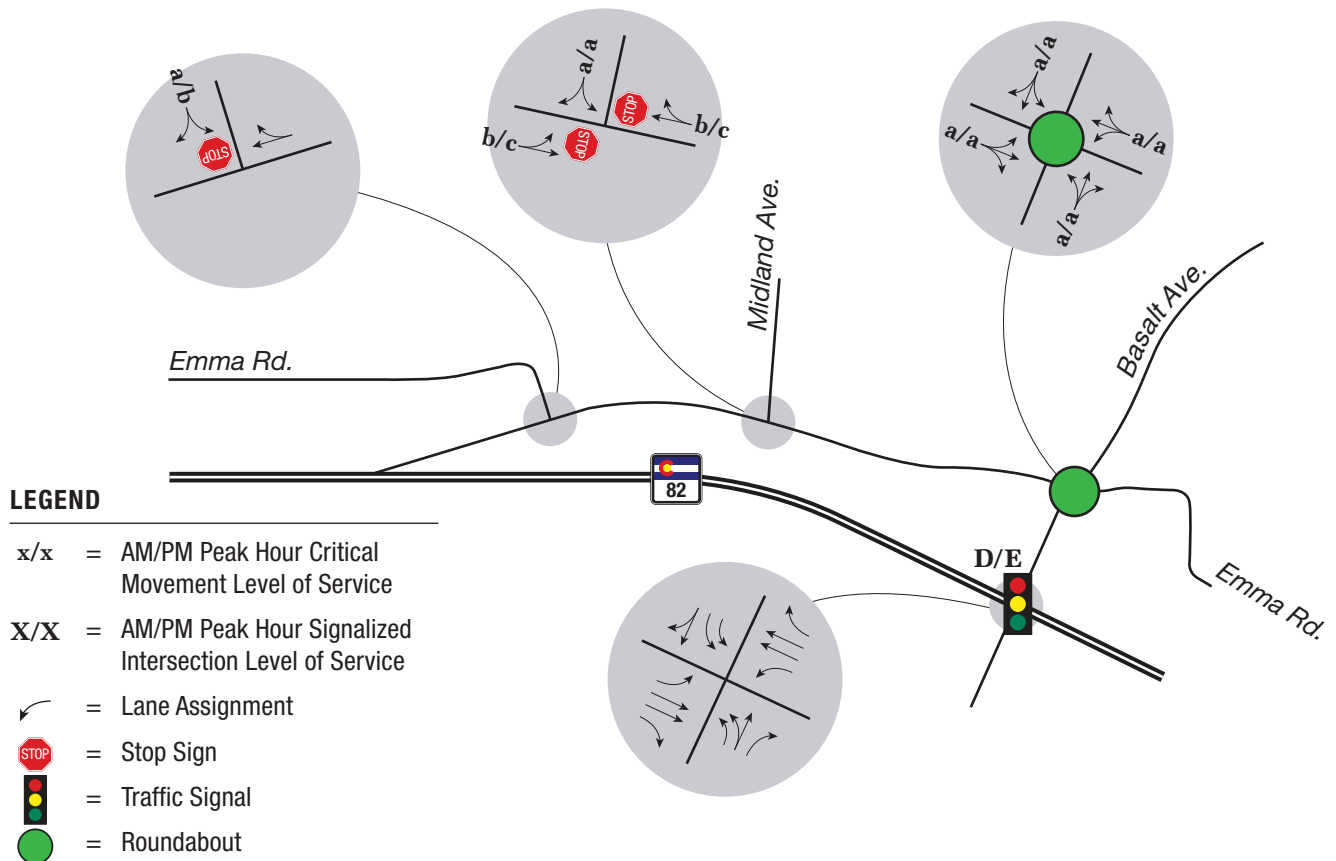
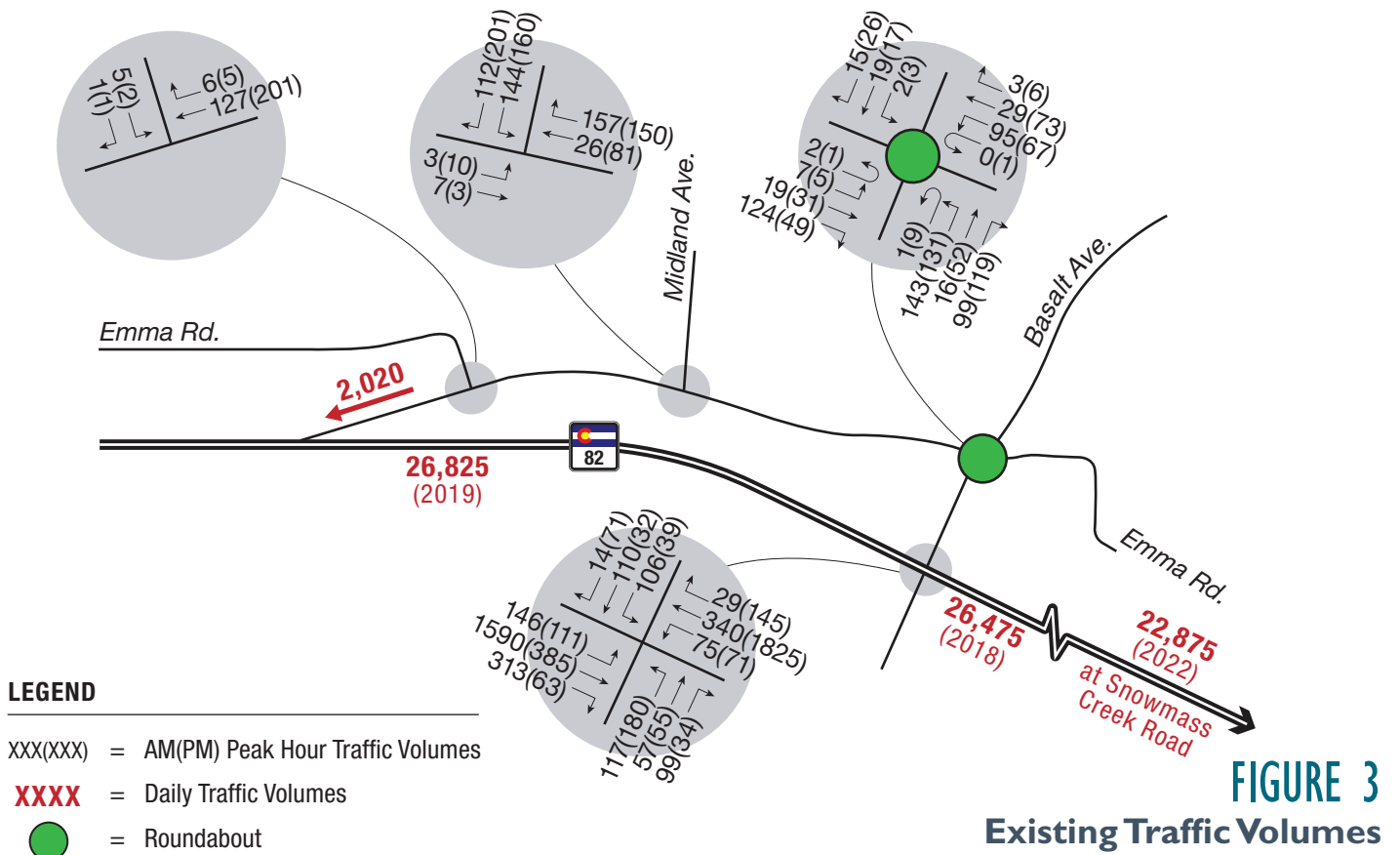
- East/west through movements on SH 82 varied significantly with high directionality. Recorded eastbound movements during the AM peak hour exceeded 1,400 vehicles per hour (vph), while the westbound through movement was only about 300 vph. The opposite was true during the PM peak hour when eastbound movements were approximately 350 vph, with westbound movements being over 1,600 vph. East/west peak hour movements at the Basalt Avenue intersection have been adjusted to reflect month-to-month fluctuations (an increase of 12.1 percent).
- Auxiliary lane movements to/from SH 82 at the Basalt Avenue intersection were typically less than 200 vph with several being less than 100 vph. The highest level was during the AM peak hour with 313 vph recorded completing an eastbound right turn movement, possibly toward Basalt High School.
- Vehicle movements through the Basalt Avenue/Emma Road roundabout exceeded 100 vph in only a few cases, with several movements being less than 25 vph. The highest levels were from northbound Basalt Avenue to westbound Emma Road, which reflects movements toward Midland Avenue and/or towards Two Rivers Road. This movement ranged from about 130 vph to 145 vph.
- The Emma Road/Midland Avenue intersection had vehicle movements of about 200 vph or less with the highest level being the southbound right turn onto westbound Emma Road during the PM peak hour (westbound toward SH 82 via the entrance ramp).
- The Emma Road intersection directly to the east of the westbound entrance ramp onto SH 82 had significantly less volume than other intersections, being six (6) vph or less for any of the turning movements.

24-hour (daily) traffic data was recorded at the Emma Road entrance ramp onto westbound SH 82, while daily traffic volume data for SH 82 was obtained from CDOT's Online Transportation Information System (OTIS), which includes pre-Covid 19 vehicle levels from July 2018 and 2019. Vehicle movements along SH 82 were over 26,500 vehicles per day (vpd) on either side of Basalt Avenue in those years.

As subsequent information, additional data was obtained from OTIS at the continuous traffic count station (#000236) located to the east of Basalt Avenue, northwest of Snowmass Creek Road. These data from 2022 indicate that the Average Annual Weekday traffic volume levels for the entire year, minus weekends and holidays, was 23,732 vpd. Given the relatively short distance between Basalt Avenue and Snowmass Creek Road (about 3.5 miles), traffic volumes at the continuous count station can be considered representative of the traffic volumes near Basalt Avenue. When comparing the Average Annual Weekday traffic volumes to those from 2018 and 2019 on either side of Basalt Avenue, it can be seen that the volume at the continuous count station is about 10 percent less which could be a result of post-Covid 19 changes in travel patterns or the increase in remote work opportunities.

When comparing the daily traffic volumes recorded on November 30, 2022, at the Snowmass Creek Road count station (22,875 vpd) to the average weekday traffic volume level for all of 2022, it can be seen that November 30, 2022, was a relatively average weekday, being only 3.7 percent less than the yearly average. As such, no revisions to any of the traffic volumes recorded for this project were modified for a seasonal adjustment.

Traffic volumes are shown on **Figure 3**, and the recorded traffic data are provided in **Appendix A**.



## II.D. Traffic Operations

Traffic operational analyses were conducted for the study area intersections using procedures documented in the *Highway Capacity Manual*, 2016. From these analyses, a key measure or “level of service” rating of the traffic operational conditions is obtained. Level of service (LOS) is a qualitative assessment of traffic operational conditions within a travel stream in terms of the average stopped delay per vehicle at a controlled intersection.

Levels of service are described by a letter designation ranging from LOS A to F, with LOS A representing essentially uninterrupted flow, while LOS F represents a breakdown in traffic flow with noticeable congestion and delay. Unsignalized, or stop sign-controlled, intersection capacity analyses produce LOS results for each movement that must yield to conflicting traffic at the intersection, while intersections with traffic signals can identify LOS for individual movements and for an entire intersection. **Appendix B** summarizes LOS criteria for both unsignalized (stop sign-controlled) and signalized intersections.

The Synchro traffic analysis software program was used to analyze traffic operations at the study intersections. **Figure 4** shows the lane geometry, traffic control, and LOS results for existing traffic conditions.

Analysis results find that each intersection movement controlled by stop signs operates at LOS C or better during both peak hours, with the Emma Road/Basalt Avenue roundabout operating at LOS A during both analysis periods. LOS C means that each motorist will experience an average of >15 seconds to 25 seconds of delay each time they come to a stop sign. LOS A represents 10 seconds or less of delay.

The SH 82/Basalt Avenue traffic signal operates at LOS D during the AM peak hour and at LOS E during the PM peak hour, representing an average vehicle delay of >35 seconds to 55 seconds and >55 seconds to 80 seconds, respectively. Analysis of operations at this traffic signal is based on signal timing information provided by CDOT Region 3 staff.

Each delay parameter is considered acceptable for weekday peak hour conditions. However, it must be noted that some of the northbound and southbound movements onto or across SH 82 do not operate as well. Certain movements are currently operating at LOS E or F (LOS E = >55 seconds to 80 seconds and LOS F = >80 seconds of delay) as follows:

### AM Peak Hour

- Northbound Through and Left Turn Movements = LOS F
- Southbound Through and Left Turn Movements = LOS E

### PM Peak Hour

- Northbound Through and Left Turn Movements = LOS F
- Southbound Left Movement = LOS E

Capacity analysis worksheets for existing traffic conditions are included in **Appendix C**.

## **II.E. Crash Data**

CDOT provided crash data at the SH 82/Basalt Avenue intersection and along the Emma Road entrance ramp onto westbound SH 82. The crash information is for a five-year period from January 1, 2016, through December 31, 2020, the latest available 5-year period. A summary follows.

### ***SH 82/Basalt Avenue Intersection***

- Total of 24 reported crashes – 17 Property Damage Only (PDO) and 7 Injury crashes for an average of approximately one every 2.5 months.
- Of the 24 crashes, the majority were Rear-End crashes (14), followed by Broadside (4), Sideswipe (same direction – 3; opposite direction – 1), Guardrail (1), and Other Object (1).
- 16 were at the intersection and 8 were intersection related (e.g., possibly due to long vehicle queues).
- Only 4 were related to snowy (2) or icy (2) conditions.
- The crash rate was 10.33 per every million vehicle miles traveled.

### ***Emma Road Entrance Ramp Onto Westbound SH 82***

- A total of 3 reported crashes in the *westbound* direction – 1 PDO and 2 Injury crashes – for an average of approximately 1 every 20 months.
- Of the 3 crashes, 2 were Rear-End (the Injury crashes) and the PDO crash was with vehicle cargo/debris.
- 2 crashes (1 PDO and 1 Injury) occurred at Mile Marker (MM) 22.6, which is about 250' from the end of the entrance ramp. The other crash occurred at MM 22.7, which is about midpoint of the entrance ramp.
- The PDO crash involved 3 vehicles, while the Injury crashes each involved 2 vehicles.
- 1 of the 2 Injury crashes identified the cause as being asleep at the wheel; the other one did not have a specific cause identified.

### III. BACKGROUND CONDITIONS

#### III.A. Projected Development Timeframes

This section includes projected traffic volumes and operational conditions for two Background scenarios, i.e., conditions *without* construction of Black Mountain: 1) the projected Build-Out timeframe for the project (anticipated in 2026), and 2) the Long-Range planning horizon after project Build-Out (2046).

#### III.B. Roadway Network

Given the current level of vehicle activity along SH 82 and nearby streets, the capacity of these streets and intersections is deemed sufficient to meet the vehicle demands by Build-Out of Black Mountain. Analysis of the Long-Range planning horizon that follows determines the potential improvements for these streets and intersections.

#### III.C. Background Traffic Volumes

**Methodology** – To properly predict growth in traffic volumes over time, certain historical data are necessary to understand. To that end, the OTIS database was researched and it was found that the predicted 20-year growth factor on SH 82 is 21 percent to the west of Basalt Avenue and 14 percent to the east of Basalt Avenue, which equates to compounded annual growth rates of 0.96 percent and 0.66 percent. These compounded rates were used to estimate the total amount of predicted growth in Background traffic for the two analysis timeframes.

**Build-Out (2026)** – For a completed construction timeframe of four years, the total amount of projected growth would be 3.9 percent to the west of Basalt Avenue and 2.7 percent to the east of Basalt Avenue. These growth levels were applied to the existing traffic volumes of **Figure 3** and the projected vehicle movements along and to/from SH 82 as shown on **Figure 5**.

**Long-Range Planning Horizon (2046)** – Similarly, Background traffic volume projections can be extrapolated to 2046 to estimate their levels for the Long-Range planning horizon (25.7 percent to the west of Basalt Avenue and 17.0 percent to the east). **Figure 6** shows estimates of Long-Range traffic volumes for Background conditions.

**Discussion** – While these growth levels are reasonable to apply to vehicle movements along SH 82, traffic growth through Town of Basalt intersections may not see the same level of growth given the more built-out nature of the Town. As such, and based only on engineering judgment, vehicle movements through the three other study intersections were increased one-half of the average increases on SH 82.

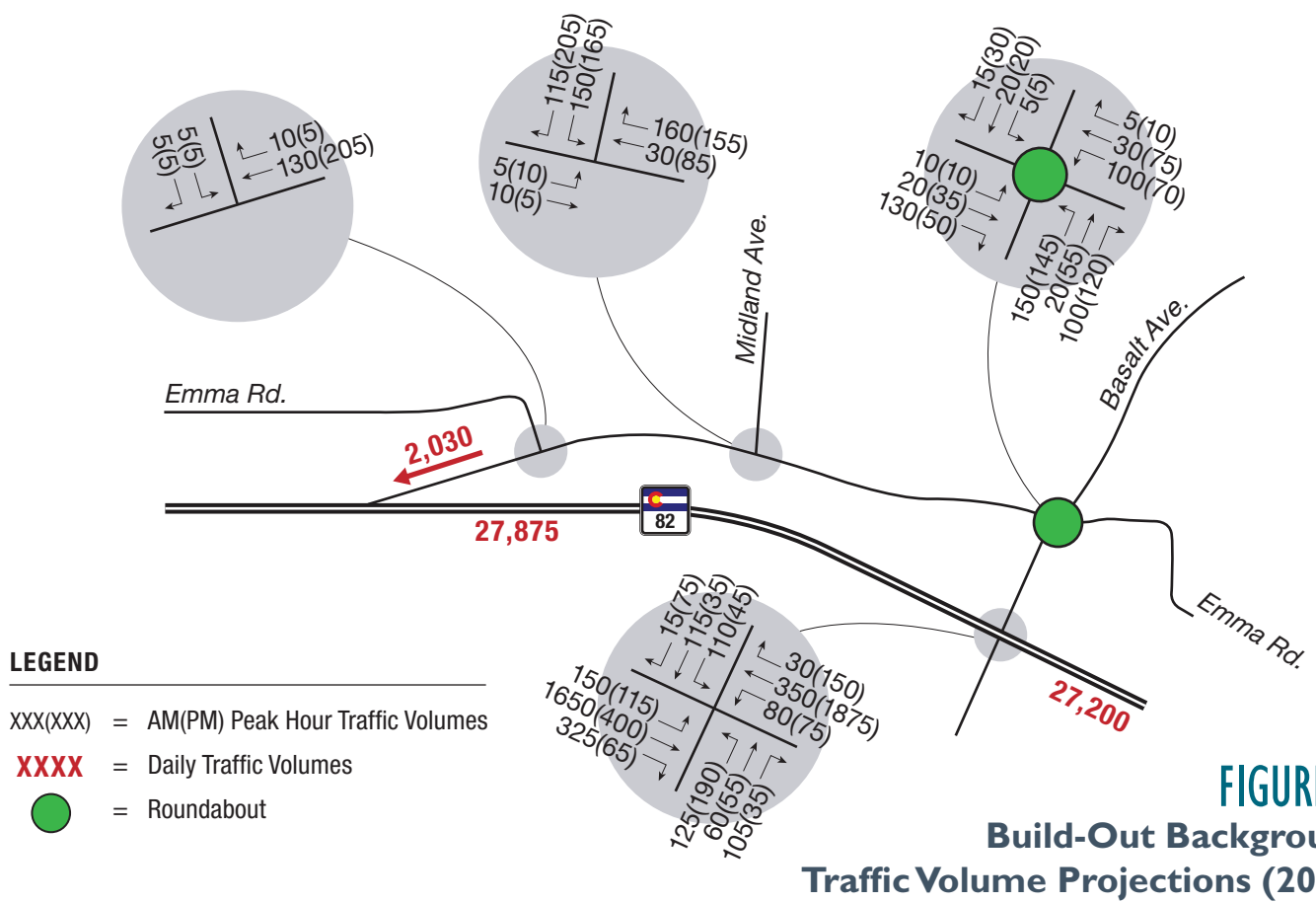


**FIGURE 5**

**Build-Out Background  
Traffic Volume Projections (2026)**

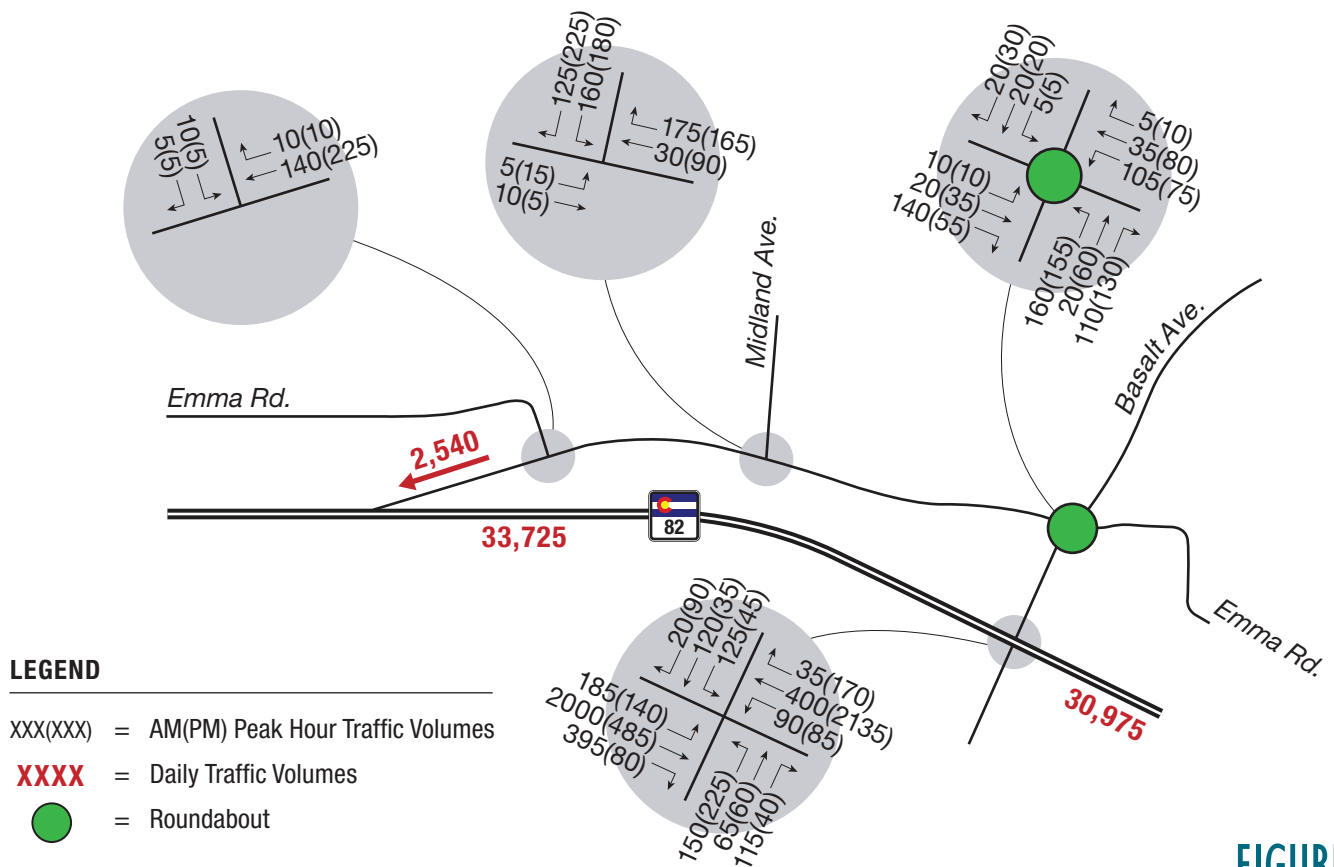


**FIGURE 6**

**Long-Range Background  
Traffic Volume Projections (2046)**

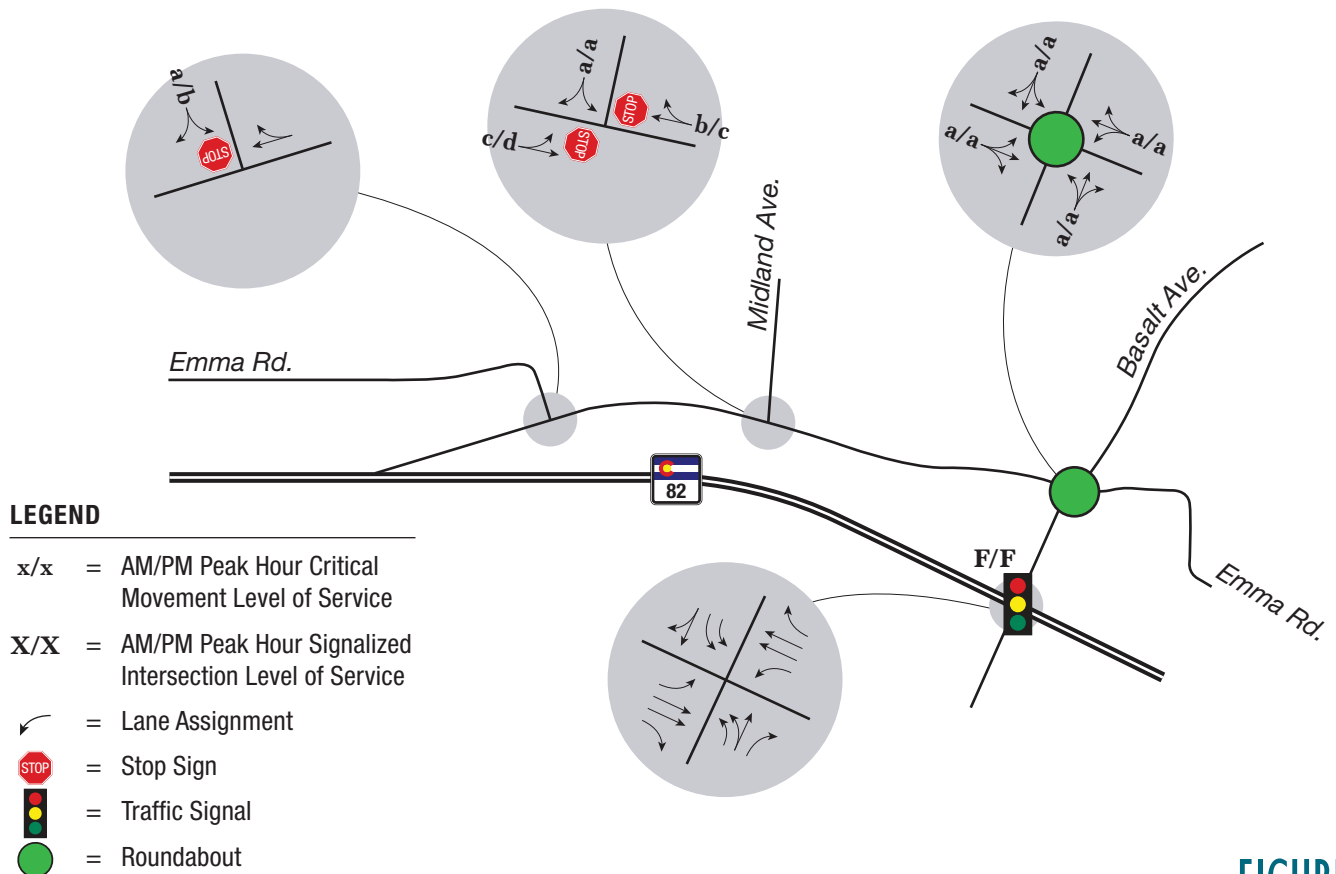
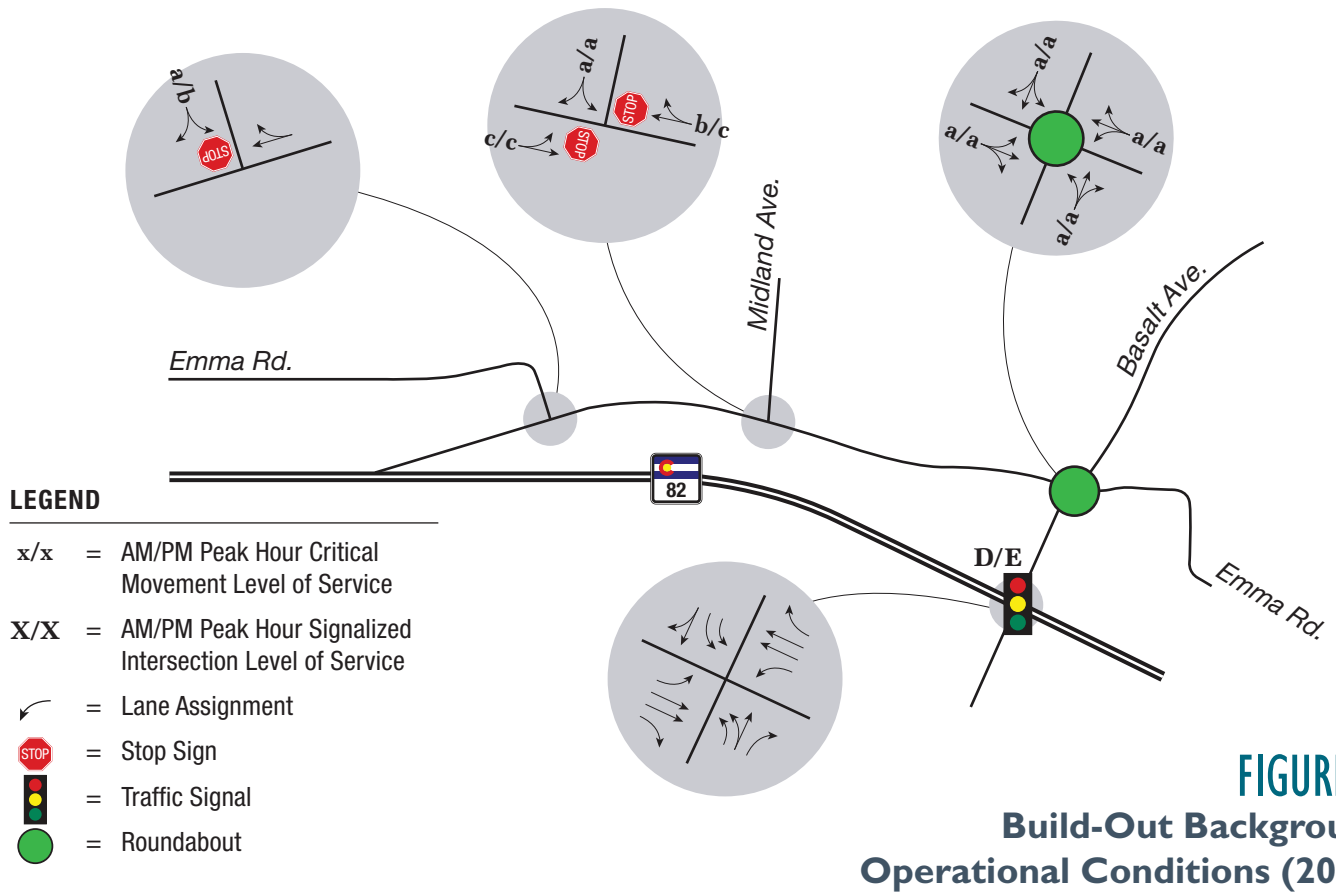
### **III.D. Traffic Control and Intersection Operations**

Background traffic operational conditions are based on HCM methodologies as outlined in **Section II.D**. No changes to intersection geometry or traffic control are assumed for this analysis.

#### ***Analysis Results***

Vehicle turning movements are projected to continue to operate well in Year 2026 during the AM and PM peak hours. Only two LOS changes occur, being the eastbound movement at Midland Avenue during the AM and PM peak hours (LOS B to LOS C and LOS C to LOS D, respectively). For the Long-Range condition (2046), a few stop-sign controlled movements will see reductions in LOS.

Operational analyses at the SH 82/Basalt Avenue intersection find that increases in Background traffic for the Long-Range condition will result in continued poor intersection operations without improvements. **Figure 7** and **Figure 8** show LOS results, and **Appendix D** and **Appendix E** include the analysis worksheets.



## IV. PROPOSED CONDITIONS

This section summarizes the proposed land uses, daily and peak hour traffic volume projections for the Build-Out and Long-Range scenarios, operational analyses for both time periods, and recommended infrastructure improvements for Build-Out and Long-Range time periods.

### IV.A. Land Use

Black Mountain is planning to construct 68 multifamily homes, 12 short-term rental cabins, 7 seasonal tent pads, along with a 3,500-square-foot (sf) daycare center on their property located along Emma Road to the west of Midland Avenue in Basalt, Colorado. **Figure 9** represents the proposed site plan.

### IV.B. Project Access

Access for Black Mountain is being proposed at four locations, each along Emma Road. The easternmost access will be used primarily for access to the proposed townhomes, while a mid-point access can also serve the townhomes, but will also be the travel route for trips to the short-term rental cabins and for the tent sites.

A one-way pair of driveways is proposed for the daycare facility in the westernmost portion of the project site. Each access point for the project will have a “T” configuration.

### IV.C. Trip Generation Estimates and Trip Assignment

**Trip Generation** – **Table I** on page 15 includes the trip generation estimates for the construction of Black Mountain. These estimates are based on information contained in *Trip Generation*, 11<sup>th</sup> Edition, by the Institute of Transportation Engineers (ITE), 2021.

#### **Short-Term Rental Cabins and Tent Pads – Trip Generation Discussion**

– Given the unique nature of these two land uses, it is projected that their trip-making potential can be compared to a motel land use since the occupancy for the cabins and tent pads are for relatively short timeframes. As such, ITE’s Motel land use category was used to estimate the daily and peak hour vehicle trips for the short-term rental cabins and tent sites. When considering the estimates shown in **Table I**, these vehicle trip levels seem reasonable.

**Internal Trip Capture** – Internal capture is a term used to reflect a certain number of vehicle trips that remain internal to the project site. For the purpose of this study, “internal” means that vehicle movements do not proceed through the Emma Road/SH 82 Slip Ramp intersection. Also assumed for this project is that a daycare or other civic amenity will be on the Black Mountain property. Regardless of this land use type, there will likely be non-vehicular interaction between the civic amenity and the permanent and/or temporary residents of Black Mountain via walking or biking. Additionally, there will be some on-site amenities that can reduce the number of external trips. For example, the site plan includes a Manager House for the short-term rental cabins that will include a laundry for cabin users. Additionally, there will be an amenity structure that will include a kitchenette and showers that can also limit off-site trips. When considering these factors, a 5 percent trip reduction seems a reasonable internal capture trip reduction for the Black Mountain project.

**Multi-Modal Trip Reduction** – There are a combination of items that correlate to a 15 percent trip reduction. The transit stops on SH 82 can be accessed via walking or biking, and it is expected that some of the permanent residents of Black Mountain may depend on transit for daily work trips to/from varying locations which may have limited available parking. When combined with residents who simply may want to walk or bike to the library, post office, or other locations in Basalt, a 15 percent reduction seems reasonable.



**Remote Work Considerations** – Given the current remote work climate that has become evident post-Covid 19, it can be assumed that some of the permanent Black Mountain residents will not travel to/from work in a vehicle on a daily basis. As such, the ITE trip generation estimates in **Table I** are likely conservative since this publication does not yet reflect the remote work changes that have occurred around the country.

**Trip Reduction Summary** – When considering the potential for walking/biking to/from the daycare center (or other civic amenity), access to transit, typical walking/biking, and remote work opportunities, an overall 20 percent trip reduction as contained in **Table I** is deemed appropriate for the Black Mountain project. However, in regard to LOS estimates in subsequent sections of this TIA, analyses have confirmed that LOS remains unchanged without internal capture and multimodal reductions.

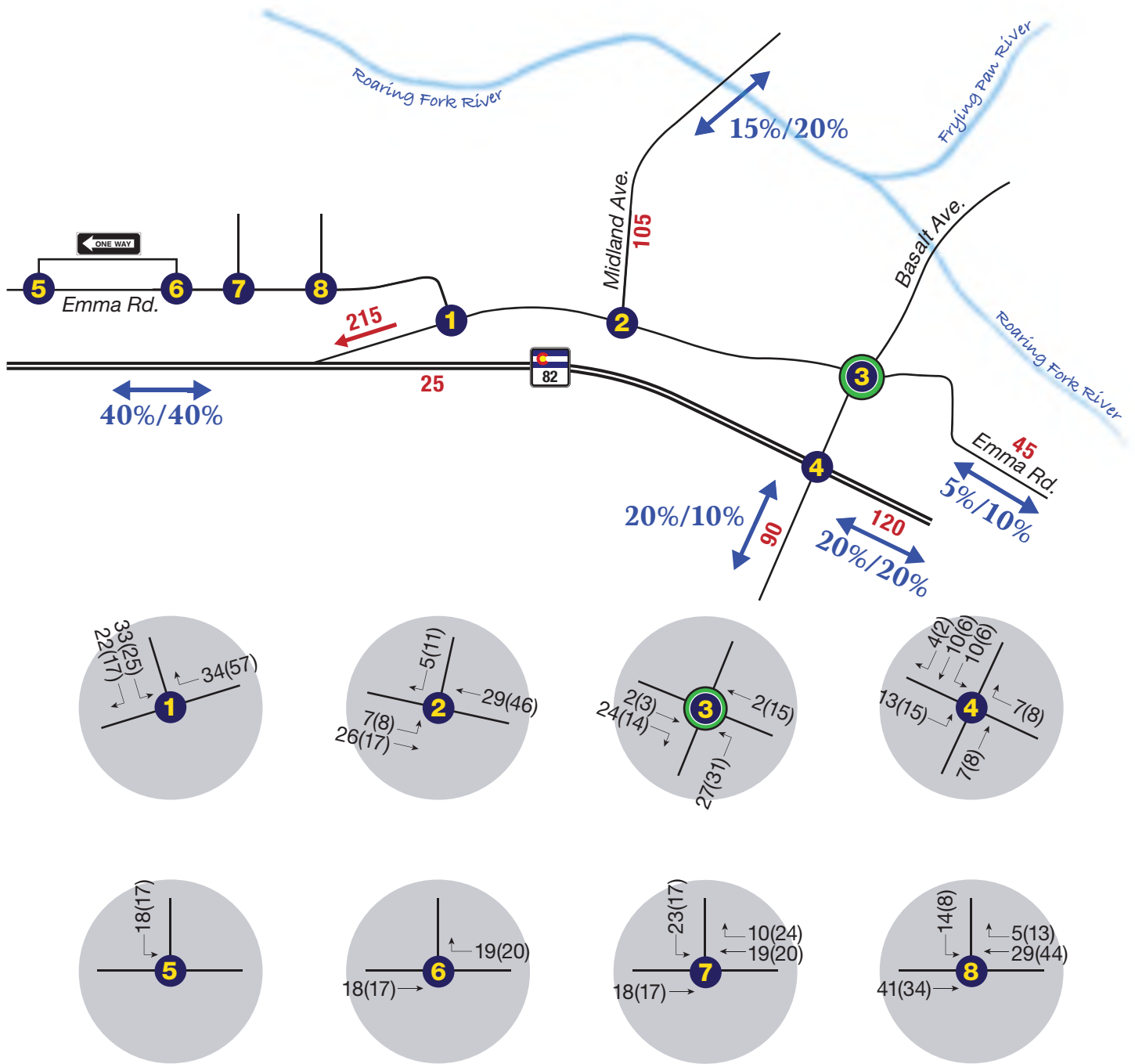
**Table I. Black Mountain Trip Generation Estimates**

| Land Use                                                                                                                                                      | Unit  | Size  | Daily      | AM Peak Hour |           |            | PM Peak Hour |           |            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|------------|--------------|-----------|------------|--------------|-----------|------------|
|                                                                                                                                                               |       |       |            | In           | Out       | Total      | In           | Out       | Total      |
| Townhomes <sup>1</sup>                                                                                                                                        | DU    | 68    | 511        | 11           | 33        | 44         | 31           | 19        | 50         |
| Short-Term Rental Cabins <sup>2</sup>                                                                                                                         | DU    | 12    | 40         | 4            | 7         | 11         | 8            | 6         | 14         |
| Tent Pad <sup>2</sup>                                                                                                                                         | Sites | 7     | 23         | 4            | 6         | 10         | 7            | 6         | 13         |
| Daycare Center <sup>3</sup>                                                                                                                                   | SF    | 3,500 | 167        | 20           | 19        | 39         | 18           | 21        | 39         |
| <b>Subtotals</b>                                                                                                                                              |       |       | <b>741</b> | <b>39</b>    | <b>65</b> | <b>104</b> | <b>64</b>    | <b>52</b> | <b>116</b> |
| Internal Capture (5%)                                                                                                                                         |       |       | -37        | -2           | -3        | -5         | -3           | -3        | -6         |
| Multimodal (15%)                                                                                                                                              |       |       | -111       | -6           | -10       | -16        | -10          | -8        | -18        |
| <b>TOTALS</b>                                                                                                                                                 |       |       | <b>593</b> | <b>31</b>    | <b>52</b> | <b>83</b>  | <b>51</b>    | <b>41</b> | <b>92</b>  |
| <sup>1</sup> Land Use Code 220 (Multifamily Housing [Low-Rise])<br><sup>2</sup> Land Use Code 320 (Motel)<br><sup>3</sup> Land Use Code 565 (Day Care Center) |       |       |            |              |           |            |              |           |            |

**Trip Assignment** – As a general assessment, all vehicle movements to/from Black Mountain will travel to/from the east along Emma Road toward its intersection with the SH 82 westbound entrance ramp. At this intersection, Black Mountain residents, cabin/tent users, and daycare center patrons can continue traveling east along Emma Road with ultimate destinations in Basalt or to the east along SH 82, or they can use the existing westbound entrance ramp for trips toward the west and Carbondale.

The assignment of vehicle-trips through the Black Mountain access points is based on the existing travel patterns recorded at the intersections analyzed for this project. Most of the site traffic is projected to use SH 82 for daily work, shopping, or recreation trips. Given the residential nature of Black Mountain, there will be trips to/from the commercial land uses in Basalt, as well as to/from nearby schools.

**Figure 10** displays the assessment of vehicle trip distribution, along with the assignment of the site generated traffic volumes. Of note, some slight differences in trip distribution percentages are used between the AM and PM peak hour, but only on the Town street network, not along SH 82.



#### LEGEND

- XXX(XXX) = AM(PM) Peak Hour Traffic Volumes
- XXXX** = Daily Traffic Volume
- XX%/XX% = AM/PM Peak Hour Distribution Percentages
- = Roundabout

#### **IV.D. Build-Out (2026) and Long-Range Traffic Volumes**

**Figure 11** and **Figure 12** represent the compilation of the site generated traffic volumes (**Figure 10**) and the Build-Out Background (**Figure 5**) and Long-Range (**Figure 6**) traffic volumes.

