ZONE CHANGE APPLICATION

Community Development Department, Planning Division
316 North Park Avenue, Room 445, Helena, MT 59623
406-447-8490; **citycommunitydevelopment@helenamt.gov**

Date received:

APPLICATION FEE: $410.00
(PAYABLE TO THE CITY OF HELENA)
ALL FEES ARE NON-REFUNDABLE

Application to the Helena Zoning Commission and City Commission for an amendment to the official Zoning Map. Such amendments re-classify property from one zoning district to another.

PROPERTY OWNER: *Primary Contact?* **No**

Name:	**Thomas Walter Schulke Jr** (TWS)	Primary Number:	406-439-0139 ~~406-458-5565~~
Address:	**1265 Lariat Road Helena, MT 59602** (TWS)	Other Phone:	**None**
Email:	~~andyb@tridentdevelopmentmn.com~~		tschulke@bresnan.net

APPLICANT (If different from property owner): *Primary Contact?* **No**

Name:	**Trident Development, LLC ATTN: Andy Brummer**	Primary Number:	**320-293-4200**
Address:	**3601 18th Street South, Suite 103 Saint Cloud, MN 56301**	Other Phone:	**None**
Email:	**andyb@tridentdevelopmentmn.com**		

AUTHORIZED REPRESENTATIVE: *Primary Contact?* **Yes**

Name:	**Stahly Engineering & Associates ATTN: Greg Wirth, PE**	Primary Number:	**406-442-8594**
Address:	**3530 Centennial Drive Helena, MT 59601**	Other Phone:	**None**
Email:	**gwirth@seaeng.com**		

X Address of the Property: **None Assigned**
Address City State Zip Code

X Legal Description (Lots, Block, & Subdivision, COS #, deed reference)

Tract 2 as shown on a Certificate of Survey filed under Doc. No. 3198943

X Provide a current deed and plat/COS with the metes and bounds of the subject property

Included in Application

X Geocode **05-1888-20-2-04-20-0000**

X Current City Zoning District **CLM (Commercial and Light Manufacturing)**

X Proposed Zoning District **B-2 (General Commercial)**

X Adjacent Zoning Districts **North – B-2**
South – CLM (Pending Zone Change to R-4)
West – PLI
East – B-2

X Are there other related Land Use Applications being submitted: Yes No **X**

X Submit proof of current paid taxes **Included in Application**

X Existing use on the property **Vacant**

I HEREBY CERTIFY AND ACKNOWLEDGE THE STATEMENTS IN THIS APPLICATION AND ANY ATTACHED INFORMATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

Signed: Thomas Walter Hulke Jr. Property Owner Date: 10/04/2022

Applicant: _____ (If different from Owner) Date: _____

Review Criteria

(A different zoning district may be recommended if it appropriately fits the review criteria)

Your application will be reviewed using Montana MCA Section 76-2-304, "Criteria and Guidelines for Zoning Regulations" stated below.

(1) Zoning regulations must be:
(a) made in accordance with a growth policy; and
(b) designed to secure safety from fire and other dangers;
(ii) promote public health, public safety, and the general welfare; and
(iii) facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements.
(2) In the adoption of zoning regulations, the municipal governing body shall consider:
(a) reasonable provision of adequate light and air;
(b) the effect on motorized and nonmotorized transportation systems;
(c) promotion of compatible urban growth;
(d) the character of the district and its peculiar suitability for particular uses; and
(e) conserving the value of buildings and encouraging the most appropriate use of land throughout the jurisdictional area.

Per Section 11-1-10 of the Helena City Code, the Zoning Commission and the City Commission will hold public hearings, to give the public an opportunity to be heard upon the matter. The Zoning Commission will make a recommendation to the City Commission who will approve or deny the requested zoning. If approved, the zone change becomes effective 30 days after final pass of the zone change Ordinance.

To evaluate the requested zone change with the above criteria the following must be submitted with this application. Please provide all the information requested on additional sheets as an incomplete application may delay the review of your request.

Please Note: N/A is not an acceptable answer alone and requires an explanation if used.

X 1. Apply to the City on the appropriate forms and pay any required fees. The application must include the property owner's signature;

Signed application and fee provided

X 2. Describe how your proposal relates to the above zoning review criteria (attach additional sheets if necessary);

Zoning Review Criteria Narrative Provided in Application

X 3. Provide a statement why the proposed zone change should be approved;

Proposed zone change is to facilitate a proposed four (4) story apartment building which will provide much needed additional housing opportunities within the City of Helena. B-2 zoning is proposed to allow a taller building height than is allowable in the residential zoning districts.

X 4. Submit a traffic impact study for a proposed zoning district that is anticipated to generate more than two hundred (200) additional vehicle trips a day;

A Traffic Impact Study is being prepared and will be provided when available

X 5. Provide a vicinity map of the area showing the location of the property in relation to surrounding land and zoning in the immediate area, water and wastewater mains, other utilities, and city streets and pedestrian facilities (sidewalks, trails);

Mapping provided in Application

X 6. Submit a statement on how the proposed zoning conforms to the Helena Growth Policy and Land Use Map; include how the proposed zoning conforms with the area neighborhood plan if one has been adopted;

The proposed zoning and project meet the Goals and Objectives of the Growth Policy by promoting economic vitality and attracting economic sectors that provide employment opportunities (G.01), supports the provision of housing (G.02), promote development of diverse housing stock to reduce land consumption and optimize infrastructure (O.12),

support the development of housing located in proximity to necessary services (O.14), encourages infill development on vacant ant under-utilized land within the City (O.78), encourages mixed-use neighborhoods to support more compact land use patterns (O.81) and encourages development that promotes the efficient use of City infrastructure (O.82).

The proposed zoning is directly aligned with the Land Use Map identifying the property with a future land use as commercial. There is no Neighborhood Plan for the area.

X 7. Statement indicating if the existing structures meets the proposed zoning dimensional standards requirements without the need for a variance;

There are no existing structures on the property

X 8. Statement indicating if the existing use on the subject property meets the proposed zoning permitted uses;

There is no existing use on the property

X 9. Historical uses, established use patterns, and recent changes and trends in the neighborhood.

The historical uses include commercial use to the west, vacant land to the south, City of Helena stormwater ponds to the east and modern retail development to the north. The land use on properties to the west, south and east have not seen any recent changes. The development to the north has occurred within the last decade. An application is currently being processed by the City of Helena to change the zoning of the adjoining property to the south to R-4 for a proposed multi-family development project. The Zoning Commission on 9/13/22 has recommended approval for the zone change.

IT IS RECOMMENDED THAT THE APPLICANT CONTACT NEIGHBORS TO INFORM THEM OF THIS PROPOSED ZONE CHANGE AND IDENTIFY ANY CONCERNS THAT THE APPLICANT MAY BE ABLE TO ADDRESS.

It is the policy of the City Commission not to act on a proposal if the applicant/ applicant's representative is not present at the commission meeting. City Planning Staff represents the City; staff cannot answer questions for the applicant.

Per 1-4-12 City Code, the taxes and assessments on the applicant's property, which is the subject of the proposed action, must be paid or payment of said taxes and assessments must be made a condition of final approval of said action by the City Commission, with the taxes and assessments to be paid within fourteen (14) days after final passage.

Michael Alvarez, Planner II
Community Development Department
316 North Park Avenue, Room 404
Helena, MT 59623

Phone: 406-447-8491
Fax: 406-447-8460
Email: malvarez@helenamt.gov

helenamt.gov

Date: Dec 06, 2022
File: ZONC2210-001 | N Sanders St Apts

ZONE CHANGE

STAFF REPORT

TO: City of Helena Zoning Commission

FROM: Michael Alvarez, Planner II
Christopher Brink, Community Development Director

SUBJECT: **To make a recommendation on an ordinance amending the official zoning map for the City of Helena that changes the zoning district from CLM (commercial-light manufacturing) to B-2 (General Commercial) for property legally described as Tract 2, situated in Section 20, Township 10 N, Range 3 W, P.M.M.; City of Helena, Lewis and Clark County, Montana, as shown and described on COS 3198943.**

GENERAL INFORMATION

DATE OF APPLICATION: Oct 03, 2022
DATE DEEMED COMPLETE: Oct 20, 2022

PUBLIC HEARING DATES:
Zoning Commission: **6:00 P.M. Thursday,** December 15, 2022
City Commission: **6:00 P.M. Monday,** January 23, 2023

PUBLIC NOTICE:
Legal notice has been published November 30, 2022 in the Independent Record; notice letters have been sent to adjacent property owners, and a sign posted on the property.