#### **IV.E. Auxiliary Lane Requirements**

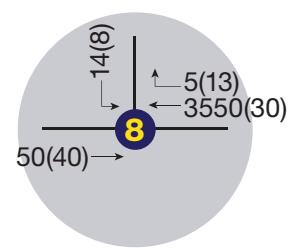
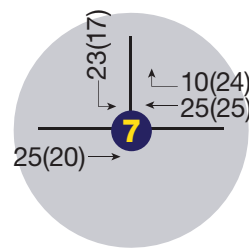
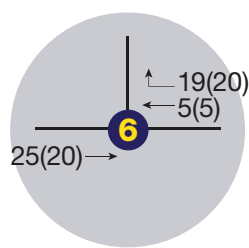
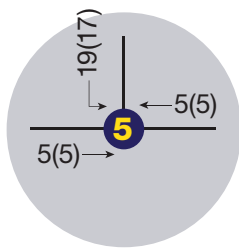
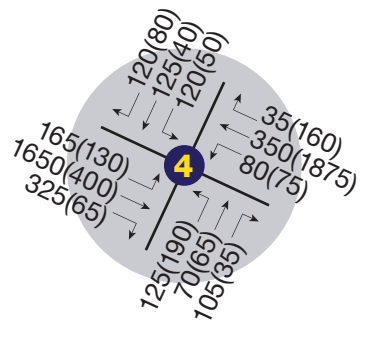
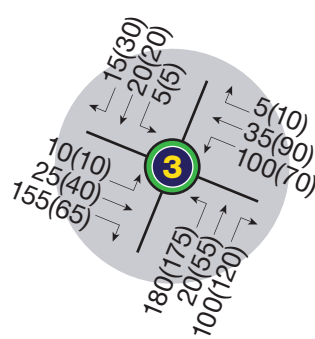
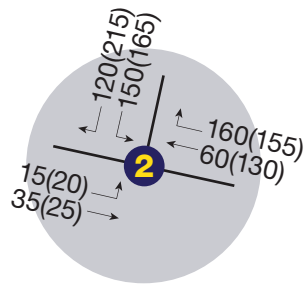
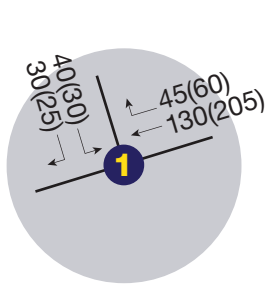
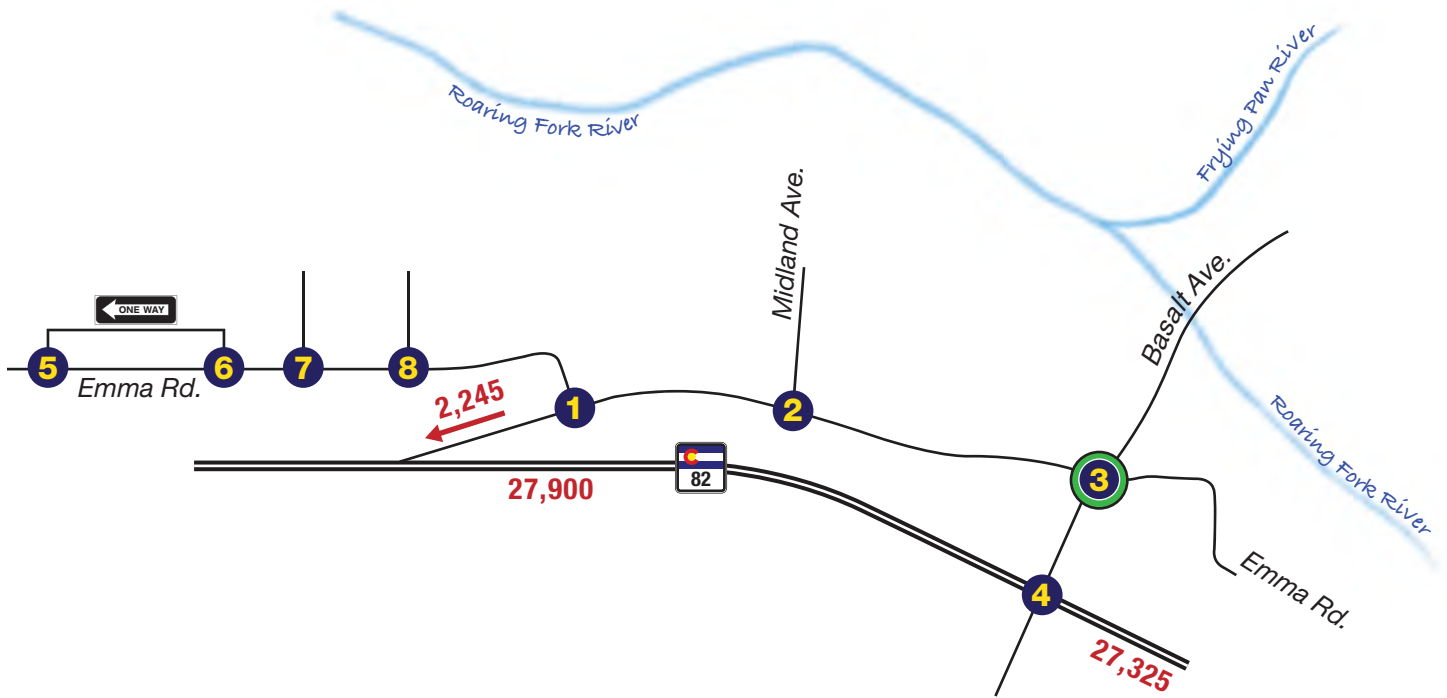
Information contained in the *State Highway Access Code (Code)* identifies the criteria for installation of auxiliary lanes along a frontage road, the understood classification of Emma Road. Review of this criteria finds that auxiliary lanes are not required at any of the proposed access points for Black Mountain. Given that Emma Road is essentially a long dead-end street, this assessment is valid.

**Emma Road/Midland Avenue Intersection** – Coordination with Town of Basalt staff during initial discussions on this project indicated that the potential for installation of an exclusive westbound right turn lane should be evaluated. As background, east/west movements at this “T” intersection are controlled by stop signs, while the southbound movements are uncontrolled. A sign exists below the westbound stop sign that states “Right Turn Permitted Without Stopping.”

An evaluation was conducted for the Build-Out timeframe to determine if an exclusive right turn lane would reduce westbound movement delay. The results of this analysis find that:

- The westbound right turn movements onto Midland Avenue will operate without any noticeable delay since their movement would be free-flow.
- The westbound through movement will show an increase in average vehicle delay of about four (4) seconds or less. This is related to the through movement being analyzed separately from the combined through/right movement since the combined one-lane analysis includes the somewhat existing free-flow nature of right-turning vehicles.
- Eastbound through/left movements will see reductions in average vehicle delay.

As such, this analysis implies that there would be some operational benefits to having an exclusive westbound right turn lane. However, Black Mountain residents would not normally experience those benefits since it is a movement that is not associated with their typical movements to/from their site.

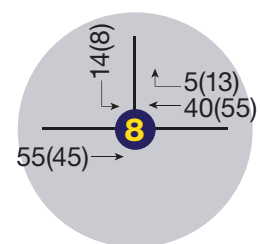
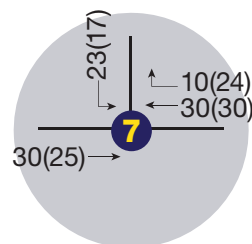
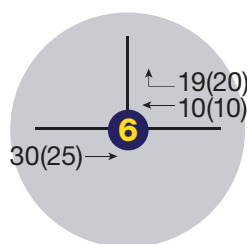
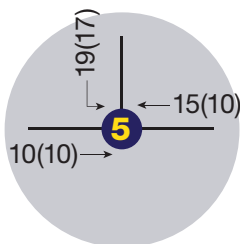
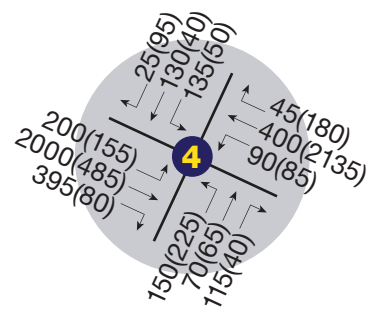
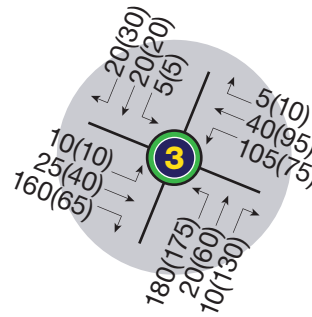
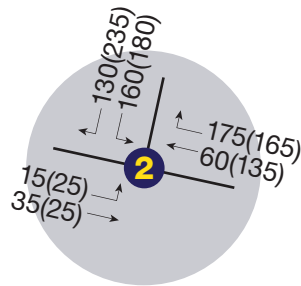
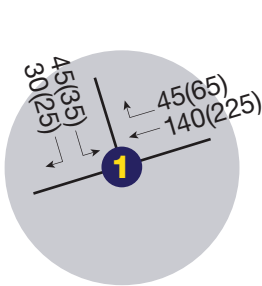
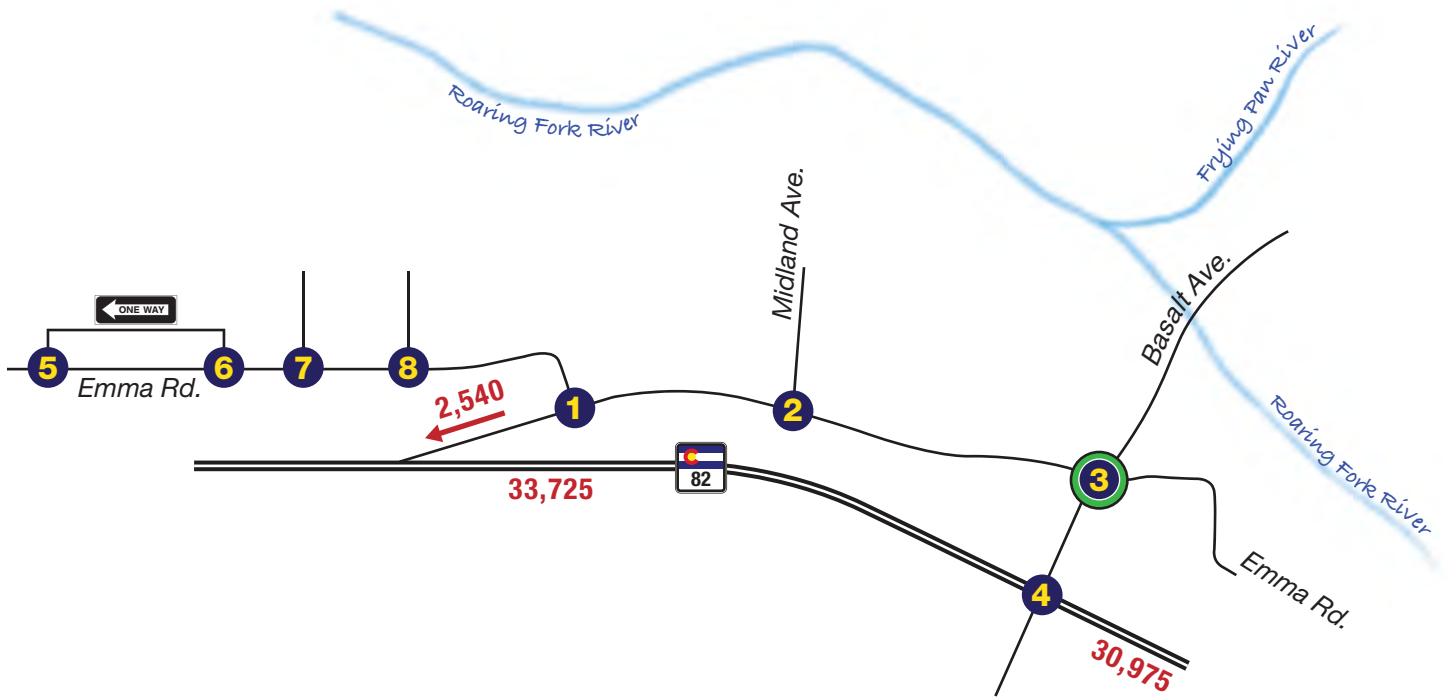


#### LEGEND

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

XXXX = Daily Traffic Volumes

● = Roundabout



#### LEGEND

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

**XXXX** = Daily Traffic Volumes

● = Roundabout

#### **IV.F. Traffic Control and Intersection Operations**

Build-Out and Long-Range traffic volume projections find that each of the three proposed new access points along Emma Road that have outbound movements onto Emma Road can operate with stop signs on the southbound approach at each intersection. As a reminder, because the two access points for the daycare center operate as a one-way pair, the inbound access does not require traffic control.

##### ***Build-Out (2026) Operational Analyses***

Operational analyses for the development of Black Mountain were conducted following the HCM methodologies noted previously in this report. As shown on **Figure 11**, a significant number of new vehicle trips are not projected at any of the new access points (one trip every 2 to 3 minutes or less for any inbound or outbound movement). New trips for any individual movement at any of the studied intersections are 60 vph or less, equating to about one inbound or outbound vehicle trip every minute, a relatively low level.

As a result, LOS analyses reveal that each new access point on Emma Road will operate at LOS A during the AM and PM peak hours. Other stop sign controlled intersections will continue to have good operations during the peak hours; only the eastbound through/left lane at the Emma Road/Midland Avenue intersection during the PM peak hour is projected to be less than LOS D.

The Emma Road/Basalt Avenue roundabout will continue to experience LOS A during both peak hours. At the SH 82/Basalt Avenue traffic signal, intersection operations will be LOS D and E during the two peaks hours, which matches Existing conditions and the estimates for Background conditions. As noted in **Section II.D**, some individual movements will continue to operate at LOS E or F during the AM and PM peak hours. Black Mountain will add very few additional trips to this intersection, however. Operational analysis results for the Build-Out condition are represented on **Figure 13** and the analysis worksheets are located in **Appendix E**.

In regard to the discussion in **Section IV.E** related to an exclusive westbound right turn lane at the Midland Avenue intersection along Emma Road, westbound movements with or without an exclusive right turn lane will encounter LOS E (westbound through) or better during peak hour conditions.

##### ***Long-Range (2046) Operational Analyses***

Operational analyses for long-range conditions will include increases in average vehicle delay simply due to the increase in overall traffic volume levels. However, good vehicle operations (LOS A) will still result for the new Black Mountain intersections along Emma Road, as shown on **Figure 14**.

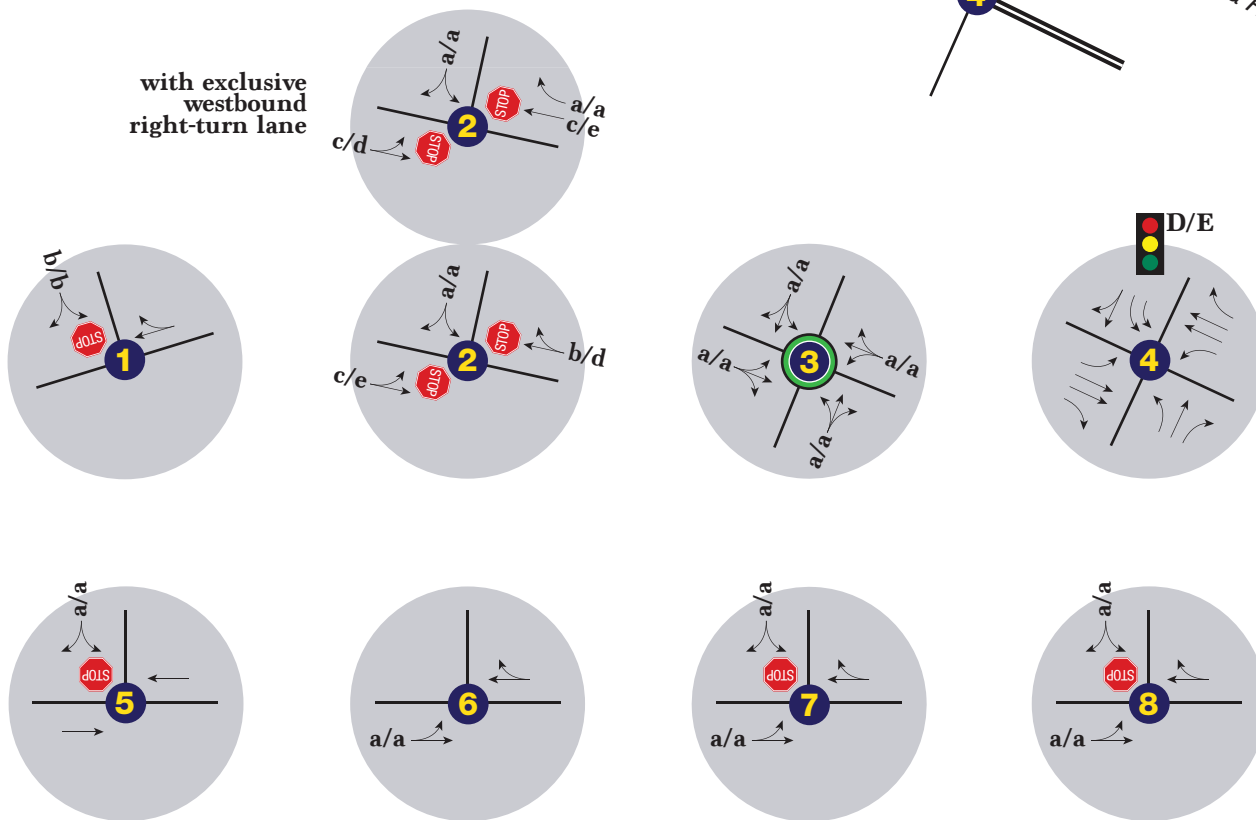
Vehicle movements through the Emma Road/Basalt Avenue roundabout are projected to continue to operate at LOS A during the AM and PM peak hours. Movements on Basalt Avenue across SH 82 are projected to continue to operate poorly during peak hour conditions without geometric or operational changes at the intersection. **Appendix E** includes the analysis worksheets.

#### **IV.G. Improvement Recommendations**

When considering the level of increase in traffic volumes projected for the development of Black Mountain, and the increases related to the growth in Background traffic, coupled with the projected LOS results, Black Mountain will have a relatively minor impact to the surrounding street network. The only improvement recommended for the development of Black Mountain is to install stop signs on the southbound approaches at three of the four proposed site access points. Improvements at other intersections are not considered a requirement of Black Mountain.



with exclusive  
westbound  
right-turn lane



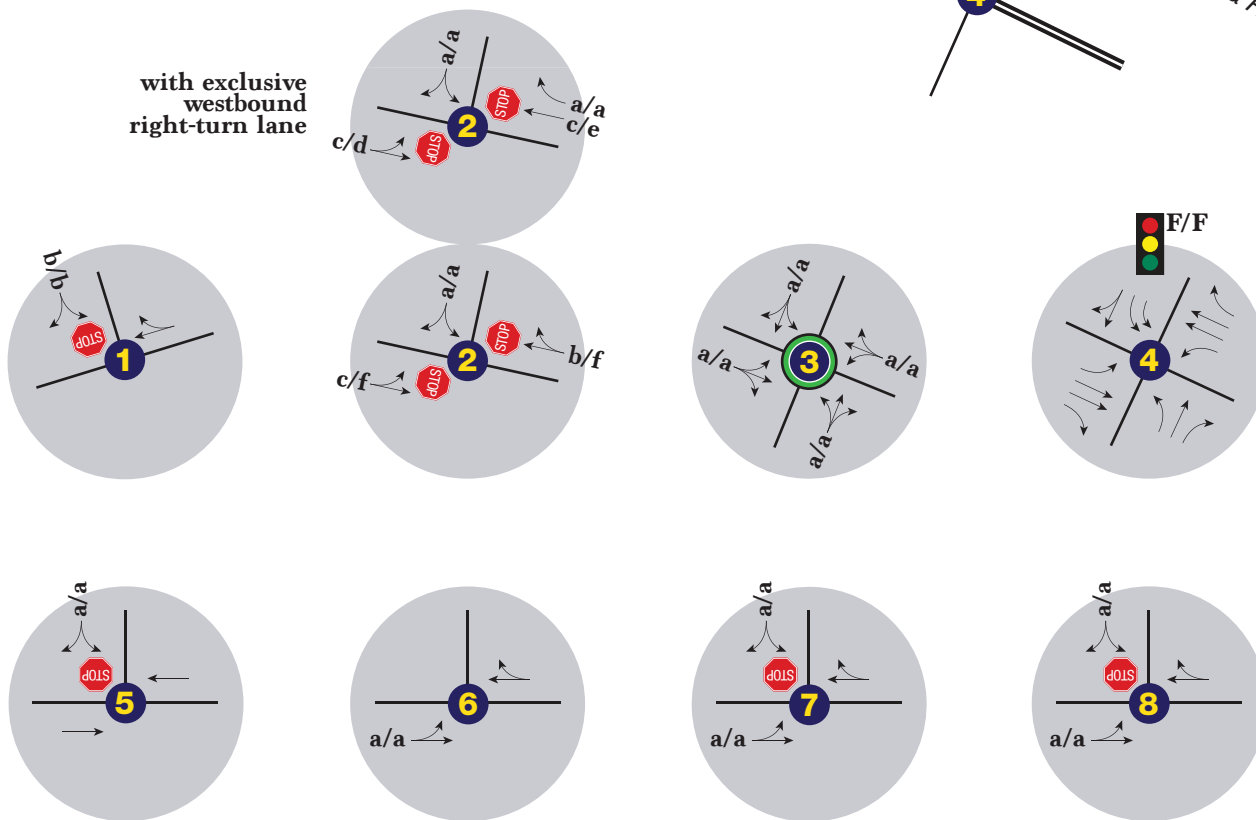
#### LEGEND

- x/x = AM/PM Peak Hour Critical  
Movement Level of Service
- X/X = AM/PM Peak Hour Signalized  
Intersection Level of Service

- ↖ = Lane Assignment
- STOP = Stop Sign
- ⬆ = Traffic Signal
- ⊙ = Roundabout



with exclusive  
westbound  
right-turn lane



#### LEGEND

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

↩ = Lane Assignment  
STOP = Stop Sign  
Traffic Signal  
Roundabout

## V. SUMMARY AND RECOMMENDATIONS

A new residential project is being proposed along the north side of Emma Road in the Town of Basalt, Colorado, with a mix of multifamily dwelling units, short-term rental cabins, and camping sites for fly fishing. A daycare center or other civic amenity is also being proposed for the site. The project is specifically located along Emma Road to the west of Midland Avenue. Emma Road parallels State Highway (SH) 82 and provides direct access to a few residential properties, while also accommodating access for the Basalt Sanitation District Waste Water Treatment Plant.

Emma Road has some unique characteristics. It is used for a portion of the Emma Trail which continues to the east and west of the project site. Adjacent to the site, Emma Road includes a one-way entrance ramp onto westbound SH 82 that provides convenient access for Emma Road users and for surrounding neighborhoods and businesses that want to proceed toward the west on SH 82.

The project, called Black Mountain, is proposed to include 68 multifamily homes, 12 short-term rental cabins, and 7 seasonal tent pads. For the purpose of this analysis, the civic amenity is considered to be a 3,500-square-foot (sf) daycare center. The Black Mountain development site is an integral part of the 2020 Basalt Master Plan. Vehicular access for the project is being proposed along Emma Road at two access points associated with the residential land uses and a one-way pair of access proposed for the daycare facility.

Trip generation for Black Mountain is projected to be about 600 vehicle-trips on a daily basis, with approximately 83 trips during the AM peak hour and about 92 trips in the PM peak hour. The following table includes a summary of the trip estimates.

### Black Mountain Trip Generation

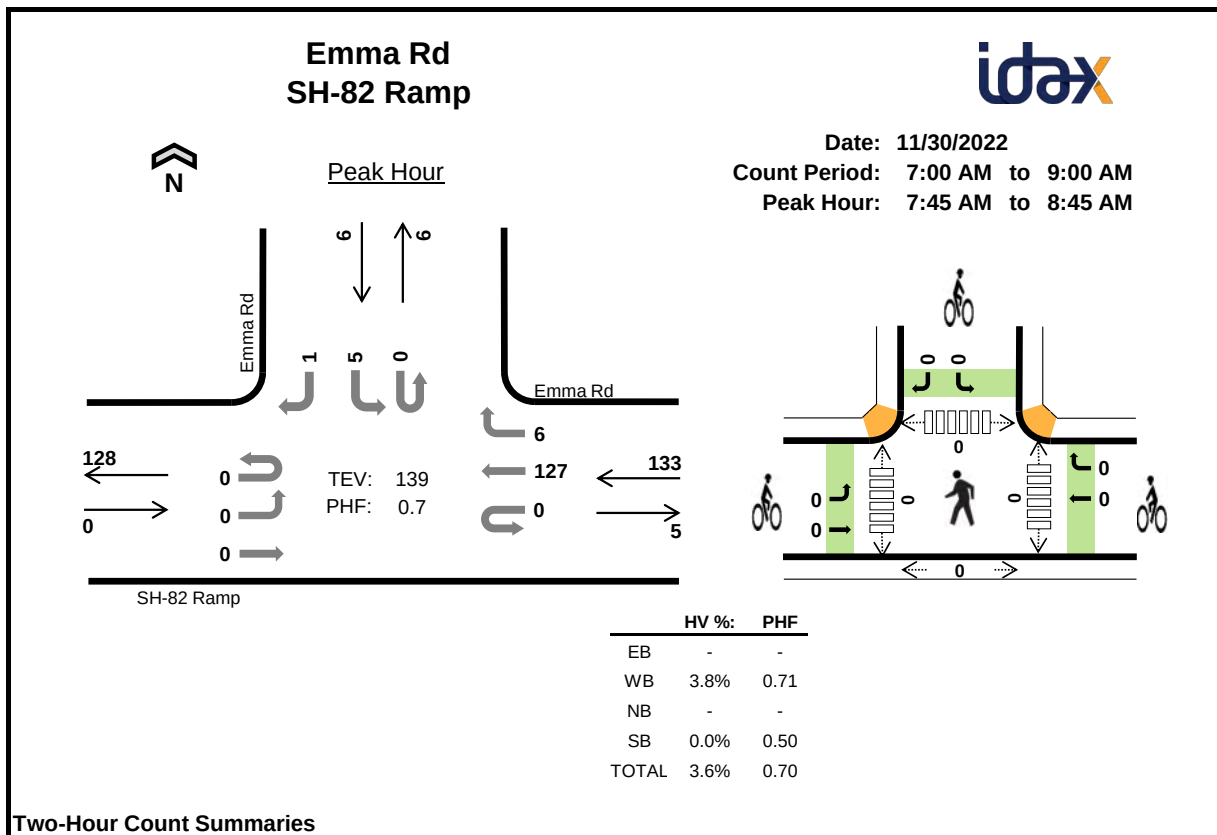
| Land Use                 | Unit  | Size  | Daily      | AM Peak Hour |           |            | PM Peak Hour |           |            |
|--------------------------|-------|-------|------------|--------------|-----------|------------|--------------|-----------|------------|
|                          |       |       |            | In           | Out       | Total      | In           | Out       | Total      |
| Townhomes                | DU    | 68    | 511        | 11           | 33        | 44         | 31           | 19        | 50         |
| Short-Term Rental Cabins | DU    | 12    | 40         | 4            | 7         | 11         | 8            | 6         | 14         |
| Tent Pad                 | Sites | 7     | 23         | 4            | 6         | 10         | 7            | 6         | 13         |
| Daycare Center           | SF    | 3,500 | 167        | 20           | 19        | 39         | 18           | 21        | 39         |
| <b>Subtotals</b>         |       |       | <b>741</b> | <b>39</b>    | <b>65</b> | <b>104</b> | <b>64</b>    | <b>52</b> | <b>116</b> |
| Internal Capture (5%)    |       |       | -37        | -2           | -3        | -5         | -3           | -3        | -6         |
| Multimodal (15%)         |       |       | -111       | -6           | -10       | -16        | -10          | -8        | -18        |
| <b>TOTALS</b>            |       |       | <b>593</b> | <b>31</b>    | <b>52</b> | <b>83</b>  | <b>51</b>    | <b>41</b> | <b>92</b>  |

Please refer to **Section IV.C** for a detailed discussion on internal capture and multimodal trip reductions.

Black Mountain will not create an undue burden on the surrounding roadway network or adjacent intersections. Acceptable levels of service (LOS) during the AM and PM peak hours occur except for a few movements at the SH 82/Basalt Avenue traffic signal. Current and future Background conditions (i.e., without Black Mountain) identify LOS E and LOS F for movements on Basalt Avenue that are trying to proceed onto or across SH 82.

When considering the level of increase in traffic volumes projected for the development of Black Mountain, and the increases related to the growth in Background traffic, coupled with the projected LOS results, Black Mountain will have a relatively minor impact to the surrounding street network. The only improvement recommended for the development of Black Mountain is to install stop signs on the southbound approaches at three of the four proposed site access points. Improvements at other intersections are not considered a requirement of Black Mountain.

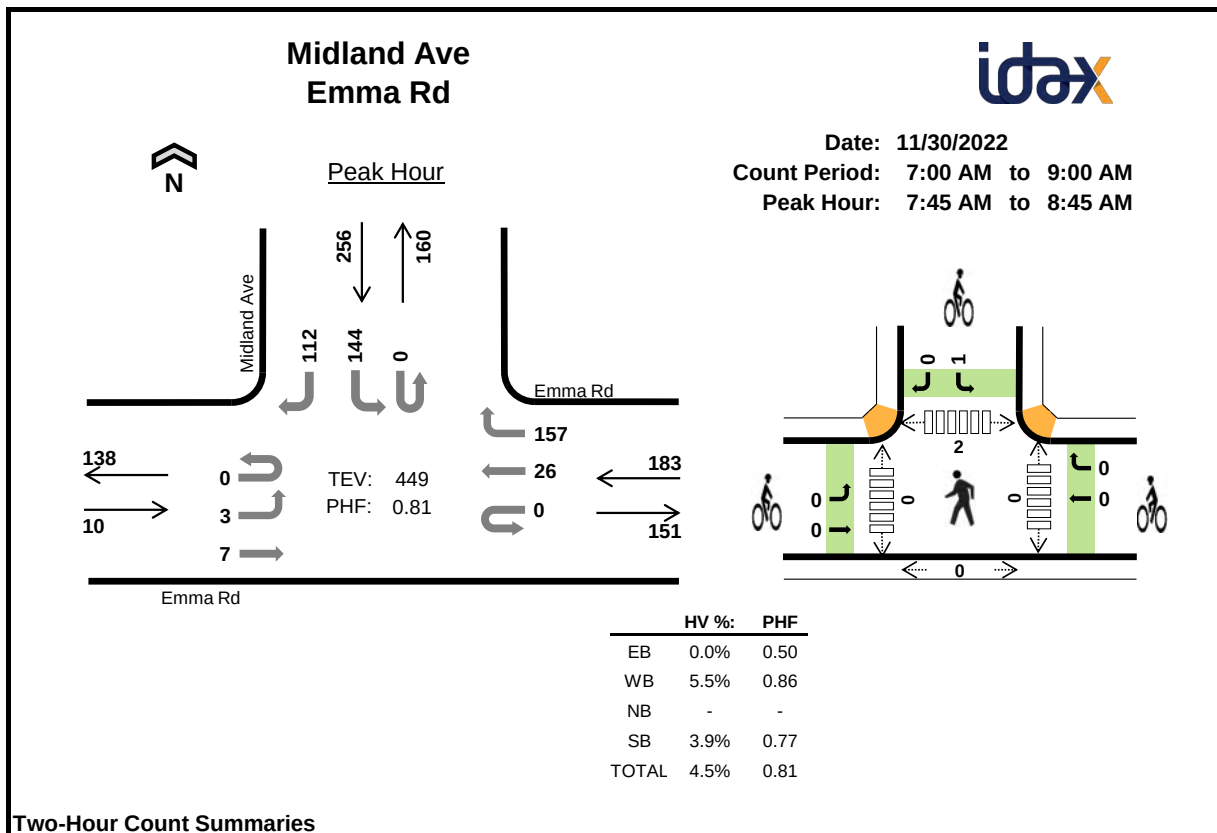
## APPENDIX A. RECORDED TRAFFIC VOLUMES

**Two-Hour Count Summaries**

| Interval Start |     | SH-82 Ramp |    |    |    | Emma Rd   |    |     |    | n/a        |    |    |    | Emma Rd    |    |    |    | 15-min Total | Rolling One Hour |
|----------------|-----|------------|----|----|----|-----------|----|-----|----|------------|----|----|----|------------|----|----|----|--------------|------------------|
|                |     | Eastbound  |    |    |    | Westbound |    |     |    | Northbound |    |    |    | Southbound |    |    |    |              |                  |
|                |     | UT         | LT | TH | RT | UT        | LT | TH  | RT | UT         | LT | TH | RT | UT         | LT | TH | RT |              |                  |
| 7:00 AM        |     | 0          | 0  | 0  | 0  | 0         | 0  | 7   | 0  | 0          | 0  | 0  | 0  | 0          | 0  | 0  | 0  | 7            | 0                |
| 7:15 AM        |     | 0          | 0  | 0  | 0  | 0         | 0  | 10  | 0  | 0          | 0  | 0  | 0  | 0          | 0  | 0  | 0  | 10           | 0                |
| 7:30 AM        |     | 0          | 0  | 0  | 0  | 0         | 0  | 16  | 2  | 0          | 0  | 0  | 0  | 0          | 1  | 0  | 0  | 19           | 0                |
| 7:45 AM        |     | 0          | 0  | 0  | 0  | 0         | 0  | 27  | 2  | 0          | 0  | 0  | 0  | 0          | 0  | 0  | 0  | 29           | 65               |
| 8:00 AM        |     | 0          | 0  | 0  | 0  | 0         | 0  | 29  | 1  | 0          | 0  | 0  | 0  | 0          | 2  | 0  | 0  | 32           | 90               |
| 8:15 AM        |     | 0          | 0  | 0  | 0  | 0         | 0  | 45  | 2  | 0          | 0  | 0  | 0  | 0          | 3  | 0  | 0  | 50           | 130              |
| 8:30 AM        |     | 0          | 0  | 0  | 0  | 0         | 0  | 26  | 1  | 0          | 0  | 0  | 0  | 0          | 0  | 0  | 1  | 28           | 139              |
| 8:45 AM        |     | 0          | 0  | 0  | 0  | 0         | 0  | 18  | 1  | 0          | 0  | 0  | 0  | 0          | 0  | 0  | 0  | 19           | 129              |
| Count Total    |     | 0          | 0  | 0  | 0  | 0         | 0  | 178 | 9  | 0          | 0  | 0  | 0  | 0          | 6  | 0  | 1  | 194          | 0                |
| Peak Hour      | All | 0          | 0  | 0  | 0  | 0         | 0  | 127 | 6  | 0          | 0  | 0  | 0  | 0          | 5  | 0  | 1  | 139          | 0                |
|                | HV  | 0          | 0  | 0  | 0  | 0         | 0  | 5   | 0  | 0          | 0  | 0  | 0  | 0          | 0  | 0  | 0  | 5            | 0                |
|                | HV% | -          | -  | -  | -  | -         | -  | 4%  | 0% | -          | -  | -  | -  | -          | 0% | -  | 0% | 4%           | 0                |

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

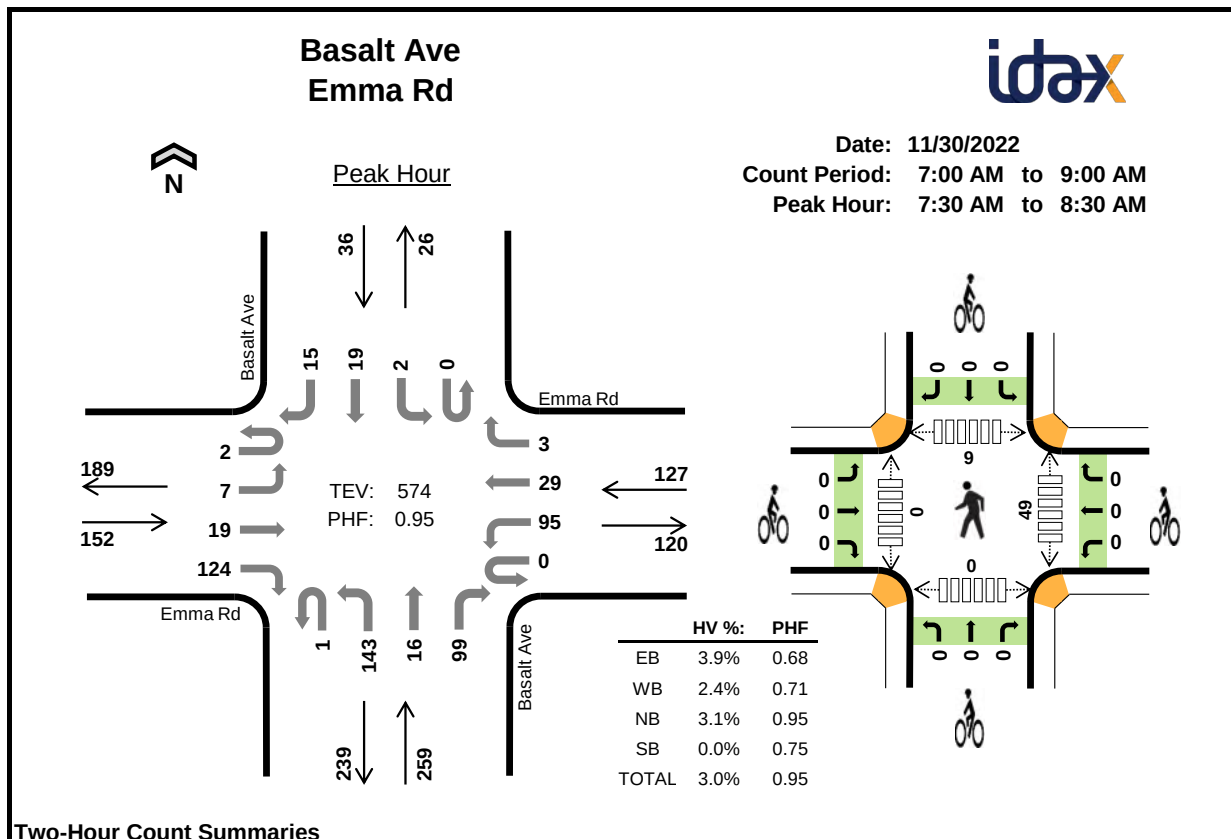
| Interval Start | Heavy Vehicle Totals |    |    |    |       | Bicycles |    |    |    |       | Pedestrians (Crossing Leg) |      |       |       |       |
|----------------|----------------------|----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
|                | EB                   | WB | NB | SB | Total | EB       | WB | NB | SB | Total | East                       | West | North | South | Total |
| 7:00 AM        | 0                    | 0  | 0  | 0  | 0     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 7:15 AM        | 0                    | 0  | 0  | 0  | 0     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 7:30 AM        | 0                    | 1  | 0  | 0  | 1     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 7:45 AM        | 0                    | 3  | 0  | 0  | 3     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 8:00 AM        | 0                    | 1  | 0  | 0  | 1     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 8:15 AM        | 0                    | 1  | 0  | 0  | 1     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 8:30 AM        | 0                    | 0  | 0  | 0  | 0     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 8:45 AM        | 0                    | 0  | 0  | 0  | 0     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| Count Total    | 0                    | 6  | 0  | 0  | 6     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| Peak Hr        | 0                    | 5  | 0  | 0  | 5     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |

**Two-Hour Count Summaries**

| Interval Start |     | Emma Rd   |    |    |    | Emma Rd   |    |    |     | n/a        |    |    |    | Midland Ave |     |    |     | 15-min Total | Rolling One Hour |
|----------------|-----|-----------|----|----|----|-----------|----|----|-----|------------|----|----|----|-------------|-----|----|-----|--------------|------------------|
|                |     | Eastbound |    |    |    | Westbound |    |    |     | Northbound |    |    |    | Southbound  |     |    |     |              |                  |
|                |     | UT        | LT | TH | RT | UT        | LT | TH | RT  | UT         | LT | TH | RT | UT          | LT  | TH | RT  |              |                  |
| 7:00 AM        |     | 0         | 0  | 0  | 0  | 0         | 0  | 2  | 7   | 0          | 0  | 0  | 0  | 0           | 16  | 0  | 5   | 30           | 0                |
| 7:15 AM        |     | 0         | 0  | 0  | 0  | 0         | 0  | 1  | 14  | 0          | 0  | 0  | 0  | 0           | 21  | 0  | 9   | 45           | 0                |
| 7:30 AM        |     | 0         | 0  | 1  | 0  | 0         | 0  | 9  | 25  | 0          | 0  | 0  | 0  | 0           | 20  | 0  | 10  | 65           | 0                |
| 7:45 AM        |     | 0         | 0  | 0  | 0  | 0         | 0  | 7  | 46  | 0          | 0  | 0  | 0  | 0           | 28  | 0  | 23  | 104          | 244              |
| 8:00 AM        |     | 0         | 1  | 3  | 0  | 0         | 0  | 5  | 48  | 0          | 0  | 0  | 0  | 0           | 56  | 0  | 25  | 138          | 352              |
| 8:15 AM        |     | 0         | 2  | 3  | 0  | 0         | 0  | 9  | 37  | 0          | 0  | 0  | 0  | 0           | 40  | 0  | 43  | 134          | 441              |
| 8:30 AM        |     | 0         | 0  | 1  | 0  | 0         | 0  | 5  | 26  | 0          | 0  | 0  | 0  | 0           | 20  | 0  | 21  | 73           | 449              |
| 8:45 AM        |     | 0         | 1  | 0  | 0  | 0         | 0  | 4  | 30  | 0          | 0  | 0  | 0  | 0           | 19  | 0  | 16  | 70           | 415              |
| Count Total    |     | 0         | 4  | 8  | 0  | 0         | 0  | 42 | 233 | 0          | 0  | 0  | 0  | 0           | 220 | 0  | 152 | 659          | 0                |
| Peak Hour      | All | 0         | 3  | 7  | 0  | 0         | 0  | 26 | 157 | 0          | 0  | 0  | 0  | 0           | 144 | 0  | 112 | 449          | 0                |
|                | HV  | 0         | 0  | 0  | 0  | 0         | 0  | 1  | 9   | 0          | 0  | 0  | 0  | 0           | 7   | 0  | 3   | 20           | 0                |
|                | HV% | -         | 0% | 0% | -  | -         | -  | 4% | 6%  | -          | -  | -  | -  | -           | 5%  | -  | 3%  | 4%           | 0                |

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

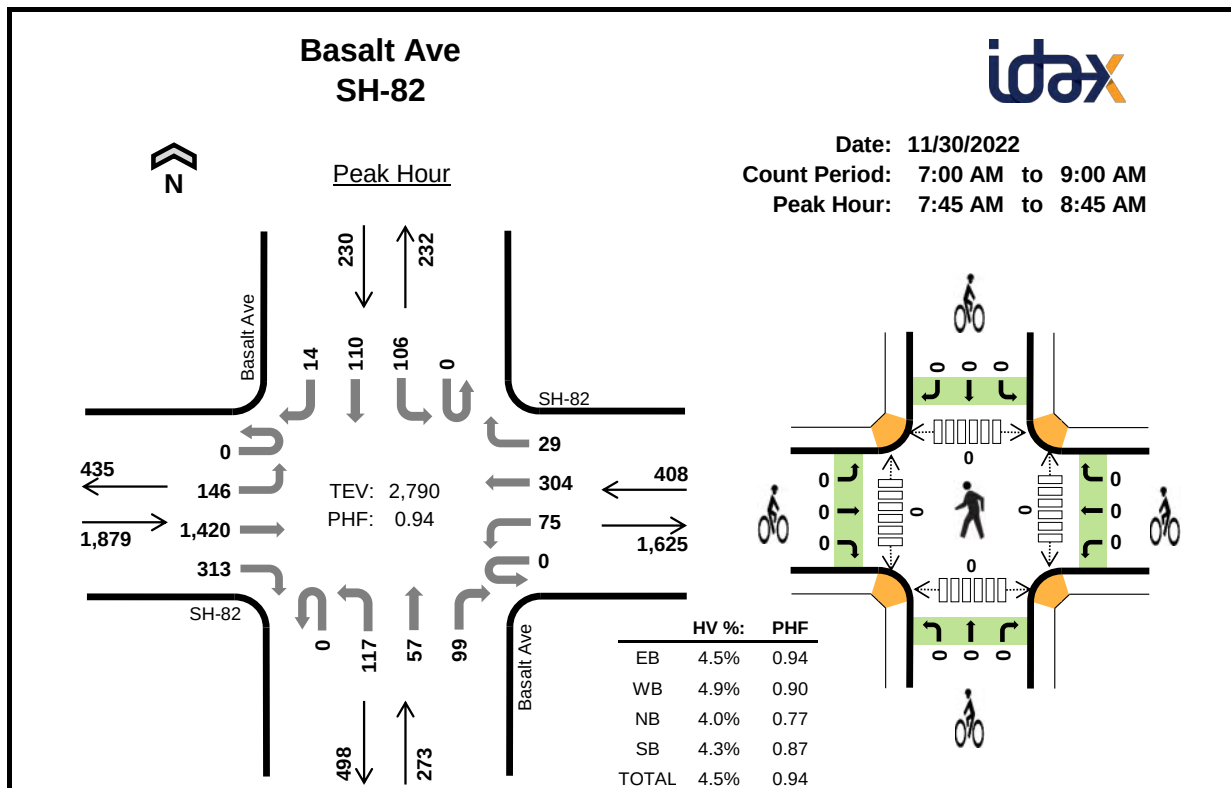
| Interval Start | Heavy Vehicle Totals |    |    |    |       | Bicycles |    |    |    |       | Pedestrians (Crossing Leg) |      |       |       |       |
|----------------|----------------------|----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
|                | EB                   | WB | NB | SB | Total | EB       | WB | NB | SB | Total | East                       | West | North | South | Total |
| 7:00 AM        | 0                    | 0  | 0  | 2  | 2     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 7:15 AM        | 0                    | 2  | 0  | 0  | 2     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 7:30 AM        | 0                    | 0  | 0  | 3  | 3     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 2     | 0     | 2     |
| 7:45 AM        | 0                    | 4  | 0  | 4  | 8     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 1     | 0     | 1     |
| 8:00 AM        | 0                    | 1  | 0  | 1  | 2     | 0        | 0  | 0  | 1  | 1     | 0                          | 0    | 0     | 0     | 0     |
| 8:15 AM        | 0                    | 2  | 0  | 2  | 4     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 8:30 AM        | 0                    | 3  | 0  | 3  | 6     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 1     | 0     | 1     |
| 8:45 AM        | 0                    | 1  | 0  | 2  | 3     | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| Count Total    | 0                    | 13 | 0  | 17 | 30    | 0        | 0  | 0  | 1  | 1     | 0                          | 0    | 4     | 0     | 4     |
| Peak Hr        | 0                    | 10 | 0  | 10 | 20    | 0        | 0  | 0  | 1  | 1     | 0                          | 0    | 2     | 0     | 2     |

**Two-Hour Count Summaries**

| Interval Start |     | Emma Rd   |    |    |     | Emma Rd   |     |    |    | Basalt Ave |     |    |     | Basalt Ave |    |    |    | 15-min Total | Rolling One Hour |
|----------------|-----|-----------|----|----|-----|-----------|-----|----|----|------------|-----|----|-----|------------|----|----|----|--------------|------------------|
|                |     | Eastbound |    |    |     | Westbound |     |    |    | Northbound |     |    |     | Southbound |    |    |    |              |                  |
|                |     | UT        | LT | TH | RT  | UT        | LT  | TH | RT | UT         | LT  | TH | RT  | UT         | LT | TH | RT |              |                  |
| 7:00 AM        |     | 0         | 0  | 2  | 14  | 0         | 34  | 1  | 0  | 1          | 7   | 2  | 31  | 0          | 1  | 6  | 1  | 100          | 0                |
| 7:15 AM        |     | 0         | 0  | 3  | 17  | 0         | 38  | 2  | 0  | 0          | 9   | 3  | 36  | 0          | 0  | 6  | 1  | 115          | 0                |
| 7:30 AM        |     | 0         | 0  | 4  | 18  | 0         | 29  | 8  | 1  | 0          | 22  | 3  | 39  | 0          | 0  | 3  | 7  | 134          | 0                |
| 7:45 AM        |     | 0         | 1  | 2  | 25  | 0         | 32  | 11 | 2  | 0          | 37  | 1  | 24  | 0          | 0  | 7  | 5  | 147          | 496              |
| 8:00 AM        |     | 1         | 3  | 7  | 45  | 0         | 15  | 5  | 0  | 1          | 47  | 8  | 12  | 0          | 0  | 6  | 1  | 151          | 547              |
| 8:15 AM        |     | 1         | 3  | 6  | 36  | 0         | 19  | 5  | 0  | 0          | 37  | 4  | 24  | 0          | 2  | 3  | 2  | 142          | 574              |
| 8:30 AM        |     | 0         | 0  | 4  | 17  | 0         | 20  | 11 | 0  | 0          | 20  | 2  | 20  | 0          | 2  | 1  | 1  | 98           | 538              |
| 8:45 AM        |     | 0         | 0  | 5  | 14  | 0         | 23  | 7  | 1  | 0          | 24  | 3  | 30  | 0          | 0  | 6  | 2  | 115          | 506              |
| Count Total    |     | 2         | 7  | 33 | 186 | 0         | 210 | 50 | 4  | 2          | 203 | 26 | 216 | 0          | 5  | 38 | 20 | 1,002        | 0                |
| Peak Hour      | All | 2         | 7  | 19 | 124 | 0         | 95  | 29 | 3  | 1          | 143 | 16 | 99  | 0          | 2  | 19 | 15 | 574          | 0                |
|                | HV  | 0         | 0  | 0  | 6   | 0         | 2   | 1  | 0  | 0          | 7   | 0  | 1   | 0          | 0  | 0  | 0  | 17           | 0                |
|                | HV% | 0%        | 0% | 0% | 5%  | -         | 2%  | 3% | 0% | 0%         | 5%  | 0% | 1%  | -          | 0% | 0% | 0% | 3%           | 0                |

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

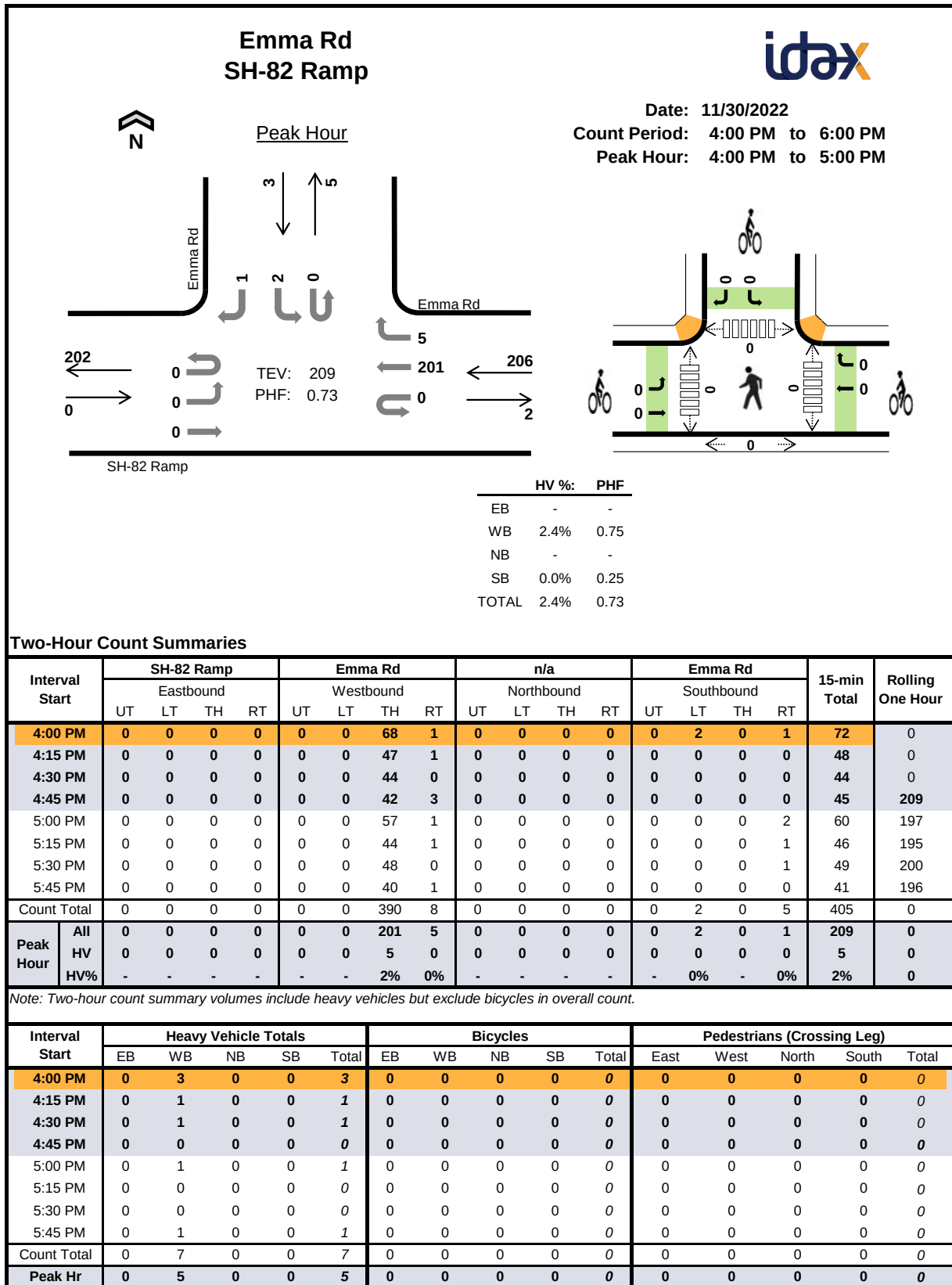
| Interval Start | Heavy Vehicle Totals |    |    |    |       | Bicycles |    |    |    |       | Pedestrians (Crossing Leg) |      |       |       |       |
|----------------|----------------------|----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
|                | EB                   | WB | NB | SB | Total | EB       | WB | NB | SB | Total | East                       | West | North | South | Total |
| 7:00 AM        | 2                    | 1  | 0  | 0  | 3     | 0        | 0  | 0  | 0  | 0     | 9                          | 0    | 0     | 0     | 9     |
| 7:15 AM        | 0                    | 0  | 3  | 0  | 3     | 0        | 0  | 0  | 0  | 0     | 5                          | 0    | 1     | 0     | 6     |
| 7:30 AM        | 2                    | 2  | 1  | 0  | 5     | 0        | 0  | 0  | 0  | 0     | 15                         | 0    | 4     | 0     | 19    |
| 7:45 AM        | 1                    | 0  | 4  | 0  | 5     | 0        | 0  | 0  | 0  | 0     | 13                         | 0    | 3     | 0     | 16    |
| 8:00 AM        | 1                    | 1  | 1  | 0  | 3     | 0        | 0  | 0  | 0  | 0     | 13                         | 0    | 2     | 0     | 15    |
| 8:15 AM        | 2                    | 0  | 2  | 0  | 4     | 0        | 0  | 0  | 0  | 0     | 8                          | 0    | 0     | 0     | 8     |
| 8:30 AM        | 3                    | 0  | 3  | 0  | 6     | 0        | 0  | 0  | 0  | 0     | 11                         | 0    | 1     | 0     | 12    |
| 8:45 AM        | 2                    | 1  | 2  | 0  | 5     | 0        | 0  | 0  | 0  | 0     | 2                          | 0    | 1     | 0     | 3     |
| Count Total    | 13                   | 5  | 16 | 0  | 34    | 0        | 0  | 0  | 0  | 0     | 76                         | 0    | 12    | 0     | 88    |
| Peak Hour      | 6                    | 3  | 8  | 0  | 17    | 0        | 0  | 0  | 0  | 0     | 49                         | 0    | 9     | 0     | 58    |

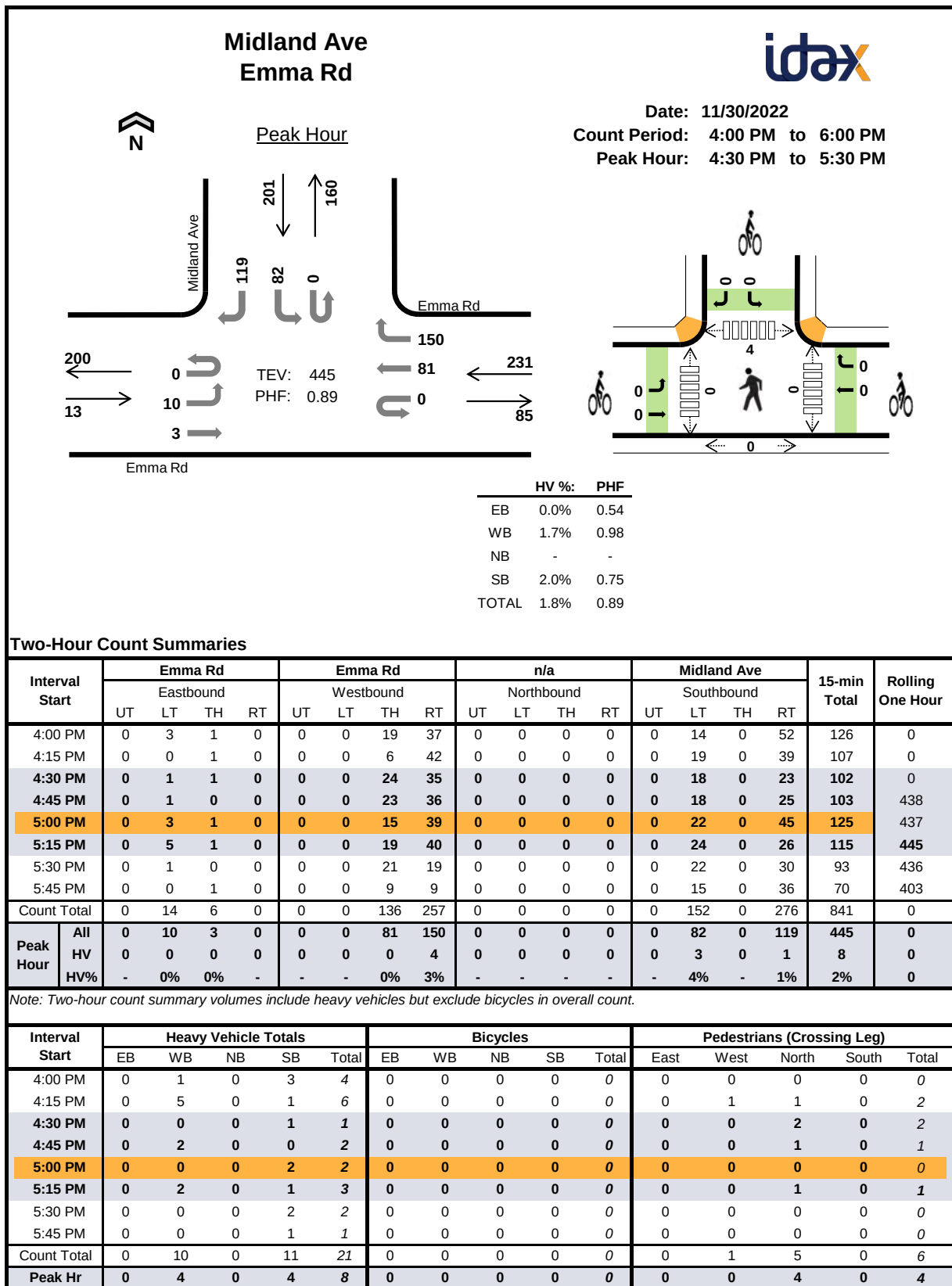
**Two-Hour Count Summaries**

| Interval Start |     | SH-82     |     |       |     | SH-82     |     |     |     | Basalt Ave |     |    |     | Basalt Ave |     |     |    | 15-min Total | Rolling One Hour |
|----------------|-----|-----------|-----|-------|-----|-----------|-----|-----|-----|------------|-----|----|-----|------------|-----|-----|----|--------------|------------------|
|                |     | Eastbound |     |       |     | Westbound |     |     |     | Northbound |     |    |     | Southbound |     |     |    |              |                  |
|                |     | UT        | LT  | TH    | RT  | UT        | LT  | TH  | RT  | UT         | LT  | TH | RT  | UT         | LT  | TH  | RT |              |                  |
| 7:00 AM        |     | 0         | 35  | 372   | 25  | 0         | 5   | 41  | 4   | 0          | 9   | 2  | 12  | 0          | 43  | 8   | 2  | 558          | 0                |
| 7:15 AM        |     | 1         | 44  | 408   | 36  | 0         | 3   | 29  | 2   | 0          | 6   | 2  | 13  | 0          | 38  | 16  | 6  | 604          | 0                |
| 7:30 AM        |     | 0         | 51  | 381   | 55  | 0         | 8   | 50  | 7   | 0          | 17  | 10 | 19  | 0          | 36  | 13  | 1  | 648          | 0                |
| 7:45 AM        |     | 0         | 40  | 373   | 85  | 0         | 16  | 71  | 7   | 0          | 16  | 11 | 25  | 0          | 33  | 24  | 5  | 706          | 2,516            |
| 8:00 AM        |     | 0         | 47  | 332   | 112 | 0         | 25  | 67  | 4   | 0          | 38  | 17 | 34  | 0          | 31  | 35  | 0  | 742          | 2,700            |
| 8:15 AM        |     | 0         | 35  | 349   | 60  | 0         | 23  | 70  | 12  | 0          | 36  | 18 | 25  | 0          | 24  | 36  | 5  | 693          | 2,789            |
| 8:30 AM        |     | 0         | 24  | 366   | 56  | 0         | 11  | 96  | 6   | 0          | 27  | 11 | 15  | 0          | 18  | 15  | 4  | 649          | 2,790            |
| 8:45 AM        |     | 0         | 35  | 309   | 38  | 0         | 10  | 92  | 9   | 0          | 15  | 13 | 15  | 0          | 28  | 6   | 5  | 575          | 2,659            |
| Count Total    |     | 1         | 311 | 2,890 | 467 | 0         | 101 | 516 | 51  | 0          | 164 | 84 | 158 | 0          | 251 | 153 | 28 | 5,175        | 0                |
| Peak Hour      | All | 0         | 146 | 1,420 | 313 | 0         | 75  | 304 | 29  | 0          | 117 | 57 | 99  | 0          | 106 | 110 | 14 | 2,790        | 0                |
|                | HV  | 0         | 6   | 72    | 6   | 0         | 2   | 15  | 3   | 0          | 4   | 1  | 6   | 0          | 8   | 2   | 0  | 125          | 0                |
|                | HV% | -         | 4%  | 5%    | 2%  | -         | 3%  | 5%  | 10% | -          | 3%  | 2% | 6%  | -          | 8%  | 2%  | 0% | 4%           | 0                |

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

| Interval Start | Heavy Vehicle Totals |    |    |    |       | Bicycles |    |    |    |       | Pedestrians (Crossing Leg) |      |       |       |       |
|----------------|----------------------|----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
|                | EB                   | WB | NB | SB | Total | EB       | WB | NB | SB | Total | East                       | West | North | South | Total |
| 7:00 AM        | 25                   | 3  | 0  | 3  | 31    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 7:15 AM        | 23                   | 4  | 1  | 0  | 28    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 7:30 AM        | 13                   | 6  | 3  | 3  | 25    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 7:45 AM        | 19                   | 8  | 2  | 1  | 30    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 8:00 AM        | 20                   | 3  | 3  | 2  | 28    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 8:15 AM        | 23                   | 3  | 4  | 4  | 34    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 8:30 AM        | 22                   | 6  | 2  | 3  | 33    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 8:45 AM        | 16                   | 8  | 0  | 1  | 25    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| Count Total    | 161                  | 41 | 15 | 17 | 234   | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| Peak Hour      | 84                   | 20 | 11 | 10 | 125   | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |





# Basalt Ave Emma Rd

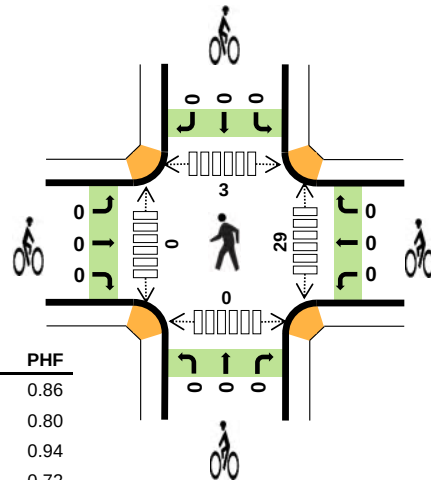
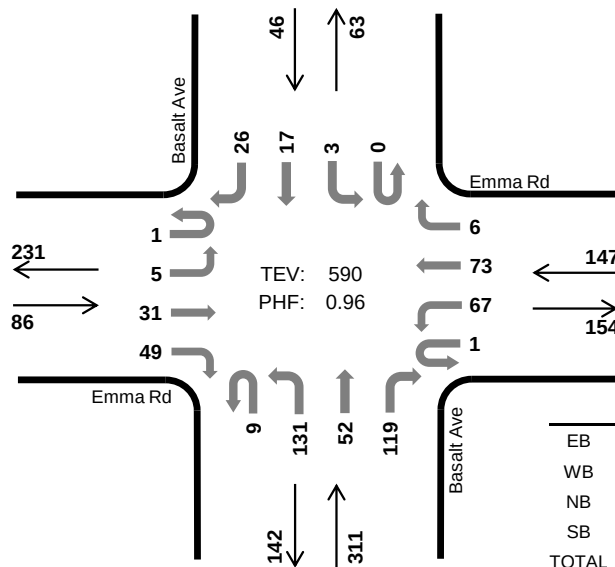


Peak Hour

Date: 11/30/2022

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 4:30 PM to 5:30 PM



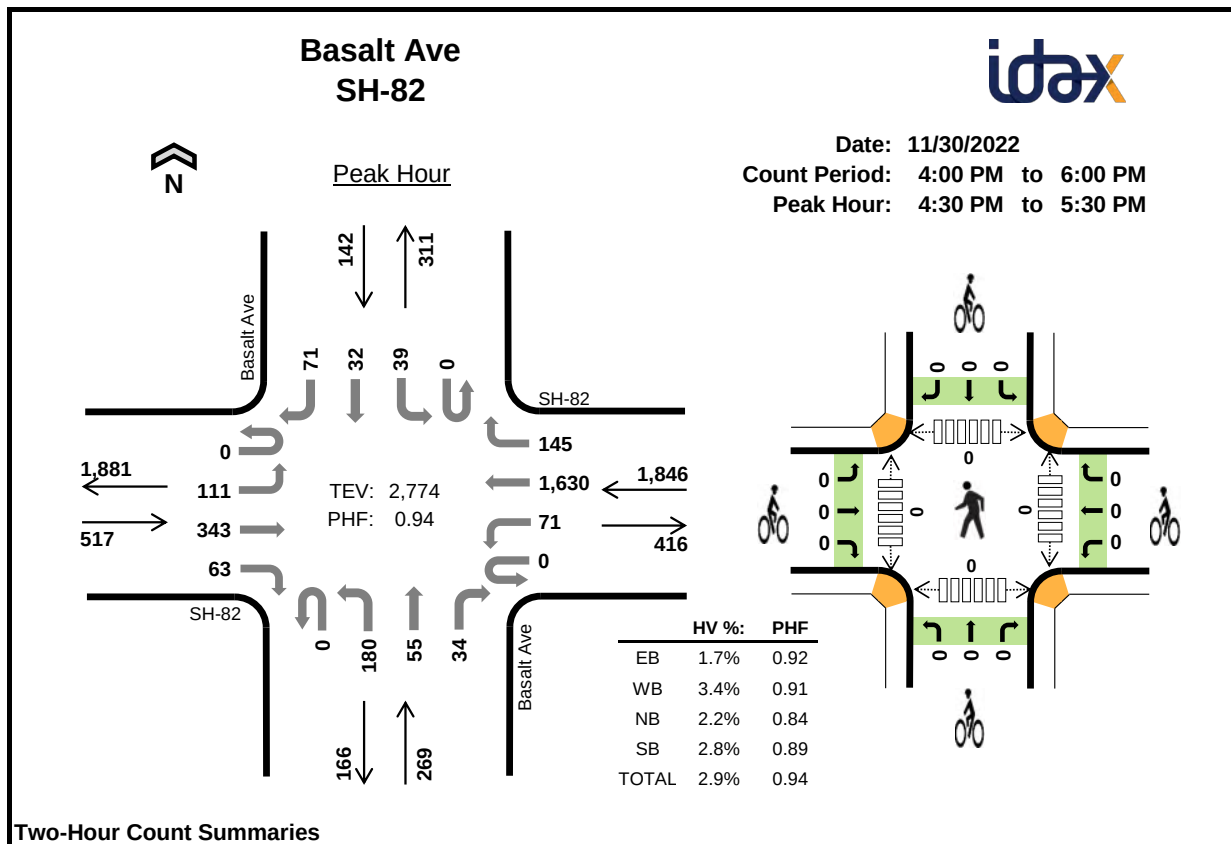
|       | HV %: | PHF  |
|-------|-------|------|
| EB    | 3.5%  | 0.86 |
| WB    | 0.7%  | 0.80 |
| NB    | 1.9%  | 0.94 |
| SB    | 0.0%  | 0.72 |
| TOTAL | 1.7%  | 0.96 |

## Two-Hour Count Summaries

| Interval Start |     | Emma Rd   |    |    |    | Emma Rd   |     |     |    | Basalt Ave |     |    |     | Basalt Ave |    |    |    | 15-min Total | Rolling One Hour |
|----------------|-----|-----------|----|----|----|-----------|-----|-----|----|------------|-----|----|-----|------------|----|----|----|--------------|------------------|
|                |     | Eastbound |    |    |    | Westbound |     |     |    | Northbound |     |    |     | Southbound |    |    |    |              |                  |
|                |     | UT        | LT | TH | RT | UT        | LT  | TH  | RT | UT         | LT  | TH | RT  | UT         | LT | TH | RT |              |                  |
| 4:00 PM        |     | 0         | 1  | 2  | 12 | 0         | 21  | 13  | 0  | 2          | 36  | 9  | 17  | 0          | 1  | 2  | 7  | 123          | 0                |
| 4:15 PM        |     | 0         | 2  | 5  | 12 | 0         | 12  | 13  | 1  | 1          | 32  | 8  | 27  | 0          | 0  | 3  | 1  | 117          | 0                |
| 4:30 PM        |     | 0         | 1  | 10 | 8  | 1         | 9   | 17  | 0  | 4          | 35  | 14 | 30  | 0          | 2  | 4  | 8  | 143          | 0                |
| 4:45 PM        |     | 0         | 1  | 7  | 11 | 0         | 20  | 22  | 4  | 2          | 31  | 10 | 34  | 0          | 1  | 4  | 6  | 153          | 536              |
| 5:00 PM        |     | 0         | 0  | 6  | 17 | 0         | 23  | 18  | 2  | 0          | 34  | 10 | 30  | 0          | 0  | 2  | 3  | 145          | 558              |
| 5:15 PM        |     | 1         | 3  | 8  | 13 | 0         | 15  | 16  | 0  | 3          | 31  | 18 | 25  | 0          | 0  | 7  | 9  | 149          | 590              |
| 5:30 PM        |     | 0         | 2  | 8  | 12 | 0         | 8   | 17  | 2  | 1          | 19  | 6  | 22  | 0          | 3  | 3  | 6  | 109          | 556              |
| 5:45 PM        |     | 0         | 0  | 7  | 9  | 0         | 9   | 7   | 2  | 1          | 8   | 5  | 30  | 0          | 1  | 1  | 3  | 83           | 486              |
| Count Total    |     | 1         | 10 | 53 | 94 | 1         | 117 | 123 | 11 | 14         | 226 | 80 | 215 | 0          | 8  | 26 | 43 | 1,022        | 0                |
| Peak Hour      | All | 1         | 5  | 31 | 49 | 1         | 67  | 73  | 6  | 9          | 131 | 52 | 119 | 0          | 3  | 17 | 26 | 590          | 0                |
|                | HV  | 0         | 0  | 0  | 3  | 0         | 1   | 0   | 0  | 0          | 4   | 0  | 2   | 0          | 0  | 0  | 0  | 10           | 0                |
|                | HV% | 0%        | 0% | 0% | 6% | 0%        | 1%  | 0%  | 0% | 0%         | 3%  | 0% | 2%  | -          | 0% | 0% | 0% | 2%           | 0                |

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

| Interval Start | Heavy Vehicle Totals |    |    |    |       | Bicycles |    |    |    |       | Pedestrians (Crossing Leg) |      |       |       |       |
|----------------|----------------------|----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
|                | EB                   | WB | NB | SB | Total | EB       | WB | NB | SB | Total | East                       | West | North | South | Total |
| 4:00 PM        | 1                    | 0  | 3  | 0  | 4     | 0        | 0  | 0  | 0  | 0     | 7                          | 0    | 0     | 0     | 7     |
| 4:15 PM        | 0                    | 2  | 4  | 0  | 6     | 0        | 0  | 0  | 0  | 0     | 15                         | 0    | 0     | 0     | 15    |
| 4:30 PM        | 1                    | 0  | 1  | 0  | 2     | 0        | 0  | 0  | 0  | 0     | 11                         | 0    | 0     | 0     | 11    |
| 4:45 PM        | 0                    | 0  | 3  | 0  | 3     | 0        | 0  | 0  | 0  | 0     | 11                         | 0    | 2     | 0     | 13    |
| 5:00 PM        | 1                    | 1  | 0  | 0  | 2     | 0        | 0  | 0  | 0  | 0     | 6                          | 0    | 1     | 0     | 7     |
| 5:15 PM        | 1                    | 0  | 2  | 0  | 3     | 0        | 0  | 0  | 0  | 0     | 1                          | 0    | 0     | 0     | 1     |
| 5:30 PM        | 1                    | 0  | 0  | 0  | 1     | 0        | 0  | 0  | 0  | 0     | 9                          | 0    | 1     | 0     | 10    |
| 5:45 PM        | 0                    | 0  | 0  | 0  | 0     | 0        | 0  | 0  | 0  | 0     | 9                          | 0    | 0     | 0     | 9     |
| Count Total    | 5                    | 3  | 13 | 0  | 21    | 0        | 0  | 0  | 0  | 0     | 69                         | 0    | 4     | 0     | 73    |
| Peak Hour      | 3                    | 1  | 6  | 0  | 10    | 0        | 0  | 0  | 0  | 0     | 29                         | 0    | 3     | 0     | 32    |

**Two-Hour Count Summaries**

| Interval Start |     | SH-82     |     |     |     | SH-82     |     |       |     | Basalt Ave |     |    |    | Basalt Ave |    |    |     | 15-min Total | Rolling One Hour |
|----------------|-----|-----------|-----|-----|-----|-----------|-----|-------|-----|------------|-----|----|----|------------|----|----|-----|--------------|------------------|
|                |     | Eastbound |     |     |     | Westbound |     |       |     | Northbound |     |    |    | Southbound |    |    |     |              |                  |
|                |     | UT        | LT  | TH  | RT  | UT        | LT  | TH    | RT  | UT         | LT  | TH | RT | UT         | LT | TH | RT  |              |                  |
| 4:00 PM        |     | 0         | 28  | 105 | 15  | 0         | 15  | 327   | 24  | 0          | 42  | 12 | 11 | 0          | 14 | 9  | 14  | 616          | 0                |
| 4:15 PM        |     | 0         | 23  | 117 | 13  | 0         | 19  | 320   | 29  | 0          | 38  | 17 | 12 | 0          | 4  | 11 | 13  | 616          | 0                |
| 4:30 PM        |     | 0         | 29  | 93  | 19  | 0         | 24  | 425   | 42  | 0          | 37  | 12 | 10 | 0          | 7  | 4  | 14  | 716          | 0                |
| 4:45 PM        |     | 0         | 30  | 75  | 16  | 0         | 21  | 358   | 36  | 0          | 55  | 18 | 7  | 0          | 10 | 8  | 20  | 654          | 2,602            |
| 5:00 PM        |     | 0         | 21  | 91  | 16  | 0         | 12  | 459   | 34  | 0          | 49  | 12 | 8  | 0          | 10 | 11 | 18  | 741          | 2,727            |
| 5:15 PM        |     | 0         | 31  | 84  | 12  | 0         | 14  | 388   | 33  | 0          | 39  | 13 | 9  | 0          | 12 | 9  | 19  | 663          | 2,774            |
| 5:30 PM        |     | 0         | 16  | 76  | 13  | 0         | 3   | 223   | 24  | 0          | 28  | 9  | 10 | 0          | 8  | 5  | 11  | 426          | 2,484            |
| 5:45 PM        |     | 0         | 19  | 66  | 9   | 0         | 11  | 372   | 20  | 0          | 13  | 5  | 5  | 0          | 3  | 5  | 10  | 538          | 2,368            |
| Count Total    |     | 0         | 197 | 707 | 113 | 0         | 119 | 2,872 | 242 | 0          | 301 | 98 | 72 | 0          | 68 | 62 | 119 | 4,970        | 0                |
| Peak Hour      | All | 0         | 111 | 343 | 63  | 0         | 71  | 1,630 | 145 | 0          | 180 | 55 | 34 | 0          | 39 | 32 | 71  | 2,774        | 0                |
|                | HV  | 0         | 0   | 8   | 1   | 0         | 3   | 54    | 5   | 0          | 5   | 1  | 0  | 0          | 2  | 1  | 1   | 81           | 0                |
|                | HV% | -         | 0%  | 2%  | 2%  | -         | 4%  | 3%    | 3%  | -          | 3%  | 2% | 0% | -          | 5% | 3% | 1%  | 3%           | 0                |

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

| Interval Start | Heavy Vehicle Totals |     |    |    |       | Bicycles |    |    |    |       | Pedestrians (Crossing Leg) |      |       |       |       |
|----------------|----------------------|-----|----|----|-------|----------|----|----|----|-------|----------------------------|------|-------|-------|-------|
|                | EB                   | WB  | NB | SB | Total | EB       | WB | NB | SB | Total | East                       | West | North | South | Total |
| 4:00 PM        | 7                    | 16  | 2  | 1  | 26    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 4:15 PM        | 5                    | 31  | 3  | 1  | 40    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 4:30 PM        | 4                    | 24  | 3  | 1  | 32    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 4:45 PM        | 0                    | 14  | 3  | 0  | 17    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 5:00 PM        | 3                    | 16  | 0  | 2  | 21    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 5:15 PM        | 2                    | 8   | 0  | 1  | 11    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 5:30 PM        | 1                    | 8   | 0  | 1  | 10    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| 5:45 PM        | 2                    | 11  | 0  | 0  | 13    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| Count Total    | 24                   | 128 | 11 | 7  | 170   | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |
| Peak Hour      | 9                    | 62  | 6  | 4  | 81    | 0        | 0  | 0  | 0  | 0     | 0                          | 0    | 0     | 0     | 0     |

## APPENDIX B. LEVEL OF SERVICE CRITERIA

**TABLE B1**  
**LEVEL OF SERVICE CRITERIA FOR**  
**TWO-WAY STOP CONTROLLED (TWSC) INTERSECTIONS**

| Level of Service                                                                    | Delay Range (sec/veh) |
|-------------------------------------------------------------------------------------|-----------------------|
| A                                                                                   | 0.0 – 10.0            |
| B                                                                                   | >10.0 – 15.0          |
| C                                                                                   | >15.0 – 25.0          |
| D                                                                                   | >25.0 – 35.0          |
| E                                                                                   | >35.0 – 50.0          |
| F                                                                                   | > 50.0                |
| Adapted from: <i>Highway Capacity Manual</i> , Transportation Research Board, 2016. |                       |

**TABLE B2**  
**LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS**

| Level of Service                                                                    | Control Delay (sec/veh) | Qualitative Description                                                                             |
|-------------------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------|
| A                                                                                   | $\leq 10.0$             | Good progression, short cycles, very few vehicle-stops.                                             |
| B                                                                                   | >10.0 – 20.0            | Good progression, and/or short cycle lengths, more vehicle-stops.                                   |
| C                                                                                   | >20.0 – 35.0            | Fair progression and/or longer cycle lengths, some individual cycle failures, many vehicle-stops    |
| D                                                                                   | >35.0 – 55.0            | Noticeable congestion and cycle failures, unfavorable progression, high v/c ratios, several stops.  |
| E                                                                                   | >55.0 – 80.0            | Limit of acceptable delay, poor progression, long cycles, high v/c ratios, frequent cycle failures. |
| F                                                                                   | > 80.0                  | Delay is unacceptable to most drivers, volume exceeds capacity, breakdown of traffic flow.          |
| Adapted from: <i>Highway Capacity Manual</i> , Transportation Research Board, 2016. |                         |                                                                                                     |

## APPENDIX C. ANALYSIS WORKSHEETS – EXISTING CONDITIONS

Black Mountain Development  
Emma Road Adjacent SH 82 Slip Ramp

Existing Conditions - AM Peak Hour

| Intersection             |      |        |                                                                                   |        |                                                                                   |      |
|--------------------------|------|--------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.6  |        |                                                                                   |        |                                                                                   |      |
| Movement                 | EBL  | EBT    | WBT                                                                               | WBR    | SBL                                                                               | SBR  |
| Lane Configurations      |      |        |  |        |  |      |
| Traffic Vol, veh/h       | 0    | 0      | 127                                                                               | 6      | 5                                                                                 | 1    |
| Future Vol, veh/h        | 0    | 0      | 127                                                                               | 6      | 5                                                                                 | 1    |
| Conflicting Peds, #/hr   | 0    | 0      | 0                                                                                 | 0      | 0                                                                                 | 0    |
| Sign Control             | Free | Free   | Free                                                                              | Free   | Stop                                                                              | Stop |
| RT Channelized           | -    | None   | -                                                                                 | None   | -                                                                                 | None |
| Storage Length           | -    | -      | -                                                                                 | -      | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 1      | 0                                                                                 | -      | 0                                                                                 | -    |
| Grade, %                 | -    | 0      | 0                                                                                 | -      | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92     | 71                                                                                | 71     | 50                                                                                | 50   |
| Heavy Vehicles, %        | 2    | 2      | 4                                                                                 | 4      | 0                                                                                 | 0    |
| Mvmt Flow                | 0    | 0      | 179                                                                               | 8      | 10                                                                                | 2    |
| Major/Minor              |      | Major2 |                                                                                   | Minor2 |                                                                                   |      |
| Conflicting Flow All     |      | -      | 0                                                                                 | 183    | 183                                                                               |      |
| Stage 1                  |      | -      | -                                                                                 | 183    | -                                                                                 |      |
| Stage 2                  |      | -      | -                                                                                 | 0      | -                                                                                 |      |
| Critical Hdwy            |      | -      | -                                                                                 | 6.4    | 6.2                                                                               |      |
| Critical Hdwy Stg 1      |      | -      | -                                                                                 | 5.4    | -                                                                                 |      |
| Critical Hdwy Stg 2      |      | -      | -                                                                                 | -      | -                                                                                 |      |
| Follow-up Hdwy           |      | -      | -                                                                                 | 3.5    | 3.3                                                                               |      |
| Pot Cap-1 Maneuver       |      | -      | -                                                                                 | 811    | 865                                                                               |      |
| Stage 1                  |      | -      | -                                                                                 | 853    | -                                                                                 |      |
| Stage 2                  |      | -      | -                                                                                 | -      | -                                                                                 |      |
| Platoon blocked, %       |      | -      | -                                                                                 |        |                                                                                   |      |
| Mov Cap-1 Maneuver       |      | -      | -                                                                                 | 811    | 865                                                                               |      |
| Mov Cap-2 Maneuver       |      | -      | -                                                                                 | 811    | -                                                                                 |      |
| Stage 1                  |      | -      | -                                                                                 | 853    | -                                                                                 |      |
| Stage 2                  |      | -      | -                                                                                 | -      | -                                                                                 |      |
| Approach                 |      | WB     |                                                                                   | SB     |                                                                                   |      |
| HCM Control Delay, s     |      | 0      |                                                                                   | 9.5    |                                                                                   |      |
| HCM LOS                  |      |        |                                                                                   | A      |                                                                                   |      |
| Minor Lane/Major Mvmt    | WBT  | WBR    | SBLn1                                                                             |        |                                                                                   |      |
| Capacity (veh/h)         | -    | -      | 820                                                                               |        |                                                                                   |      |
| HCM Lane V/C Ratio       | -    | -      | 0.015                                                                             |        |                                                                                   |      |
| HCM Control Delay (s)    | -    | -      | 9.5                                                                               |        |                                                                                   |      |
| HCM Lane LOS             | -    | -      | A                                                                                 |        |                                                                                   |      |
| HCM 95th %tile Q(veh)    | -    | -      | 0                                                                                 |        |                                                                                   |      |