PUBLIC COMMENT:
As of Tuesday, September 6th no public comments have been received regarding this proposed zone change.

OWNER: Thomas Walter Schulke Jr
ADDRESS: 1265 Lariat Rd, Helena, MT 59602

APPLICANT: Trident Development: ATTN Andy Brummer
ADDRESS: 3601 18th Street South Ste 103, St. Cloud, MN 56301

REPRESENTATIVE: Stahly Engineering & Assoc.: Greg Wirth
ADDRESS: 3530 Centennial Dr., Helena MT, 59601

LEGAL DESCRIPTION:
Tract 2, situated in Section 20, Township 10 N, Range 3 W, P.M.M.; City of Helena, Lewis and Clark County, Montana, as shown and described on COS 3198943, City of Helena, Lewis and Clark County, Montana.

GENERAL LOCATION: The property is generally located on the east side of N Sanders St, south of Winco and the US Chef Store, west of I-15, and across from Marshall Ln.

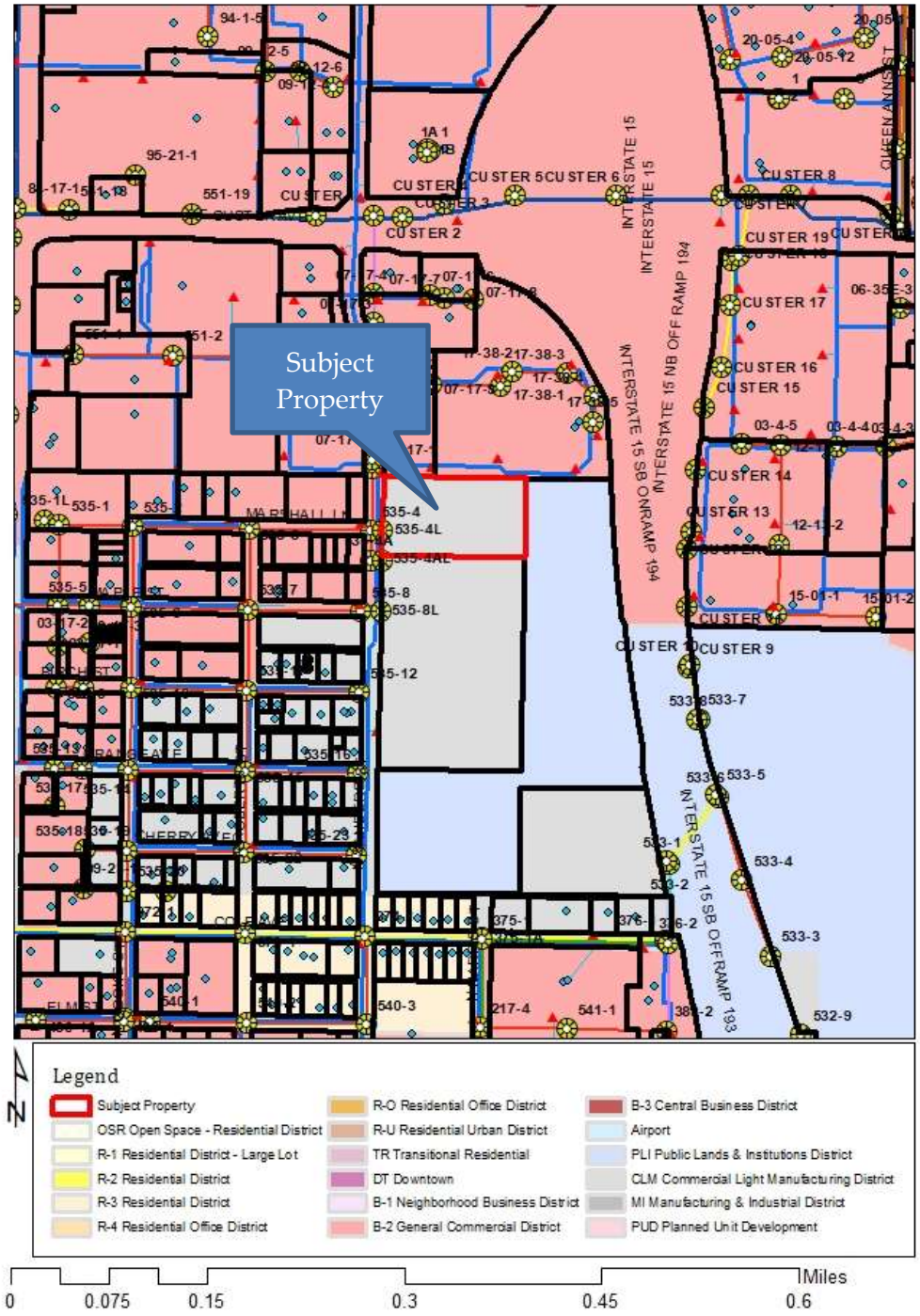
PRESENT LAND USE: Vacant
Size: 4.38 Acres

ADJACENT LAND USE:
North: General retail locations (grocery stores)
South: Residential (under development)
East: City of Helena park land and east again is HWY I-15
West: Commercial buildings

PRESENT ZONING: CLM (Commercial-Light Manufacturing)

ADJACENT ZONING:
North: B-2 (General Commercial)
South: R-4 (Residential-Office)
East: PLI (Public Lands and Institutions)
West: CLM (Commercial-Light Manufacturing) & B-2 (General Commercial)

VICINITY MAP:



ZONING USE DEFINITIONS:

The CLM (commercial-light manufacturing) District provides for the community's commercial and light manufacturing needs. These uses generally need access to the City's transportation amenities and should be located to reduce adverse impacts upon residential neighborhoods in the City.

The B-2 (general commercial) district provides for compatible residential uses and a broad range of commercial and service uses that serve large areas of the City and that are normally required to sustain a community.

DESCRIPTION / BACKGROUND

The applicant/property owner is requesting a that the official zoning map for the City of Helena be amended to change the zoning district of the above described property from CLM (Commercial-Light Manufacturing) to B-2 (General Commercial). The property is currently vacant and a zone change would allow high-density residential housing to be constructed at the location.

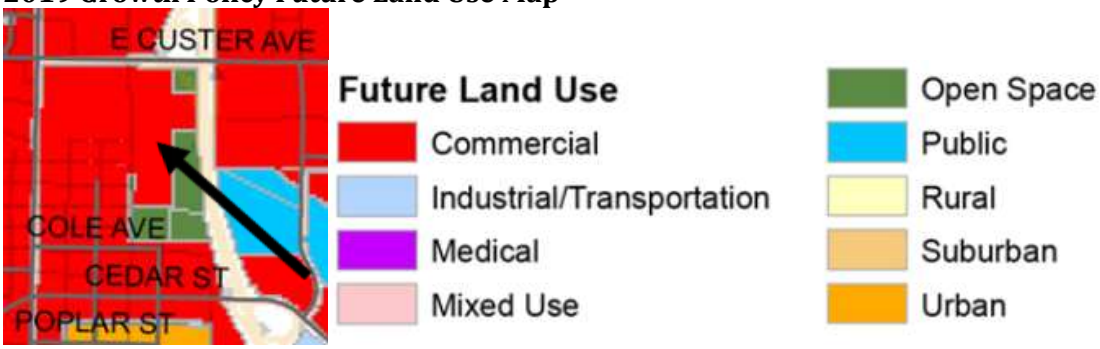
RECOMMENDATION

Move to recommend **Approval** of an ordinance amending the official zoning map for the City of Helena that changes the zoning district from CLM (Commercial-Light Manufacturing) to B-2 (General Commercial) for property legally described as Tract 2, situated in Section 20, Township 10 N, Range 3 W, P.M.M.; City of Helena, Lewis and Clark County, Montana, as shown and described on COS 3198943

EVALUATION:

GROWTH POLICY:

2019 Growth Policy Future Land Use Map



Montana MCA Section 76-2-304 (1.a), Criteria and guidelines for zoning regulations: Zoning regulations must be made in accordance with a growth policy.