Black Mountain Development  
Emma Road At Midland Avenue

Existing Conditions - AM Peak Hour

| Intersection             |        |      |        |             |        |             |        |      |       |      |      |      |
|--------------------------|--------|------|--------|-------------|--------|-------------|--------|------|-------|------|------|------|
| Int Delay, s/veh         | 6.9    |      |        |             |        |             |        |      |       |      |      |      |
| Movement                 | EBL    | EBT  | EBR    | WBL         | WBT    | WBR         | NBL    | NBT  | NBR   | SBL  | SBT  | SBR  |
| Lane Configurations      |        | ↕    |        |             | ↕      |             |        | ↕    |       |      | ↕    |      |
| Traffic Vol, veh/h       | 3      | 7    | 0      | 0           | 26     | 157         | 0      | 1    | 0     | 144  | 0    | 112  |
| Future Vol, veh/h        | 3      | 7    | 0      | 0           | 26     | 157         | 0      | 1    | 0     | 144  | 0    | 112  |
| 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           | -      | -    | -      | -           | -      | -           | -      | -    | -     | -    | -    | -    |
| Veh in Median Storage, # | -      | 0    | -      | -           | 0      | -           | -      | 0    | -     | -    | 0    | -    |
| Grade, %                 | -      | 0    | -      | -           | 0      | -           | -      | 0    | -     | -    | 0    | -    |
| Peak Hour Factor         | 50     | 50   | 92     | 92          | 86     | 86          | 92     | 92   | 92    | 77   | 92   | 77   |
| Heavy Vehicles, %        | 0      | 0    | 2      | 2           | 6      | 6           | 2      | 2    | 2     | 4    | 2    | 4    |
| Mvmt Flow                | 6      | 14   | 0      | 0           | 30     | 183         | 0      | 1    | 0     | 187  | 0    | 145  |
| Major/Minor              | Minor2 |      | Minor1 |             | Major1 |             | Major2 |      |       |      |      |      |
| Conflicting Flow All     | 555    | 448  | 73     | 455         | 520    | 1 145       | 0      | 0    | 1     | 0    | 0    | 0    |
| Stage 1                  | 447    | 447  | -      | 1           | 1      | - -         | -      | -    | -     | -    | -    | -    |
| Stage 2                  | 108    | 1    | -      | 454         | 519    | - -         | -      | -    | -     | -    | -    | -    |
| Critical Hdwy            | 7.1    | 6.5  | 6.22   | 7.12        | 6.56   | 6.26 4.12   | -      | -    | 4.14  | -    | -    | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5  | -      | 6.12        | 5.56   | - -         | -      | -    | -     | -    | -    | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5  | -      | 6.12        | 5.56   | - -         | -      | -    | -     | -    | -    | -    |
| Follow-up Hdwy           | 3.5    | 4    | 3.318  | 3.518       | 4.054  | 3.354 2.218 | -      | -    | 2.236 | -    | -    | -    |
| Pot Cap-1 Maneuver       | 445    | 509  | 989    | 515         | 455    | 1072 1437   | -      | -    | 1609  | -    | -    | -    |
| Stage 1                  | 595    | 577  | -      | 1022        | 887    | - -         | -      | -    | -     | -    | -    | -    |
| Stage 2                  | 902    | 899  | -      | 586         | 526    | - -         | -      | -    | -     | -    | -    | -    |
| Platoon blocked, %       |        |      |        |             |        |             | -      | -    |       | -    | -    | -    |
| Mov Cap-1 Maneuver       | 314    | 443  | 989    | 453         | 396    | 1072 1437   | -      | -    | 1609  | -    | -    | -    |
| Mov Cap-2 Maneuver       | 314    | 443  | -      | 453         | 396    | - -         | -      | -    | -     | -    | -    | -    |
| Stage 1                  | 595    | 503  | -      | 1022        | 887    | - -         | -      | -    | -     | -    | -    | -    |
| Stage 2                  | 723    | 899  | -      | 496         | 458    | - -         | -      | -    | -     | -    | -    | -    |
| Approach                 | EB     |      | WB     |             | NB     |             | SB     |      |       |      |      |      |
| HCM Control Delay, s     | 14.6   |      | 10.5   |             | 0      |             | 4.2    |      |       |      |      |      |
| HCM LOS                  | B      |      | B      |             |        |             |        |      |       |      |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT  | NBR    | EBLn1WBLn1  | SBL    | SBT         | SBR    |      |       |      |      |      |
| Capacity (veh/h)         | 1437   | -    | -      | 394 863     | 1609   | -           | -      |      |       |      |      |      |
| HCM Lane V/C Ratio       | -      | -    | -      | 0.051 0.247 | 0.116  | -           | -      |      |       |      |      |      |
| HCM Control Delay (s)    | 0      | -    | -      | 14.6 10.5   | 7.5    | 0           | -      |      |       |      |      |      |
| HCM Lane LOS             | A      | -    | -      | B B         | A      | A           | -      |      |       |      |      |      |
| HCM 95th %tile Q(veh)    | 0      | -    | -      | 0.2 1       | 0.4    | -           | -      |      |       |      |      |      |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 4.7   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 223   | 179   | 273   | 48    |
| Demand Flow Rate, veh/h     | 232   | 183   | 281   | 49    |
| Vehicles Circulating, veh/h | 165   | 189   | 46    | 336   |
| Vehicles Exiting, veh/h     | 219   | 138   | 351   | 36    |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 5.0   | 4.7   | 4.6   | 4.2   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 232   | 183   | 281   | 49    |
| Cap Entry Lane, veh/h       | 1166  | 1138  | 1317  | 980   |
| Entry HV Adj Factor         | 0.961 | 0.979 | 0.973 | 0.990 |
| Flow Entry, veh/h           | 223   | 179   | 273   | 48    |
| Cap Entry, veh/h            | 1120  | 1114  | 1281  | 969   |
| V/C Ratio                   | 0.199 | 0.161 | 0.213 | 0.050 |
| Control Delay, s/veh        | 5.0   | 4.7   | 4.6   | 4.2   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 1     | 1     | 1     | 0     |

Black Mountain Development  
SH 82 At Basalt Avenue

Existing Conditions - AM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 146                                                                               | 1590                                                                              | 313                                                                               | 75                                                                                | 340                                                                               | 29                                                                                | 117                                                                                | 57                                                                                  | 99                                                                                  | 106                                                                                 | 110                                                                                 | 14                                                                                  |
| Future Volume (vph)     | 146                                                                               | 1590                                                                              | 313                                                                               | 75                                                                                | 340                                                                               | 29                                                                                | 117                                                                                | 57                                                                                  | 99                                                                                  | 106                                                                                 | 110                                                                                 | 14                                                                                  |
| Satd. Flow (prot)       | 1736                                                                              | 3471                                                                              | 1553                                                                              | 1719                                                                              | 3438                                                                              | 1538                                                                              | 1649                                                                               | 1704                                                                                | 1553                                                                                | 3367                                                                                | 1796                                                                                | 0                                                                                   |
| Flt Permitted           | 0.459                                                                             |                                                                                   |                                                                                   | 0.061                                                                             |                                                                                   |                                                                                   | 0.950                                                                              | 0.982                                                                               |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 839                                                                               | 3471                                                                              | 1553                                                                              | 110                                                                               | 3438                                                                              | 1538                                                                              | 1649                                                                               | 1704                                                                                | 1553                                                                                | 3367                                                                                | 1796                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 290                                                                               |                                                                                   |                                                                                   | 102                                                                               |                                                                                    |                                                                                     | 157                                                                                 |                                                                                     | 3                                                                                   |                                                                                     |
| Lane Group Flow (vph)   | 155                                                                               | 1691                                                                              | 333                                                                               | 83                                                                                | 378                                                                               | 32                                                                                | 111                                                                                | 115                                                                                 | 129                                                                                 | 122                                                                                 | 142                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                | pm+ov                                                                             | pm+pt                                                                             | NA                                                                                | Perm                                                                              | Split                                                                              | NA                                                                                  | Perm                                                                                | Split                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                 | 8                                                                                 | 1                                                                                 | 6                                                                                 |                                                                                   | 8                                                                                  | 8                                                                                   |                                                                                     | 4                                                                                   | 4                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 6                                                                                 |                                                                                    |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Total Split (s)         | 36.0                                                                              | 95.0                                                                              | 23.0                                                                              | 17.0                                                                              | 76.0                                                                              | 76.0                                                                              | 23.0                                                                               | 23.0                                                                                | 23.0                                                                                | 25.0                                                                                | 25.0                                                                                |                                                                                     |
| Total Lost Time (s)     | 8.0                                                                               | 5.0                                                                               | 5.0                                                                               | 8.0                                                                               | 7.5                                                                               | 7.5                                                                               | 5.0                                                                                | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Act Effect Green (s)    | 87.0                                                                              | 90.0                                                                              | 113.0                                                                             | 83.3                                                                              | 83.8                                                                              | 83.8                                                                              | 18.0                                                                               | 18.0                                                                                | 18.0                                                                                | 20.0                                                                                | 20.0                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.54                                                                              | 0.56                                                                              | 0.71                                                                              | 0.52                                                                              | 0.52                                                                              | 0.52                                                                              | 0.11                                                                               | 0.11                                                                                | 0.11                                                                                | 0.12                                                                                | 0.12                                                                                |                                                                                     |
| v/c Ratio               | 0.29                                                                              | 0.87                                                                              | 0.28                                                                              | 0.56                                                                              | 0.21                                                                              | 0.04                                                                              | 0.60                                                                               | 0.60                                                                                | 0.41                                                                                | 0.29                                                                                | 0.63                                                                                |                                                                                     |
| Control Delay           | 19.9                                                                              | 35.9                                                                              | 1.9                                                                               | 66.0                                                                              | 21.1                                                                              | 0.1                                                                               | 81.9                                                                               | 81.6                                                                                | 8.1                                                                                 | 65.6                                                                                | 78.1                                                                                |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay             | 19.9                                                                              | 35.9                                                                              | 1.9                                                                               | 66.0                                                                              | 21.1                                                                              | 0.1                                                                               | 81.9                                                                               | 81.6                                                                                | 8.1                                                                                 | 65.6                                                                                | 78.1                                                                                |                                                                                     |
| LOS                     | B                                                                                 | D                                                                                 | A                                                                                 | E                                                                                 | C                                                                                 | A                                                                                 | F                                                                                  | F                                                                                   | A                                                                                   | E                                                                                   | E                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 29.6                                                                              |                                                                                   |                                                                                   | 27.3                                                                              |                                                                                   |                                                                                    | 55.0                                                                                |                                                                                     |                                                                                     | 72.3                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                    | D                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 79                                                                                | 772                                                                               | 13                                                                                | 43                                                                                | 108                                                                               | 0                                                                                 | 117                                                                                | 122                                                                                 | 0                                                                                   | 60                                                                                  | 140                                                                                 |                                                                                     |
| Queue Length 95th (ft)  | 121                                                                               | 885                                                                               | 43                                                                                | 94                                                                                | 150                                                                               | 0                                                                                 | 163                                                                                | 167                                                                                 | 11                                                                                  | 91                                                                                  | 211                                                                                 |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 396                                                                               |                                                                                   |                                                                                   | 404                                                                               |                                                                                   |                                                                                    | 344                                                                                 |                                                                                     |                                                                                     | 171                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 277                                                                               |                                                                                   | 590                                                                               | 425                                                                               |                                                                                   | 425                                                                               | 160                                                                                |                                                                                     | 160                                                                                 | 95                                                                                  |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 613                                                                               | 1952                                                                              | 1181                                                                              | 147                                                                               | 1800                                                                              | 854                                                                               | 185                                                                                | 191                                                                                 | 314                                                                                 | 420                                                                                 | 227                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 0.25                                                                              | 0.87                                                                              | 0.28                                                                              | 0.56                                                                              | 0.21                                                                              | 0.04                                                                              | 0.60                                                                               | 0.60                                                                                | 0.41                                                                                | 0.29                                                                                | 0.63                                                                                |                                                                                     |

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 132 (83%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 35.4

Intersection LOS: D

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 9: Basalt Avenue & SH 82



Black Mountain Development  
Emma Road at Adjacent SH 82 Slip Ramp

Existing Conditions - PM Peak Hour

Intersection

Int Delay, s/veh 0.4

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations

Traffic Vol, veh/h 0 0 201 5 5 1

Future Vol, veh/h 0 0 201 5 5 1

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # -327680 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 92 92 71 71 50 50

Heavy Vehicles, % 2 2 4 4 0 0

Mvmt Flow 0 0 283 7 10 2

Major/Minor Major2 Minor2

Conflicting Flow All - 0 287 287

Stage 1 - - 287 -

Stage 2 - - 0 -

Critical Hdwy - - 6.4 6.2

Critical Hdwy Stg 1 - - 5.4 -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy - - 3.5 3.3

Pot Cap-1 Maneuver - - 708 757

Stage 1 - - 766 -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver - - 708 757

Mov Cap-2 Maneuver - - 708 -

Stage 1 - - 766 -

Stage 2 - - - -

Approach WB SB

HCM Control Delay, s 0 10.1

HCM LOS B

Minor Lane/Major Mvmt WBT WBR SBLn1

Capacity (veh/h) - - 716

HCM Lane V/C Ratio - - 0.017

HCM Control Delay (s) - - 10.1

HCM Lane LOS - - B

HCM 95th %tile Q(veh) - - 0.1

Black Mountain Development  
Emma Road at Midland Avenue

Existing Conditions - PM Peak Hour

| Intersection             |        |      |        |       |        |       |        |      |      |       |      |      |
|--------------------------|--------|------|--------|-------|--------|-------|--------|------|------|-------|------|------|
| Int Delay, s/veh         | 8.7    |      |        |       |        |       |        |      |      |       |      |      |
| Movement                 | EBL    | EBT  | EBR    | WBL   | WBT    | WBR   | NBL    | NBT  | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations      |        | ↕    |        |       | ↕      |       |        | ↕    |      |       | ↕    |      |
| Traffic Vol, veh/h       | 10     | 3    | 0      | 0     | 81     | 150   | 0      | 1    | 0    | 160   | 0    | 201  |
| Future Vol, veh/h        | 10     | 3    | 0      | 0     | 81     | 150   | 0      | 1    | 0    | 160   | 0    | 201  |
| 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           | -      | -    | -      | -     | -      | -     | -      | -    | -    | -     | -    | -    |
| Veh in Median Storage, # | -      | 0    | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Grade, %                 | -      | 0    | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Peak Hour Factor         | 50     | 50   | 92     | 92    | 86     | 86    | 92     | 92   | 92   | 77    | 92   | 77   |
| Heavy Vehicles, %        | 0      | 0    | 2      | 2     | 6      | 6     | 2      | 2    | 2    | 4     | 2    | 4    |
| Mvmt Flow                | 20     | 6    | 0      | 0     | 94     | 174   | 0      | 1    | 0    | 208   | 0    | 261  |
| Major/Minor              | Minor2 |      | Minor1 |       | Major1 |       | Major2 |      |      |       |      |      |
| Conflicting Flow All     | 682    | 548  | 131    | 551   | 678    | 1     | 261    | 0    | 0    | 1     | 0    | 0    |
| Stage 1                  | 547    | 547  | -      | 1     | 1      | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 135    | 1    | -      | 550   | 677    | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy            | 7.1    | 6.5  | 6.22   | 7.12  | 6.56   | 6.26  | 4.12   | -    | -    | 4.14  | -    | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5  | -      | 6.12  | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5  | -      | 6.12  | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Follow-up Hdwy           | 3.5    | 4    | 3.318  | 3.518 | 4.054  | 3.354 | 2.218  | -    | -    | 2.236 | -    | -    |
| Pot Cap-1 Maneuver       | 367    | 447  | 919    | 445   | 369    | 1072  | 1303   | -    | -    | 1609  | -    | -    |
| Stage 1                  | 525    | 521  | -      | 1022  | 887    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 873    | 899  | -      | 519   | 446    | -     | -      | -    | -    | -     | -    | -    |
| Platoon blocked, %       |        |      |        |       |        |       |        | -    | -    |       | -    | -    |
| Mov Cap-1 Maneuver       | 208    | 377  | 919    | 387   | 311    | 1072  | 1303   | -    | -    | 1609  | -    | -    |
| Mov Cap-2 Maneuver       | 208    | 377  | -      | 387   | 311    | -     | -      | -    | -    | -     | -    | -    |
| Stage 1                  | 525    | 439  | -      | 1022  | 887    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 653    | 899  | -      | 432   | 376    | -     | -      | -    | -    | -     | -    | -    |
| Approach                 | EB     |      | WB     |       | NB     |       | SB     |      |      |       |      |      |
| HCM Control Delay, s     | 22.5   |      | 16.6   |       | 0      |       | 3.4    |      |      |       |      |      |
| HCM LOS                  | C      |      | C      |       |        |       |        |      |      |       |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT  | NBR    | EBLn1 | WBLn1  | SBL   | SBT    | SBR  |      |       |      |      |
| Capacity (veh/h)         | 1303   | -    | -      | 232   | 577    | 1609  | -      | -    |      |       |      |      |
| HCM Lane V/C Ratio       | -      | -    | -      | 0.112 | 0.466  | 0.129 | -      | -    |      |       |      |      |
| HCM Control Delay (s)    | 0      | -    | -      | 22.5  | 16.6   | 7.6   | 0      | -    |      |       |      |      |
| HCM Lane LOS             | A      | -    | -      | C     | C      | A     | A      | -    |      |       |      |      |
| HCM 95th %tile Q(veh)    | 0      | -    | -      | 0.4   | 2.5    | 0.4   | -      | -    |      |       |      |      |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 6.0   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 223   | 179   | 273   | 48    |
| Demand Flow Rate, veh/h     | 232   | 183   | 281   | 49    |
| Vehicles Circulating, veh/h | 165   | 189   | 46    | 336   |
| Vehicles Exiting, veh/h     | 219   | 138   | 351   | 36    |
| Follow-Up Headway, s        | 3.186 | 3.186 | 3.186 | 3.186 |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 6.4   | 5.9   | 5.9   | 5.1   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Critical Headway, s         | 5.193 | 5.193 | 5.193 | 5.193 |
| Entry Flow, veh/h           | 232   | 183   | 281   | 49    |
| Cap Entry Lane, veh/h       | 958   | 935   | 1079  | 807   |
| Entry HV Adj Factor         | 0.961 | 0.979 | 0.973 | 0.990 |
| Flow Entry, veh/h           | 223   | 179   | 273   | 48    |
| Cap Entry, veh/h            | 920   | 916   | 1050  | 799   |
| V/C Ratio                   | 0.242 | 0.196 | 0.260 | 0.061 |
| Control Delay, s/veh        | 6.4   | 5.9   | 5.9   | 5.1   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 1     | 1     | 1     | 0     |

# Black Mountain Development SH 82 at Basalt Avenue

## Existing Conditions - PM Peak Hour

|                         |  |  |  |  |  |  |   |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 111                                                                               | 385                                                                               | 63                                                                                | 71                                                                                | 1825                                                                              | 145                                                                               | 180                                                                                 | 55                                                                                  | 34                                                                                  | 39                                                                                  | 32                                                                                  | 71                                                                                  |
| Future Volume (vph)     | 111                                                                               | 385                                                                               | 63                                                                                | 71                                                                                | 1825                                                                              | 145                                                                               | 180                                                                                 | 55                                                                                  | 34                                                                                  | 39                                                                                  | 32                                                                                  | 71                                                                                  |
| Satd. Flow (prot)       | 1736                                                                              | 3471                                                                              | 1553                                                                              | 1719                                                                              | 3438                                                                              | 1538                                                                              | 1649                                                                                | 1690                                                                                | 1553                                                                                | 3367                                                                                | 1639                                                                                | 0                                                                                   |
| Flt Permitted           | 0.040                                                                             |                                                                                   |                                                                                   | 0.511                                                                             |                                                                                   |                                                                                   | 0.950                                                                               | 0.974                                                                               |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 73                                                                                | 3471                                                                              | 1553                                                                              | 925                                                                               | 3438                                                                              | 1538                                                                              | 1649                                                                                | 1690                                                                                | 1553                                                                                | 3367                                                                                | 1639                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 68                                                                                |                                                                                   |                                                                                   | 157                                                                               |                                                                                     |                                                                                     | 174                                                                                 |                                                                                     | 55                                                                                  |                                                                                     |
| Lane Group Flow (vph)   | 118                                                                               | 410                                                                               | 67                                                                                | 79                                                                                | 2028                                                                              | 161                                                                               | 150                                                                                 | 155                                                                                 | 44                                                                                  | 45                                                                                  | 119                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                | pm+ov                                                                             | pm+pt                                                                             | NA                                                                                | Perm                                                                              | Split                                                                               | NA                                                                                  | Perm                                                                                | Split                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                 | 8                                                                                 | 1                                                                                 | 6                                                                                 |                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     | 4                                                                                   | 4                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Total Split (s)         | 25.0                                                                              | 105.0                                                                             | 23.0                                                                              | 12.0                                                                              | 92.0                                                                              | 92.0                                                                              | 23.0                                                                                | 23.0                                                                                | 23.0                                                                                | 20.0                                                                                | 20.0                                                                                |                                                                                     |
| Total Lost Time (s)     | 8.0                                                                               | 5.0                                                                               | 5.0                                                                               | 8.0                                                                               | 7.5                                                                               | 7.5                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Act Effect Green (s)    | 107.4                                                                             | 100.0                                                                             | 118.0                                                                             | 93.1                                                                              | 89.6                                                                              | 89.6                                                                              | 18.0                                                                                | 18.0                                                                                | 18.0                                                                                | 15.0                                                                                | 15.0                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.67                                                                              | 0.62                                                                              | 0.74                                                                              | 0.58                                                                              | 0.56                                                                              | 0.56                                                                              | 0.11                                                                                | 0.11                                                                                | 0.11                                                                                | 0.09                                                                                | 0.09                                                                                |                                                                                     |
| v/c Ratio               | 0.69                                                                              | 0.19                                                                              | 0.06                                                                              | 0.14                                                                              | 1.05                                                                              | 0.17                                                                              | 0.81                                                                                | 0.82                                                                                | 0.13                                                                                | 0.14                                                                                | 0.59                                                                                |                                                                                     |
| Control Delay           | 55.0                                                                              | 13.0                                                                              | 0.7                                                                               | 10.4                                                                              | 70.6                                                                              | 3.1                                                                               | 99.7                                                                                | 99.7                                                                                | 0.9                                                                                 | 67.9                                                                                | 49.7                                                                                |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay             | 55.0                                                                              | 13.0                                                                              | 0.7                                                                               | 10.4                                                                              | 70.6                                                                              | 3.1                                                                               | 99.7                                                                                | 99.7                                                                                | 0.9                                                                                 | 67.9                                                                                | 49.7                                                                                |                                                                                     |
| LOS                     | D                                                                                 | B                                                                                 | A                                                                                 | B                                                                                 | E                                                                                 | A                                                                                 | F                                                                                   | F                                                                                   | A                                                                                   | E                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 20.0                                                                              |                                                                                   |                                                                                   | 63.7                                                                              |                                                                                   |                                                                                     | 87.2                                                                                |                                                                                     |                                                                                     | 54.7                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 72                                                                                | 91                                                                                | 0                                                                                 | 26                                                                                | ~1214                                                                             | 2                                                                                 | 164                                                                                 | 169                                                                                 | 0                                                                                   | 22                                                                                  | 64                                                                                  |                                                                                     |
| Queue Length 95th (ft)  | 143                                                                               | 118                                                                               | 7                                                                                 | 45                                                                                | #1406                                                                             | 39                                                                                | #220                                                                                | #225                                                                                | 0                                                                                   | 42                                                                                  | 129                                                                                 |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 396                                                                               |                                                                                   |                                                                                   | 404                                                                               |                                                                                   |                                                                                     | 344                                                                                 |                                                                                     |                                                                                     | 171                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 277                                                                               |                                                                                   | 590                                                                               | 425                                                                               |                                                                                   | 425                                                                               | 160                                                                                 |                                                                                     | 160                                                                                 | 95                                                                                  |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 226                                                                               | 2169                                                                              | 1163                                                                              | 558                                                                               | 1925                                                                              | 930                                                                               | 185                                                                                 | 190                                                                                 | 329                                                                                 | 315                                                                                 | 203                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 0.52                                                                              | 0.19                                                                              | 0.06                                                                              | 0.14                                                                              | 1.05                                                                              | 0.17                                                                              | 0.81                                                                                | 0.82                                                                                | 0.13                                                                                | 0.14                                                                                | 0.59                                                                                |                                                                                     |

### Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 132 (83%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 58.0

Intersection LOS: E

Intersection Capacity Utilization 86.8%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: Basalt Avenue & SH 82



## APPENDIX D. ANALYSIS WORKSHEETS – BUILD-OUT BACKGROUND CONDITIONS

Black Mountain Development  
Ema Road Adjacent SH 82 Slip Ramp

Background Build-Out (2026) Conditions - AM Peak Hour

| Intersection             |      |        |                                                                                   |        |                                                                                   |      |
|--------------------------|------|--------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.9  |        |                                                                                   |        |                                                                                   |      |
| Movement                 | EBL  | EBT    | WBT                                                                               | WBR    | SBL                                                                               | SBR  |
| Lane Configurations      |      |        |  |        |  |      |
| Traffic Vol, veh/h       | 0    | 0      | 130                                                                               | 10     | 5                                                                                 | 5    |
| Future Vol, veh/h        | 0    | 0      | 130                                                                               | 10     | 5                                                                                 | 5    |
| Conflicting Peds, #/hr   | 0    | 0      | 0                                                                                 | 0      | 0                                                                                 | 0    |
| Sign Control             | Free | Free   | Free                                                                              | Free   | Stop                                                                              | Stop |
| RT Channelized           | -    | None   | -                                                                                 | None   | -                                                                                 | None |
| Storage Length           | -    | -      | -                                                                                 | -      | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 1      | 0                                                                                 | -      | 0                                                                                 | -    |
| Grade, %                 | -    | 0      | 0                                                                                 | -      | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92     | 71                                                                                | 71     | 50                                                                                | 50   |
| Heavy Vehicles, %        | 2    | 2      | 4                                                                                 | 4      | 0                                                                                 | 0    |
| Mvmt Flow                | 0    | 0      | 183                                                                               | 14     | 10                                                                                | 10   |
| Major/Minor              |      | Major2 |                                                                                   | Minor2 |                                                                                   |      |
| Conflicting Flow All     |      | -      | 0                                                                                 | 190    | 190                                                                               |      |
| Stage 1                  |      | -      | -                                                                                 | 190    | -                                                                                 |      |
| Stage 2                  |      | -      | -                                                                                 | 0      | -                                                                                 |      |
| Critical Hdwy            |      | -      | -                                                                                 | 6.4    | 6.2                                                                               |      |
| Critical Hdwy Stg 1      |      | -      | -                                                                                 | 5.4    | -                                                                                 |      |
| Critical Hdwy Stg 2      |      | -      | -                                                                                 | -      | -                                                                                 |      |
| Follow-up Hdwy           |      | -      | -                                                                                 | 3.5    | 3.3                                                                               |      |
| Pot Cap-1 Maneuver       |      | -      | -                                                                                 | 804    | 857                                                                               |      |
| Stage 1                  |      | -      | -                                                                                 | 847    | -                                                                                 |      |
| Stage 2                  |      | -      | -                                                                                 | -      | -                                                                                 |      |
| Platoon blocked, %       |      | -      | -                                                                                 |        |                                                                                   |      |
| Mov Cap-1 Maneuver       |      | -      | -                                                                                 | 804    | 857                                                                               |      |
| Mov Cap-2 Maneuver       |      | -      | -                                                                                 | 804    | -                                                                                 |      |
| Stage 1                  |      | -      | -                                                                                 | 847    | -                                                                                 |      |
| Stage 2                  |      | -      | -                                                                                 | -      | -                                                                                 |      |
| Approach                 |      | WB     |                                                                                   | SB     |                                                                                   |      |
| HCM Control Delay, s     |      | 0      |                                                                                   | 9.4    |                                                                                   |      |
| HCM LOS                  |      |        |                                                                                   | A      |                                                                                   |      |
| Minor Lane/Major Mvmt    | WBT  | WBR    | SBLn1                                                                             |        |                                                                                   |      |
| Capacity (veh/h)         | -    | -      | 830                                                                               |        |                                                                                   |      |
| HCM Lane V/C Ratio       | -    | -      | 0.024                                                                             |        |                                                                                   |      |
| HCM Control Delay (s)    | -    | -      | 9.4                                                                               |        |                                                                                   |      |
| HCM Lane LOS             | -    | -      | A                                                                                 |        |                                                                                   |      |
| HCM 95th %tile Q(veh)    | -    | -      | 0.1                                                                               |        |                                                                                   |      |

Black Mountain Development  
Emma Road at Midland Avenue

Background Build-Out (2026) Conditions - AM Peak Hour

| Intersection             |        |      |        |       |        |       |        |      |      |       |      |      |
|--------------------------|--------|------|--------|-------|--------|-------|--------|------|------|-------|------|------|
| Int Delay, s/veh         | 7.3    |      |        |       |        |       |        |      |      |       |      |      |
| Movement                 | EBL    | EBT  | EBR    | WBL   | WBT    | WBR   | NBL    | NBT  | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations      |        | ↕    |        |       | ↕      |       |        | ↕    |      |       | ↕    |      |
| Traffic Vol, veh/h       | 5      | 10   | 0      | 0     | 30     | 160   | 0      | 1    | 0    | 150   | 0    | 115  |
| Future Vol, veh/h        | 5      | 10   | 0      | 0     | 30     | 160   | 0      | 1    | 0    | 150   | 0    | 115  |
| 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           | -      | -    | -      | -     | -      | -     | -      | -    | -    | -     | -    | -    |
| Veh in Median Storage, # | -      | 0    | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Grade, %                 | -      | 0    | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Peak Hour Factor         | 50     | 50   | 92     | 92    | 86     | 86    | 92     | 92   | 92   | 77    | 92   | 77   |
| Heavy Vehicles, %        | 0      | 0    | 2      | 2     | 6      | 6     | 2      | 2    | 2    | 4     | 2    | 4    |
| Mvmt Flow                | 10     | 20   | 0      | 0     | 35     | 186   | 0      | 1    | 0    | 195   | 0    | 149  |
|                          |        |      |        |       |        |       |        |      |      |       |      |      |
| Major/Minor              | Minor2 |      | Minor1 |       | Major1 |       | Major2 |      |      |       |      |      |
| Conflicting Flow All     | 577    | 466  | 75     | 476   | 540    | 1     | 149    | 0    | 0    | 1     | 0    | 0    |
| Stage 1                  | 465    | 465  | -      | 1     | 1      | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 112    | 1    | -      | 475   | 539    | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy            | 7.1    | 6.5  | 6.22   | 7.12  | 6.56   | 6.26  | 4.12   | -    | -    | 4.14  | -    | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5  | -      | 6.12  | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5  | -      | 6.12  | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Follow-up Hdwy           | 3.5    | 4    | 3.318  | 3.518 | 4.054  | 3.354 | 2.218  | -    | -    | 2.236 | -    | -    |
| Pot Cap-1 Maneuver       | 431    | 497  | 986    | 499   | 443    | 1072  | 1432   | -    | -    | 1609  | -    | -    |
| Stage 1                  | 581    | 566  | -      | 1022  | 887    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 898    | 899  | -      | 570   | 515    | -     | -      | -    | -    | -     | -    | -    |
| Platoon blocked, %       |        |      |        |       |        |       |        | -    | -    |       | -    | -    |
| Mov Cap-1 Maneuver       | 297    | 430  | 986    | 432   | 383    | 1072  | 1432   | -    | -    | 1609  | -    | -    |
| Mov Cap-2 Maneuver       | 297    | 430  | -      | 432   | 383    | -     | -      | -    | -    | -     | -    | -    |
| Stage 1                  | 581    | 490  | -      | 1022  | 887    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 713    | 899  | -      | 473   | 445    | -     | -      | -    | -    | -     | -    | -    |
|                          |        |      |        |       |        |       |        |      |      |       |      |      |
|                          |        |      |        |       |        |       |        |      |      |       |      |      |
| Approach                 | EB     |      | WB     |       | NB     |       | SB     |      |      |       |      |      |
| HCM Control Delay, s     | 15.5   |      | 10.9   |       | 0      |       | 4.3    |      |      |       |      |      |
| HCM LOS                  | C      |      | B      |       |        |       |        |      |      |       |      |      |
|                          |        |      |        |       |        |       |        |      |      |       |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT  | NBR    | EBLn1 | WBLn1  | SBL   | SBT    | SBR  |      |       |      |      |
| Capacity (veh/h)         | 1432   | -    | -      | 374   | 835    | 1609  | -      | -    |      |       |      |      |
| HCM Lane V/C Ratio       | -      | -    | -      | 0.08  | 0.265  | 0.121 | -      | -    |      |       |      |      |
| HCM Control Delay (s)    | 0      | -    | -      | 15.5  | 10.9   | 7.5   | 0      | -    |      |       |      |      |
| HCM Lane LOS             | A      | -    | -      | C     | B      | A     | A      | -    |      |       |      |      |
| HCM 95th %tile Q(veh)    | 0      | -    | -      | 0.3   | 1.1    | 0.4   | -      | -    |      |       |      |      |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 4.9   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 235   | 190   | 284   | 54    |
| Demand Flow Rate, veh/h     | 245   | 194   | 292   | 55    |
| Vehicles Circulating, veh/h | 179   | 201   | 53    | 350   |
| Vehicles Exiting, veh/h     | 226   | 144   | 371   | 45    |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 5.2   | 4.8   | 4.8   | 4.3   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 245   | 194   | 292   | 55    |
| Cap Entry Lane, veh/h       | 1150  | 1124  | 1307  | 966   |
| Entry HV Adj Factor         | 0.959 | 0.980 | 0.974 | 0.990 |
| Flow Entry, veh/h           | 235   | 190   | 284   | 54    |
| Cap Entry, veh/h            | 1102  | 1102  | 1273  | 956   |
| V/C Ratio                   | 0.213 | 0.173 | 0.223 | 0.057 |
| Control Delay, s/veh        | 5.2   | 4.8   | 4.8   | 4.3   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 1     | 1     | 1     | 0     |

# Black Mountain Development SH 82 at Basalt Avenue

## Background Build-Out (2026) Conditions - AM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 150                                                                               | 1650                                                                              | 325                                                                               | 80                                                                                | 350                                                                               | 30                                                                                | 125                                                                                 | 60                                                                                  | 105                                                                                 | 110                                                                                 | 115                                                                                 | 15                                                                                  |
| Future Volume (vph)     | 150                                                                               | 1650                                                                              | 325                                                                               | 80                                                                                | 350                                                                               | 30                                                                                | 125                                                                                 | 60                                                                                  | 105                                                                                 | 110                                                                                 | 115                                                                                 | 15                                                                                  |
| Satd. Flow (prot)       | 1736                                                                              | 3471                                                                              | 1553                                                                              | 1719                                                                              | 3438                                                                              | 1538                                                                              | 1649                                                                                | 1704                                                                                | 1553                                                                                | 3367                                                                                | 1796                                                                                | 0                                                                                   |
| Flt Permitted           | 0.452                                                                             |                                                                                   |                                                                                   | 0.054                                                                             |                                                                                   |                                                                                   | 0.950                                                                               | 0.982                                                                               |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 826                                                                               | 3471                                                                              | 1553                                                                              | 98                                                                                | 3438                                                                              | 1538                                                                              | 1649                                                                                | 1704                                                                                | 1553                                                                                | 3367                                                                                | 1796                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 265                                                                               |                                                                                   |                                                                                   | 102                                                                               |                                                                                     |                                                                                     | 157                                                                                 |                                                                                     | 3                                                                                   |                                                                                     |
| Lane Group Flow (vph)   | 160                                                                               | 1755                                                                              | 346                                                                               | 89                                                                                | 389                                                                               | 33                                                                                | 118                                                                                 | 122                                                                                 | 136                                                                                 | 126                                                                                 | 149                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                | pm+ov                                                                             | pm+pt                                                                             | NA                                                                                | Perm                                                                              | Split                                                                               | NA                                                                                  | Perm                                                                                | Split                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                 | 8                                                                                 | 1                                                                                 | 6                                                                                 |                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     | 4                                                                                   | 4                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Total Split (s)         | 36.0                                                                              | 95.0                                                                              | 23.0                                                                              | 17.0                                                                              | 76.0                                                                              | 76.0                                                                              | 23.0                                                                                | 23.0                                                                                | 23.0                                                                                | 25.0                                                                                | 25.0                                                                                |                                                                                     |
| Total Lost Time (s)     | 8.0                                                                               | 5.0                                                                               | 5.0                                                                               | 8.0                                                                               | 7.5                                                                               | 7.5                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Act Effect Green (s)    | 87.0                                                                              | 90.0                                                                              | 113.0                                                                             | 83.0                                                                              | 83.5                                                                              | 83.5                                                                              | 18.0                                                                                | 18.0                                                                                | 18.0                                                                                | 20.0                                                                                | 20.0                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.54                                                                              | 0.56                                                                              | 0.71                                                                              | 0.52                                                                              | 0.52                                                                              | 0.52                                                                              | 0.11                                                                                | 0.11                                                                                | 0.11                                                                                | 0.12                                                                                | 0.12                                                                                |                                                                                     |
| v/c Ratio               | 0.31                                                                              | 0.90                                                                              | 0.29                                                                              | 0.63                                                                              | 0.22                                                                              | 0.04                                                                              | 0.64                                                                                | 0.64                                                                                | 0.43                                                                                | 0.30                                                                                | 0.66                                                                                |                                                                                     |
| Control Delay           | 20.1                                                                              | 38.6                                                                              | 2.6                                                                               | 73.7                                                                              | 21.4                                                                              | 0.1                                                                               | 84.3                                                                                | 83.9                                                                                | 9.9                                                                                 | 65.8                                                                                | 80.0                                                                                |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay             | 20.1                                                                              | 38.6                                                                              | 2.6                                                                               | 73.7                                                                              | 21.4                                                                              | 0.1                                                                               | 84.3                                                                                | 83.9                                                                                | 9.9                                                                                 | 65.8                                                                                | 80.0                                                                                |                                                                                     |
| LOS                     | C                                                                                 | D                                                                                 | A                                                                                 | E                                                                                 | C                                                                                 | A                                                                                 | F                                                                                   | F                                                                                   | A                                                                                   | E                                                                                   | E                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 31.7                                                                              |                                                                                   |                                                                                   | 29.1                                                                              |                                                                                   |                                                                                     | 57.2                                                                                |                                                                                     |                                                                                     | 73.5                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 82                                                                                | 831                                                                               | 24                                                                                | 46                                                                                | 112                                                                               | 0                                                                                 | 126                                                                                 | 130                                                                                 | 0                                                                                   | 62                                                                                  | 148                                                                                 |                                                                                     |
| Queue Length 95th (ft)  | 125                                                                               | 953                                                                               | 57                                                                                | #120                                                                              | 155                                                                               | 0                                                                                 | 171                                                                                 | 175                                                                                 | 17                                                                                  | 94                                                                                  | 220                                                                                 |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 396                                                                               |                                                                                   |                                                                                   | 404                                                                               |                                                                                   |                                                                                     | 344                                                                                 |                                                                                     |                                                                                     | 171                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 277                                                                               |                                                                                   | 590                                                                               | 425                                                                               |                                                                                   | 425                                                                               | 160                                                                                 |                                                                                     | 160                                                                                 | 95                                                                                  |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 608                                                                               | 1952                                                                              | 1174                                                                              | 142                                                                               | 1795                                                                              | 851                                                                               | 185                                                                                 | 191                                                                                 | 314                                                                                 | 420                                                                                 | 227                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 0.26                                                                              | 0.90                                                                              | 0.29                                                                              | 0.63                                                                              | 0.22                                                                              | 0.04                                                                              | 0.64                                                                                | 0.64                                                                                | 0.43                                                                                | 0.30                                                                                | 0.66                                                                                |                                                                                     |

### Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 132 (83%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 37.5

Intersection LOS: D

Intersection Capacity Utilization 81.2%

ICU Level of Service D

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: Basalt Avenue & SH 82



Black Mountain Development  
Emma Road Adjacent SH 82 Slip Ramp

Background Build-Out (2026) - PM Peak Hour

| Intersection             |      |        |                                                                                   |        |                                                                                   |      |
|--------------------------|------|--------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.6  |        |                                                                                   |        |                                                                                   |      |
| Movement                 | EBL  | EBT    | WBT                                                                               | WBR    | SBL                                                                               | SBR  |
| Lane Configurations      |      |        |  |        |  |      |
| Traffic Vol, veh/h       | 0    | 0      | 205                                                                               | 5      | 5                                                                                 | 5    |
| Future Vol, veh/h        | 0    | 0      | 205                                                                               | 5      | 5                                                                                 | 5    |
| Conflicting Peds, #/hr   | 0    | 0      | 0                                                                                 | 0      | 0                                                                                 | 0    |
| Sign Control             | Free | Free   | Free                                                                              | Free   | Stop                                                                              | Stop |
| RT Channelized           | -    | None   | -                                                                                 | None   | -                                                                                 | None |
| Storage Length           | -    | -      | -                                                                                 | -      | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 1      | 0                                                                                 | -      | 0                                                                                 | -    |
| Grade, %                 | -    | 0      | 0                                                                                 | -      | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92     | 71                                                                                | 71     | 50                                                                                | 50   |
| Heavy Vehicles, %        | 2    | 2      | 4                                                                                 | 4      | 0                                                                                 | 0    |
| Mvmt Flow                | 0    | 0      | 289                                                                               | 7      | 10                                                                                | 10   |
| Major/Minor              |      | Major2 |                                                                                   | Minor2 |                                                                                   |      |
| Conflicting Flow All     |      | -      | 0                                                                                 | 293    | 293                                                                               |      |
| Stage 1                  |      | -      | -                                                                                 | 293    | -                                                                                 |      |
| Stage 2                  |      | -      | -                                                                                 | 0      | -                                                                                 |      |
| Critical Hdwy            |      | -      | -                                                                                 | 6.4    | 6.2                                                                               |      |
| Critical Hdwy Stg 1      |      | -      | -                                                                                 | 5.4    | -                                                                                 |      |
| Critical Hdwy Stg 2      |      | -      | -                                                                                 | -      | -                                                                                 |      |
| Follow-up Hdwy           |      | -      | -                                                                                 | 3.5    | 3.3                                                                               |      |
| Pot Cap-1 Maneuver       |      | -      | -                                                                                 | 702    | 751                                                                               |      |
| Stage 1                  |      | -      | -                                                                                 | 762    | -                                                                                 |      |
| Stage 2                  |      | -      | -                                                                                 | -      | -                                                                                 |      |
| Platoon blocked, %       |      | -      | -                                                                                 |        |                                                                                   |      |
| Mov Cap-1 Maneuver       |      | -      | -                                                                                 | 702    | 751                                                                               |      |
| Mov Cap-2 Maneuver       |      | -      | -                                                                                 | 702    | -                                                                                 |      |
| Stage 1                  |      | -      | -                                                                                 | 762    | -                                                                                 |      |
| Stage 2                  |      | -      | -                                                                                 | -      | -                                                                                 |      |
| Approach                 |      | WB     |                                                                                   | SB     |                                                                                   |      |
| HCM Control Delay, s     |      | 0      |                                                                                   | 10.1   |                                                                                   |      |
| HCM LOS                  |      |        |                                                                                   | B      |                                                                                   |      |
| Minor Lane/Major Mvmt    | WBT  | WBR    | SBLn1                                                                             |        |                                                                                   |      |
| Capacity (veh/h)         | -    | -      | 726                                                                               |        |                                                                                   |      |
| HCM Lane V/C Ratio       | -    | -      | 0.028                                                                             |        |                                                                                   |      |
| HCM Control Delay (s)    | -    | -      | 10.1                                                                              |        |                                                                                   |      |
| HCM Lane LOS             | -    | -      | B                                                                                 |        |                                                                                   |      |
| HCM 95th %tile Q(veh)    | -    | -      | 0.1                                                                               |        |                                                                                   |      |