1) Growth Policy Area Designation:

The 2019 Helena Growth Policy Land Use Chapter and Future Land Use map identifies the neighborhood that the proposed rezone area is in as commercial. Areas to the north, south,

and west of the property are also designated as commercial. There are areas designated as Open Space to the east. All developable areas in the vicinity are designated commercial. The Growth Policy also includes several goals and objectives that are applicable to the proposed zone change.

2) Growth Policy Area Definition:

The 2019 Growth Policy identifies the Commercial future land use areas as "[l]ands where the predominant use is the transaction of goods or services such as retail, office, restaurants, entertainment, etc.; such areas are usually near arterials or have good access to major streets. These properties are expected to have limited single-unit residential uses, but may include high-density residential uses and residences associated with a commercial use." B-2 (General Commercial) squarely fits this definition.

The Land Use chapter of the 2019 Growth Policy sets forth a range of objectives relevant to the present rezoning application. When considering rezoning of lots within the city, consideration must be made for factors such as the future land use mapping (discussed above), compatibility with surrounding land uses, and the development of vacant and under-utilized spaces, to name a few.

3) Growth policy Objectives of note:

Objective 12 of the Growth Policy seeks to "Promote and maintain development of a diverse housing stock, helping to:

- Minimize depletion of natural resources;
- Reduce land consumption and demands on the physical environment;
- Provide housing for all residents;
- Optimize infrastructure use;
- Prepare Helena to meet emerging needs.

The CLM district does not accommodate moderate to high density residential units without a CUP. B-2 (General Commercial) allows for the development of the high density housing the future land use map allows for with a Commercial designation.

Objective 78 of the Growth Policy seeks to "Encourage infill development on vacant and under-utilized land within the city, directing growth to areas currently served by, or in close proximity to existing infrastructure and that harmonizes with the character of existing neighborhoods."

This N Sanders St property is currently vacant. Development here would be considered in-fill.

4) Zoning compatibility:

The proposed zoning, B-2, is the predominant zoning district in the area. The property directly to the south was recently re-zoned to R-4 to allow for high-density residential development. The proposed use of subject property will also be high-density residential, however, the developers are proposing a 4-story apartment building that would be difficult to accommodate with the height restriction found in R-4.

The proposed zone change from CLM to B-2 District meets all the zone change requirements outlined in MCA Section 76-2-304(1.b). This is documented below.

Montana MCA Section 76-2-304(1.b), Criteria and guidelines for zoning regulations:

(1) Zoning regulations must be (b) designed to:

(i) secure safety from fire and other dangers;

(ii) promote public health, public safety, and the general welfare; and
(iii) facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements.

Designed to (i) secure safety from fire and other dangers;

All structures built in either a CLM district, or a B-2 district would need to adhere to all applicable safety and fire codes. City Code secures safety from fire and other dangers primarily through Title 3: Building Regulations.

Designed to (ii) promote public health, public safety, and the general welfare; and

This change in zoning offers a chance to fill in a gap in housing between N Montana Ave and I-15 and north of Orange St. This area lacks housing but includes many retail and service destinations. The lack of housing in the area means that the opposite travel node for trips here will be longer, increasing congestion. The City would like to see high-density residential projects in areas of high commercial development.

Both zoning districts contain provisions that address the promotion of public health and safety through dimensional limitations and allowed uses.

The intent of CLM district is the creation and preservation of businesses that provide for the city's commercial and manufacturing needs. Generally, CLM is an appropriate designation for ana rea that can handle trucking and should be located near highways. This area does fit that desired design element for a CLM zoning designation. However, this tract has not been developed under the CLM designation and the prospective property owner seeks to develop residential at the location. Development of vacant or under-utilized CLM zoned areas have seen greater success east of I-15.

Designed to (iii) facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements.

The property is currently vacant and the change in zoning will allow it to be developed. The provision of transportation, water, sewerage, schools, parks, and/or other public requirements must be calculated and mitigated as necessary in order to receive building permits. The property is approximately 4.38 acres in size and city utilities are in the area.

Zone changes are to be reviewed in the abstract of zone types and are not based the project proposal. Public works is therefore holding comment until building permit.

The Community Development Dept's traffic estimate for 4.38 acres of CLM is 3,797 trips per day. The traffic estimate for B-2 is 5,144 trips per day. The applicant was required to submit a Traffic Impact Study (TIS) since the City expects this property to produce more than 200 additional vehicle trips per day zoned B-2 than CLM.

The applicant has submitted a TIS. The City's Transportation Systems Department doesn't agree with the conclusions and recommendations given in the TIS submitted by the applicant (note: Transportation Dept disagrees with those conclusions not the underlying data provided). The Transportation Dept believes the proposed development could participate in the mitigation of the impacts of the 663 additional weekday trips the TIS states that this proposed project would create.

There are existing public lands adjacent to the property, however, they lack park facilities.

The property is currently served by the Helena Police Department, and Helena Fire Department.

The application shall also be reviewed through Montana MCA Section 76-2-304. Montana MCA Section 76-2-304(2.a thru e), In the adoption of zoning regulations, the municipal governing body shall consider:

(2) In the adoption of zoning regulations, the municipal governing body shall consider:
(a) reasonable provision of adequate light and air;
(b) the effect on motorized and non-motorized transportation systems;
(c) promotion of compatible urban growth;
(d) the character of the district and its peculiar suitability for particular uses; and
(e) conserving the value of buildings and encouraging the most appropriate use of land throughout the jurisdictional area.

a) reasonable provision of adequate light and air;

The city's zoning districts, and their accompanying regulations are intended to protect the public health and general welfare by identifying appropriate land uses for each zoning district found in the community. Additionally, the provisions outlined in the city's zoning code under Title 11 are designed to ensure that properties located in each zoning district will be developed in accordance with the zoning requirements and restrictions for the district, such as: use, size, setbacks, lot coverage, off street parking, landscaping, and screening.

The minimum lot size, setbacks, height restrictions of City Code are intended to prevent the overcrowding of the land and ensure buildings that are compatible in size and scale to others in the district. In addition, these requirements are also intended to assure adequate light and air will be provided. The dimensional limitations for both the CLM and B-2 districts are listed in the Table under §11-4-2. B-2 has fewer dimensional standard limitations than CLM.

b) the effect on motorized and non-motorized transportation systems;

CLM is considered a less intensive traffic producing land use than B-2. Sidewalks would be required on all frontages with any new primary structure (required for a building permit).

c) promotion of compatible urban growth;

The proposed zone change is squarely in keeping with the surrounding area.

d) the character of the district and its peculiar suitability for particular uses; and

The area has primarily developed as a commercial district and this proposed zone change could see the area begin to be developed as a neighborhood.

e) conserving the value of buildings and encouraging the most appropriate use of land throughout the jurisdictional area

A change in zoning from CLM to B-2 will not have any clear impacts on the value of buildings in the area.

CONCLUSION

Staff concludes this proposal is consistent with the 2019 Helena Growth Policy and is consistent with all the Montana zoning criteria.
Staff recommends that the Zoning Commission:

Move to recommend **Approval** of an ordinance amending the official zoning map for the City of Helena that changes the zoning district from CLM (Commercial-Light Manufacturing) to B-2

(General Commercial) for property legally described as Tract 2, situated in Section 20, Township 10 N, Range 3 W, P.M.M.; City of Helena, Lewis and Clark County, Montana, as shown and described on COS 3198943

Engineers and Land Surveyors
3530 Centennial Drive, Helena, MT 59601 | phone: 406-442-8594
851 Bridger Drive, Suite 1, Bozeman, MT 59715 | phone: 406-522-8594
2223 Montana Avenue, Suite 201, Billings, MT 59101 | phone: 406- 601-4055
www.seaeng.com

September 28, 2022

Michael Alvarez, Planner
City of Helena
Community Development Department
316 N. Park Avenue
Helena, MT 59623

RE: Zone Change Application
Trident Development
SEA Project No. 3423-00122

Dear Mr. Alvarez:

Please find enclosed a Zone Change Application and supporting information for the above referenced project for your review. A Pre-Application meeting to discuss the project was conducted on September 26, 2022.

As discussed during our phone conversation on 9/27/22, the application is provided for initiating the City review process. A Traffic Impact Study is being conducted and will be provided when available.

Enclosed is Check No. 050519 for the $410 City of Helena Application Fee.

The application and all supporting materials are provided electronically on the attached thumb drive.

Please feel free to call me at (406) 442-8594 if you have any questions or need any additional information, thanks in advance for your prompt attention.

Sincerely,

STAHLY ENGINEERING & ASSOCIATES, INC.

Greg Wirth, P.E.
Senior Engineer

Cc: Andy Brummer (Trident Development)

Engineers and Land Surveyors
3530 Centennial Drive, Helena, MT 59601 | phone: 406-442-8594
851 Bridger Drive, Suite 1, Bozeman, MT 59715 | phone: 406-522-8594
2223 Montana Avenue, Suite 201, Billings, MT 59101 | phone: 406-601-4055
www.seaeng.com

Zoning Review Criteria Narrative

Date: September 2022

Subject: Trident Development Apartment Project
Stahly Engineering Project No. 3423-00122

To: Michael Alvarez, Planner
City of Helena
Community Development
316 North Park Avenue
Helena, MT 59623

From: Greg Wirth, PE

The following narratives describe how a zone change for a proposed apartment development conforms to the zoning regulation and criteria in accordance with 76-2-304 MCA. For convenience, the zoning criteria is reiterated with narrative response included in **bold blue text**.

(1) Zoning regulations must be:

(a) made in accordance with a growth policy; and

The proposed zone change is in direct conformance with the Growth Policy and Future Land Use Map by providing zoning district for commercial use.

(b) designed to secure safety from fire and other dangers;

All new development on the property will be subject to City of Helena building permitting to ensure conformance with all building codes and zoning regulations.

(ii) promote public health, public safety, and the general welfare; and

All new development on the property will be subject to City of Helena building permitting to ensure conformance with all building codes and zoning regulations.

(iii) facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements.

The property is currently annexed and served by existing city services. Sanders Street is located immediately west of the property and includes

existing water and sewer mains. The property is located within the Helena School District and the developed project will increase assessments needed to support the existing schools. Open space is provided to the immediate east with the City of Helena stormwater ponds. Cherry Park is located approximately 0.5 miles southwest and Skelton Park is located approximately 0.7 miles northwest of the proposed project. Additionally, the proposed project will provide recreational amenities for tenants.

(2) In the adoption of zoning regulations, the municipal governing body shall consider:

(a) reasonable provision of adequate light and air;

All new development on the property will be subject to City of Helena building permitting to ensure conformance with all building codes and zoning regulations including dimensional standards for setbacks.

(b) the effect on motorized and nonmotorized transportation systems;

The property is immediately adjacent to Sanders Street which is fully operational for motorized use and includes existing sidewalk adjacent to the property.

(c) promotion of compatible urban growth;

The property is currently annexed and served by existing city services. The proposed land use is consistent with the commercial development to the immediate north and proposed multi-family development to the immediate south.

(d) the character of the district and its peculiar suitability for particular uses; and

The property to the immediately north is zoned as B-2 and is currently developed for retail use. A multi-family housing development is proposed for the property to the immediate south. The proposed multi-family development is compatible with the existing and proposed uses adjacent to the property.

(e) conserving the value of buildings and encouraging the most appropriate use of land throughout the jurisdictional area.

The proposed zone change will facilitate modern development that is compatible with the existing, modern buildings to the north and will support the existing buildings to the east by retaining values. The project will encourage the most appropriate use by providing much needed housing diversity in Helena with infill to utilize existing infrastructure and capitalize on existing vacant, under-utilized property in Helena.

Engineers and Land Surveyors

3530 Centennial Drive, Helena, MT 59601 | phone: 406-442-8594
851 Bridger Drive, Suite 1, Bozeman, MT 59715 | phone: 406-522-8594
2223 Montana Avenue, Suite 201, Billings, MT 59101 | phone: 406-601-4055
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Zone Change Review Response

Date: December 7, 2022

Subject: Trident Development
Zone Change Application
SEA Project No.: 3423-00122

To: Michal Alvarez

From: Greg Wirth, PE

The following information is provided in response to review comments for the subject project from the Transportation Systems Department provided on November 29, 2022. For convenience, the comments are reiterated with a narrative response provided.

According to our phone conversation, due to the ambiguity of the comments, direction was provided to contact the Transportation Systems Department directly to discuss the comments. As of this date, a response to a voicemail has not been received and the following narrative response is provided as needed for timely preparing the Zone Change Staff Report for presentation to and deliberation by the Zoning Commission and City Commission.

Transportation Systems Comments:

The Transportation Systems Department (TSD) does not agree with the conclusions and recommendations given in the Traffic Impact Study. The impacts of the projected 663 additional weekday trips are substantial and should be mitigated. The TSD does believe that if the zone change is approved, the proposed development could participate in steps to mitigate the traffic impacts to the area.

Response:

As noted in the Traffic Impact Study (TIS), the projected additional trips are well within the capacity of Sanders Street. According to the Long-Range Transportation Plan (LRTP), the theoretical capacity of Sanders Street, being a two-lane street, is approximately 12,000 vehicle trips per day. As described in the TIS, Sanders Street is currently functioning at about half of the capacity and the projected additional 663 weekday trips represents a nominal increase of about 5%. Additionally, the presence of several connecting streets in the immediate vicinity provides outlets for traffic distribution.

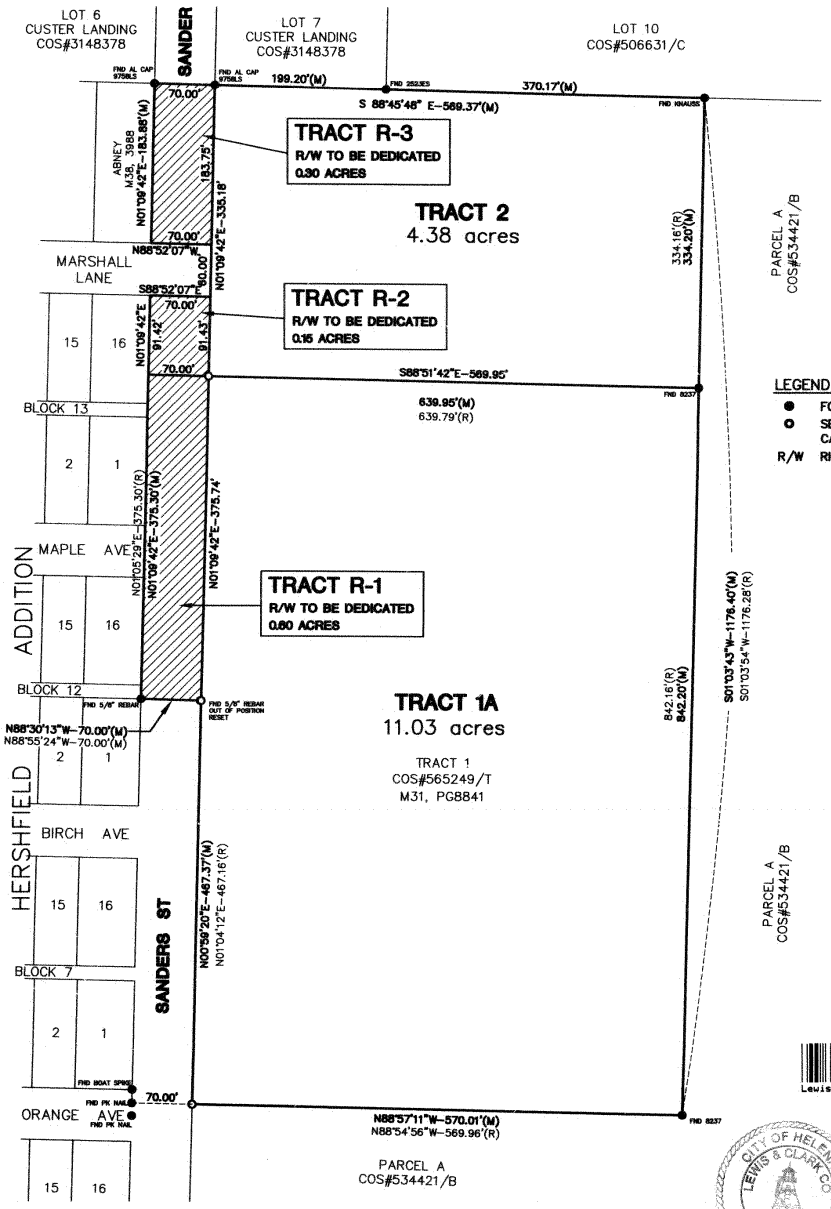
It is recognized that a TIS prepared according to industry standards utilizes national trip generation data which is typically more conservative than what is realized locally, and the projected trips are higher than expected actual trips. The location of the proposed residential project, being in immediate proximity of places of work, grocery supplies and other necessities, with readily available access to non-motorized facilities, fully adheres to sound urban planning practices to reduce the dependency on motorized vehicular travel with varying transportation opportunities. With the current trends of occupational environments promoting work-from-home benefits, the potential for vehicular trips is further reduced.