Black Mountain Development  
Emma Road at Midland Avenue

Background Build-Out (2026) - PM Peak Hour

| Intersection             |        |      |        |            |        |             |        |      |       |      |      |      |
|--------------------------|--------|------|--------|------------|--------|-------------|--------|------|-------|------|------|------|
| Int Delay, s/veh         | 9.1    |      |        |            |        |             |        |      |       |      |      |      |
| Movement                 | EBL    | EBT  | EBR    | WBL        | WBT    | WBR         | NBL    | NBT  | NBR   | SBL  | SBT  | SBR  |
| Lane Configurations      |        | ↕    |        |            | ↕      |             |        | ↕    |       |      | ↕    |      |
| Traffic Vol, veh/h       | 10     | 5    | 0      | 0          | 85     | 155         | 0      | 1    | 0     | 165  | 0    | 205  |
| Future Vol, veh/h        | 10     | 5    | 0      | 0          | 85     | 155         | 0      | 1    | 0     | 165  | 0    | 205  |
| 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           | -      | -    | -      | -          | -      | -           | -      | -    | -     | -    | -    | -    |
| Veh in Median Storage, # | -      | 0    | -      | -          | 0      | -           | -      | 0    | -     | -    | 0    | -    |
| Grade, %                 | -      | 0    | -      | -          | 0      | -           | -      | 0    | -     | -    | 0    | -    |
| Peak Hour Factor         | 50     | 50   | 92     | 92         | 86     | 86          | 92     | 92   | 92    | 77   | 92   | 77   |
| Heavy Vehicles, %        | 0      | 0    | 2      | 2          | 6      | 6           | 2      | 2    | 2     | 4    | 2    | 4    |
| Mvmt Flow                | 20     | 10   | 0      | 0          | 99     | 180         | 0      | 1    | 0     | 214  | 0    | 266  |
| Major/Minor              | Minor2 |      | Minor1 |            | Major1 |             | Major2 |      |       |      |      |      |
| Conflicting Flow All     | 702    | 562  | 133    | 567        | 695    | 1 266       | 0      | 0    | 1     | 0    | 0    | 0    |
| Stage 1                  | 561    | 561  | -      | 1          | 1      | - -         | -      | -    | -     | -    | -    | -    |
| Stage 2                  | 141    | 1    | -      | 566        | 694    | - -         | -      | -    | -     | -    | -    | -    |
| Critical Hdwy            | 7.1    | 6.5  | 6.22   | 7.12       | 6.56   | 6.26 4.12   | -      | -    | 4.14  | -    | -    | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5  | -      | 6.12       | 5.56   | - -         | -      | -    | -     | -    | -    | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5  | -      | 6.12       | 5.56   | - -         | -      | -    | -     | -    | -    | -    |
| Follow-up Hdwy           | 3.5    | 4    | 3.318  | 3.518      | 4.054  | 3.354 2.218 | -      | -    | 2.236 | -    | -    | -    |
| Pot Cap-1 Maneuver       | 355    | 439  | 916    | 434        | 361    | 1072 1298   | -      | -    | 1609  | -    | -    | -    |
| Stage 1                  | 516    | 513  | -      | 1022       | 887    | - -         | -      | -    | -     | -    | -    | -    |
| Stage 2                  | 867    | 899  | -      | 509        | 438    | - -         | -      | -    | -     | -    | -    | -    |
| Platoon blocked, %       |        |      |        |            |        |             | -      | -    |       | -    | -    | -    |
| Mov Cap-1 Maneuver       | 195    | 368  | 916    | 372        | 303    | 1072 1298   | -      | -    | 1609  | -    | -    | -    |
| Mov Cap-2 Maneuver       | 195    | 368  | -      | 372        | 303    | - -         | -      | -    | -     | -    | -    | -    |
| Stage 1                  | 516    | 430  | -      | 1022       | 887    | - -         | -      | -    | -     | -    | -    | -    |
| Stage 2                  | 641    | 899  | -      | 417        | 367    | - -         | -      | -    | -     | -    | -    | -    |
| Approach                 | EB     |      | WB     |            | NB     |             | SB     |      |       |      |      |      |
| HCM Control Delay, s     | 22.9   |      | 17.4   |            | 0      |             | 3.4    |      |       |      |      |      |
| HCM LOS                  | C      |      | C      |            |        |             |        |      |       |      |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT  | NBR    | EBLn1WBLn1 | SBL    | SBT         | SBR    |      |       |      |      |      |
| Capacity (veh/h)         | 1298   | -    | -      | 231 565    | 1609   | -           | -      |      |       |      |      |      |
| HCM Lane V/C Ratio       | -      | -    | -      | 0.13 0.494 | 0.133  | -           | -      |      |       |      |      |      |
| HCM Control Delay (s)    | 0      | -    | -      | 22.9 17.4  | 7.6    | 0           | -      |      |       |      |      |      |
| HCM Lane LOS             | A      | -    | -      | C C        | A A    | -           | -      |      |       |      |      |      |
| HCM 95th %tile Q(veh)    | 0      | -    | -      | 0.4 2.7    | 0.5    | -           | -      |      |       |      |      |      |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 5.3   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 140   | 275   | 337   | 74    |
| Demand Flow Rate, veh/h     | 146   | 280   | 347   | 76    |
| Vehicles Circulating, veh/h | 193   | 234   | 76    | 424   |
| Vehicles Exiting, veh/h     | 307   | 189   | 263   | 90    |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 4.4   | 5.8   | 5.3   | 4.9   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 146   | 280   | 347   | 76    |
| Cap Entry Lane, veh/h       | 1133  | 1087  | 1277  | 895   |
| Entry HV Adj Factor         | 0.959 | 0.982 | 0.972 | 0.980 |
| Flow Entry, veh/h           | 140   | 275   | 337   | 74    |
| Cap Entry, veh/h            | 1086  | 1067  | 1241  | 877   |
| V/C Ratio                   | 0.129 | 0.258 | 0.272 | 0.085 |
| Control Delay, s/veh        | 4.4   | 5.8   | 5.3   | 4.9   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 1     | 1     | 0     |

# Black Mountain Development SH 82 at Basalt Avenue

## Background Build-Out (2026) - PM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 115                                                                               | 400                                                                               | 65                                                                                | 75                                                                                | 1875                                                                              | 150                                                                               | 190                                                                                 | 55                                                                                  | 35                                                                                  | 46                                                                                  | 35                                                                                  | 75                                                                                  |
| Future Volume (vph)     | 115                                                                               | 400                                                                               | 65                                                                                | 75                                                                                | 1875                                                                              | 150                                                                               | 190                                                                                 | 55                                                                                  | 35                                                                                  | 46                                                                                  | 35                                                                                  | 75                                                                                  |
| Satd. Flow (prot)       | 1736                                                                              | 3471                                                                              | 1553                                                                              | 1719                                                                              | 3438                                                                              | 1538                                                                              | 1649                                                                                | 1689                                                                                | 1553                                                                                | 3367                                                                                | 1641                                                                                | 0                                                                                   |
| Flt Permitted           | 0.040                                                                             |                                                                                   |                                                                                   | 0.504                                                                             |                                                                                   |                                                                                   | 0.950                                                                               | 0.973                                                                               |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 73                                                                                | 3471                                                                              | 1553                                                                              | 912                                                                               | 3438                                                                              | 1538                                                                              | 1649                                                                                | 1689                                                                                | 1553                                                                                | 3367                                                                                | 1641                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 69                                                                                |                                                                                   |                                                                                   | 157                                                                               |                                                                                     |                                                                                     | 174                                                                                 |                                                                                     | 53                                                                                  |                                                                                     |
| Lane Group Flow (vph)   | 122                                                                               | 426                                                                               | 69                                                                                | 83                                                                                | 2083                                                                              | 167                                                                               | 158                                                                                 | 160                                                                                 | 45                                                                                  | 53                                                                                  | 126                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                | pm+ov                                                                             | pm+pt                                                                             | NA                                                                                | Perm                                                                              | Split                                                                               | NA                                                                                  | Perm                                                                                | Split                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                 | 8                                                                                 | 1                                                                                 | 6                                                                                 |                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     | 4                                                                                   | 4                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Total Split (s)         | 25.0                                                                              | 105.0                                                                             | 23.0                                                                              | 12.0                                                                              | 92.0                                                                              | 92.0                                                                              | 23.0                                                                                | 23.0                                                                                | 23.0                                                                                | 20.0                                                                                | 20.0                                                                                |                                                                                     |
| Total Lost Time (s)     | 8.0                                                                               | 5.0                                                                               | 5.0                                                                               | 8.0                                                                               | 7.5                                                                               | 7.5                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Act Effect Green (s)    | 107.6                                                                             | 100.0                                                                             | 118.0                                                                             | 92.9                                                                              | 89.4                                                                              | 89.4                                                                              | 18.0                                                                                | 18.0                                                                                | 18.0                                                                                | 15.0                                                                                | 15.0                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.67                                                                              | 0.62                                                                              | 0.74                                                                              | 0.58                                                                              | 0.56                                                                              | 0.56                                                                              | 0.11                                                                                | 0.11                                                                                | 0.11                                                                                | 0.09                                                                                | 0.09                                                                                |                                                                                     |
| v/c Ratio               | 0.70                                                                              | 0.20                                                                              | 0.06                                                                              | 0.15                                                                              | 1.08                                                                              | 0.18                                                                              | 0.85                                                                                | 0.84                                                                                | 0.14                                                                                | 0.17                                                                                | 0.63                                                                                |                                                                                     |
| Control Delay           | 56.6                                                                              | 13.1                                                                              | 0.7                                                                               | 10.6                                                                              | 81.9                                                                              | 3.5                                                                               | 105.6                                                                               | 103.2                                                                               | 0.9                                                                                 | 68.3                                                                                | 54.6                                                                                |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay             | 56.6                                                                              | 13.1                                                                              | 0.7                                                                               | 10.6                                                                              | 81.9                                                                              | 3.5                                                                               | 105.6                                                                               | 103.2                                                                               | 0.9                                                                                 | 68.3                                                                                | 54.6                                                                                |                                                                                     |
| LOS                     | E                                                                                 | B                                                                                 | A                                                                                 | B                                                                                 | F                                                                                 | A                                                                                 | F                                                                                   | F                                                                                   | A                                                                                   | E                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 20.3                                                                              |                                                                                   |                                                                                   | 73.8                                                                              |                                                                                   |                                                                                     | 91.6                                                                                |                                                                                     |                                                                                     | 58.6                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 76                                                                                | 95                                                                                | 0                                                                                 | 27                                                                                | ~1281                                                                             | 5                                                                                 | 173                                                                                 | 175                                                                                 | 0                                                                                   | 26                                                                                  | 74                                                                                  |                                                                                     |
| Queue Length 95th (ft)  | 147                                                                               | 122                                                                               | 7                                                                                 | 47                                                                                | #1468                                                                             | 43                                                                                | #237                                                                                | #236                                                                                | 0                                                                                   | 48                                                                                  | 142                                                                                 |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 396                                                                               |                                                                                   |                                                                                   | 404                                                                               |                                                                                   |                                                                                     | 344                                                                                 |                                                                                     |                                                                                     | 171                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 277                                                                               |                                                                                   | 590                                                                               | 425                                                                               |                                                                                   | 425                                                                               | 160                                                                                 |                                                                                     | 160                                                                                 | 95                                                                                  |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 226                                                                               | 2169                                                                              | 1163                                                                              | 549                                                                               | 1920                                                                              | 928                                                                               | 185                                                                                 | 190                                                                                 | 329                                                                                 | 315                                                                                 | 201                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 0.54                                                                              | 0.20                                                                              | 0.06                                                                              | 0.15                                                                              | 1.08                                                                              | 0.18                                                                              | 0.85                                                                                | 0.84                                                                                | 0.14                                                                                | 0.17                                                                                | 0.63                                                                                |                                                                                     |

### Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 132 (83%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 65.4

Intersection LOS: E

Intersection Capacity Utilization 88.7%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: Basalt Avenue & SH 82



## APPENDIX E. ANALYSIS WORKSHEETS – LONG-RANGE BACKGROUND CONDITIONS

Black Mountain Development  
Emma Road Adjacent SH 82 Slip Ramp

Long-Range Background Conditions - AM Peak Hour

Intersection

Int Delay, s/veh 1.2

| Movement                 | EBL  | EBT  | WBT                                                                               | WBR  | SBL                                                                               | SBR  |
|--------------------------|------|------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |      |      |  |      |  |      |
| Traffic Vol, veh/h       | 0    | 0    | 140                                                                               | 10   | 10                                                                                | 5    |
| Future Vol, veh/h        | 0    | 0    | 140                                                                               | 10   | 10                                                                                | 5    |
| Conflicting Peds, #/hr   | 0    | 0    | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free | Free | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -    | None | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | -    | -    | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 1    | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -    | 0    | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92   | 71                                                                                | 71   | 50                                                                                | 50   |
| Heavy Vehicles, %        | 2    | 2    | 4                                                                                 | 4    | 0                                                                                 | 0    |
| Mvmt Flow                | 0    | 0    | 197                                                                               | 14   | 20                                                                                | 10   |

| Major/Minor          | Major2 | Minor2    |
|----------------------|--------|-----------|
| Conflicting Flow All | -      | 0 204 204 |
| Stage 1              | -      | - 204 -   |
| Stage 2              | -      | - 0 -     |
| Critical Hdwy        | -      | - 6.4 6.2 |
| Critical Hdwy Stg 1  | -      | - 5.4 -   |
| Critical Hdwy Stg 2  | -      | - - -     |
| Follow-up Hdwy       | -      | - 3.5 3.3 |
| Pot Cap-1 Maneuver   | -      | - 789 842 |
| Stage 1              | -      | - 835 -   |
| Stage 2              | -      | - - -     |
| Platoon blocked, %   | -      | -         |
| Mov Cap-1 Maneuver   | -      | - 789 842 |
| Mov Cap-2 Maneuver   | -      | - 789 -   |
| Stage 1              | -      | - 835 -   |
| Stage 2              | -      | - - -     |

| Approach             | WB | SB  |
|----------------------|----|-----|
| HCM Control Delay, s | 0  | 9.6 |
| HCM LOS              |    | A   |

| Minor Lane/Major Mvmt | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h)      | -   | -   | 806   |
| HCM Lane V/C Ratio    | -   | -   | 0.037 |
| HCM Control Delay (s) | -   | -   | 9.6   |
| HCM Lane LOS          | -   | -   | A     |
| HCM 95th %tile Q(veh) | -   | -   | 0.1   |

Black Mountain Development  
Emma Road At Midland Avenue

Long-Range Background Conditions - AM Peak Hour

| Intersection             |        |      |        |       |        |       |        |      |      |       |      |      |
|--------------------------|--------|------|--------|-------|--------|-------|--------|------|------|-------|------|------|
| Int Delay, s/veh         | 7.3    |      |        |       |        |       |        |      |      |       |      |      |
| Movement                 | EBL    | EBT  | EBR    | WBL   | WBT    | WBR   | NBL    | NBT  | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations      |        | ↕    |        |       | ↕      |       |        | ↕    |      |       | ↕    |      |
| Traffic Vol, veh/h       | 5      | 10   | 0      | 0     | 30     | 175   | 0      | 1    | 0    | 160   | 0    | 125  |
| Future Vol, veh/h        | 5      | 10   | 0      | 0     | 30     | 175   | 0      | 1    | 0    | 160   | 0    | 125  |
| 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           | -      | -    | -      | -     | -      | -     | -      | -    | -    | -     | -    | -    |
| Veh in Median Storage, # | -      | 0    | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Grade, %                 | -      | 0    | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Peak Hour Factor         | 50     | 50   | 92     | 92    | 86     | 86    | 92     | 92   | 92   | 77    | 92   | 77   |
| Heavy Vehicles, %        | 0      | 0    | 2      | 2     | 6      | 6     | 2      | 2    | 2    | 4     | 2    | 4    |
| Mvmt Flow                | 10     | 20   | 0      | 0     | 35     | 203   | 0      | 1    | 0    | 208   | 0    | 162  |
| Major/Minor              | Minor2 |      | Minor1 |       | Major1 |       | Major2 |      |      |       |      |      |
| Conflicting Flow All     | 617    | 498  | 81     | 508   | 579    | 1     | 162    | 0    | 0    | 1     | 0    | 0    |
| Stage 1                  | 497    | 497  | -      | 1     | 1      | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 120    | 1    | -      | 507   | 578    | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy            | 7.1    | 6.5  | 6.22   | 7.12  | 6.56   | 6.26  | 4.12   | -    | -    | 4.14  | -    | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5  | -      | 6.12  | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5  | -      | 6.12  | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Follow-up Hdwy           | 3.5    | 4    | 3.318  | 3.518 | 4.054  | 3.354 | 2.218  | -    | -    | 2.236 | -    | -    |
| Pot Cap-1 Maneuver       | 405    | 477  | 979    | 475   | 421    | 1072  | 1417   | -    | -    | 1609  | -    | -    |
| Stage 1                  | 559    | 548  | -      | 1022  | 887    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 889    | 899  | -      | 548   | 495    | -     | -      | -    | -    | -     | -    | -    |
| Platoon blocked, %       |        |      |        |       |        |       |        | -    | -    |       | -    | -    |
| Mov Cap-1 Maneuver       | 271    | 408  | 979    | 407   | 360    | 1072  | 1417   | -    | -    | 1609  | -    | -    |
| Mov Cap-2 Maneuver       | 271    | 408  | -      | 407   | 360    | -     | -      | -    | -    | -     | -    | -    |
| Stage 1                  | 559    | 469  | -      | 1022  | 887    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 692    | 899  | -      | 449   | 423    | -     | -      | -    | -    | -     | -    | -    |
| Approach                 | EB     |      | WB     |       | NB     |       | SB     |      |      |       |      |      |
| HCM Control Delay, s     | 16.3   |      | 11.1   |       | 0      |       | 4.2    |      |      |       |      |      |
| HCM LOS                  | C      |      | B      |       |        |       |        |      |      |       |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT  | NBR    | EBLn1 | WBLn1  | SBL   | SBT    | SBR  |      |       |      |      |
| Capacity (veh/h)         | 1417   | -    | -      | 349   | 831    | 1609  | -      | -    |      |       |      |      |
| HCM Lane V/C Ratio       | -      | -    | -      | 0.086 | 0.287  | 0.129 | -      | -    |      |       |      |      |
| HCM Control Delay (s)    | 0      | -    | -      | 16.3  | 11.1   | 7.6   | 0      | -    |      |       |      |      |
| HCM Lane LOS             | A      | -    | -      | C     | B      | A     | A      | -    |      |       |      |      |
| HCM 95th %tile Q(veh)    | 0      | -    | -      | 0.3   | 1.2    | 0.4   | -      | -    |      |       |      |      |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 5.0   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 250   | 204   | 305   | 61    |
| Demand Flow Rate, veh/h     | 260   | 208   | 313   | 63    |
| Vehicles Circulating, veh/h | 186   | 211   | 53    | 374   |
| Vehicles Exiting, veh/h     | 251   | 155   | 393   | 45    |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 5.4   | 5.0   | 4.9   | 4.5   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 260   | 208   | 313   | 63    |
| Cap Entry Lane, veh/h       | 1141  | 1113  | 1307  | 942   |
| Entry HV Adj Factor         | 0.961 | 0.981 | 0.976 | 0.975 |
| Flow Entry, veh/h           | 250   | 204   | 305   | 61    |
| Cap Entry, veh/h            | 1097  | 1091  | 1275  | 919   |
| V/C Ratio                   | 0.228 | 0.187 | 0.239 | 0.067 |
| Control Delay, s/veh        | 5.4   | 5.0   | 4.9   | 4.5   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 1     | 1     | 1     | 0     |

# Black Mountain Development SH 82 At Basalt Avenue

## Long-Range Background Conditions - AM Peak Hour

|                         |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |   |  |  |  |                                                                                      |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                                | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                                                                                                     | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |    |  |  |    |  |  |  |  |   |  |  |
| Traffic Volume (vph)    | 185                                                                               | 2000                                                                                                                                                                                                                                                  | 395                                                                               | 90                                                                                | 400                                                                                                                                                                                                                                                   | 35                                                                                 | 150                                                                                 | 65                                                                                  | 115                                                                                 | 125                                                                                                                                                                     | 120                                                                                 | 20                                                                                  |
| Future Volume (vph)     | 185                                                                               | 2000                                                                                                                                                                                                                                                  | 395                                                                               | 90                                                                                | 400                                                                                                                                                                                                                                                   | 35                                                                                 | 150                                                                                 | 65                                                                                  | 115                                                                                 | 125                                                                                                                                                                     | 120                                                                                 | 20                                                                                  |
| Satd. Flow (prot)       | 1736                                                                              | 4988                                                                                                                                                                                                                                                  | 1553                                                                              | 1719                                                                              | 4940                                                                                                                                                                                                                                                  | 1538                                                                               | 1649                                                                                | 1701                                                                                | 1553                                                                                | 3367                                                                                                                                                                    | 1789                                                                                | 0                                                                                   |
| Flt Permitted           | 0.421                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | 0.062                                                                             |                                                                                                                                                                                                                                                       |                                                                                    | 0.950                                                                               | 0.980                                                                               |                                                                                     | 0.950                                                                                                                                                                   |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 769                                                                               | 4988                                                                                                                                                                                                                                                  | 1553                                                                              | 112                                                                               | 4940                                                                                                                                                                                                                                                  | 1538                                                                               | 1649                                                                                | 1701                                                                                | 1553                                                                                | 3367                                                                                                                                                                    | 1789                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                                                                                                                                                                                       | 325                                                                               |                                                                                   |                                                                                                                                                                                                                                                       | 102                                                                                |                                                                                     |                                                                                     | 157                                                                                 |                                                                                                                                                                         | 4                                                                                   |                                                                                     |
| Lane Group Flow (vph)   | 197                                                                               | 2128                                                                                                                                                                                                                                                  | 420                                                                               | 100                                                                               | 444                                                                                                                                                                                                                                                   | 39                                                                                 | 138                                                                                 | 141                                                                                 | 149                                                                                 | 144                                                                                                                                                                     | 161                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                                                                                                                                                                                    | pm+ov                                                                             | pm+pt                                                                             | NA                                                                                                                                                                                                                                                    | Perm                                                                               | Split                                                                               | NA                                                                                  | Perm                                                                                | Split                                                                                                                                                                   | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                                                                                                                                                                                     | 8                                                                                 | 1                                                                                 | 6                                                                                                                                                                                                                                                     |                                                                                    | 8                                                                                   | 8                                                                                   |                                                                                     | 4                                                                                                                                                                       | 4                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                                                                                                                                                                                       | 2                                                                                 | 6                                                                                 |                                                                                                                                                                                                                                                       | 6                                                                                  |                                                                                     |                                                                                     | 8                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |
| Total Split (s)         | 19.0                                                                              | 83.0                                                                                                                                                                                                                                                  | 28.0                                                                              | 19.0                                                                              | 83.0                                                                                                                                                                                                                                                  | 83.0                                                                               | 28.0                                                                                | 28.0                                                                                | 28.0                                                                                | 30.0                                                                                                                                                                    | 30.0                                                                                |                                                                                     |
| Total Lost Time (s)     | 8.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 8.0                                                                               | 7.5                                                                                                                                                                                                                                                   | 7.5                                                                                | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                 |                                                                                     |
| Act Effect Green (s)    | 75.0                                                                              | 78.0                                                                                                                                                                                                                                                  | 106.0                                                                             | 75.0                                                                              | 75.5                                                                                                                                                                                                                                                  | 75.5                                                                               | 23.0                                                                                | 23.0                                                                                | 23.0                                                                                | 25.0                                                                                                                                                                    | 25.0                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.47                                                                              | 0.49                                                                                                                                                                                                                                                  | 0.66                                                                              | 0.47                                                                              | 0.47                                                                                                                                                                                                                                                  | 0.47                                                                               | 0.14                                                                                | 0.14                                                                                | 0.14                                                                                | 0.16                                                                                                                                                                    | 0.16                                                                                |                                                                                     |
| v/c Ratio               | 0.46                                                                              | 0.88                                                                                                                                                                                                                                                  | 0.37                                                                              | 0.62                                                                              | 0.19                                                                                                                                                                                                                                                  | 0.05                                                                               | 0.58                                                                                | 0.58                                                                                | 0.42                                                                                | 0.27                                                                                                                                                                    | 0.57                                                                                |                                                                                     |
| Control Delay           | 29.7                                                                              | 41.8                                                                                                                                                                                                                                                  | 3.4                                                                               | 73.5                                                                              | 24.8                                                                                                                                                                                                                                                  | 0.1                                                                                | 74.8                                                                                | 74.3                                                                                | 10.8                                                                                | 61.1                                                                                                                                                                    | 69.8                                                                                |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |                                                                                     |
| Total Delay             | 29.7                                                                              | 41.8                                                                                                                                                                                                                                                  | 3.4                                                                               | 73.5                                                                              | 24.8                                                                                                                                                                                                                                                  | 0.1                                                                                | 74.8                                                                                | 74.3                                                                                | 10.8                                                                                | 61.1                                                                                                                                                                    | 69.8                                                                                |                                                                                     |
| LOS                     | C                                                                                 | D                                                                                                                                                                                                                                                     | A                                                                                 | E                                                                                 | C                                                                                                                                                                                                                                                     | A                                                                                  | E                                                                                   | E                                                                                   | B                                                                                   | E                                                                                                                                                                       | E                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 35.1                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 31.5                                                                                                                                                                                                                                                  |                                                                                    |                                                                                     | 52.4                                                                                |                                                                                     |                                                                                                                                                                         | 65.7                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | D                                                                                                                                                                                                                                                     |                                                                                   |                                                                                   | C                                                                                                                                                                                                                                                     |                                                                                    |                                                                                     | D                                                                                   |                                                                                     |                                                                                                                                                                         | E                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 122                                                                               | 717                                                                                                                                                                                                                                                   | 34                                                                                | 58                                                                                | 97                                                                                                                                                                                                                                                    | 0                                                                                  | 144                                                                                 | 147                                                                                 | 0                                                                                   | 69                                                                                                                                                                      | 154                                                                                 |                                                                                     |
| Queue Length 95th (ft)  | 180                                                                               | 785                                                                                                                                                                                                                                                   | 79                                                                                | 120                                                                               | 123                                                                                                                                                                                                                                                   | 0                                                                                  | 189                                                                                 | 192                                                                                 | 29                                                                                  | 102                                                                                                                                                                     | 227                                                                                 |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 396                                                                                                                                                                                                                                                   |                                                                                   |                                                                                   | 404                                                                                                                                                                                                                                                   |                                                                                    |                                                                                     | 344                                                                                 |                                                                                     |                                                                                                                                                                         | 171                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 277                                                                               |                                                                                                                                                                                                                                                       | 590                                                                               | 425                                                                               |                                                                                                                                                                                                                                                       | 425                                                                                | 160                                                                                 |                                                                                     | 160                                                                                 | 95                                                                                                                                                                      |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 426                                                                               | 2431                                                                                                                                                                                                                                                  | 1138                                                                              | 162                                                                               | 2331                                                                                                                                                                                                                                                  | 779                                                                                | 237                                                                                 | 244                                                                                 | 357                                                                                 | 526                                                                                                                                                                     | 282                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |                                                                                     |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 0.46                                                                              | 0.88                                                                                                                                                                                                                                                  | 0.37                                                                              | 0.62                                                                              | 0.19                                                                                                                                                                                                                                                  | 0.05                                                                               | 0.58                                                                                | 0.58                                                                                | 0.42                                                                                | 0.27                                                                                                                                                                    | 0.57                                                                                |                                                                                     |

### Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 132 (83%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 38.7

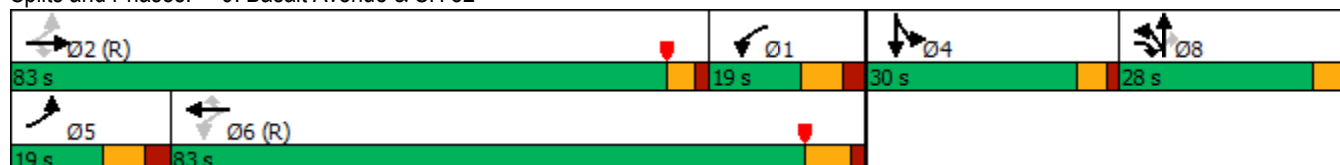
Intersection LOS: D

Intersection Capacity Utilization 76.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 9: Basalt Avenue & SH 82



Black Mountain Development  
Emma Road Adjacent SH 82 Slip Ramp

Long-Range Background Conditions - PM Peak Hour

Intersection

Int Delay, s/veh 0.6

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations

Traffic Vol, veh/h 0 0 225 10 5 5

Future Vol, veh/h 0 0 225 10 5 5

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 1 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 92 92 71 71 50 50

Heavy Vehicles, % 2 2 4 4 0 0

Mvmt Flow 0 0 317 14 10 10

Major/Minor Major2 Minor2

Conflicting Flow All - 0 324 324

Stage 1 - - 324 -

Stage 2 - - 0 -

Critical Hdwy - - 6.4 6.2

Critical Hdwy Stg 1 - - 5.4 -

Critical Hdwy Stg 2 - - - -

Follow-up Hdwy - - 3.5 3.3

Pot Cap-1 Maneuver - - 674 722

Stage 1 - - 738 -

Stage 2 - - - -

Platoon blocked, % - -

Mov Cap-1 Maneuver - - 674 722

Mov Cap-2 Maneuver - - 674 -

Stage 1 - - 738 -

Stage 2 - - - -

Approach WB SB

HCM Control Delay, s 0 10.3

HCM LOS B

Minor Lane/Major Mvmt WBT WBR SBLn1

Capacity (veh/h) - - 697

HCM Lane V/C Ratio - - 0.029

HCM Control Delay (s) - - 10.3

HCM Lane LOS - - B

HCM 95th %tile Q(veh) - - 0.1

Black Mountain Development  
Emma Road At Midland Avenue

Long-Range Background Conditions - PM Peak Hour

| Intersection             |        |      |        |       |        |       |        |      |      |       |      |      |
|--------------------------|--------|------|--------|-------|--------|-------|--------|------|------|-------|------|------|
| Int Delay, s/veh         | 10.5   |      |        |       |        |       |        |      |      |       |      |      |
| Movement                 | EBL    | EBT  | EBR    | WBL   | WBT    | WBR   | NBL    | NBT  | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations      |        | ↕    |        |       | ↕      |       |        | ↕    |      |       | ↕    |      |
| Traffic Vol, veh/h       | 15     | 5    | 0      | 0     | 90     | 165   | 0      | 1    | 0    | 180   | 0    | 225  |
| Future Vol, veh/h        | 15     | 5    | 0      | 0     | 90     | 165   | 0      | 1    | 0    | 180   | 0    | 225  |
| 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           | -      | -    | -      | -     | -      | -     | -      | -    | -    | -     | -    | -    |
| Veh in Median Storage, # | -      | 0    | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Grade, %                 | -      | 0    | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Peak Hour Factor         | 50     | 50   | 92     | 92    | 86     | 86    | 92     | 92   | 92   | 77    | 92   | 77   |
| Heavy Vehicles, %        | 0      | 0    | 2      | 2     | 6      | 6     | 2      | 2    | 2    | 4     | 2    | 4    |
| Mvmt Flow                | 30     | 10   | 0      | 0     | 105    | 192   | 0      | 1    | 0    | 234   | 0    | 292  |
|                          |        |      |        |       |        |       |        |      |      |       |      |      |
| Major/Minor              | Minor2 |      | Minor1 |       | Major1 |       | Major2 |      |      |       |      |      |
| Conflicting Flow All     | 764    | 615  | 146    | 620   | 761    | 1     | 292    | 0    | 0    | 1     | 0    | 0    |
| Stage 1                  | 614    | 614  | -      | 1     | 1      | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 150    | 1    | -      | 619   | 760    | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy            | 7.1    | 6.5  | 6.22   | 7.12  | 6.56   | 6.26  | 4.12   | -    | -    | 4.14  | -    | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5  | -      | 6.12  | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5  | -      | 6.12  | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Follow-up Hdwy           | 3.5    | 4    | 3.318  | 3.518 | 4.054  | 3.354 | 2.218  | -    | -    | 2.236 | -    | -    |
| Pot Cap-1 Maneuver       | 323    | 409  | 901    | 400   | 330    | 1072  | 1270   | -    | -    | 1609  | -    | -    |
| Stage 1                  | 483    | 486  | -      | 1022  | 887    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 857    | 899  | -      | 476   | 409    | -     | -      | -    | -    | -     | -    | -    |
| Platoon blocked, %       |        |      |        |       |        |       |        | -    | -    |       | -    | -    |
| Mov Cap-1 Maneuver       | 161    | 335  | 901    | 337   | 270    | 1072  | 1270   | -    | -    | 1609  | -    | -    |
| Mov Cap-2 Maneuver       | 161    | 335  | -      | 337   | 270    | -     | -      | -    | -    | -     | -    | -    |
| Stage 1                  | 483    | 398  | -      | 1022  | 887    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 621    | 899  | -      | 380   | 335    | -     | -      | -    | -    | -     | -    | -    |
|                          |        |      |        |       |        |       |        |      |      |       |      |      |
|                          |        |      |        |       |        |       |        |      |      |       |      |      |
| Approach                 | EB     |      | WB     |       | NB     |       | SB     |      |      |       |      |      |
| HCM Control Delay, s     | 29.7   |      | 20.5   |       | 0      |       | 3.4    |      |      |       |      |      |
| HCM LOS                  | D      |      | C      |       |        |       |        |      |      |       |      |      |
|                          |        |      |        |       |        |       |        |      |      |       |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT  | NBR    | EBLn1 | WBLn1  | SBL   | SBT    | SBR  |      |       |      |      |
| Capacity (veh/h)         | 1270   | -    | -      | 185   | 523    | 1609  | -      | -    |      |       |      |      |
| HCM Lane V/C Ratio       | -      | -    | -      | 0.216 | 0.567  | 0.145 | -      | -    |      |       |      |      |
| HCM Control Delay (s)    | 0      | -    | -      | 29.7  | 20.5   | 7.6   | 0      | -    |      |       |      |      |
| HCM Lane LOS             | A      | -    | -      | D     | C      | A     | A      | -    |      |       |      |      |
| HCM 95th %tile Q(veh)    | 0      | -    | -      | 0.8   | 3.5    | 0.5   | -      | -    |      |       |      |      |

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 5.1   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 147   | 190   | 363   | 74    |
| Demand Flow Rate, veh/h     | 153   | 193   | 373   | 76    |
| Vehicles Circulating, veh/h | 143   | 249   | 76    | 347   |
| Vehicles Exiting, veh/h     | 280   | 200   | 220   | 95    |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 4.2   | 5.1   | 5.5   | 4.5   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 153   | 193   | 373   | 76    |
| Cap Entry Lane, veh/h       | 1193  | 1070  | 1277  | 969   |
| Entry HV Adj Factor         | 0.961 | 0.982 | 0.973 | 0.980 |
| Flow Entry, veh/h           | 147   | 190   | 363   | 74    |
| Cap Entry, veh/h            | 1146  | 1052  | 1243  | 949   |
| V/C Ratio                   | 0.128 | 0.180 | 0.292 | 0.078 |
| Control Delay, s/veh        | 4.2   | 5.1   | 5.5   | 4.5   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 1     | 1     | 0     |

# Black Mountain Development SH 82 At Basalt Avenue

## Long-Range Background Conditions - PM Peak Hour

|                         |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |  |  |                                                                                      |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                                                                                                     | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |    |  |  |    |  |  |  |  |   |  |  |
| Traffic Volume (vph)    | 140                                                                               | 485                                                                                                                                                                                                                                                   | 80                                                                                | 85                                                                                | 2135                                                                                                                                                                                                                                                  | 170                                                                               | 225                                                                                 | 60                                                                                  | 40                                                                                  | 45                                                                                                                                                                      | 35                                                                                  | 90                                                                                  |
| Future Volume (vph)     | 140                                                                               | 485                                                                                                                                                                                                                                                   | 80                                                                                | 85                                                                                | 2135                                                                                                                                                                                                                                                  | 170                                                                               | 225                                                                                 | 60                                                                                  | 40                                                                                  | 45                                                                                                                                                                      | 35                                                                                  | 90                                                                                  |
| Satd. Flow (prot)       | 1736                                                                              | 4988                                                                                                                                                                                                                                                  | 1553                                                                              | 1719                                                                              | 4940                                                                                                                                                                                                                                                  | 1538                                                                              | 1649                                                                                | 1687                                                                                | 1553                                                                                | 3367                                                                                                                                                                    | 1630                                                                                | 0                                                                                   |
| Flt Permitted           | 0.046                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | 0.451                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | 0.950                                                                               | 0.972                                                                               |                                                                                     | 0.950                                                                                                                                                                   |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 84                                                                                | 4988                                                                                                                                                                                                                                                  | 1553                                                                              | 816                                                                               | 4940                                                                                                                                                                                                                                                  | 1538                                                                              | 1649                                                                                | 1687                                                                                | 1553                                                                                | 3367                                                                                                                                                                    | 1630                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                                                                                                                                                                                       | 85                                                                                |                                                                                   |                                                                                                                                                                                                                                                       | 161                                                                               |                                                                                     |                                                                                     | 174                                                                                 |                                                                                                                                                                         | 65                                                                                  |                                                                                     |
| Lane Group Flow (vph)   | 149                                                                               | 516                                                                                                                                                                                                                                                   | 85                                                                                | 94                                                                                | 2372                                                                                                                                                                                                                                                  | 189                                                                               | 184                                                                                 | 186                                                                                 | 52                                                                                  | 52                                                                                                                                                                      | 143                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                                                                                                                                                                                    | pm+ov                                                                             | pm+pt                                                                             | NA                                                                                                                                                                                                                                                    | Perm                                                                              | Split                                                                               | NA                                                                                  | Perm                                                                                | Split                                                                                                                                                                   | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                                                                                                                                                                                     | 8                                                                                 | 1                                                                                 | 6                                                                                                                                                                                                                                                     |                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     | 4                                                                                                                                                                       | 4                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                                                                                                                                                                                       | 2                                                                                 | 6                                                                                 |                                                                                                                                                                                                                                                       | 6                                                                                 |                                                                                     |                                                                                     | 8                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |
| Total Split (s)         | 25.0                                                                              | 93.0                                                                                                                                                                                                                                                  | 33.0                                                                              | 12.0                                                                              | 80.0                                                                                                                                                                                                                                                  | 80.0                                                                              | 33.0                                                                                | 33.0                                                                                | 33.0                                                                                | 22.0                                                                                                                                                                    | 22.0                                                                                |                                                                                     |
| Total Lost Time (s)     | 8.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 8.0                                                                               | 7.5                                                                                                                                                                                                                                                   | 7.5                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                 |                                                                                     |
| Act Effect Green (s)    | 96.2                                                                              | 88.0                                                                                                                                                                                                                                                  | 116.0                                                                             | 79.2                                                                              | 75.7                                                                                                                                                                                                                                                  | 75.7                                                                              | 28.0                                                                                | 28.0                                                                                | 28.0                                                                                | 17.0                                                                                                                                                                    | 17.0                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.60                                                                              | 0.55                                                                                                                                                                                                                                                  | 0.72                                                                              | 0.50                                                                              | 0.47                                                                                                                                                                                                                                                  | 0.47                                                                              | 0.18                                                                                | 0.18                                                                                | 0.18                                                                                | 0.11                                                                                                                                                                    | 0.11                                                                                |                                                                                     |
| v/c Ratio               | 0.78                                                                              | 0.19                                                                                                                                                                                                                                                  | 0.07                                                                              | 0.22                                                                              | 1.01                                                                                                                                                                                                                                                  | 0.23                                                                              | 0.64                                                                                | 0.63                                                                                | 0.13                                                                                | 0.15                                                                                                                                                                    | 0.62                                                                                |                                                                                     |
| Control Delay           | 65.4                                                                              | 18.3                                                                                                                                                                                                                                                  | 0.7                                                                               | 17.4                                                                              | 63.5                                                                                                                                                                                                                                                  | 6.1                                                                               | 72.5                                                                                | 71.8                                                                                | 0.6                                                                                 | 66.1                                                                                                                                                                    | 49.3                                                                                |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |                                                                                     |
| Total Delay             | 65.4                                                                              | 18.3                                                                                                                                                                                                                                                  | 0.7                                                                               | 17.4                                                                              | 63.5                                                                                                                                                                                                                                                  | 6.1                                                                               | 72.5                                                                                | 71.8                                                                                | 0.6                                                                                 | 66.1                                                                                                                                                                    | 49.3                                                                                |                                                                                     |
| LOS                     | E                                                                                 | B                                                                                                                                                                                                                                                     | A                                                                                 | B                                                                                 | E                                                                                                                                                                                                                                                     | A                                                                                 | E                                                                                   | E                                                                                   | A                                                                                   | E                                                                                                                                                                       | D                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 25.7                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 57.8                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 63.3                                                                                |                                                                                     |                                                                                                                                                                         | 53.8                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | C                                                                                                                                                                                                                                                     |                                                                                   |                                                                                   | E                                                                                                                                                                                                                                                     |                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                                                                                                         | D                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 105                                                                               | 96                                                                                                                                                                                                                                                    | 0                                                                                 | 39                                                                                | ~965                                                                                                                                                                                                                                                  | 16                                                                                | 190                                                                                 | 192                                                                                 | 0                                                                                   | 25                                                                                                                                                                      | 78                                                                                  |                                                                                     |
| Queue Length 95th (ft)  | 186                                                                               | 119                                                                                                                                                                                                                                                   | 8                                                                                 | 66                                                                                | #1078                                                                                                                                                                                                                                                 | 64                                                                                | 237                                                                                 | 238                                                                                 | 0                                                                                   | 47                                                                                                                                                                      | 149                                                                                 |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 396                                                                                                                                                                                                                                                   |                                                                                   |                                                                                   | 404                                                                                                                                                                                                                                                   |                                                                                   |                                                                                     | 344                                                                                 |                                                                                     |                                                                                                                                                                         | 171                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 277                                                                               |                                                                                                                                                                                                                                                       | 590                                                                               | 425                                                                               |                                                                                                                                                                                                                                                       | 425                                                                               | 160                                                                                 |                                                                                     | 160                                                                                 | 95                                                                                                                                                                      |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 226                                                                               | 2743                                                                                                                                                                                                                                                  | 1149                                                                              | 426                                                                               | 2338                                                                                                                                                                                                                                                  | 812                                                                               | 288                                                                                 | 295                                                                                 | 415                                                                                 | 357                                                                                                                                                                     | 231                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |                                                                                     |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 0.66                                                                              | 0.19                                                                                                                                                                                                                                                  | 0.07                                                                              | 0.22                                                                              | 1.01                                                                                                                                                                                                                                                  | 0.23                                                                              | 0.64                                                                                | 0.63                                                                                | 0.13                                                                                | 0.15                                                                                                                                                                    | 0.62                                                                                |                                                                                     |

### Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 132 (83%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 52.2

Intersection LOS: D

Intersection Capacity Utilization 84.6%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: Basalt Avenue & SH 82



## APPENDIX F. ANALYSIS WORKSHEETS – BUILD-OUT TOTAL CONDITIONS

Black Mountain Development  
Emma Road at Outbound Daycare Access

Total Build-Out (2026) Conditions - AM Peak Hour

| Intersection             |        |                                                                                   |                                                                                   |        |                                                                                   |       |
|--------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 5.7    |                                                                                   |                                                                                   |        |                                                                                   |       |
| Movement                 | EBL    | EBT                                                                               | WBT                                                                               | WBR    | SBL                                                                               | SBR   |
| Lane Configurations      |        |  |  |        |  |       |
| Traffic Vol, veh/h       | 0      | 5                                                                                 | 5                                                                                 | 0      | 19                                                                                | 1     |
| Future Vol, veh/h        | 0      | 5                                                                                 | 5                                                                                 | 0      | 19                                                                                | 1     |
| Conflicting Peds, #/hr   | 0      | 0                                                                                 | 0                                                                                 | 0      | 0                                                                                 | 0     |
| Sign Control             | Free   | Free                                                                              | Free                                                                              | Free   | Stop                                                                              | Stop  |
| RT Channelized           | -      | None                                                                              | -                                                                                 | None   | -                                                                                 | None  |
| Storage Length           | -      | -                                                                                 | -                                                                                 | -      | 0                                                                                 | -     |
| Veh in Median Storage, # | -      | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -     |
| Grade, %                 | -      | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -     |
| Peak Hour Factor         | 92     | 92                                                                                | 92                                                                                | 92     | 92                                                                                | 92    |
| Heavy Vehicles, %        | 2      | 2                                                                                 | 2                                                                                 | 2      | 2                                                                                 | 2     |
| Mvmt Flow                | 0      | 5                                                                                 | 5                                                                                 | 0      | 21                                                                                | 1     |
| Major/Minor              | Major1 | Major2                                                                            |                                                                                   | Minor2 |                                                                                   |       |
| Conflicting Flow All     | 5      | 0                                                                                 | -                                                                                 | 0      | 10                                                                                | 5     |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 5                                                                                 | -     |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 5                                                                                 | -     |
| Critical Hdwy            | 4.12   | -                                                                                 | -                                                                                 | -      | 6.42                                                                              | 6.22  |
| Critical Hdwy Stg 1      | -      | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -     |
| Critical Hdwy Stg 2      | -      | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -     |
| Follow-up Hdwy           | 2.218  | -                                                                                 | -                                                                                 | -      | 3.518                                                                             | 3.318 |
| Pot Cap-1 Maneuver       | 1616   | -                                                                                 | -                                                                                 | 0      | 1010                                                                              | 1078  |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | 0      | 1018                                                                              | -     |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | 0      | 1018                                                                              | -     |
| Platoon blocked, %       |        | -                                                                                 | -                                                                                 |        |                                                                                   |       |
| Mov Cap-1 Maneuver       | 1616   | -                                                                                 | -                                                                                 | -      | 1010                                                                              | 1078  |
| Mov Cap-2 Maneuver       | -      | -                                                                                 | -                                                                                 | -      | 1010                                                                              | -     |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 1018                                                                              | -     |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 1018                                                                              | -     |
| Approach                 | EB     | WB                                                                                |                                                                                   | SB     |                                                                                   |       |
| HCM Control Delay, s     | 0      | 0                                                                                 |                                                                                   | 8.6    |                                                                                   |       |
| HCM LOS                  |        |                                                                                   |                                                                                   | A      |                                                                                   |       |
| Minor Lane/Major Mvmt    | EBL    | EBT                                                                               | WBT                                                                               | SBLn1  |                                                                                   |       |
| Capacity (veh/h)         | 1616   | -                                                                                 | -                                                                                 | 1013   |                                                                                   |       |
| HCM Lane V/C Ratio       | -      | -                                                                                 | -                                                                                 | 0.021  |                                                                                   |       |
| HCM Control Delay (s)    | 0      | -                                                                                 | -                                                                                 | 8.6    |                                                                                   |       |
| HCM Lane LOS             | A      | -                                                                                 | -                                                                                 | A      |                                                                                   |       |
| HCM 95th %tile Q(veh)    | 0      | -                                                                                 | -                                                                                 | 0.1    |                                                                                   |       |