The property owner has participated greatly in transportation impact mitigation by previously dedicating the right-of-way providing the means for the full connectivity of Sanders Street between Cedar Street and Custer Avenue. Further, the development of the property will significantly increase the tax base and provide the means to collectively participate in any City identified steps to mitigate the traffic impacts to the area. As a comparison, the current undeveloped property (4.4 acres) currently contributes approximately $8,700 in annual taxes, while the recently constructed Remington Apartments (9.4 acres) contributes approximately $355,700 in annual taxes.

The TIS conclusions and recommendations are based on sound data and engineering practices. The street network in the immediate vicinity has the available capacity to support the proposed project, where the property has already participated in transportation mitigation. The imposition of any additional traffic mitigation measures are unsubstantiated and present a regulatory barrier to much needed housing inventory as identified in the Growth Policy.

CERTIFICATE OF SURVEY

A SURVEY TO DEDICATE LAND FOR SANDERS STREET RIGHT-OF-WAY.



LEGEND

- ● FOUND MONUMENT MARKED AS SHOWN
- ○ SET 5/8"x24" REBAR WITH YELLOW PLASTIC CAP MARKED "REDMOND 13755 LS"
- R/W RIGHT-OF-WAY

PERIMETER DESCRIPTION

2 TRACTS OF LAND IN THE NORTHEAST QUARTER OF SECTION 20, TOWNSHIP 10 NORTH, RANGE 3 WEST, PRINCIPAL MERIDIAN MONTANA, LEWIS AND CLARK COUNTY, MONTANA, AND BEING COMPRISED OF TRACT 1 OF CERTIFICATE OF SURVEY NO. 565249/T AND A TRACT OF LAND DESCRIBED IN M35, Pg 7272 OF DEEDS; LOCATED IN THE CITY OF HELENA, AND BEING FURTHER DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID TRACT 1 ON THE EAST RIGHT-OF-WAY LINE OF SANDERS STREET, THENCE N00°59'20"E, 467.37 FT. ALONG SAID RIGHT-OF-WAY LINE; THENCE LEAVING SAID EAST RIGHT-OF-WAY LINE N88°30'13"W, 70.00 FT. TO THE WEST RIGHT-OF-WAY LINE OF SANDERS STREET AND BEING THE NORTHEAST CORNER OF LOT 1 BLOCK 12 ON THE EAST LINE OF THE HERSHFIELD ADDITION; THENCE ALONG SAID EAST LINE N01°09'42"E, 375.30 FT. TO THE NORTHWEST CORNER OF TRACT 1 OF CERTIFICATE OF SURVEY 565249/T; THENCE N01°09'42"E, 91.42 FT.; TO THE NORTHEAST CORNER OF LOT 16, BLOCK 13 OF THE HERSHFIELD ADDITION; THENCE S88°52'07"E, 70.00 FT.; THENCE N01°09'32", 60.00 FT.; THENCE N88°52'07"W, 70.00 FT.; THENCE N01°09'42"E, 183.88 FT. TO THE SOUTHEAST CORNER OF LOT 6 CUSTER LANDING, CERTIFICATE OF SURVEY NO 3148378; THENCE S88°45'48"E, 639.37 FT. TO THE NORTHWEST CORNER OF PARCEL A, CERTIFICATE OF SURVEY NO. 534421/B; THENCE ALONG THE WEST LINE OF SAID PARCEL A S01°03'43"W, 1176.40 FT. TO THE SOUTHEAST CORNER OF TRACT 1 CERTIFICATE OF SURVEY NO.565249/T; THENCE ALONG THE SOUTH LINE OF SAID TRACT 1 N88°57'11"W, 570.01 FT. TO THE POINT OF BEGINNING

THIS TRACT CONTAINS 16.46 ACRES AND IS SUBJECT TO ALL APPURTANENT EASEMENTS OF RECORD

CERTIFICATE OF EXEMPTION AND DEDICATION

WE, DO HEREBY CERTIFY THAT THE PURPOSE OF THIS SURVEY IS TO DEDICATE, TO THE PUBLIC AND THE CITY OF HELENA TRACTS R-1, R-2 AND R-3 FOR SANDERS STREET RIGHT OF WAY, AND IT IS THEREFORE EXEMPT FROM REVIEW AS A SUBDIVISION PURSUANT TO SECTION 76-3-201(1)(h), AND EXEMPT FROM DEQ REVIEW PURSUANT TO 76-4-125(2)(a) M.C.A.

WE, THE UNDERSIGNED PROPERTY OWNERS, DO HEREBY CERTIFY THAT THE LAND SHOWN ON THIS CERTIFICATE OF SURVEY AS BEING DEDICATED TO THE USE OF THE PUBLIC IS HEREBY DEDICATED, GRANTED, AND DONATED TO THE CITY OF HELENA FOR SUCH USE.

Dolores Schulke Havdahl — Thomas Walter Schulke Jr.

DOLORES SCHULKE HAVDAHL — THOMAS WALTER SCHULKE, Jr.

STATE OF MONTANA)
: ss.
County of Lewis & Clark)

On this 28 day of December in the year 2010 before me appeared Dolores Schulke Havdahl & Thomas Walter Schulke, Jr. known to me to be the persons whose name is subscribed to the within instrument, and acknowledged to me that they executed the same.

KIMBERLY ANN SELL
NOTARY PUBLIC for the State of Montana
Residing at Helena, Montana
My Commission Expires
April 30, 2011

Kimberly Ann Sell
NOTARY PUBLIC for the State of Montana
Printed Name: Kimberly Ann Sell
Residing at: Helena
My Commission expires: 4/30/11

Stephen Skinner
SUMIST TWO LLC – BY:

STATE OF MONTANA)
: ss.
County of Lewis & Clark)

On this 27th day of December in the year 2010 before me appeared Stephen Skinner known to me to be the persons whose name is subscribed to the within instrument, and acknowledged to me that they executed the same.

KIMBERLY ANN SELL
NOTARY PUBLIC for the State of Montana
Residing at Helena, Montana
My Commission Expires
April 30, 2011

Kimberly Ann Sell
NOTARY PUBLIC for the State of Montana
Printed Name: Kimberly Ann Sell
Residing at: Helena
My Commission expires: 4/30/11

OWNER OF THE TRACT

SUMIST TWO LLC – M31, 8841
DOLORES SCHULKE HAVDAHL &
THOMAS WALTER SCHULKE, Jr. – M35, 7272

BASIS OF BEARINGS

GPS OBSERVATION GRID NORTH

3198943
Page: 1 of 1
12/30/2010 01:58P
Lewis & Clark County COS

CERTIFICATE OF R/W DEDICATION ACCEPTANCE

THE CITY COMMISSION HEREBY ACCEPTS THE DEDICATION, GRANT AND DONATION TO THE CITY OF HELENA OF ANY AND ALL LANDS SHOWN ON THIS PLAT AS BEING DEDICATED TO THE PUBLIC FOR PUBLIC USE.

DATED THIS 30th DAY OF December 2010
James E. Scott MAYOR, CITY OF HELENA

DATED THIS 30th DAY OF December 2010
Deputy
CITY CLERK, CITY OF HELENA

DATED THIS 29th DAY OF July 2010
CITY ENGINEER, CITY OF HELENA

DATED THIS 29th DAY OF Dec. 2010
Kathleen D. Macefield
COMMUNITY DEVELOPMENT, CITY OF HELENA

CERTIFICATE OF SURVEYOR

I, LARRY D. REDMOND, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF MONTANA, DO HEREBY CERTIFY THAT THIS SURVEY WAS MADE UNDER MY DIRECT SUPERVISION AND IS SHOWN AND DESCRIBED ON THE ACCOMPANYING PLAT.