Black Mountain Development  
Emma Road at Inbound Daycare Access

Total Build-Out (2026) Conditions - AM Peak Hour

| Intersection             |        |                                                                                   |                                                                                   |        |                                                                                   |      |
|--------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.3    |                                                                                   |                                                                                   |        |                                                                                   |      |
| Movement                 | EBL    | EBT                                                                               | WBT                                                                               | WBR    | SBL                                                                               | SBR  |
| Lane Configurations      |        |  |  |        |  |      |
| Traffic Vol, veh/h       | 1      | 25                                                                                | 5                                                                                 | 19     | 1                                                                                 | 0    |
| Future Vol, veh/h        | 1      | 25                                                                                | 5                                                                                 | 19     | 1                                                                                 | 0    |
| Conflicting Peds, #/hr   | 0      | 0                                                                                 | 0                                                                                 | 0      | 0                                                                                 | 0    |
| Sign Control             | Free   | Free                                                                              | Free                                                                              | Free   | Stop                                                                              | Stop |
| RT Channelized           | -      | None                                                                              | -                                                                                 | None   | -                                                                                 | None |
| Storage Length           | -      | -                                                                                 | -                                                                                 | -      | 0                                                                                 | -    |
| Veh in Median Storage, # | -      | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -    |
| Grade, %                 | -      | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -    |
| Peak Hour Factor         | 92     | 92                                                                                | 92                                                                                | 92     | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2      | 2                                                                                 | 2                                                                                 | 2      | 2                                                                                 | 2    |
| Mvmt Flow                | 1      | 27                                                                                | 5                                                                                 | 21     | 1                                                                                 | 0    |
|                          |        |                                                                                   |                                                                                   |        |                                                                                   |      |
| Major/Minor              | Major1 | Major2                                                                            |                                                                                   | Minor2 |                                                                                   |      |
| Conflicting Flow All     | 26     | 0                                                                                 | -                                                                                 | 0      | 45                                                                                | -    |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 16                                                                                | -    |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 29                                                                                | -    |
| Critical Hdwy            | 4.12   | -                                                                                 | -                                                                                 | -      | 6.42                                                                              | -    |
| Critical Hdwy Stg 1      | -      | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -    |
| Critical Hdwy Stg 2      | -      | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -    |
| Follow-up Hdwy           | 2.218  | -                                                                                 | -                                                                                 | -      | 3.518                                                                             | -    |
| Pot Cap-1 Maneuver       | 1588   | -                                                                                 | -                                                                                 | -      | 965                                                                               | 0    |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 1007                                                                              | 0    |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 994                                                                               | 0    |
| Platoon blocked, %       |        | -                                                                                 | -                                                                                 | -      |                                                                                   |      |
| Mov Cap-1 Maneuver       | 1588   | -                                                                                 | -                                                                                 | -      | 964                                                                               | -    |
| Mov Cap-2 Maneuver       | -      | -                                                                                 | -                                                                                 | -      | 964                                                                               | -    |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 1006                                                                              | -    |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 994                                                                               | -    |
|                          |        |                                                                                   |                                                                                   |        |                                                                                   |      |
| Approach                 | EB     | WB                                                                                |                                                                                   | SB     |                                                                                   |      |
| HCM Control Delay, s     | 0.3    | 0                                                                                 |                                                                                   | 8.7    |                                                                                   |      |
| HCM LOS                  | A      |                                                                                   |                                                                                   |        |                                                                                   |      |
|                          |        |                                                                                   |                                                                                   |        |                                                                                   |      |
| Minor Lane/Major Mvmt    | EBL    | EBT                                                                               | WBT                                                                               | WBR    | SBLn1                                                                             |      |
| Capacity (veh/h)         | 1588   | -                                                                                 | -                                                                                 | -      | 964                                                                               |      |
| HCM Lane V/C Ratio       | 0.001  | -                                                                                 | -                                                                                 | -      | 0.001                                                                             |      |
| HCM Control Delay (s)    | 7.3    | 0                                                                                 | -                                                                                 | -      | 8.7                                                                               |      |
| HCM Lane LOS             | A      | A                                                                                 | -                                                                                 | -      | A                                                                                 |      |
| HCM 95th %tile Q(veh)    | 0      | -                                                                                 | -                                                                                 | -      | 0                                                                                 |      |

Black Mountain Development  
Emma Road at Townhome/Cabin/Tent Access

Total Build-Out (2026) Conditions - AM Peak Hour

Intersection

Int Delay, s/veh 2.6

| Movement                 | EBL  | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR  |
|--------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |      |  |  |      |  |      |
| Traffic Vol, veh/h       | 1    | 25                                                                                | 25                                                                                | 10   | 23                                                                                | 1    |
| Future Vol, veh/h        | 1    | 25                                                                                | 25                                                                                | 10   | 23                                                                                | 1    |
| Conflicting Peds, #/hr   | 0    | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -    | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | -    | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2    | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2    |
| Mvmt Flow                | 1    | 27                                                                                | 27                                                                                | 11   | 25                                                                                | 1    |

| Major/Minor          | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 38     | 0      | 0      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | 4.12   | -      | -      |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | 2.218  | -      | -      |
| Pot Cap-1 Maneuver   | 1572   | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | 1572   | -      | -      |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB  | WB | SB  |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 0.3 | 0  | 8.9 |
| HCM LOS              |     |    | A   |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1572  | -   | -   | -   | 947   |
| HCM Lane V/C Ratio    | 0.001 | -   | -   | -   | 0.028 |
| HCM Control Delay (s) | 7.3   | 0   | -   | -   | 8.9   |
| HCM Lane LOS          | A     | A   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0.1   |

Black Mountain Development  
Emma Road at Townhome Access

Total Build-Out (2026) Conditions - AM Peak Hour

Intersection

Int Delay, s/veh 1.3

| Movement                 | EBL  | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR  |
|--------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |      |  |  |      |  |      |
| Traffic Vol, veh/h       | 1    | 50                                                                                | 35                                                                                | 5    | 14                                                                                | 1    |
| Future Vol, veh/h        | 1    | 50                                                                                | 35                                                                                | 5    | 14                                                                                | 1    |
| Conflicting Peds, #/hr   | 0    | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -    | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | -    | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2    | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2    |
| Mvmt Flow                | 1    | 54                                                                                | 38                                                                                | 5    | 15                                                                                | 1    |

| Major/Minor          | Major1 | Major2 | Minor2 |   |       |       |
|----------------------|--------|--------|--------|---|-------|-------|
| Conflicting Flow All | 43     | 0      | -      | 0 | 97    | 41    |
| Stage 1              | -      | -      | -      | - | 41    | -     |
| Stage 2              | -      | -      | -      | - | 56    | -     |
| Critical Hdwy        | 4.12   | -      | -      | - | 6.42  | 6.22  |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.42  | -     |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.42  | -     |
| Follow-up Hdwy       | 2.218  | -      | -      | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver   | 1566   | -      | -      | - | 902   | 1030  |
| Stage 1              | -      | -      | -      | - | 981   | -     |
| Stage 2              | -      | -      | -      | - | 967   | -     |
| Platoon blocked, %   |        | -      | -      | - |       |       |
| Mov Cap-1 Maneuver   | 1566   | -      | -      | - | 901   | 1030  |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 901   | -     |
| Stage 1              | -      | -      | -      | - | 980   | -     |
| Stage 2              | -      | -      | -      | - | 967   | -     |

| Approach             | EB  | WB | SB |
|----------------------|-----|----|----|
| HCM Control Delay, s | 0.1 | 0  | 9  |
| HCM LOS              |     |    | A  |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1566  | -   | -   | -   | 909   |
| HCM Lane V/C Ratio    | 0.001 | -   | -   | -   | 0.018 |
| HCM Control Delay (s) | 7.3   | 0   | -   | -   | 9     |
| HCM Lane LOS          | A     | A   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0.1   |

Black Mountain Development  
Emma Road at Adjacent Slip Ramp

Total Build-Out (2026) Conditions - AM Peak Hour

Intersection

Int Delay, s/veh 3.8

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations   

Traffic Vol, veh/h 0 0 130 45 40 30

Future Vol, veh/h 0 0 130 45 40 30

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 92 92 71 71 50 50

Heavy Vehicles, % 2 2 4 4 0 0

Mvmt Flow 0 0 183 63 80 60

Major/Minor Major1 Major2 Minor2

Conflicting Flow All - 0 - 0 215 215

Stage 1 - - - - 215 -

Stage 2 - - - - 0 -

Critical Hdwy - - - - 6.4 6.2

Critical Hdwy Stg 1 - - - - 5.4 -

Critical Hdwy Stg 2 - - - - 5.4 -

Follow-up Hdwy - - - - 3.5 3.3

Pot Cap-1 Maneuver 0 - - - 778 830

Stage 1 0 - - - 826 -

Stage 2 0 - - - - -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver - - - - 778 830

Mov Cap-2 Maneuver - - - - 778 -

Stage 1 - - - - 826 -

Stage 2 - - - - - -

Approach EB WB SB

HCM Control Delay, s 0 0 10.5

HCM LOS B

Minor Lane/Major Mvmt EBT WBT WBR SBLn1

Capacity (veh/h) - - - 799

HCM Lane V/C Ratio - - - 0.175

HCM Control Delay (s) - - - 10.5

HCM Lane LOS - - - B

HCM 95th %tile Q(veh) - - - 0.6

Black Mountain Development  
Emma Road at Midland Avenue

Total Build-Out (2026) Conditions - AM Peak Hour

| Intersection             |        |      |        |       |        |       |        |      |      |       |      |      |
|--------------------------|--------|------|--------|-------|--------|-------|--------|------|------|-------|------|------|
| Int Delay, s/veh         | 9.3    |      |        |       |        |       |        |      |      |       |      |      |
| Movement                 | EBL    | EBT  | EBR    | WBL   | WBT    | WBR   | NBL    | NBT  | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations      |        | ↕    |        |       | ↕      |       |        | ↕    |      |       | ↕    |      |
| Traffic Vol, veh/h       | 15     | 35   | 0      | 0     | 60     | 160   | 0      | 1    | 0    | 150   | 1    | 120  |
| Future Vol, veh/h        | 15     | 35   | 0      | 0     | 60     | 160   | 0      | 1    | 0    | 150   | 1    | 120  |
| 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           | -      | -    | -      | -     | -      | -     | -      | -    | -    | -     | -    | -    |
| Veh in Median Storage, # | -      | 0    | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Grade, %                 | -      | 0    | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Peak Hour Factor         | 50     | 50   | 92     | 92    | 86     | 86    | 92     | 92   | 92   | 77    | 92   | 77   |
| Heavy Vehicles, %        | 0      | 0    | 2      | 2     | 6      | 6     | 2      | 2    | 2    | 4     | 2    | 4    |
| Mvmt Flow                | 30     | 70   | 0      | 0     | 70     | 186   | 0      | 1    | 0    | 195   | 1    | 156  |
|                          |        |      |        |       |        |       |        |      |      |       |      |      |
| Major/Minor              | Minor2 |      | Minor1 |       | Major1 |       | Major2 |      |      |       |      |      |
| Conflicting Flow All     | 598    | 470  | 79     | 505   | 548    | 1     | 157    | 0    | 0    | 1     | 0    | 0    |
| Stage 1                  | 469    | 469  | -      | 1     | 1      | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 129    | 1    | -      | 504   | 547    | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy            | 7.1    | 6.5  | 6.22   | 7.12  | 6.56   | 6.26  | 4.12   | -    | -    | 4.14  | -    | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5  | -      | 6.12  | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5  | -      | 6.12  | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Follow-up Hdwy           | 3.5    | 4    | 3.318  | 3.518 | 4.054  | 3.354 | 2.218  | -    | -    | 2.236 | -    | -    |
| Pot Cap-1 Maneuver       | 417    | 495  | 981    | 478   | 438    | 1072  | 1423   | -    | -    | 1609  | -    | -    |
| Stage 1                  | 579    | 564  | -      | 1022  | 887    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 880    | 899  | -      | 550   | 511    | -     | -      | -    | -    | -     | -    | -    |
| Platoon blocked, %       |        |      |        |       |        |       |        | -    | -    |       | -    | -    |
| Mov Cap-1 Maneuver       | 266    | 428  | 981    | 376   | 379    | 1072  | 1423   | -    | -    | 1609  | -    | -    |
| Mov Cap-2 Maneuver       | 266    | 428  | -      | 376   | 379    | -     | -      | -    | -    | -     | -    | -    |
| Stage 1                  | 579    | 488  | -      | 1022  | 887    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 670    | 899  | -      | 408   | 442    | -     | -      | -    | -    | -     | -    | -    |
|                          |        |      |        |       |        |       |        |      |      |       |      |      |
|                          |        |      |        |       |        |       |        |      |      |       |      |      |
| Approach                 | EB     |      | WB     |       | NB     |       | SB     |      |      |       |      |      |
| HCM Control Delay, s     | 18.7   |      | 12.8   |       | 0      |       | 4.2    |      |      |       |      |      |
| HCM LOS                  | C      |      | B      |       |        |       |        |      |      |       |      |      |
|                          |        |      |        |       |        |       |        |      |      |       |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT  | NBR    | EBLn1 | WBLn1  | SBL   | SBT    | SBR  |      |       |      |      |
| Capacity (veh/h)         | 1423   | -    | -      | 362   | 715    | 1609  | -      | -    |      |       |      |      |
| HCM Lane V/C Ratio       | -      | -    | -      | 0.276 | 0.358  | 0.121 | -      | -    |      |       |      |      |
| HCM Control Delay (s)    | 0      | -    | -      | 18.7  | 12.8   | 7.5   | 0      | -    |      |       |      |      |
| HCM Lane LOS             | A      | -    | -      | C     | B      | A     | A      | -    |      |       |      |      |
| HCM 95th %tile Q(veh)    | 0      | -    | -      | 1.1   | 1.6    | 0.4   | -      | -    |      |       |      |      |

Black Mountain Development  
Emma Road at Midland Avenue

Total Build-Out (2026) Conditions - AM Peak Hour  
Free Westbound Right Turn

| Intersection             |        |                                                                                   |        |                 |                                                                                   |                                                                                   |        |                                                                                   |      |       |                                                                                     |      |
|--------------------------|--------|-----------------------------------------------------------------------------------|--------|-----------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|------|-------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 8.2    |                                                                                   |        |                 |                                                                                   |                                                                                   |        |                                                                                   |      |       |                                                                                     |      |
| Movement                 | EBL    | EBT                                                                               | EBR    | WBL             | WBT                                                                               | WBR                                                                               | NBL    | NBT                                                                               | NBR  | SBL   | SBT                                                                                 | SBR  |
| Lane Configurations      |        |  |        |                 |  |  |        |  |      |       |  |      |
| Traffic Vol, veh/h       | 15     | 35                                                                                | 0      | 0               | 60                                                                                | 160                                                                               | 0      | 1                                                                                 | 0    | 150   | 1                                                                                   | 120  |
| Future Vol, veh/h        | 15     | 35                                                                                | 0      | 0               | 60                                                                                | 160                                                                               | 0      | 1                                                                                 | 0    | 150   | 1                                                                                   | 120  |
| 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   | -               | -                                                                                 | Free                                                                              | -      | -                                                                                 | None | -     | -                                                                                   | None |
| Storage Length           | -      | -                                                                                 | -      | -               | -                                                                                 | 0                                                                                 | -      | -                                                                                 | -    | -     | -                                                                                   | -    |
| Veh in Median Storage, # | -      | 0                                                                                 | -      | -               | 0                                                                                 | -                                                                                 | -      | 0                                                                                 | -    | -     | 0                                                                                   | -    |
| Grade, %                 | -      | 0                                                                                 | -      | -               | 0                                                                                 | -                                                                                 | -      | 0                                                                                 | -    | -     | 0                                                                                   | -    |
| Peak Hour Factor         | 50     | 50                                                                                | 92     | 92              | 86                                                                                | 86                                                                                | 92     | 92                                                                                | 92   | 77    | 92                                                                                  | 77   |
| Heavy Vehicles, %        | 0      | 0                                                                                 | 2      | 2               | 6                                                                                 | 6                                                                                 | 2      | 2                                                                                 | 2    | 4     | 2                                                                                   | 4    |
| Mvmt Flow                | 30     | 70                                                                                | 0      | 0               | 70                                                                                | 186                                                                               | 0      | 1                                                                                 | 0    | 195   | 1                                                                                   | 156  |
|                          |        |                                                                                   |        |                 |                                                                                   |                                                                                   |        |                                                                                   |      |       |                                                                                     |      |
| Major/Minor              | Minor2 |                                                                                   | Minor1 |                 | Major1                                                                            |                                                                                   | Major2 |                                                                                   |      |       |                                                                                     |      |
| Conflicting Flow All     | 505    | 470                                                                               | 79     | 505             | 548                                                                               | -                                                                                 | 157    | 0                                                                                 | 0    | 1     | 0                                                                                   | 0    |
| Stage 1                  | 469    | 469                                                                               | -      | 1               | 1                                                                                 | -                                                                                 | -      | -                                                                                 | -    | -     | -                                                                                   | -    |
| Stage 2                  | 36     | 1                                                                                 | -      | 504             | 547                                                                               | -                                                                                 | -      | -                                                                                 | -    | -     | -                                                                                   | -    |
| Critical Hdwy            | 7.1    | 6.5                                                                               | 6.22   | 7.12            | 6.56                                                                              | -                                                                                 | 4.12   | -                                                                                 | -    | 4.14  | -                                                                                   | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5                                                                               | -      | 6.12            | 5.56                                                                              | -                                                                                 | -      | -                                                                                 | -    | -     | -                                                                                   | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5                                                                               | -      | 6.12            | 5.56                                                                              | -                                                                                 | -      | -                                                                                 | -    | -     | -                                                                                   | -    |
| Follow-up Hdwy           | 3.5    | 4                                                                                 | 3.318  | 3.518           | 4.054                                                                             | -                                                                                 | 2.218  | -                                                                                 | -    | 2.236 | -                                                                                   | -    |
| Pot Cap-1 Maneuver       | 481    | 495                                                                               | 981    | 478             | 438                                                                               | 0                                                                                 | 1423   | -                                                                                 | -    | 1609  | -                                                                                   | -    |
| Stage 1                  | 579    | 564                                                                               | -      | 1022            | 887                                                                               | 0                                                                                 | -      | -                                                                                 | -    | -     | -                                                                                   | -    |
| Stage 2                  | 985    | 899                                                                               | -      | 550             | 511                                                                               | 0                                                                                 | -      | -                                                                                 | -    | -     | -                                                                                   | -    |
| Platoon blocked, %       |        |                                                                                   |        |                 |                                                                                   |                                                                                   |        | -                                                                                 | -    |       | -                                                                                   | -    |
| Mov Cap-1 Maneuver       | 371    | 428                                                                               | 981    | 376             | 379                                                                               | -                                                                                 | 1423   | -                                                                                 | -    | 1609  | -                                                                                   | -    |
| Mov Cap-2 Maneuver       | 371    | 428                                                                               | -      | 376             | 379                                                                               | -                                                                                 | -      | -                                                                                 | -    | -     | -                                                                                   | -    |
| Stage 1                  | 579    | 488                                                                               | -      | 1022            | 887                                                                               | -                                                                                 | -      | -                                                                                 | -    | -     | -                                                                                   | -    |
| Stage 2                  | 908    | 899                                                                               | -      | 408             | 442                                                                               | -                                                                                 | -      | -                                                                                 | -    | -     | -                                                                                   | -    |
|                          |        |                                                                                   |        |                 |                                                                                   |                                                                                   |        |                                                                                   |      |       |                                                                                     |      |
|                          |        |                                                                                   |        |                 |                                                                                   |                                                                                   |        |                                                                                   |      |       |                                                                                     |      |
| Approach                 | EB     |                                                                                   | WB     |                 | NB                                                                                |                                                                                   | SB     |                                                                                   |      |       |                                                                                     |      |
| HCM Control Delay, s     | 16.6   |                                                                                   | 16.6   |                 | 0                                                                                 |                                                                                   | 4.2    |                                                                                   |      |       |                                                                                     |      |
| HCM LOS                  | C      |                                                                                   | C      |                 |                                                                                   |                                                                                   |        |                                                                                   |      |       |                                                                                     |      |
|                          |        |                                                                                   |        |                 |                                                                                   |                                                                                   |        |                                                                                   |      |       |                                                                                     |      |
| Minor Lane/Major Mvmt    | NBL    | NBT                                                                               | NBR    | EBLn1WBLn1WBLn2 | SBL                                                                               | SBT                                                                               | SBR    |                                                                                   |      |       |                                                                                     |      |
| Capacity (veh/h)         | 1423   | -                                                                                 | -      | 409 379         | -                                                                                 | 1609                                                                              | -      | -                                                                                 |      |       |                                                                                     |      |
| HCM Lane V/C Ratio       | -      | -                                                                                 | -      | 0.244 0.184     | -                                                                                 | 0.121                                                                             | -      | -                                                                                 |      |       |                                                                                     |      |
| HCM Control Delay (s)    | 0      | -                                                                                 | -      | 16.6 16.6       | 0                                                                                 | 7.5                                                                               | 0      | -                                                                                 |      |       |                                                                                     |      |
| HCM Lane LOS             | A      | -                                                                                 | -      | C C             | A                                                                                 | A                                                                                 | A      | -                                                                                 |      |       |                                                                                     |      |
| HCM 95th %tile Q(veh)    | 0      | -                                                                                 | -      | 0.9 0.7         | -                                                                                 | 0.4                                                                               | -      | -                                                                                 |      |       |                                                                                     |      |

Black Mountain Development  
Emma Road at Basalt Avenue

Total Build-Out (2026) Conditions - AM Peak Hour

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 4.9   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 280   | 197   | 315   | 54    |
| Demand Flow Rate, veh/h     | 291   | 201   | 324   | 55    |
| Vehicles Circulating, veh/h | 42    | 233   | 61    | 252   |
| Vehicles Exiting, veh/h     | 265   | 152   | 272   | 182   |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 4.7   | 5.1   | 5.0   | 3.9   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 291   | 201   | 324   | 55    |
| Cap Entry Lane, veh/h       | 1322  | 1088  | 1297  | 1067  |
| Entry HV Adj Factor         | 0.961 | 0.980 | 0.973 | 0.990 |
| Flow Entry, veh/h           | 280   | 197   | 315   | 54    |
| Cap Entry, veh/h            | 1270  | 1066  | 1262  | 1056  |
| V/C Ratio                   | 0.220 | 0.185 | 0.250 | 0.052 |
| Control Delay, s/veh        | 4.7   | 5.1   | 5.0   | 3.9   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 1     | 1     | 1     | 0     |

Black Mountain Development  
Basalt Avenue at SH 82

Total Build-Out (2026) Conditions - AM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 165                                                                               | 1650                                                                              | 325                                                                               | 35                                                                                | 350                                                                               | 80                                                                                | 125                                                                                 | 70                                                                                  | 105                                                                                 | 120                                                                                 | 125                                                                                 | 120                                                                                 |
| Future Volume (vph)     | 165                                                                               | 1650                                                                              | 325                                                                               | 35                                                                                | 350                                                                               | 80                                                                                | 125                                                                                 | 70                                                                                  | 105                                                                                 | 120                                                                                 | 125                                                                                 | 120                                                                                 |
| Satd. Flow (prot)       | 1736                                                                              | 3471                                                                              | 1553                                                                              | 1719                                                                              | 3438                                                                              | 1538                                                                              | 1649                                                                                | 1711                                                                                | 1553                                                                                | 3367                                                                                | 1694                                                                                | 0                                                                                   |
| Flt Permitted           | 0.473                                                                             |                                                                                   |                                                                                   | 0.061                                                                             |                                                                                   |                                                                                   | 0.950                                                                               | 0.986                                                                               |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 864                                                                               | 3471                                                                              | 1553                                                                              | 110                                                                               | 3438                                                                              | 1538                                                                              | 1649                                                                                | 1711                                                                                | 1553                                                                                | 3367                                                                                | 1694                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 210                                                                               |                                                                                   |                                                                                   | 157                                                                               |                                                                                     |                                                                                     | 174                                                                                 |                                                                                     | 24                                                                                  |                                                                                     |
| Lane Group Flow (vph)   | 176                                                                               | 1755                                                                              | 346                                                                               | 39                                                                                | 389                                                                               | 89                                                                                | 125                                                                                 | 128                                                                                 | 136                                                                                 | 138                                                                                 | 282                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                | pm+ov                                                                             | pm+pt                                                                             | NA                                                                                | Perm                                                                              | Split                                                                               | NA                                                                                  | Perm                                                                                | Split                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                 | 8                                                                                 | 1                                                                                 | 6                                                                                 |                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     | 4                                                                                   | 4                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Total Split (s)         | 25.0                                                                              | 105.0                                                                             | 23.0                                                                              | 12.0                                                                              | 92.0                                                                              | 92.0                                                                              | 23.0                                                                                | 23.0                                                                                | 23.0                                                                                | 20.0                                                                                | 20.0                                                                                |                                                                                     |
| Total Lost Time (s)     | 8.0                                                                               | 5.0                                                                               | 5.0                                                                               | 8.0                                                                               | 7.5                                                                               | 7.5                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Act Effect Green (s)    | 108.4                                                                             | 102.4                                                                             | 121.4                                                                             | 93.7                                                                              | 90.2                                                                              | 90.2                                                                              | 18.0                                                                                | 18.0                                                                                | 18.0                                                                                | 15.0                                                                                | 15.0                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.68                                                                              | 0.64                                                                              | 0.76                                                                              | 0.59                                                                              | 0.56                                                                              | 0.56                                                                              | 0.11                                                                                | 0.11                                                                                | 0.11                                                                                | 0.09                                                                                | 0.09                                                                                |                                                                                     |
| v/c Ratio               | 0.27                                                                              | 0.79                                                                              | 0.28                                                                              | 0.38                                                                              | 0.20                                                                              | 0.10                                                                              | 0.68                                                                                | 0.67                                                                                | 0.41                                                                                | 0.44                                                                                | 1.57                                                                                |                                                                                     |
| Control Delay           | 10.2                                                                              | 25.0                                                                              | 1.9                                                                               | 20.6                                                                              | 17.7                                                                              | 0.2                                                                               | 86.8                                                                                | 85.6                                                                                | 6.9                                                                                 | 73.2                                                                                | 319.6                                                                               |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay             | 10.2                                                                              | 25.0                                                                              | 1.9                                                                               | 20.6                                                                              | 17.7                                                                              | 0.2                                                                               | 86.8                                                                                | 85.6                                                                                | 6.9                                                                                 | 73.2                                                                                | 319.6                                                                               |                                                                                     |
| LOS                     | B                                                                                 | C                                                                                 | A                                                                                 | C                                                                                 | B                                                                                 | A                                                                                 | F                                                                                   | F                                                                                   | A                                                                                   | E                                                                                   | F                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 20.3                                                                              |                                                                                   |                                                                                   | 14.9                                                                              |                                                                                   |                                                                                     | 58.5                                                                                |                                                                                     |                                                                                     | 238.7                                                                               |                                                                                     |
| Approach LOS            |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                     | F                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 61                                                                                | 701                                                                               | 20                                                                                | 13                                                                                | 102                                                                               | 0                                                                                 | 134                                                                                 | 137                                                                                 | 0                                                                                   | 71                                                                                  | ~394                                                                                |                                                                                     |
| Queue Length 95th (ft)  | 92                                                                                | 804                                                                               | 36                                                                                | 26                                                                                | 138                                                                               | 0                                                                                 | 180                                                                                 | 183                                                                                 | 1                                                                                   | 105                                                                                 | #563                                                                                |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 396                                                                               |                                                                                   |                                                                                   | 404                                                                               |                                                                                   |                                                                                     | 344                                                                                 |                                                                                     |                                                                                     | 171                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 277                                                                               |                                                                                   | 590                                                                               | 425                                                                               |                                                                                   | 425                                                                               | 160                                                                                 |                                                                                     | 160                                                                                 | 95                                                                                  |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 681                                                                               | 2221                                                                              | 1229                                                                              | 104                                                                               | 1939                                                                              | 935                                                                               | 185                                                                                 | 192                                                                                 | 329                                                                                 | 315                                                                                 | 180                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 0.26                                                                              | 0.79                                                                              | 0.28                                                                              | 0.38                                                                              | 0.20                                                                              | 0.10                                                                              | 0.68                                                                                | 0.67                                                                                | 0.41                                                                                | 0.44                                                                                | 1.57                                                                                |                                                                                     |

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 132 (83%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.57

Intersection Signal Delay: 49.1

Intersection LOS: D

Intersection Capacity Utilization 88.2%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: Basalt Avenue & SH 82



Black Mountain Development  
Emma Road at Outbound Daycare Access

Total Build-Out (2026) Conditions - PM Peak Hour

| Intersection             |        |                                                                                   |                                                                                   |        |                                                                                   |       |
|--------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 5.5    |                                                                                   |                                                                                   |        |                                                                                   |       |
| Movement                 | EBL    | EBT                                                                               | WBT                                                                               | WBR    | SBL                                                                               | SBR   |
| Lane Configurations      |        |  |  |        |  |       |
| Traffic Vol, veh/h       | 0      | 5                                                                                 | 5                                                                                 | 0      | 17                                                                                | 1     |
| Future Vol, veh/h        | 0      | 5                                                                                 | 5                                                                                 | 0      | 17                                                                                | 1     |
| Conflicting Peds, #/hr   | 0      | 0                                                                                 | 0                                                                                 | 0      | 0                                                                                 | 0     |
| Sign Control             | Free   | Free                                                                              | Free                                                                              | Free   | Stop                                                                              | Stop  |
| RT Channelized           | -      | None                                                                              | -                                                                                 | None   | -                                                                                 | None  |
| Storage Length           | -      | -                                                                                 | -                                                                                 | -      | 0                                                                                 | -     |
| Veh in Median Storage, # | -      | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -     |
| Grade, %                 | -      | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -     |
| Peak Hour Factor         | 92     | 92                                                                                | 92                                                                                | 92     | 92                                                                                | 92    |
| Heavy Vehicles, %        | 2      | 2                                                                                 | 2                                                                                 | 2      | 2                                                                                 | 2     |
| Mvmt Flow                | 0      | 5                                                                                 | 5                                                                                 | 0      | 18                                                                                | 1     |
| Major/Minor              | Major1 | Major2                                                                            |                                                                                   | Minor2 |                                                                                   |       |
| Conflicting Flow All     | 5      | 0                                                                                 | -                                                                                 | 0      | 10                                                                                | 5     |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 5                                                                                 | -     |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 5                                                                                 | -     |
| Critical Hdwy            | 4.12   | -                                                                                 | -                                                                                 | -      | 6.42                                                                              | 6.22  |
| Critical Hdwy Stg 1      | -      | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -     |
| Critical Hdwy Stg 2      | -      | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -     |
| Follow-up Hdwy           | 2.218  | -                                                                                 | -                                                                                 | -      | 3.518                                                                             | 3.318 |
| Pot Cap-1 Maneuver       | 1616   | -                                                                                 | -                                                                                 | 0      | 1010                                                                              | 1078  |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | 0      | 1018                                                                              | -     |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | 0      | 1018                                                                              | -     |
| Platoon blocked, %       |        | -                                                                                 | -                                                                                 |        |                                                                                   |       |
| Mov Cap-1 Maneuver       | 1616   | -                                                                                 | -                                                                                 | -      | 1010                                                                              | 1078  |
| Mov Cap-2 Maneuver       | -      | -                                                                                 | -                                                                                 | -      | 1010                                                                              | -     |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 1018                                                                              | -     |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 1018                                                                              | -     |
| Approach                 | EB     | WB                                                                                |                                                                                   | SB     |                                                                                   |       |
| HCM Control Delay, s     | 0      | 0                                                                                 |                                                                                   | 8.6    |                                                                                   |       |
| HCM LOS                  |        |                                                                                   |                                                                                   | A      |                                                                                   |       |
| Minor Lane/Major Mvmt    | EBL    | EBT                                                                               | WBT                                                                               | SBLn1  |                                                                                   |       |
| Capacity (veh/h)         | 1616   | -                                                                                 | -                                                                                 | 1014   |                                                                                   |       |
| HCM Lane V/C Ratio       | -      | -                                                                                 | -                                                                                 | 0.019  |                                                                                   |       |
| HCM Control Delay (s)    | 0      | -                                                                                 | -                                                                                 | 8.6    |                                                                                   |       |
| HCM Lane LOS             | A      | -                                                                                 | -                                                                                 | A      |                                                                                   |       |
| HCM 95th %tile Q(veh)    | 0      | -                                                                                 | -                                                                                 | 0.1    |                                                                                   |       |

Black Mountain Development  
Emma Road at Inbound Daycare Access

Total Build-Out (2026) Conditions - PM Peak Hour

| Intersection             |        |                                                                                   |                                                                                   |        |                                                                                   |      |
|--------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.3    |                                                                                   |                                                                                   |        |                                                                                   |      |
| Movement                 | EBL    | EBT                                                                               | WBT                                                                               | WBR    | SBL                                                                               | SBR  |
| Lane Configurations      |        |  |  |        |  |      |
| Traffic Vol, veh/h       | 1      | 20                                                                                | 5                                                                                 | 20     | 1                                                                                 | 0    |
| Future Vol, veh/h        | 1      | 20                                                                                | 5                                                                                 | 20     | 1                                                                                 | 0    |
| Conflicting Peds, #/hr   | 0      | 0                                                                                 | 0                                                                                 | 0      | 0                                                                                 | 0    |
| Sign Control             | Free   | Free                                                                              | Free                                                                              | Free   | Stop                                                                              | Stop |
| RT Channelized           | -      | None                                                                              | -                                                                                 | None   | -                                                                                 | None |
| Storage Length           | -      | -                                                                                 | -                                                                                 | -      | 0                                                                                 | -    |
| Veh in Median Storage, # | -      | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -    |
| Grade, %                 | -      | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -    |
| Peak Hour Factor         | 92     | 92                                                                                | 92                                                                                | 92     | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2      | 2                                                                                 | 2                                                                                 | 2      | 2                                                                                 | 2    |
| Mvmt Flow                | 1      | 22                                                                                | 5                                                                                 | 22     | 1                                                                                 | 0    |
| Major/Minor              | Major1 | Major2                                                                            |                                                                                   | Minor2 |                                                                                   |      |
| Conflicting Flow All     | 27     | 0                                                                                 | -                                                                                 | 0      | 40                                                                                | -    |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 16                                                                                | -    |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 24                                                                                | -    |
| Critical Hdwy            | 4.12   | -                                                                                 | -                                                                                 | -      | 6.42                                                                              | -    |
| Critical Hdwy Stg 1      | -      | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -    |
| Critical Hdwy Stg 2      | -      | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -    |
| Follow-up Hdwy           | 2.218  | -                                                                                 | -                                                                                 | -      | 3.518                                                                             | -    |
| Pot Cap-1 Maneuver       | 1587   | -                                                                                 | -                                                                                 | -      | 972                                                                               | 0    |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 1007                                                                              | 0    |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 999                                                                               | 0    |
| Platoon blocked, %       |        | -                                                                                 | -                                                                                 | -      |                                                                                   |      |
| Mov Cap-1 Maneuver       | 1587   | -                                                                                 | -                                                                                 | -      | 971                                                                               | -    |
| Mov Cap-2 Maneuver       | -      | -                                                                                 | -                                                                                 | -      | 971                                                                               | -    |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 1006                                                                              | -    |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 999                                                                               | -    |
| Approach                 | EB     | WB                                                                                |                                                                                   | SB     |                                                                                   |      |
| HCM Control Delay, s     | 0.3    | 0                                                                                 |                                                                                   | 8.7    |                                                                                   |      |
| HCM LOS                  |        |                                                                                   |                                                                                   | A      |                                                                                   |      |
| Minor Lane/Major Mvmt    | EBL    | EBT                                                                               | WBT                                                                               | WBR    | SBLn1                                                                             |      |
| Capacity (veh/h)         | 1587   | -                                                                                 | -                                                                                 | -      | 971                                                                               |      |
| HCM Lane V/C Ratio       | 0.001  | -                                                                                 | -                                                                                 | -      | 0.001                                                                             |      |
| HCM Control Delay (s)    | 7.3    | 0                                                                                 | -                                                                                 | -      | 8.7                                                                               |      |
| HCM Lane LOS             | A      | A                                                                                 | -                                                                                 | -      | A                                                                                 |      |
| HCM 95th %tile Q(veh)    | 0      | -                                                                                 | -                                                                                 | -      | 0                                                                                 |      |

Black Mountain Development  
Emma Road at Townhomes-Cabins-Tents

Total Build-Out (2026) Conditions - PM Peak Hour

Intersection

Int Delay, s/veh 1.8

| Movement                 | EBL  | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR  |
|--------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |      |  |  |      |  |      |
| Traffic Vol, veh/h       | 1    | 25                                                                                | 25                                                                                | 24   | 17                                                                                | 1    |
| Future Vol, veh/h        | 1    | 25                                                                                | 25                                                                                | 24   | 17                                                                                | 1    |
| Conflicting Peds, #/hr   | 0    | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -    | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | -    | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2    | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2    |
| Mvmt Flow                | 1    | 27                                                                                | 27                                                                                | 26   | 18                                                                                | 1    |

| Major/Minor          | Major1 | Major2 | Minor2 |   |       |       |
|----------------------|--------|--------|--------|---|-------|-------|
| Conflicting Flow All | 53     | 0      | -      | 0 | 69    | 40    |
| Stage 1              | -      | -      | -      | - | 40    | -     |
| Stage 2              | -      | -      | -      | - | 29    | -     |
| Critical Hdwy        | 4.12   | -      | -      | - | 6.42  | 6.22  |
| Critical Hdwy Stg 1  | -      | -      | -      | - | 5.42  | -     |
| Critical Hdwy Stg 2  | -      | -      | -      | - | 5.42  | -     |
| Follow-up Hdwy       | 2.218  | -      | -      | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver   | 1553   | -      | -      | - | 936   | 1031  |
| Stage 1              | -      | -      | -      | - | 982   | -     |
| Stage 2              | -      | -      | -      | - | 994   | -     |
| Platoon blocked, %   |        | -      | -      | - |       |       |
| Mov Cap-1 Maneuver   | 1553   | -      | -      | - | 935   | 1031  |
| Mov Cap-2 Maneuver   | -      | -      | -      | - | 935   | -     |
| Stage 1              | -      | -      | -      | - | 981   | -     |
| Stage 2              | -      | -      | -      | - | 994   | -     |

| Approach             | EB  | WB | SB  |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 0.3 | 0  | 8.9 |
| HCM LOS              |     |    | A   |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1553  | -   | -   | -   | 940   |
| HCM Lane V/C Ratio    | 0.001 | -   | -   | -   | 0.021 |
| HCM Control Delay (s) | 7.3   | 0   | -   | -   | 8.9   |
| HCM Lane LOS          | A     | A   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0.1   |

Black Mountain Development  
Emma Road at Townhome Access

Total Build-Out (2026) Conditions - PM Peak Hour

Intersection

Int Delay, s/veh 0.8

| Movement                 | EBL  | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR  |
|--------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |      |  |  |      |  |      |
| Traffic Vol, veh/h       | 1    | 40                                                                                | 50                                                                                | 13   | 8                                                                                 | 1    |
| Future Vol, veh/h        | 1    | 40                                                                                | 50                                                                                | 13   | 8                                                                                 | 1    |
| Conflicting Peds, #/hr   | 0    | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -    | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | -    | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2    | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2    |
| Mvmt Flow                | 1    | 43                                                                                | 54                                                                                | 14   | 9                                                                                 | 1    |

| Major/Minor          | Major1 | Major2 | Minor2        |
|----------------------|--------|--------|---------------|
| Conflicting Flow All | 68     | 0      | 0 106 61      |
| Stage 1              | -      | -      | - 61 -        |
| Stage 2              | -      | -      | - 45 -        |
| Critical Hdwy        | 4.12   | -      | - 6.42 6.22   |
| Critical Hdwy Stg 1  | -      | -      | - 5.42 -      |
| Critical Hdwy Stg 2  | -      | -      | - 5.42 -      |
| Follow-up Hdwy       | 2.218  | -      | - 3.518 3.318 |
| Pot Cap-1 Maneuver   | 1533   | -      | - 892 1004    |
| Stage 1              | -      | -      | - 962 -       |
| Stage 2              | -      | -      | - 977 -       |
| Platoon blocked, %   | -      | -      | -             |
| Mov Cap-1 Maneuver   | 1533   | -      | - 891 1004    |
| Mov Cap-2 Maneuver   | -      | -      | - 891 -       |
| Stage 1              | -      | -      | - 961 -       |
| Stage 2              | -      | -      | - 977 -       |

| Approach             | EB  | WB | SB |
|----------------------|-----|----|----|
| HCM Control Delay, s | 0.2 | 0  | 9  |
| HCM LOS              |     |    | A  |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1533  | -   | -   | -   | 902   |
| HCM Lane V/C Ratio    | 0.001 | -   | -   | -   | 0.011 |
| HCM Control Delay (s) | 7.3   | 0   | -   | -   | 9     |
| HCM Lane LOS          | A     | A   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0     |

Black Mountain Development  
Emma Road at Adjacent Slip Ramp

Total Build-Out (2026) Conditions - PM Peak Hour

Intersection

Int Delay, s/veh 2.5

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations   

Traffic Vol, veh/h 0 0 205 60 30 25

Future Vol, veh/h 0 0 205 60 30 25

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 92 92 71 71 50 50

Heavy Vehicles, % 2 2 4 4 0 0

Mvmt Flow 0 0 289 85 60 50

Major/Minor Major1 Major2 Minor2

Conflicting Flow All - 0 - 0 332 332

Stage 1 - - - - 332 -

Stage 2 - - - - 0 -

Critical Hdwy - - - - 6.4 6.2

Critical Hdwy Stg 1 - - - - 5.4 -

Critical Hdwy Stg 2 - - - - 5.4 -

Follow-up Hdwy - - - - 3.5 3.3

Pot Cap-1 Maneuver 0 - - - 667 714

Stage 1 0 - - - 731 -

Stage 2 0 - - - - -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver - - - - 667 714

Mov Cap-2 Maneuver - - - - 667 -

Stage 1 - - - - 731 -

Stage 2 - - - - - -

Approach EB WB SB

HCM Control Delay, s 0 0 11.2

HCM LOS B

Minor Lane/Major Mvmt EBT WBT WBR SBLn1

Capacity (veh/h) - - - 688

HCM Lane V/C Ratio - - - 0.16

HCM Control Delay (s) - - - 11.2

HCM Lane LOS - - - B

HCM 95th %tile Q(veh) - - - 0.6

Black Mountain Development  
Emma Road at Midland Avenue

Total Build-Out (2026) Conditions - PM Peak Hour

| Intersection             |        |      |        |       |       |        |       |      |        |       |      |      |
|--------------------------|--------|------|--------|-------|-------|--------|-------|------|--------|-------|------|------|
| Int Delay, s/veh         | 19.3   |      |        |       |       |        |       |      |        |       |      |      |
| Movement                 | EBL    | EBT  | EBR    | WBL   | WBT   | WBR    | NBL   | NBT  | NBR    | SBL   | SBT  | SBR  |
| Lane Configurations      |        | ↕    |        |       | ↕     |        |       | ↕    |        |       | ↕    |      |
| Traffic Vol, veh/h       | 20     | 25   | 0      | 0     | 130   | 155    | 0     | 1    | 0      | 215   | 1    | 165  |
| Future Vol, veh/h        | 20     | 25   | 0      | 0     | 130   | 155    | 0     | 1    | 0      | 215   | 1    | 165  |
| 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           | -      | -    | -      | -     | -     | -      | -     | -    | -      | -     | -    | -    |
| Veh in Median Storage, # | -      | 0    | -      | -     | 0     | -      | -     | 0    | -      | -     | 0    | -    |
| Grade, %                 | -      | 0    | -      | -     | 0     | -      | -     | 0    | -      | -     | 0    | -    |
| Peak Hour Factor         | 50     | 50   | 92     | 92    | 86    | 86     | 92    | 92   | 92     | 77    | 92   | 77   |
| Heavy Vehicles, %        | 0      | 0    | 2      | 2     | 6     | 6      | 2     | 2    | 2      | 4     | 2    | 4    |
| Mvmt Flow                | 40     | 50   | 0      | 0     | 151   | 180    | 0     | 1    | 0      | 279   | 1    | 214  |
|                          |        |      |        |       |       |        |       |      |        |       |      |      |
| Major/Minor              | Minor2 |      | Minor1 |       |       | Major1 |       |      | Major2 |       |      |      |
| Conflicting Flow All     | 833    | 667  | 108    | 692   | 774   | 1      | 215   | 0    | 0      | 1     | 0    | 0    |
| Stage 1                  | 666    | 666  | -      | 1     | 1     | -      | -     | -    | -      | -     | -    | -    |
| Stage 2                  | 167    | 1    | -      | 691   | 773   | -      | -     | -    | -      | -     | -    | -    |
| Critical Hdwy            | 7.1    | 6.5  | 6.22   | 7.12  | 6.56  | 6.26   | 4.12  | -    | -      | 4.14  | -    | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5  | -      | 6.12  | 5.56  | -      | -     | -    | -      | -     | -    | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5  | -      | 6.12  | 5.56  | -      | -     | -    | -      | -     | -    | -    |
| Follow-up Hdwy           | 3.5    | 4    | 3.318  | 3.518 | 4.054 | 3.354  | 2.218 | -    | -      | 2.236 | -    | -    |
| Pot Cap-1 Maneuver       | 290    | 382  | 946    | 358   | 325   | 1072   | 1355  | -    | -      | 1609  | -    | -    |
| Stage 1                  | 452    | 460  | -      | 1022  | 887   | -      | -     | -    | -      | -     | -    | -    |
| Stage 2                  | 840    | 899  | -      | 435   | 403   | -      | -     | -    | -      | -     | -    | -    |
| Platoon blocked, %       |        |      |        |       |       |        |       | -    | -      |       | -    | -    |
| Mov Cap-1 Maneuver       | 111    | 305  | 946    | 266   | 259   | 1072   | 1355  | -    | -      | 1609  | -    | -    |
| Mov Cap-2 Maneuver       | 111    | 305  | -      | 266   | 259   | -      | -     | -    | -      | -     | -    | -    |
| Stage 1                  | 452    | 367  | -      | 1022  | 887   | -      | -     | -    | -      | -     | -    | -    |
| Stage 2                  | 580    | 899  | -      | 300   | 322   | -      | -     | -    | -      | -     | -    | -    |
|                          |        |      |        |       |       |        |       |      |        |       |      |      |
|                          |        |      |        |       |       |        |       |      |        |       |      |      |
| Approach                 | EB     |      | WB     |       |       | NB     |       |      | SB     |       |      |      |
| HCM Control Delay, s     | 46.9   |      | 34     |       |       | 0      |       |      | 4.4    |       |      |      |
| HCM LOS                  | E      |      | D      |       |       |        |       |      |        |       |      |      |
|                          |        |      |        |       |       |        |       |      |        |       |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT  | NBR    | EBLn1 | WBLn1 | SBL    | SBT   | SBR  |        |       |      |      |
| Capacity (veh/h)         | 1355   | -    | -      | 172   | 441   | 1609   | -     | -    |        |       |      |      |
| HCM Lane V/C Ratio       | -      | -    | -      | 0.523 | 0.751 | 0.174  | -     | -    |        |       |      |      |
| HCM Control Delay (s)    | 0      | -    | -      | 46.9  | 34    | 7.7    | 0     | -    |        |       |      |      |
| HCM Lane LOS             | A      | -    | -      | E     | D     | A      | A     | -    |        |       |      |      |
| HCM 95th %tile Q(veh)    | 0      | -    | -      | 2.6   | 6.2   | 0.6    | -     | -    |        |       |      |      |

Black Mountain Development  
Emma Road at Midland Avenue

Total Build-Out (2026) Conditions - PM Peak Hour  
Free Westbound Right Turn

| Intersection             |        |                                                                                   |        |                 |                                                                                   |                                                                                   |       |                                                                                   |        |       |                                                                                     |      |
|--------------------------|--------|-----------------------------------------------------------------------------------|--------|-----------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------|--------|-------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 14.6   |                                                                                   |        |                 |                                                                                   |                                                                                   |       |                                                                                   |        |       |                                                                                     |      |
| Movement                 | EBL    | EBT                                                                               | EBR    | WBL             | WBT                                                                               | WBR                                                                               | NBL   | NBT                                                                               | NBR    | SBL   | SBT                                                                                 | SBR  |
| Lane Configurations      |        |  |        |                 |  |  |       |  |        |       |  |      |
| Traffic Vol, veh/h       | 20     | 25                                                                                | 0      | 0               | 130                                                                               | 155                                                                               | 0     | 1                                                                                 | 0      | 215   | 1                                                                                   | 165  |
| Future Vol, veh/h        | 20     | 25                                                                                | 0      | 0               | 130                                                                               | 155                                                                               | 0     | 1                                                                                 | 0      | 215   | 1                                                                                   | 165  |
| 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   | -               | -                                                                                 | Free                                                                              | -     | -                                                                                 | None   | -     | -                                                                                   | None |
| Storage Length           | -      | -                                                                                 | -      | -               | -                                                                                 | 0                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Veh in Median Storage, # | -      | 0                                                                                 | -      | -               | 0                                                                                 | -                                                                                 | -     | 0                                                                                 | -      | -     | 0                                                                                   | -    |
| Grade, %                 | -      | 0                                                                                 | -      | -               | 0                                                                                 | -                                                                                 | -     | 0                                                                                 | -      | -     | 0                                                                                   | -    |
| Peak Hour Factor         | 50     | 50                                                                                | 92     | 92              | 86                                                                                | 86                                                                                | 92    | 92                                                                                | 92     | 77    | 92                                                                                  | 77   |
| Heavy Vehicles, %        | 0      | 0                                                                                 | 2      | 2               | 6                                                                                 | 6                                                                                 | 2     | 2                                                                                 | 2      | 4     | 2                                                                                   | 4    |
| Mvmt Flow                | 40     | 50                                                                                | 0      | 0               | 151                                                                               | 180                                                                               | 0     | 1                                                                                 | 0      | 279   | 1                                                                                   | 214  |
|                          |        |                                                                                   |        |                 |                                                                                   |                                                                                   |       |                                                                                   |        |       |                                                                                     |      |
| Major/Minor              | Minor2 |                                                                                   | Minor1 |                 |                                                                                   | Major1                                                                            |       |                                                                                   | Major2 |       |                                                                                     |      |
| Conflicting Flow All     | 743    | 667                                                                               | 108    | 692             | 774                                                                               | -                                                                                 | 215   | 0                                                                                 | 0      | 1     | 0                                                                                   | 0    |
| Stage 1                  | 666    | 666                                                                               | -      | 1               | 1                                                                                 | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Stage 2                  | 77     | 1                                                                                 | -      | 691             | 773                                                                               | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Critical Hdwy            | 7.1    | 6.5                                                                               | 6.22   | 7.12            | 6.56                                                                              | -                                                                                 | 4.12  | -                                                                                 | -      | 4.14  | -                                                                                   | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5                                                                               | -      | 6.12            | 5.56                                                                              | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5                                                                               | -      | 6.12            | 5.56                                                                              | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Follow-up Hdwy           | 3.5    | 4                                                                                 | 3.318  | 3.518           | 4.054                                                                             | -                                                                                 | 2.218 | -                                                                                 | -      | 2.236 | -                                                                                   | -    |
| Pot Cap-1 Maneuver       | 334    | 382                                                                               | 946    | 358             | 325                                                                               | 0                                                                                 | 1355  | -                                                                                 | -      | 1609  | -                                                                                   | -    |
| Stage 1                  | 452    | 460                                                                               | -      | 1022            | 887                                                                               | 0                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Stage 2                  | 937    | 899                                                                               | -      | 435             | 403                                                                               | 0                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Platoon blocked, %       |        |                                                                                   |        |                 |                                                                                   |                                                                                   |       | -                                                                                 | -      |       | -                                                                                   | -    |
| Mov Cap-1 Maneuver       | 154    | 305                                                                               | 946    | 266             | 259                                                                               | -                                                                                 | 1355  | -                                                                                 | -      | 1609  | -                                                                                   | -    |
| Mov Cap-2 Maneuver       | 154    | 305                                                                               | -      | 266             | 259                                                                               | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Stage 1                  | 452    | 367                                                                               | -      | 1022            | 887                                                                               | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Stage 2                  | 777    | 899                                                                               | -      | 300             | 322                                                                               | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
|                          |        |                                                                                   |        |                 |                                                                                   |                                                                                   |       |                                                                                   |        |       |                                                                                     |      |
| Approach                 | EB     |                                                                                   | WB     |                 |                                                                                   | NB                                                                                |       |                                                                                   | SB     |       |                                                                                     |      |
| HCM Control Delay, s     | 34     |                                                                                   | 36.7   |                 |                                                                                   | 0                                                                                 |       |                                                                                   | 4.4    |       |                                                                                     |      |
| HCM LOS                  | D      |                                                                                   | E      |                 |                                                                                   |                                                                                   |       |                                                                                   |        |       |                                                                                     |      |
|                          |        |                                                                                   |        |                 |                                                                                   |                                                                                   |       |                                                                                   |        |       |                                                                                     |      |
| Minor Lane/Major Mvmt    | NBL    | NBT                                                                               | NBR    | EBLn1WBLn1WBLn2 | SBL                                                                               | SBT                                                                               | SBR   |                                                                                   |        |       |                                                                                     |      |
| Capacity (veh/h)         | 1355   | -                                                                                 | -      | 212 259         | -                                                                                 | 1609                                                                              | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| HCM Lane V/C Ratio       | -      | -                                                                                 | -      | 0.425 0.584     | -                                                                                 | 0.174                                                                             | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| HCM Control Delay (s)    | 0      | -                                                                                 | -      | 34 36.7         | 0                                                                                 | 7.7                                                                               | 0     | -                                                                                 | -      | -     | -                                                                                   | -    |
| HCM Lane LOS             | A      | -                                                                                 | -      | D E             | A                                                                                 | A                                                                                 | A     | -                                                                                 | -      | -     | -                                                                                   | -    |
| HCM 95th %tile Q(veh)    | 0      | -                                                                                 | -      | 2 3.4           | -                                                                                 | 0.6                                                                               | -     | -                                                                                 | -      | -     | -                                                                                   | -    |

Black Mountain Development  
Emma Road at Basalt Avenue

Total Build-Out (2026) Conditions - PM Peak Hour

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 5.3   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 170   | 240   | 373   | 74    |
| Demand Flow Rate, veh/h     | 177   | 245   | 384   | 76    |
| Vehicles Circulating, veh/h | 49    | 271   | 84    | 339   |
| Vehicles Exiting, veh/h     | 366   | 197   | 142   | 177   |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 4.0   | 5.7   | 5.7   | 4.5   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 177   | 245   | 384   | 76    |
| Cap Entry Lane, veh/h       | 1313  | 1047  | 1267  | 977   |
| Entry HV Adj Factor         | 0.958 | 0.981 | 0.972 | 0.980 |
| Flow Entry, veh/h           | 170   | 240   | 373   | 74    |
| Cap Entry, veh/h            | 1258  | 1027  | 1231  | 957   |
| V/C Ratio                   | 0.135 | 0.234 | 0.303 | 0.078 |
| Control Delay, s/veh        | 4.0   | 5.7   | 5.7   | 4.5   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 1     | 1     | 0     |

# Black Mountain Development SH 82 at Basalt Avenue

## Total Build-Out (2026) Conditions - PM Peak Hour

|                         |  |  |  |  |  |  |   |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)    | 130                                                                               | 400                                                                               | 65                                                                                | 160                                                                               | 1875                                                                              | 75                                                                                | 190                                                                                 | 65                                                                                  | 35                                                                                  | 80                                                                                  | 40                                                                                  | 50                                                                                  |
| Future Volume (vph)     | 130                                                                               | 400                                                                               | 65                                                                                | 160                                                                               | 1875                                                                              | 75                                                                                | 190                                                                                 | 65                                                                                  | 35                                                                                  | 80                                                                                  | 40                                                                                  | 50                                                                                  |
| Satd. Flow (prot)       | 1736                                                                              | 3471                                                                              | 1553                                                                              | 1719                                                                              | 3438                                                                              | 1538                                                                              | 1649                                                                                | 1694                                                                                | 1553                                                                                | 3367                                                                                | 1675                                                                                | 0                                                                                   |
| Flt Permitted           | 0.040                                                                             |                                                                                   |                                                                                   | 0.504                                                                             |                                                                                   |                                                                                   | 0.950                                                                               | 0.976                                                                               |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 73                                                                                | 3471                                                                              | 1553                                                                              | 912                                                                               | 3438                                                                              | 1538                                                                              | 1649                                                                                | 1694                                                                                | 1553                                                                                | 3367                                                                                | 1675                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                   | 69                                                                                |                                                                                   |                                                                                   | 157                                                                               |                                                                                     |                                                                                     | 174                                                                                 |                                                                                     | 31                                                                                  |                                                                                     |
| Lane Group Flow (vph)   | 138                                                                               | 426                                                                               | 69                                                                                | 178                                                                               | 2083                                                                              | 83                                                                                | 163                                                                                 | 168                                                                                 | 45                                                                                  | 92                                                                                  | 103                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                | pm+ov                                                                             | pm+pt                                                                             | NA                                                                                | Perm                                                                              | Split                                                                               | NA                                                                                  | Perm                                                                                | Split                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                 | 8                                                                                 | 1                                                                                 | 6                                                                                 |                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     | 4                                                                                   | 4                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 6                                                                                 |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Total Split (s)         | 25.0                                                                              | 105.0                                                                             | 23.0                                                                              | 12.0                                                                              | 92.0                                                                              | 92.0                                                                              | 23.0                                                                                | 23.0                                                                                | 23.0                                                                                | 20.0                                                                                | 20.0                                                                                |                                                                                     |
| Total Lost Time (s)     | 8.0                                                                               | 5.0                                                                               | 5.0                                                                               | 8.0                                                                               | 7.5                                                                               | 7.5                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Act Effect Green (s)    | 107.9                                                                             | 100.0                                                                             | 118.0                                                                             | 91.9                                                                              | 88.4                                                                              | 88.4                                                                              | 18.0                                                                                | 18.0                                                                                | 18.0                                                                                | 15.0                                                                                | 15.0                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.67                                                                              | 0.62                                                                              | 0.74                                                                              | 0.57                                                                              | 0.55                                                                              | 0.55                                                                              | 0.11                                                                                | 0.11                                                                                | 0.11                                                                                | 0.09                                                                                | 0.09                                                                                |                                                                                     |
| v/c Ratio               | 0.75                                                                              | 0.20                                                                              | 0.06                                                                              | 0.33                                                                              | 1.10                                                                              | 0.09                                                                              | 0.88                                                                                | 0.88                                                                                | 0.14                                                                                | 0.29                                                                                | 0.56                                                                                |                                                                                     |
| Control Delay           | 62.7                                                                              | 13.1                                                                              | 0.7                                                                               | 15.4                                                                              | 86.8                                                                              | 0.2                                                                               | 109.8                                                                               | 109.6                                                                               | 0.9                                                                                 | 70.2                                                                                | 60.4                                                                                |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay             | 62.7                                                                              | 13.1                                                                              | 0.7                                                                               | 15.4                                                                              | 86.8                                                                              | 0.2                                                                               | 109.8                                                                               | 109.6                                                                               | 0.9                                                                                 | 70.2                                                                                | 60.4                                                                                |                                                                                     |
| LOS                     | E                                                                                 | B                                                                                 | A                                                                                 | B                                                                                 | F                                                                                 | A                                                                                 | F                                                                                   | F                                                                                   | A                                                                                   | E                                                                                   | E                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 22.6                                                                              |                                                                                   |                                                                                   | 78.3                                                                              |                                                                                   |                                                                                     | 96.7                                                                                |                                                                                     |                                                                                     | 65.0                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 94                                                                                | 95                                                                                | 0                                                                                 | 62                                                                                | ~1298                                                                             | 0                                                                                 | 180                                                                                 | 185                                                                                 | 0                                                                                   | 46                                                                                  | 73                                                                                  |                                                                                     |
| Queue Length 95th (ft)  | 171                                                                               | 122                                                                               | 7                                                                                 | 93                                                                                | #1468                                                                             | 0                                                                                 | #251                                                                                | #254                                                                                | 0                                                                                   | 75                                                                                  | 134                                                                                 |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 396                                                                               |                                                                                   |                                                                                   | 404                                                                               |                                                                                   |                                                                                     | 344                                                                                 |                                                                                     |                                                                                     | 171                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 277                                                                               |                                                                                   | 590                                                                               | 425                                                                               |                                                                                   | 425                                                                               | 160                                                                                 |                                                                                     | 160                                                                                 | 95                                                                                  |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 226                                                                               | 2169                                                                              | 1163                                                                              | 543                                                                               | 1899                                                                              | 920                                                                               | 185                                                                                 | 190                                                                                 | 329                                                                                 | 315                                                                                 | 185                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 0.61                                                                              | 0.20                                                                              | 0.06                                                                              | 0.33                                                                              | 1.10                                                                              | 0.09                                                                              | 0.88                                                                                | 0.88                                                                                | 0.14                                                                                | 0.29                                                                                | 0.56                                                                                |                                                                                     |

### Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 132 (83%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 69.6

Intersection LOS: E

Intersection Capacity Utilization 89.8%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: Basalt Avenue & SH 82



## APPENDIX G. ANALYSIS WORKSHEETS – LONG-RANGE TOTAL CONDITIONS

Black Mountain Development  
Emma Road at Outbound Daycare Access

Total Long-Range (2046) Conditions - AM Peak Hour

Intersection

Int Delay, s/veh 3.9

| Movement                 | EBL  | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR  |
|--------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |      |  |  |      |  |      |
| Traffic Vol, veh/h       | 0    | 10                                                                                | 15                                                                                | 0    | 19                                                                                | 1    |
| Future Vol, veh/h        | 0    | 10                                                                                | 15                                                                                | 0    | 19                                                                                | 1    |
| Conflicting Peds, #/hr   | 0    | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -    | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | -    | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2    | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2    |
| Mvmt Flow                | 0    | 11                                                                                | 16                                                                                | 0    | 21                                                                                | 1    |

| Major/Minor          | Major1 | Major2 | Minor2        |
|----------------------|--------|--------|---------------|
| Conflicting Flow All | 16     | 0      | 0 27 16       |
| Stage 1              | -      | -      | - 16 -        |
| Stage 2              | -      | -      | - 11 -        |
| Critical Hdwy        | 4.12   | -      | - 6.42 6.22   |
| Critical Hdwy Stg 1  | -      | -      | - 5.42 -      |
| Critical Hdwy Stg 2  | -      | -      | - 5.42 -      |
| Follow-up Hdwy       | 2.218  | -      | - 3.518 3.318 |
| Pot Cap-1 Maneuver   | 1602   | -      | 0 988 1063    |
| Stage 1              | -      | -      | 0 1007 -      |
| Stage 2              | -      | -      | 0 1012 -      |
| Platoon blocked, %   | -      | -      |               |
| Mov Cap-1 Maneuver   | 1602   | -      | - 988 1063    |
| Mov Cap-2 Maneuver   | -      | -      | - 988 -       |
| Stage 1              | -      | -      | - 1007 -      |
| Stage 2              | -      | -      | - 1012 -      |

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

| Minor Lane/Major Mvmt | EBL  | EBT | WBT | SBLn1 |
|-----------------------|------|-----|-----|-------|
| Capacity (veh/h)      | 1602 | -   | -   | 991   |
| HCM Lane V/C Ratio    | -    | -   | -   | 0.022 |
| HCM Control Delay (s) | 0    | -   | -   | 8.7   |
| HCM Lane LOS          | A    | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0    | -   | -   | 0.1   |

Black Mountain Development  
Emma Road at Inbound Daycare Access

Total Long-Range (2046) Conditions - AM Peak Hour

| Intersection             |        |                                                                                   |                                                                                   |        |                                                                                   |      |
|--------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.2    |                                                                                   |                                                                                   |        |                                                                                   |      |
| Movement                 | EBL    | EBT                                                                               | WBT                                                                               | WBR    | SBL                                                                               | SBR  |
| Lane Configurations      |        |  |  |        |  |      |
| Traffic Vol, veh/h       | 1      | 30                                                                                | 10                                                                                | 19     | 1                                                                                 | 0    |
| Future Vol, veh/h        | 1      | 30                                                                                | 10                                                                                | 19     | 1                                                                                 | 0    |
| Conflicting Peds, #/hr   | 0      | 0                                                                                 | 0                                                                                 | 0      | 0                                                                                 | 0    |
| Sign Control             | Free   | Free                                                                              | Free                                                                              | Free   | Stop                                                                              | Stop |
| RT Channelized           | -      | None                                                                              | -                                                                                 | None   | -                                                                                 | None |
| Storage Length           | -      | -                                                                                 | -                                                                                 | -      | 0                                                                                 | -    |
| Veh in Median Storage, # | -      | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -    |
| Grade, %                 | -      | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -    |
| Peak Hour Factor         | 92     | 92                                                                                | 92                                                                                | 92     | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2      | 2                                                                                 | 2                                                                                 | 2      | 2                                                                                 | 2    |
| Mvmt Flow                | 1      | 33                                                                                | 11                                                                                | 21     | 1                                                                                 | 0    |
| Major/Minor              | Major1 | Major2                                                                            |                                                                                   | Minor2 |                                                                                   |      |
| Conflicting Flow All     | 32     | 0                                                                                 | -                                                                                 | 0      | 57                                                                                | -    |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 22                                                                                | -    |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 35                                                                                | -    |
| Critical Hdwy            | 4.12   | -                                                                                 | -                                                                                 | -      | 6.42                                                                              | -    |
| Critical Hdwy Stg 1      | -      | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -    |
| Critical Hdwy Stg 2      | -      | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -    |
| Follow-up Hdwy           | 2.218  | -                                                                                 | -                                                                                 | -      | 3.518                                                                             | -    |
| Pot Cap-1 Maneuver       | 1580   | -                                                                                 | -                                                                                 | -      | 950                                                                               | 0    |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 1001                                                                              | 0    |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 987                                                                               | 0    |
| Platoon blocked, %       |        | -                                                                                 | -                                                                                 | -      |                                                                                   |      |
| Mov Cap-1 Maneuver       | 1580   | -                                                                                 | -                                                                                 | -      | 949                                                                               | -    |
| Mov Cap-2 Maneuver       | -      | -                                                                                 | -                                                                                 | -      | 949                                                                               | -    |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 1000                                                                              | -    |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 987                                                                               | -    |
| Approach                 | EB     | WB                                                                                |                                                                                   | SB     |                                                                                   |      |
| HCM Control Delay, s     | 0.2    | 0                                                                                 |                                                                                   | 8.8    |                                                                                   |      |
| HCM LOS                  |        |                                                                                   |                                                                                   | A      |                                                                                   |      |
| Minor Lane/Major Mvmt    | EBL    | EBT                                                                               | WBT                                                                               | WBR    | SBLn1                                                                             |      |
| Capacity (veh/h)         | 1580   | -                                                                                 | -                                                                                 | -      | 949                                                                               |      |
| HCM Lane V/C Ratio       | 0.001  | -                                                                                 | -                                                                                 | -      | 0.001                                                                             |      |
| HCM Control Delay (s)    | 7.3    | 0                                                                                 | -                                                                                 | -      | 8.8                                                                               |      |
| HCM Lane LOS             | A      | A                                                                                 | -                                                                                 | -      | A                                                                                 |      |
| HCM 95th %tile Q(veh)    | 0      | -                                                                                 | -                                                                                 | -      | 0                                                                                 |      |

Black Mountain Development  
Emma Road at Townhome-Cabins-Tents

Total Long-Range (2046) Conditions - AM Peak Hour

Intersection

Int Delay, s/veh 2.3

| Movement                 | EBL  | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR  |
|--------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |      |  |  |      |  |      |
| Traffic Vol, veh/h       | 1    | 30                                                                                | 30                                                                                | 10   | 23                                                                                | 1    |
| Future Vol, veh/h        | 1    | 30                                                                                | 30                                                                                | 10   | 23                                                                                | 1    |
| Conflicting Peds, #/hr   | 0    | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -    | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | -    | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2    | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2    |
| Mvmt Flow                | 1    | 33                                                                                | 33                                                                                | 11   | 25                                                                                | 1    |

| Major/Minor          | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 44     | 0      | 0      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | 4.12   | -      | -      |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | 2.218  | -      | -      |
| Pot Cap-1 Maneuver   | 1564   | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | 1564   | -      | -      |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB  | WB | SB |
|----------------------|-----|----|----|
| HCM Control Delay, s | 0.2 | 0  | 9  |
| HCM LOS              |     |    | A  |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1564  | -   | -   | -   | 933   |
| HCM Lane V/C Ratio    | 0.001 | -   | -   | -   | 0.028 |
| HCM Control Delay (s) | 7.3   | 0   | -   | -   | 9     |
| HCM Lane LOS          | A     | A   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0.1   |

Black Mountain Development  
Emma Road at Townhome

Total Long-Range (2046) Conditions - AM Peak Hour

Intersection

Int Delay, s/veh 1.2

| Movement                 | EBL  | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR  |
|--------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |      |  |  |      |  |      |
| Traffic Vol, veh/h       | 1    | 55                                                                                | 40                                                                                | 5    | 14                                                                                | 1    |
| Future Vol, veh/h        | 1    | 55                                                                                | 40                                                                                | 5    | 14                                                                                | 1    |
| Conflicting Peds, #/hr   | 0    | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -    | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | -    | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2    | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2    |
| Mvmt Flow                | 1    | 60                                                                                | 43                                                                                | 5    | 15                                                                                | 1    |

| Major/Minor          | Major1 | Major2 | Minor2        |
|----------------------|--------|--------|---------------|
| Conflicting Flow All | 48     | 0      | 0 108 46      |
| Stage 1              | -      | -      | - 46 -        |
| Stage 2              | -      | -      | - 62 -        |
| Critical Hdwy        | 4.12   | -      | - 6.42 6.22   |
| Critical Hdwy Stg 1  | -      | -      | - 5.42 -      |
| Critical Hdwy Stg 2  | -      | -      | - 5.42 -      |
| Follow-up Hdwy       | 2.218  | -      | - 3.518 3.318 |
| Pot Cap-1 Maneuver   | 1559   | -      | - 889 1023    |
| Stage 1              | -      | -      | - 976 -       |
| Stage 2              | -      | -      | - 961 -       |
| Platoon blocked, %   | -      | -      | -             |
| Mov Cap-1 Maneuver   | 1559   | -      | - 888 1023    |
| Mov Cap-2 Maneuver   | -      | -      | - 888 -       |
| Stage 1              | -      | -      | - 975 -       |
| Stage 2              | -      | -      | - 961 -       |

| Approach             | EB  | WB | SB  |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 0.1 | 0  | 9.1 |
| HCM LOS              |     |    | A   |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1559  | -   | -   | -   | 896   |
| HCM Lane V/C Ratio    | 0.001 | -   | -   | -   | 0.018 |
| HCM Control Delay (s) | 7.3   | 0   | -   | -   | 9.1   |
| HCM Lane LOS          | A     | A   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0.1   |

Black Mountain Development  
Emma Road at Adjacent Slip Ramp

Total Long-Range (2046) Conditions - AM Peak Hour

Intersection

Int Delay, s/veh 3.9

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations

Traffic Vol, veh/h 0 0 140 45 45 30

Future Vol, veh/h 0 0 140 45 45 30

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 92 92 71 71 50 50

Heavy Vehicles, % 2 2 4 4 0 0

Mvmt Flow 0 0 197 63 90 60

Major/Minor Major1 Major2 Minor2

Conflicting Flow All - 0 - 0 229 229

Stage 1 - - - - 229 -

Stage 2 - - - - 0 -

Critical Hdwy - - - - 6.4 6.2

Critical Hdwy Stg 1 - - - - 5.4 -

Critical Hdwy Stg 2 - - - - 5.4 -

Follow-up Hdwy - - - - 3.5 3.3

Pot Cap-1 Maneuver 0 - - - 764 815

Stage 1 0 - - - 814 -

Stage 2 0 - - - - -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver - - - - 764 815

Mov Cap-2 Maneuver - - - - 764 -

Stage 1 - - - - 814 -

Stage 2 - - - - - -

Approach EB WB SB

HCM Control Delay, s 0 0 10.7

HCM LOS B

Minor Lane/Major Mvmt EBT WBT WBR SBLn1

Capacity (veh/h) - - - 784

HCM Lane V/C Ratio - - - 0.191

HCM Control Delay (s) - - - 10.7

HCM Lane LOS - - - B

HCM 95th %tile Q(veh) - - - 0.7

Black Mountain Development  
Emma Road at Midland Avenue

Total Long-Range (2046) Conditions - AM Peak Hour

| Intersection             |        |              |        |       |              |       |        |              |      |       |              |      |
|--------------------------|--------|--------------|--------|-------|--------------|-------|--------|--------------|------|-------|--------------|------|
| Int Delay, s/veh         | 9.6    |              |        |       |              |       |        |              |      |       |              |      |
| Movement                 | EBL    | EBT          | EBR    | WBL   | WBT          | WBR   | NBL    | NBT          | NBR  | SBL   | SBT          | SBR  |
| Lane Configurations      |        | <div>↕</div> |        |       | <div>↕</div> |       |        | <div>↕</div> |      |       | <div>↕</div> |      |
| Traffic Vol, veh/h       | 15     | 35           | 0      | 0     | 60           | 175   | 0      | 1            | 0    | 160   | 1            | 130  |
| Future Vol, veh/h        | 15     | 35           | 0      | 0     | 60           | 175   | 0      | 1            | 0    | 160   | 1            | 130  |
| 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           | -      | -            | -      | -     | -            | -     | -      | -            | -    | -     | -            | -    |
| Veh in Median Storage, # | -      | 0            | -      | -     | 0            | -     | -      | 0            | -    | -     | 0            | -    |
| Grade, %                 | -      | 0            | -      | -     | 0            | -     | -      | 0            | -    | -     | 0            | -    |
| Peak Hour Factor         | 50     | 50           | 92     | 92    | 86           | 86    | 92     | 92           | 92   | 77    | 92           | 77   |
| Heavy Vehicles, %        | 0      | 0            | 2      | 2     | 6            | 6     | 2      | 2            | 2    | 4     | 2            | 4    |
| Mvmt Flow                | 30     | 70           | 0      | 0     | 70           | 203   | 0      | 1            | 0    | 208   | 1            | 169  |
|                          |        |              |        |       |              |       |        |              |      |       |              |      |
| Major/Minor              | Minor2 |              | Minor1 |       | Major1       |       | Major2 |              |      |       |              |      |
| Conflicting Flow All     | 640    | 503          | 86     | 538   | 587          | 1     | 170    | 0            | 0    | 1     | 0            | 0    |
| Stage 1                  | 502    | 502          | -      | 1     | 1            | -     | -      | -            | -    | -     | -            | -    |
| Stage 2                  | 138    | 1            | -      | 537   | 586          | -     | -      | -            | -    | -     | -            | -    |
| Critical Hdwy            | 7.1    | 6.5          | 6.22   | 7.12  | 6.56         | 6.26  | 4.12   | -            | -    | 4.14  | -            | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5          | -      | 6.12  | 5.56         | -     | -      | -            | -    | -     | -            | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5          | -      | 6.12  | 5.56         | -     | -      | -            | -    | -     | -            | -    |
| Follow-up Hdwy           | 3.5    | 4            | 3.318  | 3.518 | 4.054        | 3.354 | 2.218  | -            | -    | 2.236 | -            | -    |
| Pot Cap-1 Maneuver       | 391    | 474          | 973    | 454   | 416          | 1072  | 1407   | -            | -    | 1609  | -            | -    |
| Stage 1                  | 555    | 545          | -      | 1022  | 887          | -     | -      | -            | -    | -     | -            | -    |
| Stage 2                  | 870    | 899          | -      | 528   | 491          | -     | -      | -            | -    | -     | -            | -    |
| Platoon blocked, %       |        |              |        |       |              |       |        | -            | -    |       | -            | -    |
| Mov Cap-1 Maneuver       | 240    | 405          | 973    | 351   | 355          | 1072  | 1407   | -            | -    | 1609  | -            | -    |
| Mov Cap-2 Maneuver       | 240    | 405          | -      | 351   | 355          | -     | -      | -            | -    | -     | -            | -    |
| Stage 1                  | 555    | 465          | -      | 1022  | 887          | -     | -      | -            | -    | -     | -            | -    |
| Stage 2                  | 649    | 899          | -      | 383   | 419          | -     | -      | -            | -    | -     | -            | -    |
|                          |        |              |        |       |              |       |        |              |      |       |              |      |
|                          |        |              |        |       |              |       |        |              |      |       |              |      |
| Approach                 | EB     |              | WB     |       | NB           |       | SB     |              |      |       |              |      |
| HCM Control Delay, s     | 20.2   |              | 13.3   |       | 0            |       | 4.2    |              |      |       |              |      |
| HCM LOS                  | C      |              | B      |       |              |       |        |              |      |       |              |      |
|                          |        |              |        |       |              |       |        |              |      |       |              |      |
| Minor Lane/Major Mvmt    | NBL    | NBT          | NBR    | EBLn1 | WBLn1        | SBL   | SBT    | SBR          |      |       |              |      |
| Capacity (veh/h)         | 1407   | -            | -      | 336   | 707          | 1609  | -      | -            |      |       |              |      |
| HCM Lane V/C Ratio       | -      | -            | -      | 0.298 | 0.387        | 0.129 | -      | -            |      |       |              |      |
| HCM Control Delay (s)    | 0      | -            | -      | 20.2  | 13.3         | 7.6   | 0      | -            |      |       |              |      |
| HCM Lane LOS             | A      | -            | -      | C     | B            | A     | A      | -            |      |       |              |      |
| HCM 95th %tile Q(veh)    | 0      | -            | -      | 1.2   | 1.8          | 0.4   | -      | -            |      |       |              |      |

Black Mountain Development  
Emma Road at Midland Avenue

Total Long-Range (2046) Conditions - AM Peak Hour

Free Westbound Right Turn

| Intersection             |        |      |        |                 |        |       |        |      |      |       |      |      |
|--------------------------|--------|------|--------|-----------------|--------|-------|--------|------|------|-------|------|------|
| Int Delay, s/veh         | 8.3    |      |        |                 |        |       |        |      |      |       |      |      |
| Movement                 | EBL    | EBT  | EBR    | WBL             | WBT    | WBR   | NBL    | NBT  | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations      |        | ↕    |        |                 | ↕      | ↗     |        | ↕    |      |       | ↕    |      |
| Traffic Vol, veh/h       | 15     | 35   | 0      | 0               | 60     | 175   | 0      | 1    | 0    | 160   | 1    | 130  |
| Future Vol, veh/h        | 15     | 35   | 0      | 0               | 60     | 175   | 0      | 1    | 0    | 160   | 1    | 130  |
| 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   | -               | -      | Free  | -      | -    | None | -     | -    | None |
| Storage Length           | -      | -    | -      | -               | -      | 0     | -      | -    | -    | -     | -    | -    |
| Veh in Median Storage, # | -      | 0    | -      | -               | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Grade, %                 | -      | 0    | -      | -               | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Peak Hour Factor         | 50     | 50   | 92     | 92              | 86     | 86    | 92     | 92   | 92   | 77    | 92   | 77   |
| Heavy Vehicles, %        | 0      | 0    | 2      | 2               | 6      | 6     | 2      | 2    | 2    | 4     | 2    | 4    |
| Mvmt Flow                | 30     | 70   | 0      | 0               | 70     | 203   | 0      | 1    | 0    | 208   | 1    | 169  |
|                          |        |      |        |                 |        |       |        |      |      |       |      |      |
| Major/Minor              | Minor2 |      | Minor1 |                 | Major1 |       | Major2 |      |      |       |      |      |
| Conflicting Flow All     | 538    | 503  | 86     | 538             | 587    | -     | 170    | 0    | 0    | 1     | 0    | 0    |
| Stage 1                  | 502    | 502  | -      | 1               | 1      | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 36     | 1    | -      | 537             | 586    | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy            | 7.1    | 6.5  | 6.22   | 7.12            | 6.56   | -     | 4.12   | -    | -    | 4.14  | -    | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5  | -      | 6.12            | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5  | -      | 6.12            | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Follow-up Hdwy           | 3.5    | 4    | 3.318  | 3.518           | 4.054  | -     | 2.218  | -    | -    | 2.236 | -    | -    |
| Pot Cap-1 Maneuver       | 457    | 474  | 973    | 454             | 416    | 0     | 1407   | -    | -    | 1609  | -    | -    |
| Stage 1                  | 555    | 545  | -      | 1022            | 887    | 0     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 985    | 899  | -      | 528             | 491    | 0     | -      | -    | -    | -     | -    | -    |
| Platoon blocked, %       |        |      |        |                 |        |       |        | -    | -    |       | -    | -    |
| Mov Cap-1 Maneuver       | 346    | 405  | 973    | 351             | 355    | -     | 1407   | -    | -    | 1609  | -    | -    |
| Mov Cap-2 Maneuver       | 346    | 405  | -      | 351             | 355    | -     | -      | -    | -    | -     | -    | -    |
| Stage 1                  | 555    | 465  | -      | 1022            | 887    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 908    | 899  | -      | 383             | 419    | -     | -      | -    | -    | -     | -    | -    |
|                          |        |      |        |                 |        |       |        |      |      |       |      |      |
|                          |        |      |        |                 |        |       |        |      |      |       |      |      |
| Approach                 | EB     |      | WB     |                 | NB     |       | SB     |      |      |       |      |      |
| HCM Control Delay, s     | 17.6   |      | 17.6   |                 | 0      |       | 4.2    |      |      |       |      |      |
| HCM LOS                  | C      |      | C      |                 |        |       |        |      |      |       |      |      |
|                          |        |      |        |                 |        |       |        |      |      |       |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT  | NBR    | EBLn1WBLn1WBLn2 | SBL    | SBT   | SBR    |      |      |       |      |      |
| Capacity (veh/h)         | 1407   | -    | -      | 385 355         | -      | 1609  | -      | -    |      |       |      |      |
| HCM Lane V/C Ratio       | -      | -    | -      | 0.26 0.197      | -      | 0.129 | -      | -    |      |       |      |      |
| HCM Control Delay (s)    | 0      | -    | -      | 17.6 17.6       | 0      | 7.6   | 0      | -    |      |       |      |      |
| HCM Lane LOS             | A      | -    | -      | C C             | A      | A     | A      | -    |      |       |      |      |
| HCM 95th %tile Q(veh)    | 0      | -    | -      | 1 0.7           | -      | 0.4   | -      | -    |      |       |      |      |

Black Mountain Development  
Emma Road at Basalt Avenue

Total Long-Range (2046) Conditions - AM Peak Hour

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 5.1   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 287   | 211   | 221   | 61    |
| Demand Flow Rate, veh/h     | 298   | 215   | 228   | 63    |
| Vehicles Circulating, veh/h | 186   | 233   | 61    | 403   |
| Vehicles Exiting, veh/h     | 280   | 56    | 423   | 45    |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 5.7   | 5.2   | 4.3   | 4.7   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 298   | 215   | 228   | 63    |
| Cap Entry Lane, veh/h       | 1141  | 1088  | 1297  | 915   |
| Entry HV Adj Factor         | 0.962 | 0.981 | 0.971 | 0.975 |
| Flow Entry, veh/h           | 287   | 211   | 221   | 61    |
| Cap Entry, veh/h            | 1098  | 1067  | 1259  | 892   |
| V/C Ratio                   | 0.261 | 0.198 | 0.176 | 0.069 |
| Control Delay, s/veh        | 5.7   | 5.2   | 4.3   | 4.7   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 1     | 1     | 1     | 0     |