Larry D. Redmond 7/28/10

LARRY D. REDMOND, MONTANA REG. NO. 13755 LS

MONTANA
LARRY D. REDMOND
13755 LS
LICENSED
PROFESSIONAL LAND SURVEYOR

CERTIFICATE OF COUNTY TREASURER

I HEREBY CERTIFY, PURSUANT TO SECTION 76-3-611(1)(b). MCA, THAT THE PROPERTY TAXES ARE PAID AND CURRENT

PROPERTY IDENTIFICATION NUMBER (PIN) 188820204150000
PROPERTY IDENTIFICATION NUMBER (PIN) 188820204200000

DATED THIS 30 DAY OF Dec 2010

Paulette DeHart / cg
TREASURER, LEWIS AND CLARK COUNTY, MONTANA

CERTIFICATE OF EXAMINING LAND SURVEYOR

REVIEWED FOR ERRORS AND OMISSIONS IN CALCULATIONS AND DRAFTING THIS 28 DAY OF July 2010 PURSUANT TO SECTION 76-3-611(2)(a).MCA.

Dennis E Lacy
EXAMINING LAND SURVEYOR

9962-LS
LICENSE NO.

0 50 100 200
SCALE IN FEET

1/4	Sec.	T	R
X	20	10N	3W

COUNTY: LEWIS AND CLARK P.M.M.

STAHLY ENGINEERING & ASSOCIATES
Professional Engineers & Surveyors
3530 Centennial Drive
Helena, MT 59601
Phone:(406)442-8594
Fax:(406)442-8557
E-MAIL seoengnr@MT.net

DATE: 6-08-10
REVISED: 7-28-10
DWG.: 0008-04009

SHEET NO.
1 OF 1

RETURN TO:
Thomas Walter Schulke, Jr.
1265 Lariat Rd
Helena, MT 59602

QUIT CLAIM DEED

For Value Received:

DOLORES SCHULKE HAVDAHL

does hereby convey, release, remise and forever quit claim unto

THOMAS WALTER SCHULKE, Jr.

The grantee, the following described premises, in Lewis and Clark County, Montana, to-wit:

A tract of land, located in the S 1/2 of the NE1/4NW1/4 of Section 20, Township 10 North, Range 3 West, PMM; and known as the Ida Lingle Tract, recorded as Document No. 95012 in Book 206 of Deeds at page 368, in the records of Lewis and Clark County, Montana; more particularly described as follows: Beginning at an iron pin, 3/4" x 24" rebar, set on the East boundary of the Hershfield Addition, to the City of Helena, and the South Boundary of the NE1/4NW1/4 of said Section 20; thence, East along said South line, 638.5 feet distance, to an iron pin 3/4" x 24" rebar, set on fence line; thence; North 0°11' West, along said fence line, 327.9 feet, distance to an iron pin, 3/4" x 24" rebar, set at fence corner; thence, North 89°43' West, along said fence line, 637.5 feet distance to an iron pin, original boat spike in place, on line with the East boundary line of the said Hershfield Addition extended North; thence, South 243.3 feet distance to the original boat spike in place at the Northeast corner of the said Hershfield Addition; and 331.0 feet distance to the place of beginning.

Deed Reference: Book 271 of Deeds, page 752, records of Lewis and Clark County, Montana

TOGETHER WITH all buildings, improvements, rights and appurtenances thereto,

SUBJECT TO, all easements, restriction, rights-of-way, exceptions, and reservations of record.

DATED this 28th day of December, 2010.

Dolores Schulke Havdahl
DOLORES SCHULKE HAVDAHL

3198942
Page: 1 of 1
12/30/2010 01:56P
Lewis & Clark County DEED
Bk-M43 Pg-862

STATE OF MONTANA)
COUNTY OF LEWIS & CLARK) ss.

On this 28th day of December, 2010, before me, a Notary Public for the State of Montana, personally appeared **Dolores Schulke Havdahl,** known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that she executed the same.

Kimberly Ann Sell

Kimberly Ann Sell
Notary Public for State of Montana
Residing at Helena, Montana
My Commission expires 4/30/2011.

KIMBERLY ANN SELL
NOTARIAL SEAL
STATE OF MONTANA

KIMBERLY ANN SELL
NOTARY PUBLIC for the
State of Montana
Residing at Helena, Montana
My Commission Expires
April 30, 2011

City Attorney's Office
316 North Park Avenue
Room 203
Helena, MT 59623
(406) 457-8595

DEDICATION OF PUBLIC RIGHT-OF-WAY

THOMAS WALTER SCHULKE, JR., 1265 Lariat Road, Helena, Montana 59602, hereby grant and dedicate to the **CITY OF HELENA, MONTANA,** a municipal corporation, 316 North Park Avenue, Helena, Montana 59623, the following described property as public right-of-way:

Dedicated as public right-of-way: Tracts R-2 and R-3 as shown on Certificate of Survey No. 3198943, located in the City of Helena, Lewis and Clark County, Montana.

This property is granted and dedicated to the City of Helena as public right-of-way for the use of the public forever.

DATED this 28th day of December, 2010.

By Thomas Walter Schulke Jr.
Thomas Walter Schulke, Jr.

STATE OF MONTANA)
) **ss.**
COUNTY OF LEWIS AND CLARK)

On this 28th day of December, 2010, before me, the undersigned, a Notary Public for the State of Montana, personally appeared **Thomas Walter Schulke, Jr.,** known to me or proved to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal the day and year first above written.

KIMBERLY ANN SELL
NOTARY PUBLIC for the
State of Montana
Residing at Helena, Montana
My Commission Expires
April 30, 2011

Kimberly Ann Sell

Kimberly Ann Sell
Notary Public for State of Montana
Residing at Helena, Montana
My Commission expires 4/30/2011.

Lewis & Clark County DEED
3198945
Page: 1 of 1
12/30/2010 01:58P
Bk-M43 Pg-864

RETURN TO:
Thomas Walter Schulke, Jr.
1265 Lariat Rd
Helena, MT 59602

QUIT CLAIM DEED

For Value Received:

THOMAS WALTER SCHULKE, JR.

does hereby convey, release, remise and forever quit claim unto

THOMAS WALTER SCHULKE, JR.

The grantee, the following described premises, in Lewis and Clark County, Montana, to-wit:

> Tract 2, situated in Section 20, Township 10 North, Range 3 West, P.M.M., Lewis and Clark County, Montana, as shown and described on Certificate of Survey filed under Document No. 3198943 in the records of the Clerk and Recorder of Lewis and Clark County, Montana

Together with all tenements, hereditaments, and appurtenances belonging thereto, including but not limited to easements shown on the plat and all improvement situated thereon.

DATED this 28th day of December, 2010.

Thomas Walter Schulke Jr.
THOMAS WALTER SCHULKE, JR.

STATE OF MONTANA)
COUNTY OF LEWIS & CLARK) ss.

On this 28th day of December, 2010, before me, a Notary Public for the State of Montana, personally appeared **Thomas Walter Schulke, Jr.,** known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that she executed the same.

Kimberly Ann Sell

Kimberly Ann Sell
Notary Public for State of Montana
Residing at Helena, Montana
My Commission expires 4/30/2011.