Black Mountain Development  
SH 82 at Basalt Avenue

Total Long-Range (2046) Conditions - AM Peak Hour

|                         |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |  |  |                                                                                      |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                                                                                                     | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |    |  |  |    |  |   |  |  |   |  |  |
| Traffic Volume (vph)    | 200                                                                               | 2000                                                                                                                                                                                                                                                  | 395                                                                               | 90                                                                                | 400                                                                                                                                                                                                                                                   | 45                                                                                | 150                                                                                 | 70                                                                                  | 115                                                                                 | 135                                                                                                                                                                     | 130                                                                                 | 135                                                                                 |
| Future Volume (vph)     | 200                                                                               | 2000                                                                                                                                                                                                                                                  | 395                                                                               | 90                                                                                | 400                                                                                                                                                                                                                                                   | 45                                                                                | 150                                                                                 | 70                                                                                  | 115                                                                                 | 135                                                                                                                                                                     | 130                                                                                 | 135                                                                                 |
| Satd. Flow (prot)       | 1736                                                                              | 4988                                                                                                                                                                                                                                                  | 1553                                                                              | 1719                                                                              | 4940                                                                                                                                                                                                                                                  | 1538                                                                              | 1649                                                                                | 1704                                                                                | 1553                                                                                | 3367                                                                                                                                                                    | 1688                                                                                | 0                                                                                   |
| Flt Permitted           | 0.446                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | 0.053                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | 0.950                                                                               | 0.982                                                                               |                                                                                     | 0.950                                                                                                                                                                   |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 815                                                                               | 4988                                                                                                                                                                                                                                                  | 1553                                                                              | 96                                                                                | 4940                                                                                                                                                                                                                                                  | 1538                                                                              | 1649                                                                                | 1704                                                                                | 1553                                                                                | 3367                                                                                                                                                                    | 1688                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                                                                                                                                                                                       | 125                                                                               |                                                                                   |                                                                                                                                                                                                                                                       | 157                                                                               |                                                                                     |                                                                                     | 174                                                                                 |                                                                                                                                                                         | 26                                                                                  |                                                                                     |
| Lane Group Flow (vph)   | 213                                                                               | 2128                                                                                                                                                                                                                                                  | 420                                                                               | 100                                                                               | 444                                                                                                                                                                                                                                                   | 50                                                                                | 140                                                                                 | 146                                                                                 | 149                                                                                 | 155                                                                                                                                                                     | 304                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                                                                                                                                                                                    | pm+ov                                                                             | pm+pt                                                                             | NA                                                                                                                                                                                                                                                    | Perm                                                                              | Split                                                                               | NA                                                                                  | Perm                                                                                | Split                                                                                                                                                                   | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                                                                                                                                                                                     | 8                                                                                 | 1                                                                                 | 6                                                                                                                                                                                                                                                     |                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     | 4                                                                                                                                                                       | 4                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                                                                                                                                                                                       | 2                                                                                 | 6                                                                                 |                                                                                                                                                                                                                                                       | 6                                                                                 |                                                                                     |                                                                                     | 8                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |
| Total Split (s)         | 25.0                                                                              | 105.0                                                                                                                                                                                                                                                 | 23.0                                                                              | 12.0                                                                              | 92.0                                                                                                                                                                                                                                                  | 92.0                                                                              | 23.0                                                                                | 23.0                                                                                | 23.0                                                                                | 20.0                                                                                                                                                                    | 20.0                                                                                |                                                                                     |
| Total Lost Time (s)     | 8.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 8.0                                                                               | 7.5                                                                                                                                                                                                                                                   | 7.5                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                 |                                                                                     |
| Act Effect Green (s)    | 108.3                                                                             | 100.0                                                                                                                                                                                                                                                 | 118.0                                                                             | 92.3                                                                              | 88.8                                                                                                                                                                                                                                                  | 88.8                                                                              | 18.0                                                                                | 18.0                                                                                | 18.0                                                                                | 15.0                                                                                                                                                                    | 15.0                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.68                                                                              | 0.62                                                                                                                                                                                                                                                  | 0.74                                                                              | 0.58                                                                              | 0.56                                                                                                                                                                                                                                                  | 0.56                                                                              | 0.11                                                                                | 0.11                                                                                | 0.11                                                                                | 0.09                                                                                                                                                                    | 0.09                                                                                |                                                                                     |
| v/c Ratio               | 0.34                                                                              | 0.68                                                                                                                                                                                                                                                  | 0.36                                                                              | 1.05                                                                              | 0.16                                                                                                                                                                                                                                                  | 0.05                                                                              | 0.76                                                                                | 0.76                                                                                | 0.45                                                                                | 0.49                                                                                                                                                                    | 1.68                                                                                |                                                                                     |
| Control Delay           | 10.9                                                                              | 21.1                                                                                                                                                                                                                                                  | 3.4                                                                               | 133.4                                                                             | 17.9                                                                                                                                                                                                                                                  | 0.1                                                                               | 93.6                                                                                | 93.7                                                                                | 9.2                                                                                 | 74.6                                                                                                                                                                    | 365.1                                                                               |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |                                                                                     |
| Total Delay             | 10.9                                                                              | 21.1                                                                                                                                                                                                                                                  | 3.4                                                                               | 133.4                                                                             | 17.9                                                                                                                                                                                                                                                  | 0.1                                                                               | 93.6                                                                                | 93.7                                                                                | 9.2                                                                                 | 74.6                                                                                                                                                                    | 365.1                                                                               |                                                                                     |
| LOS                     | B                                                                                 | C                                                                                                                                                                                                                                                     | A                                                                                 | F                                                                                 | B                                                                                                                                                                                                                                                     | A                                                                                 | F                                                                                   | F                                                                                   | A                                                                                   | E                                                                                                                                                                       | F                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 17.6                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 35.8                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 64.7                                                                                |                                                                                     |                                                                                                                                                                         | 267.0                                                                               |                                                                                     |
| Approach LOS            |                                                                                   | B                                                                                                                                                                                                                                                     |                                                                                   |                                                                                   | D                                                                                                                                                                                                                                                     |                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                                                                                                         | F                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 76                                                                                | 510                                                                                                                                                                                                                                                   | 48                                                                                | ~54                                                                               | 80                                                                                                                                                                                                                                                    | 0                                                                                 | 152                                                                                 | 158                                                                                 | 0                                                                                   | 80                                                                                                                                                                      | ~439                                                                                |                                                                                     |
| Queue Length 95th (ft)  | 111                                                                               | 558                                                                                                                                                                                                                                                   | 71                                                                                | #145                                                                              | 107                                                                                                                                                                                                                                                   | 0                                                                                 | 200                                                                                 | 206                                                                                 | 13                                                                                  | 116                                                                                                                                                                     | #612                                                                                |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 396                                                                                                                                                                                                                                                   |                                                                                   |                                                                                   | 404                                                                                                                                                                                                                                                   |                                                                                   |                                                                                     | 344                                                                                 |                                                                                     |                                                                                                                                                                         | 171                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 277                                                                               |                                                                                                                                                                                                                                                       | 590                                                                               | 425                                                                               |                                                                                                                                                                                                                                                       | 425                                                                               | 160                                                                                 |                                                                                     | 160                                                                                 | 95                                                                                                                                                                      |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 653                                                                               | 3117                                                                                                                                                                                                                                                  | 1178                                                                              | 95                                                                                | 2742                                                                                                                                                                                                                                                  | 923                                                                               | 185                                                                                 | 191                                                                                 | 329                                                                                 | 315                                                                                                                                                                     | 181                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |                                                                                     |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 0.33                                                                              | 0.68                                                                                                                                                                                                                                                  | 0.36                                                                              | 1.05                                                                              | 0.16                                                                                                                                                                                                                                                  | 0.05                                                                              | 0.76                                                                                | 0.76                                                                                | 0.45                                                                                | 0.49                                                                                                                                                                    | 1.68                                                                                |                                                                                     |

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 132 (83%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.68

Intersection Signal Delay: 51.9

Intersection LOS: D

Intersection Capacity Utilization 83.9%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: Basalt Avenue & SH 82



Black Mountain Development  
Emma Avenue at Inbound Daycare Access

Total Long-Range (2046) Conditions - PM Peak Hour

| Intersection             |        |                                                                                   |                                                                                   |        |                                                                                   |       |
|--------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 4.1    |                                                                                   |                                                                                   |        |                                                                                   |       |
| Movement                 | EBL    | EBT                                                                               | WBT                                                                               | WBR    | SBL                                                                               | SBR   |
| Lane Configurations      |        |  |  |        |  |       |
| Traffic Vol, veh/h       | 0      | 10                                                                                | 10                                                                                | 0      | 17                                                                                | 1     |
| Future Vol, veh/h        | 0      | 10                                                                                | 10                                                                                | 0      | 17                                                                                | 1     |
| Conflicting Peds, #/hr   | 0      | 0                                                                                 | 0                                                                                 | 0      | 0                                                                                 | 0     |
| Sign Control             | Free   | Free                                                                              | Free                                                                              | Free   | Stop                                                                              | Stop  |
| RT Channelized           | -      | None                                                                              | -                                                                                 | None   | -                                                                                 | None  |
| Storage Length           | -      | -                                                                                 | -                                                                                 | -      | 0                                                                                 | -     |
| Veh in Median Storage, # | -      | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -     |
| Grade, %                 | -      | 0                                                                                 | 0                                                                                 | -      | 0                                                                                 | -     |
| Peak Hour Factor         | 92     | 92                                                                                | 92                                                                                | 92     | 92                                                                                | 92    |
| Heavy Vehicles, %        | 2      | 2                                                                                 | 2                                                                                 | 2      | 2                                                                                 | 2     |
| Mvmt Flow                | 0      | 11                                                                                | 11                                                                                | 0      | 18                                                                                | 1     |
|                          |        |                                                                                   |                                                                                   |        |                                                                                   |       |
| Major/Minor              | Major1 | Major2                                                                            |                                                                                   | Minor2 |                                                                                   |       |
| Conflicting Flow All     | 11     | 0                                                                                 | -                                                                                 | 0      | 22                                                                                | 11    |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 11                                                                                | -     |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 11                                                                                | -     |
| Critical Hdwy            | 4.12   | -                                                                                 | -                                                                                 | -      | 6.42                                                                              | 6.22  |
| Critical Hdwy Stg 1      | -      | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -     |
| Critical Hdwy Stg 2      | -      | -                                                                                 | -                                                                                 | -      | 5.42                                                                              | -     |
| Follow-up Hdwy           | 2.218  | -                                                                                 | -                                                                                 | -      | 3.518                                                                             | 3.318 |
| Pot Cap-1 Maneuver       | 1608   | -                                                                                 | -                                                                                 | 0      | 995                                                                               | 1070  |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | 0      | 1012                                                                              | -     |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | 0      | 1012                                                                              | -     |
| Platoon blocked, %       |        | -                                                                                 | -                                                                                 |        |                                                                                   |       |
| Mov Cap-1 Maneuver       | 1608   | -                                                                                 | -                                                                                 | -      | 995                                                                               | 1070  |
| Mov Cap-2 Maneuver       | -      | -                                                                                 | -                                                                                 | -      | 995                                                                               | -     |
| Stage 1                  | -      | -                                                                                 | -                                                                                 | -      | 1012                                                                              | -     |
| Stage 2                  | -      | -                                                                                 | -                                                                                 | -      | 1012                                                                              | -     |
|                          |        |                                                                                   |                                                                                   |        |                                                                                   |       |
|                          |        |                                                                                   |                                                                                   |        |                                                                                   |       |
| Approach                 | EB     | WB                                                                                |                                                                                   | SB     |                                                                                   |       |
| HCM Control Delay, s     | 0      | 0                                                                                 |                                                                                   | 8.7    |                                                                                   |       |
| HCM LOS                  | A      |                                                                                   |                                                                                   |        |                                                                                   |       |
|                          |        |                                                                                   |                                                                                   |        |                                                                                   |       |
|                          |        |                                                                                   |                                                                                   |        |                                                                                   |       |
| Minor Lane/Major Mvmt    | EBL    | EBT                                                                               | WBT                                                                               | SBLn1  |                                                                                   |       |
| Capacity (veh/h)         | 1608   | -                                                                                 | -                                                                                 | 999    |                                                                                   |       |
| HCM Lane V/C Ratio       | -      | -                                                                                 | -                                                                                 | 0.02   |                                                                                   |       |
| HCM Control Delay (s)    | 0      | -                                                                                 | -                                                                                 | 8.7    |                                                                                   |       |
| HCM Lane LOS             | A      | -                                                                                 | -                                                                                 | A      |                                                                                   |       |
| HCM 95th %tile Q(veh)    | 0      | -                                                                                 | -                                                                                 | 0.1    |                                                                                   |       |

Black Mountain Development  
Emma Avenue at Inbound Daycare Access

Total Long-Range (2046) Conditions - PM Peak Hour

Intersection

Int Delay, s/veh 0.3

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations 

Traffic Vol, veh/h 1 25 10 20 1 0

Future Vol, veh/h 1 25 10 20 1 0

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 1 27 11 22 1 0

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 33 0 - 0 51 -

Stage 1 - - - - 22 -

Stage 2 - - - - 29 -

Critical Hdwy 4.12 - - - 6.42 -

Critical Hdwy Stg 1 - - - - 5.42 -

Critical Hdwy Stg 2 - - - - 5.42 -

Follow-up Hdwy 2.218 - - - 3.518 -

Pot Cap-1 Maneuver 1579 - - - 958 0

Stage 1 - - - - 1001 0

Stage 2 - - - - 994 0

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1579 - - - 957 -

Mov Cap-2 Maneuver - - - - 957 -

Stage 1 - - - - 1000 -

Stage 2 - - - - 994 -

Approach EB WB SB

HCM Control Delay, s 0.3 0 8.8

HCM LOS A

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1579 - - - 957

HCM Lane V/C Ratio 0.001 - - - 0.001

HCM Control Delay (s) 7.3 0 - - 8.8

HCM Lane LOS A A - - A

HCM 95th %tile Q(veh) 0 - - - 0

Black Mountain Development  
Emma Road at Townhome-Cabins-Tents

Total Long-Range (2046) Conditions - PM Peak Hour

Intersection

Int Delay, s/veh 1.7

| Movement                 | EBL  | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR  |
|--------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |      |  |  |      |  |      |
| Traffic Vol, veh/h       | 1    | 25                                                                                | 30                                                                                | 24   | 17                                                                                | 1    |
| Future Vol, veh/h        | 1    | 25                                                                                | 30                                                                                | 24   | 17                                                                                | 1    |
| Conflicting Peds, #/hr   | 0    | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -    | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | -    | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2    | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2    |
| Mvmt Flow                | 1    | 27                                                                                | 33                                                                                | 26   | 18                                                                                | 1    |

| Major/Minor          | Major1 | Major2 | Minor2        |
|----------------------|--------|--------|---------------|
| Conflicting Flow All | 59     | 0      | 0 75 46       |
| Stage 1              | -      | -      | - 46 -        |
| Stage 2              | -      | -      | - 29 -        |
| Critical Hdwy        | 4.12   | -      | - 6.42 6.22   |
| Critical Hdwy Stg 1  | -      | -      | - 5.42 -      |
| Critical Hdwy Stg 2  | -      | -      | - 5.42 -      |
| Follow-up Hdwy       | 2.218  | -      | - 3.518 3.318 |
| Pot Cap-1 Maneuver   | 1545   | -      | - 928 1023    |
| Stage 1              | -      | -      | - 976 -       |
| Stage 2              | -      | -      | - 994 -       |
| Platoon blocked, %   | -      | -      | -             |
| Mov Cap-1 Maneuver   | 1545   | -      | - 927 1023    |
| Mov Cap-2 Maneuver   | -      | -      | - 927 -       |
| Stage 1              | -      | -      | - 975 -       |
| Stage 2              | -      | -      | - 994 -       |

| Approach             | EB  | WB | SB  |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 0.3 | 0  | 8.9 |
| HCM LOS              |     |    | A   |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1545  | -   | -   | -   | 932   |
| HCM Lane V/C Ratio    | 0.001 | -   | -   | -   | 0.021 |
| HCM Control Delay (s) | 7.3   | 0   | -   | -   | 8.9   |
| HCM Lane LOS          | A     | A   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0.1   |

Black Mountain Development  
Emma Road at Townhome Access

Total Long-Range (2046) Conditions - PM Peak Hour

Intersection

Int Delay, s/veh 0.7

| Movement                 | EBL  | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR  |
|--------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |      |  |  |      |  |      |
| Traffic Vol, veh/h       | 1    | 45                                                                                | 55                                                                                | 13   | 8                                                                                 | 1    |
| Future Vol, veh/h        | 1    | 45                                                                                | 55                                                                                | 13   | 8                                                                                 | 1    |
| Conflicting Peds, #/hr   | 0    | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -    | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | -    | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2    | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2    |
| Mvmt Flow                | 1    | 49                                                                                | 60                                                                                | 14   | 9                                                                                 | 1    |

| Major/Minor          | Major1 | Major2 | Minor2        |
|----------------------|--------|--------|---------------|
| Conflicting Flow All | 74     | 0      | 0 118 67      |
| Stage 1              | -      | -      | - 67 -        |
| Stage 2              | -      | -      | - 51 -        |
| Critical Hdwy        | 4.12   | -      | - 6.42 6.22   |
| Critical Hdwy Stg 1  | -      | -      | - 5.42 -      |
| Critical Hdwy Stg 2  | -      | -      | - 5.42 -      |
| Follow-up Hdwy       | 2.218  | -      | - 3.518 3.318 |
| Pot Cap-1 Maneuver   | 1526   | -      | - 878 997     |
| Stage 1              | -      | -      | - 956 -       |
| Stage 2              | -      | -      | - 971 -       |
| Platoon blocked, %   |        | -      | -             |
| Mov Cap-1 Maneuver   | 1526   | -      | - 877 997     |
| Mov Cap-2 Maneuver   | -      | -      | - 877 -       |
| Stage 1              | -      | -      | - 955 -       |
| Stage 2              | -      | -      | - 971 -       |

| Approach             | EB  | WB | SB  |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 0.2 | 0  | 9.1 |
| HCM LOS              |     |    | A   |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1526  | -   | -   | -   | 889   |
| HCM Lane V/C Ratio    | 0.001 | -   | -   | -   | 0.011 |
| HCM Control Delay (s) | 7.4   | 0   | -   | -   | 9.1   |
| HCM Lane LOS          | A     | A   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0     |

Black Mountain Development  
Emma Road at Adjacent Slip Ramp

Total Long-Range (2046) Conditions - PM Peak Hour

Intersection

Int Delay, s/veh 2.7

| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      | ↑    | ↑    |      | ↑    | ↑    |
| Traffic Vol, veh/h       | 0    | 0    | 225  | 65   | 35   | 25   |
| Future Vol, veh/h        | 0    | 0    | 225  | 65   | 35   | 25   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | 0    | -    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 0    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 71   | 71   | 50   | 50   |
| Heavy Vehicles, %        | 2    | 2    | 4    | 4    | 0    | 0    |
| Mvmt Flow                | 0    | 0    | 317  | 92   | 70   | 50   |

| Major/Minor          | Major1 | Major2 | Minor2    |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | -      | 0      | 0 363 363 |
| Stage 1              | -      | -      | - 363 -   |
| Stage 2              | -      | -      | - 0 -     |
| Critical Hdwy        | -      | -      | - 6.4 6.2 |
| Critical Hdwy Stg 1  | -      | -      | - 5.4 -   |
| Critical Hdwy Stg 2  | -      | -      | - 5.4 -   |
| Follow-up Hdwy       | -      | -      | - 3.5 3.3 |
| Pot Cap-1 Maneuver   | 0      | -      | - 640 686 |
| Stage 1              | 0      | -      | - 708 -   |
| Stage 2              | 0      | -      | - - -     |
| Platoon blocked, %   | -      | -      | -         |
| Mov Cap-1 Maneuver   | -      | -      | - 640 686 |
| Mov Cap-2 Maneuver   | -      | -      | - 640 -   |
| Stage 1              | -      | -      | - 708 -   |
| Stage 2              | -      | -      | - - -     |

| Approach             | EB | WB | SB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 11.7 |
| HCM LOS              |    |    | B    |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h)      | -   | -   | -   | 658   |
| HCM Lane V/C Ratio    | -   | -   | -   | 0.182 |
| HCM Control Delay (s) | -   | -   | -   | 11.7  |
| HCM Lane LOS          | -   | -   | -   | B     |
| HCM 95th %tile Q(veh) | -   | -   | -   | 0.7   |

Black Mountain Development  
Emma Road at Midland Avenue

Total Long-Range (2046) Conditions - PM Peak Hour

| Intersection             |        |      |        |       |        |       |        |      |      |       |      |      |
|--------------------------|--------|------|--------|-------|--------|-------|--------|------|------|-------|------|------|
| Int Delay, s/veh         | 19.4   |      |        |       |        |       |        |      |      |       |      |      |
| Movement                 | EBL    | EBT  | EBR    | WBL   | WBT    | WBR   | NBL    | NBT  | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations      |        | ↕    |        |       | ↕      |       |        | ↕    |      |       | ↕    |      |
| Traffic Vol, veh/h       | 25     | 25   | 0      | 0     | 135    | 165   | 0      | 1    | 0    | 180   | 1    | 235  |
| Future Vol, veh/h        | 25     | 25   | 0      | 0     | 135    | 165   | 0      | 1    | 0    | 180   | 1    | 235  |
| 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           | -      | -    | -      | -     | -      | -     | -      | -    | -    | -     | -    | -    |
| Veh in Median Storage, # | -      | 0    | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Grade, %                 | -      | 0    | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Peak Hour Factor         | 50     | 50   | 92     | 92    | 86     | 86    | 92     | 92   | 92   | 77    | 92   | 77   |
| Heavy Vehicles, %        | 0      | 0    | 2      | 2     | 6      | 6     | 2      | 2    | 2    | 4     | 2    | 4    |
| Mvmt Flow                | 50     | 50   | 0      | 0     | 157    | 192   | 0      | 1    | 0    | 234   | 1    | 305  |
| Major/Minor              | Minor2 |      | Minor1 |       | Major1 |       | Major2 |      |      |       |      |      |
| Conflicting Flow All     | 798    | 623  | 154    | 648   | 775    | 1     | 306    | 0    | 0    | 1     | 0    | 0    |
| Stage 1                  | 622    | 622  | -      | 1     | 1      | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 176    | 1    | -      | 647   | 774    | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy            | 7.1    | 6.5  | 6.22   | 7.12  | 6.56   | 6.26  | 4.12   | -    | -    | 4.14  | -    | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5  | -      | 6.12  | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5  | -      | 6.12  | 5.56   | -     | -      | -    | -    | -     | -    | -    |
| Follow-up Hdwy           | 3.5    | 4    | 3.318  | 3.518 | 4.054  | 3.354 | 2.218  | -    | -    | 2.236 | -    | -    |
| Pot Cap-1 Maneuver       | 306    | 405  | 892    | 383   | 324    | 1072  | 1255   | -    | -    | 1609  | -    | -    |
| Stage 1                  | 478    | 482  | -      | 1022  | 887    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 831    | 899  | -      | 460   | 403    | -     | -      | -    | -    | -     | -    | -    |
| Platoon blocked, %       |        |      |        |       |        |       |        | -    | -    |       | -    | -    |
| Mov Cap-1 Maneuver       | 116    | 331  | 892    | 292   | 265    | 1072  | 1255   | -    | -    | 1609  | -    | -    |
| Mov Cap-2 Maneuver       | 116    | 331  | -      | 292   | 265    | -     | -      | -    | -    | -     | -    | -    |
| Stage 1                  | 478    | 394  | -      | 1022  | 887    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 562    | 899  | -      | 328   | 329    | -     | -      | -    | -    | -     | -    | -    |
| Approach                 | EB     |      | WB     |       | NB     |       | SB     |      |      |       |      |      |
| HCM Control Delay, s     | 51.5   |      | 35.1   |       | 0      |       | 3.3    |      |      |       |      |      |
| HCM LOS                  | F      |      | E      |       |        |       |        |      |      |       |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT  | NBR    | EBLn1 | WBLn1  | SBL   | SBT    | SBR  |      |       |      |      |
| Capacity (veh/h)         | 1255   | -    | -      | 172   | 452    | 1609  | -      | -    |      |       |      |      |
| HCM Lane V/C Ratio       | -      | -    | -      | 0.581 | 0.772  | 0.145 | -      | -    |      |       |      |      |
| HCM Control Delay (s)    | 0      | -    | -      | 51.5  | 35.1   | 7.6   | 0      | -    |      |       |      |      |
| HCM Lane LOS             | A      | -    | -      | F     | E      | A     | A      | -    |      |       |      |      |
| HCM 95th %tile Q(veh)    | 0      | -    | -      | 3.1   | 6.7    | 0.5   | -      | -    |      |       |      |      |

Black Mountain Development  
Emma Road at Midland Avenue

Total Long-Range (2046) Conditions - PM Peak Hour  
Free Westbound Right Turn

| Intersection             |        |                                                                                   |        |                 |                                                                                   |                                                                                   |       |                                                                                   |        |       |                                                                                     |      |
|--------------------------|--------|-----------------------------------------------------------------------------------|--------|-----------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------|--------|-------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 13.8   |                                                                                   |        |                 |                                                                                   |                                                                                   |       |                                                                                   |        |       |                                                                                     |      |
| Movement                 | EBL    | EBT                                                                               | EBR    | WBL             | WBT                                                                               | WBR                                                                               | NBL   | NBT                                                                               | NBR    | SBL   | SBT                                                                                 | SBR  |
| Lane Configurations      |        |  |        |                 |  |  |       |  |        |       |  |      |
| Traffic Vol, veh/h       | 25     | 25                                                                                | 0      | 0               | 135                                                                               | 165                                                                               | 0     | 1                                                                                 | 0      | 180   | 1                                                                                   | 235  |
| Future Vol, veh/h        | 25     | 25                                                                                | 0      | 0               | 135                                                                               | 165                                                                               | 0     | 1                                                                                 | 0      | 180   | 1                                                                                   | 235  |
| 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   | -               | -                                                                                 | Free                                                                              | -     | -                                                                                 | None   | -     | -                                                                                   | None |
| Storage Length           | -      | -                                                                                 | -      | -               | -                                                                                 | 0                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Veh in Median Storage, # | -      | 0                                                                                 | -      | -               | 0                                                                                 | -                                                                                 | -     | 0                                                                                 | -      | -     | 0                                                                                   | -    |
| Grade, %                 | -      | 0                                                                                 | -      | -               | 0                                                                                 | -                                                                                 | -     | 0                                                                                 | -      | -     | 0                                                                                   | -    |
| Peak Hour Factor         | 50     | 50                                                                                | 92     | 92              | 86                                                                                | 86                                                                                | 92    | 92                                                                                | 92     | 77    | 92                                                                                  | 77   |
| Heavy Vehicles, %        | 0      | 0                                                                                 | 2      | 2               | 6                                                                                 | 6                                                                                 | 2     | 2                                                                                 | 2      | 4     | 2                                                                                   | 4    |
| Mvmt Flow                | 50     | 50                                                                                | 0      | 0               | 157                                                                               | 192                                                                               | 0     | 1                                                                                 | 0      | 234   | 1                                                                                   | 305  |
|                          |        |                                                                                   |        |                 |                                                                                   |                                                                                   |       |                                                                                   |        |       |                                                                                     |      |
| Major/Minor              | Minor2 |                                                                                   | Minor1 |                 |                                                                                   | Major1                                                                            |       |                                                                                   | Major2 |       |                                                                                     |      |
| Conflicting Flow All     | 702    | 623                                                                               | 154    | 648             | 775                                                                               | -                                                                                 | 306   | 0                                                                                 | 0      | 1     | 0                                                                                   | 0    |
| Stage 1                  | 622    | 622                                                                               | -      | 1               | 1                                                                                 | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Stage 2                  | 80     | 1                                                                                 | -      | 647             | 774                                                                               | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Critical Hdwy            | 7.1    | 6.5                                                                               | 6.22   | 7.12            | 6.56                                                                              | -                                                                                 | 4.12  | -                                                                                 | -      | 4.14  | -                                                                                   | -    |
| Critical Hdwy Stg 1      | 6.1    | 5.5                                                                               | -      | 6.12            | 5.56                                                                              | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Critical Hdwy Stg 2      | 6.1    | 5.5                                                                               | -      | 6.12            | 5.56                                                                              | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Follow-up Hdwy           | 3.5    | 4                                                                                 | 3.318  | 3.518           | 4.054                                                                             | -                                                                                 | 2.218 | -                                                                                 | -      | 2.236 | -                                                                                   | -    |
| Pot Cap-1 Maneuver       | 355    | 405                                                                               | 892    | 383             | 324                                                                               | 0                                                                                 | 1255  | -                                                                                 | -      | 1609  | -                                                                                   | -    |
| Stage 1                  | 478    | 482                                                                               | -      | 1022            | 887                                                                               | 0                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Stage 2                  | 934    | 899                                                                               | -      | 460             | 403                                                                               | 0                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Platoon blocked, %       |        |                                                                                   |        |                 |                                                                                   |                                                                                   |       | -                                                                                 | -      |       | -                                                                                   | -    |
| Mov Cap-1 Maneuver       | 164    | 331                                                                               | 892    | 292             | 265                                                                               | -                                                                                 | 1255  | -                                                                                 | -      | 1609  | -                                                                                   | -    |
| Mov Cap-2 Maneuver       | 164    | 331                                                                               | -      | 292             | 265                                                                               | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Stage 1                  | 478    | 394                                                                               | -      | 1022            | 887                                                                               | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Stage 2                  | 769    | 899                                                                               | -      | 328             | 329                                                                               | -                                                                                 | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
|                          |        |                                                                                   |        |                 |                                                                                   |                                                                                   |       |                                                                                   |        |       |                                                                                     |      |
| Approach                 | EB     |                                                                                   | WB     |                 |                                                                                   | NB                                                                                |       |                                                                                   | SB     |       |                                                                                     |      |
| HCM Control Delay, s     | 34.5   |                                                                                   | 36.6   |                 |                                                                                   | 0                                                                                 |       |                                                                                   | 3.3    |       |                                                                                     |      |
| HCM LOS                  | D      |                                                                                   | E      |                 |                                                                                   |                                                                                   |       |                                                                                   |        |       |                                                                                     |      |
|                          |        |                                                                                   |        |                 |                                                                                   |                                                                                   |       |                                                                                   |        |       |                                                                                     |      |
| Minor Lane/Major Mvmt    | NBL    | NBT                                                                               | NBR    | EBLn1WBLn1WBLn2 | SBL                                                                               | SBT                                                                               | SBR   |                                                                                   |        |       |                                                                                     |      |
| Capacity (veh/h)         | 1255   | -                                                                                 | -      | 219 265         | -                                                                                 | 1609                                                                              | -     |                                                                                   |        |       |                                                                                     |      |
| HCM Lane V/C Ratio       | -      | -                                                                                 | -      | 0.457 0.592     | -                                                                                 | 0.145                                                                             | -     |                                                                                   |        |       |                                                                                     |      |
| HCM Control Delay (s)    | 0      | -                                                                                 | -      | 34.5 36.6       | 0                                                                                 | 7.6                                                                               | 0     |                                                                                   |        |       |                                                                                     |      |
| HCM Lane LOS             | A      | -                                                                                 | -      | D E             | A                                                                                 | A                                                                                 | A     |                                                                                   |        |       |                                                                                     |      |
| HCM 95th %tile Q(veh)    | 0      | -                                                                                 | -      | 2.2 3.5         | -                                                                                 | 0.5                                                                               | -     |                                                                                   |        |       |                                                                                     |      |

Black Mountain Development  
Emma Road at Basalt Avenue

Total Long-Range (2046) Conditions - PM Peak Hour

| Intersection                |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 5.6   |       |       |       |
| Intersection LOS            | A     |       |       |       |
| Approach                    | EB    | WB    | NB    | SB    |
| Entry Lanes                 | 1     | 1     | 1     | 1     |
| Conflicting Circle Lanes    | 1     | 1     | 1     | 1     |
| Adj Approach Flow, veh/h    | 170   | 254   | 384   | 74    |
| Demand Flow Rate, veh/h     | 177   | 259   | 395   | 76    |
| Vehicles Circulating, veh/h | 177   | 271   | 118   | 435   |
| Vehicles Exiting, veh/h     | 334   | 242   | 236   | 95    |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     | 0     |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 | 1.000 |
| Approach Delay, s/veh       | 4.6   | 5.9   | 6.1   | 5.0   |
| Approach LOS                | A     | A     | A     | A     |
| Lane                        | Left  | Left  | Left  | Left  |
| Designated Moves            | LTR   | LTR   | LTR   | LTR   |
| Assumed Moves               | LTR   | LTR   | LTR   | LTR   |
| RT Channelized              |       |       |       |       |
| Lane Util                   | 1.000 | 1.000 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.609 | 2.609 | 2.609 | 2.609 |
| Critical Headway, s         | 4.976 | 4.976 | 4.976 | 4.976 |
| Entry Flow, veh/h           | 177   | 259   | 395   | 76    |
| Cap Entry Lane, veh/h       | 1152  | 1047  | 1223  | 885   |
| Entry HV Adj Factor         | 0.958 | 0.982 | 0.972 | 0.980 |
| Flow Entry, veh/h           | 170   | 254   | 384   | 74    |
| Cap Entry, veh/h            | 1104  | 1028  | 1190  | 867   |
| V/C Ratio                   | 0.154 | 0.247 | 0.323 | 0.086 |
| Control Delay, s/veh        | 4.6   | 5.9   | 6.1   | 5.0   |
| LOS                         | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 1     | 1     | 1     | 0     |

Black Mountain Development  
SH 82 at Basalt Avenue

Total Long-Range (2046) Conditions - PM Peak Hour

|                         |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |   |  |  |                                                                                      |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                                                                                                     | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |  |    |  |  |    |  |  |  |  |   |  |  |
| Traffic Volume (vph)    | 155                                                                               | 485                                                                                                                                                                                                                                                   | 80                                                                                | 85                                                                                | 2135                                                                                                                                                                                                                                                  | 180                                                                               | 225                                                                                 | 65                                                                                  | 40                                                                                  | 50                                                                                                                                                                      | 40                                                                                  | 95                                                                                  |
| Future Volume (vph)     | 155                                                                               | 485                                                                                                                                                                                                                                                   | 80                                                                                | 85                                                                                | 2135                                                                                                                                                                                                                                                  | 180                                                                               | 225                                                                                 | 65                                                                                  | 40                                                                                  | 50                                                                                                                                                                      | 40                                                                                  | 95                                                                                  |
| Satd. Flow (prot)       | 1736                                                                              | 4988                                                                                                                                                                                                                                                  | 1553                                                                              | 1719                                                                              | 4940                                                                                                                                                                                                                                                  | 1538                                                                              | 1649                                                                                | 1689                                                                                | 1553                                                                                | 3367                                                                                                                                                                    | 1635                                                                                | 0                                                                                   |
| Flt Permitted           | 0.041                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | 0.451                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | 0.950                                                                               | 0.973                                                                               |                                                                                     | 0.950                                                                                                                                                                   |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 75                                                                                | 4988                                                                                                                                                                                                                                                  | 1553                                                                              | 816                                                                               | 4940                                                                                                                                                                                                                                                  | 1538                                                                              | 1649                                                                                | 1689                                                                                | 1553                                                                                | 3367                                                                                                                                                                    | 1635                                                                                | 0                                                                                   |
| Satd. Flow (RTOR)       |                                                                                   |                                                                                                                                                                                                                                                       | 85                                                                                |                                                                                   |                                                                                                                                                                                                                                                       | 198                                                                               |                                                                                     |                                                                                     | 174                                                                                 |                                                                                                                                                                         | 59                                                                                  |                                                                                     |
| Lane Group Flow (vph)   | 165                                                                               | 516                                                                                                                                                                                                                                                   | 85                                                                                | 94                                                                                | 2372                                                                                                                                                                                                                                                  | 200                                                                               | 187                                                                                 | 189                                                                                 | 52                                                                                  | 57                                                                                                                                                                      | 155                                                                                 | 0                                                                                   |
| Turn Type               | pm+pt                                                                             | NA                                                                                                                                                                                                                                                    | pm+ov                                                                             | pm+pt                                                                             | NA                                                                                                                                                                                                                                                    | Perm                                                                              | Split                                                                               | NA                                                                                  | Perm                                                                                | Split                                                                                                                                                                   | NA                                                                                  |                                                                                     |
| Protected Phases        | 5                                                                                 | 2                                                                                                                                                                                                                                                     | 8                                                                                 | 1                                                                                 | 6                                                                                                                                                                                                                                                     |                                                                                   | 8                                                                                   | 8                                                                                   |                                                                                     | 4                                                                                                                                                                       | 4                                                                                   |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                                                                                                                                                                                       | 2                                                                                 | 6                                                                                 |                                                                                                                                                                                                                                                       | 6                                                                                 |                                                                                     |                                                                                     | 8                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |
| Total Split (s)         | 25.0                                                                              | 105.0                                                                                                                                                                                                                                                 | 23.0                                                                              | 12.0                                                                              | 92.0                                                                                                                                                                                                                                                  | 92.0                                                                              | 23.0                                                                                | 23.0                                                                                | 23.0                                                                                | 20.0                                                                                                                                                                    | 20.0                                                                                |                                                                                     |
| Total Lost Time (s)     | 8.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 8.0                                                                               | 7.5                                                                                                                                                                                                                                                   | 7.5                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                 |                                                                                     |
| Act Effect Green (s)    | 108.5                                                                             | 100.0                                                                                                                                                                                                                                                 | 118.0                                                                             | 90.3                                                                              | 86.8                                                                                                                                                                                                                                                  | 86.8                                                                              | 18.0                                                                                | 18.0                                                                                | 18.0                                                                                | 15.0                                                                                                                                                                    | 15.0                                                                                |                                                                                     |
| Actuated g/C Ratio      | 0.68                                                                              | 0.62                                                                                                                                                                                                                                                  | 0.74                                                                              | 0.56                                                                              | 0.54                                                                                                                                                                                                                                                  | 0.54                                                                              | 0.11                                                                                | 0.11                                                                                | 0.11                                                                                | 0.09                                                                                                                                                                    | 0.09                                                                                |                                                                                     |
| v/c Ratio               | 0.81                                                                              | 0.17                                                                                                                                                                                                                                                  | 0.07                                                                              | 0.19                                                                              | 0.89                                                                                                                                                                                                                                                  | 0.22                                                                              | 1.01                                                                                | 0.99                                                                                | 0.16                                                                                | 0.18                                                                                                                                                                    | 0.75                                                                                |                                                                                     |
| Control Delay           | 71.8                                                                              | 12.7                                                                                                                                                                                                                                                  | 0.7                                                                               | 11.6                                                                              | 37.7                                                                                                                                                                                                                                                  | 2.9                                                                               | 137.1                                                                               | 132.9                                                                               | 1.0                                                                                 | 68.4                                                                                                                                                                    | 65.7                                                                                |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |                                                                                     |
| Total Delay             | 71.8                                                                              | 12.7                                                                                                                                                                                                                                                  | 0.7                                                                               | 11.6                                                                              | 37.7                                                                                                                                                                                                                                                  | 2.9                                                                               | 137.1                                                                               | 132.9                                                                               | 1.0                                                                                 | 68.4                                                                                                                                                                    | 65.7                                                                                |                                                                                     |
| LOS                     | E                                                                                 | B                                                                                                                                                                                                                                                     | A                                                                                 | B                                                                                 | D                                                                                                                                                                                                                                                     | A                                                                                 | F                                                                                   | F                                                                                   | A                                                                                   | E                                                                                                                                                                       | E                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 24.1                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 34.1                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 118.7                                                                               |                                                                                     |                                                                                                                                                                         | 66.4                                                                                |                                                                                     |
| Approach LOS            |                                                                                   | C                                                                                                                                                                                                                                                     |                                                                                   |                                                                                   | C                                                                                                                                                                                                                                                     |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |                                                                                                                                                                         | E                                                                                   |                                                                                     |
| Queue Length 50th (ft)  | 121                                                                               | 79                                                                                                                                                                                                                                                    | 0                                                                                 | 31                                                                                | 801                                                                                                                                                                                                                                                   | 1                                                                                 | ~211                                                                                | 211                                                                                 | 0                                                                                   | 28                                                                                                                                                                      | 100                                                                                 |                                                                                     |
| Queue Length 95th (ft)  | #224                                                                              | 98                                                                                                                                                                                                                                                    | 8                                                                                 | 53                                                                                | 878                                                                                                                                                                                                                                                   | 41                                                                                | #304                                                                                | #303                                                                                | 0                                                                                   | 51                                                                                                                                                                      | #192                                                                                |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 396                                                                                                                                                                                                                                                   |                                                                                   |                                                                                   | 404                                                                                                                                                                                                                                                   |                                                                                   |                                                                                     | 344                                                                                 |                                                                                     |                                                                                                                                                                         | 171                                                                                 |                                                                                     |
| Turn Bay Length (ft)    | 277                                                                               |                                                                                                                                                                                                                                                       | 590                                                                               | 425                                                                               |                                                                                                                                                                                                                                                       | 425                                                                               | 160                                                                                 |                                                                                     | 160                                                                                 | 95                                                                                                                                                                      |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 227                                                                               | 3117                                                                                                                                                                                                                                                  | 1167                                                                              | 483                                                                               | 2680                                                                                                                                                                                                                                                  | 925                                                                               | 185                                                                                 | 190                                                                                 | 329                                                                                 | 315                                                                                                                                                                     | 206                                                                                 |                                                                                     |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |                                                                                     |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                 | 0                                                                                                                                                                                                                                                     | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 0                                                                                   |                                                                                     |
| Reduced v/c Ratio       | 0.73                                                                              | 0.17                                                                                                                                                                                                                                                  | 0.07                                                                              | 0.19                                                                              | 0.89                                                                                                                                                                                                                                                  | 0.22                                                                              | 1.01                                                                                | 0.99                                                                                | 0.16                                                                                | 0.18                                                                                                                                                                    | 0.75                                                                                |                                                                                     |

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 132 (83%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 42.8

Intersection LOS: D

Intersection Capacity Utilization 85.3%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: Basalt Avenue & SH 82



**James Lindt**

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**From:** Micky Hohl <mickyhohl222@gmail.com>  
**Sent:** Tuesday, September 12, 2023 8:16 AM  
**To:** Pam Schilling; James Lindt  
**Subject:** Jadwin Project

Caution: Sender from outside domain.

Dear Pam and James,

I have been writing to the mayor and the council members but understand we need to send these comments to you. I am going to include those messages below so you can please put them in the proper channel to reach the mayor and the town council members.

Thank you very much,  
Micky Hohl

Dear Mr. Mayor and Town Council Members,

I have been watching the "progress" on the Jadwin Project. They are filling in wetlands, which is against the Clean Water Act which "prevents the filling and development of wetlands." They are also filling it in to such an extreme that whatever they build there, will now be a TOWERING entrance to our beautiful mountain town. If it is an apartment building, we will begin to look like Willitts. PLEASE do not allow this travesty. This is the future of our town and will be irrevocable. Please represent us Basalt citizens by protecting our beautiful town!!

Thank you,  
Micky Hohl, Basalt business owner and long time resident.

Dear Mr. Mayor and Town Council Members,

I have been watching the "progress" on the Jadwin Project. They are filling in wetlands, which is against the Clean Water Act which "prevents the filling and development of wetlands." They are also filling it in to such an extreme that whatever they build there, will now be a TOWERING entrance to our beautiful mountain town. If it is an apartment building, we will begin to look like Willitts. PLEASE do not allow this travesty. This is the future of our town and will be irrevocable. Please represent us Basalt citizens by protecting our beautiful town!!

Thank you,  
Micky Hohl, Basalt business owner and long time resident.

Dear Mr. Mayor and Town Council Members,

I have clients tonight so can not attend the meeting but wanted to fervently ask that you please not let high density housing and a traffic jam be the new face of. and entrance (from 82) into Basalt. Glamping and cabins would look nice but an apartment building, many cars and a traffic problem would not be advantageous to our beautiful and scenic mountain town's face.

Thank you for your consideration.

Sincerely,  
Micky Hohl, Long time Basalt business and property owner.

I have been watching the "progress" on the Jadwin Project. They are filling in wetlands, which is against the Clean Water Act which "prevents the filling and development of wetlands." They are also filling it in to such an extreme that whatever they build there, will now be a TOWERING entrance to our beautiful mountain town. If it is an apartment building, we will begin to look like Willitts. PLEASE do not allow this travesty. This is the future of our town and will be irrevocable. Please represent us Basalt citizens by protecting our beautiful town!!

Thank you,  
Micky Hohl, Basalt business owner and long time resident.

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Thank you,

Micky Hohl, Basalt business owner and long time resident.