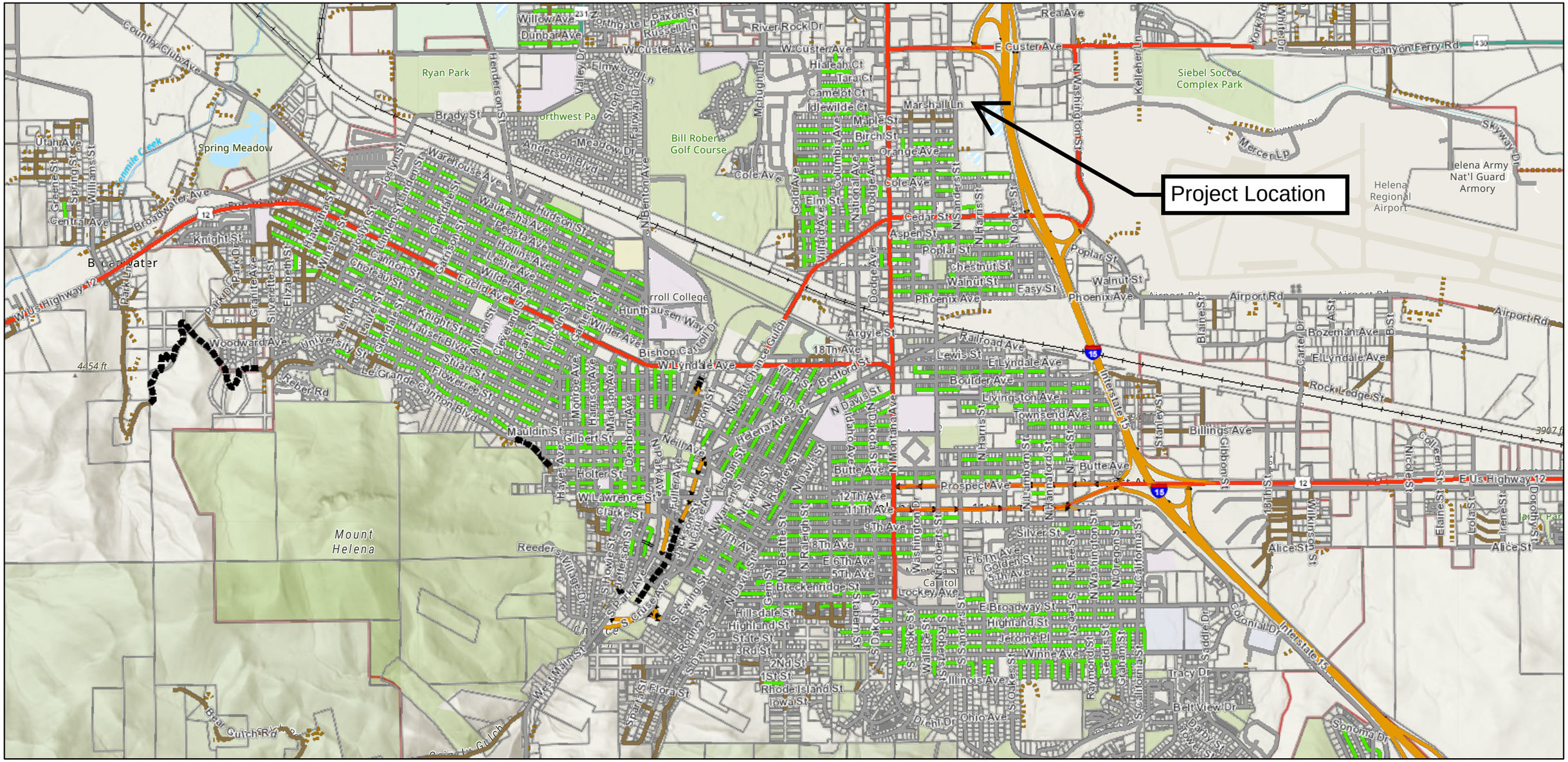
KIMBERLY ANN SELL NOTARIAL SEAL STATE OF MONTANA

KIMBERLY ANN SELL
NOTARY PUBLIC for the
State of Montana
Residing at Helena, Montana
My Commission Expires
April 30, 2011

Lewis & Clark County DEED

3198946
Page: 1 of 1
12/30/2010 02:04P
Bk-M43 Pg-865

Vicinity Map



9/27/2022, 12:12:29 PM

1:36,112

0 0.28 0.55 1.1 mi

0 0.45 0.9 1.8 km

Aerial Photo

9/27/2022, 12:14:20 PM

1:9,028

0 0.05 0.1 0.2 mi

0 0.1 0.2 0.4 km

Lewis and Clark County/City of Helena GIS Services, Maxar


Project Location
Urban Standards Boundary
Airport Noise Area
Railroad Urban Renewal District
Downtown Urban Renewal District
Capital Hill Mall Urban Renewal District
Helena City Limits/Wildland Urban Interface
MT Parcels w Condos
OSR Open Space - Residential District
R-1 Residential District - Large Lot
R-2 Residential District
R-3 Residential District
R-4 Residential Office District
R-O Residential Office District
R-U Residential Urban District
TR Transitional Residential
DT Downtown
B-1 Neighborhood Business District
B-2 General Commercial District
B-3 Central Business District
Airport
PLI Public Lands & Institutions District
CLM Commercial Light Manufacturing District
MI Manufacturing & Industrial District
PUD Planned Unit Development
CITY OF HELENA
Est. 1881
2021 Helena Zoning Map
N
S
E
W
0
0.5
1
2
Miles
City of Helena Mayor
Date
Clerk of the Commission
City of Helena - Lewis and Clark County
Geographic Information Services
Room 207 City-County Building
316 N Park Ave
Helena, Montana 59624
406-447-8389
Document Path: G:_ArcProjects\City\HelenaZoning2021.mxd
Date Saved: 8/25/2021 1:57:16 PM
IMPORTANT These data are NOT the official record *IMPORTANT*
The data contained on this map are NOT the official records and may be inaccurate and incomplete!
Original and official copies of deeds, surveys, plats and ownership information, are available at the Lewis & Clark County Clerk and Recorder office. By using this GIS information, the user acknowledges and accepts full responsibility for verifying the correctness and the completeness of any of the information provided here.
The City of Helena and Lewis & Clark County do not warrant, either explicit or implied, the completeness or accuracy of the information provided. Additionally, the city and county accept no liability of any kind, including but not limited to any losses or damages that may result from the wrongful reliance on this information, and the user also accepts full responsibility for any subsequent use or reuse of the data, and shall be solely responsible for results or any damages which may result from the use of any of these data.
This map does not necessarily depict road ownership or maintenance, either public or private. Nor, does it necessarily depict all roadways in the county.
The data shown on this map were derived from various sources at different scales for a variety of purposes, and there is great variability in the spatial accuracy of the different data sets. Therefore, there may be some mis-alignment between data sets and layers.

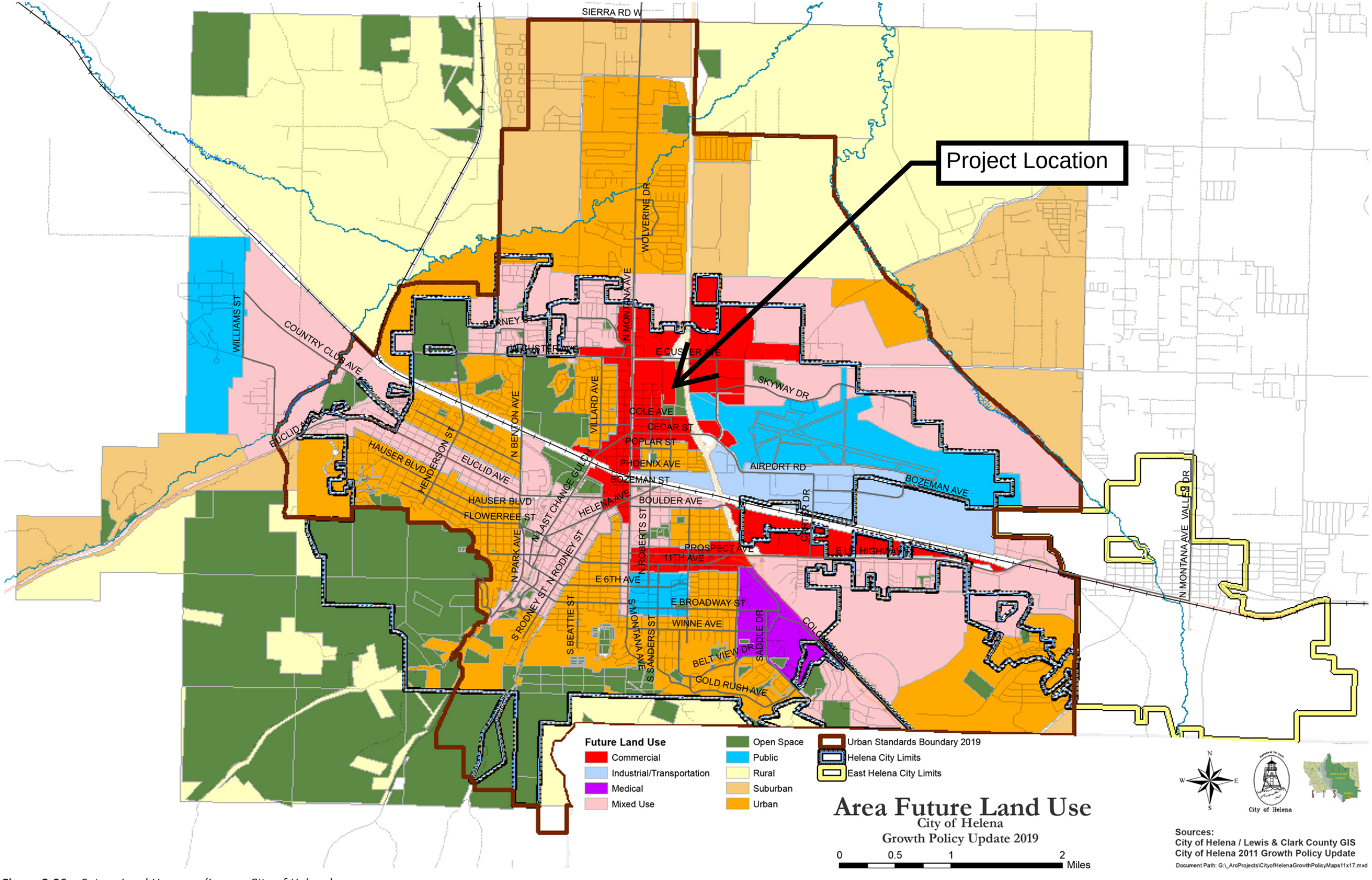
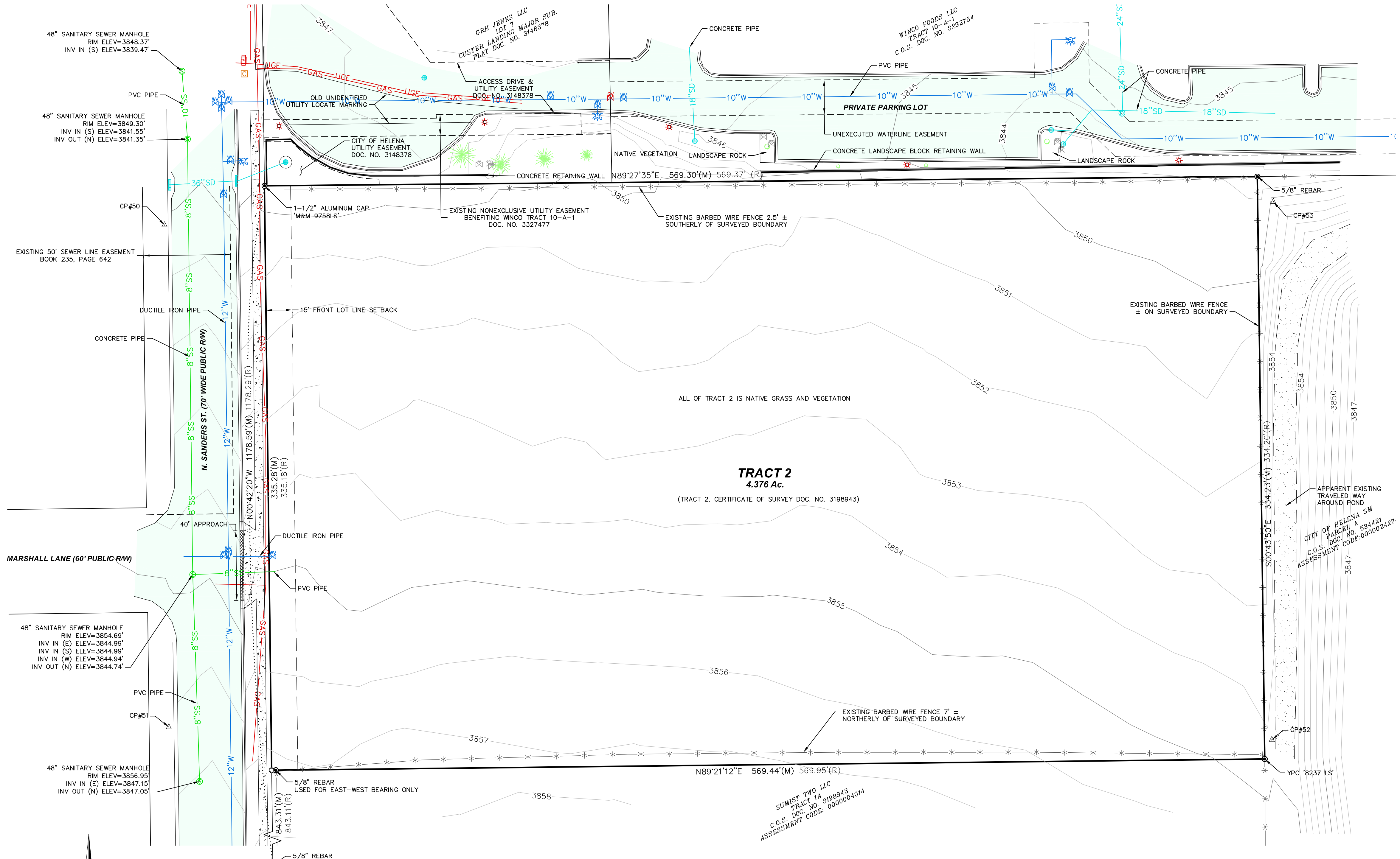
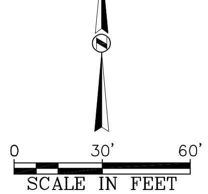


Figure 3.06 – *Future Land Use map (Image: City of Helena)*





L E G E N D

▨	CONCRETE
🟩	ASPHALT
▨	GRAVEL
	LAY DOWN CONCRETE CURB AND GUTTER
	RETAINING WALL
	EDGE OF GRAVEL
	BARBED WIRE FENCE
4000	CONTOURS (1FT. INTERVALS)
△	CONTROL POINT
	CONIFEROUS TREE
	DECIDUOUS TREE
UGE	UNDERGROUND ELECTRIC
	ELECTRIC PEDESTAL
	LIGHT POLE
C	COMMUNICATION PEDESTAL
GAS	UNDERGROUND GAS
GV	GAS VALVE
SS	SANITARY SEWER MAIN (AS NOTED)
S	SANITARY SEWER MANHOLE
W	WATER MAIN (AS NOTED)
WV	WATER VALVE
	FIRE HYDRANT
SD	STORM DRAIN MAIN
	STORM DRAIN INLET
D	STORM DRAIN MANHOLE
IRR	IRRIGATION VALVE
	TRACT 2 BOUNDARY
	EXISTING EASEMENT (AS NOTED)
●	FOUND MONUMENT (AS NOTED)
○	SET 5/8"X18" REBAR WITH 1-1/2" ALUMINUM CAP "R. STAHLY 75890-LS"
100.00'(M)	MEASUREMENT THIS SURVEY
100.00'(R)	MEASUREMENT OF RECORD
C.O.S.	CERTIFICATE OF SURVEY
DOC. NO.	DOCUMENT NUMBER
YPC	YELLOW PLASTIC CAP
INV	INVERT

BASIS OF BEARING
HELENA LOW DISTORTION PROJECTION
DATUM: NAD83(2011) (EPOCH 2010.00)
PROJECTION: TRANSVERSE MERCATOR
CENTRAL MERIDIAN: W 111°57'00" (-111.85°)
PROJECT ORIGIN LATITUDE: N 46°30'00" (46.5°)
SCALE FACTOR AT CENTRAL MERIDIAN: 1.000191
FALSE NORTHING: 100,000.000 IFT
FALSE EASTING: 200,000.000 IFT

VERTICAL DATUM
NAVD88(GEOID18)

NOTE: ALL UNITS ARE INTERNATIONAL FEET

CONTROL POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
50	141507.46'	183595.11'	3850.51'	1/2" REBAR RPC 'SEA CONTROL'
51	141219.49'	183597.56'	3856.70'	1/2" REBAR RPC 'SEA CONTROL'
52	141212.14'	184230.02'	3854.52'	1/2" REBAR RPC 'SEA CONTROL'
53	141520.86'	184230.83'	3849.98'	1/2" REBAR RPC 'SEA CONTROL'

NOTE: COORDINATES AND ELEVATIONS PROVIDED WERE DERIVED USING SURVEY GRADE GPS

SURVEY NOTES
1. THE BOUNDARY SHOWN IS BASED ON FOUND MONUMENTS OF RECORD AND BEST AVAILABLE EVIDENCE.
1.1. A CORNER RECORD WILL BE FILED FOR THE SET MONUMENT REPRESENTING THE SOUTHWEST CORNER OF TRACT 2 WITHIN 90 DAYS OF PLACING THE MONUMENT; A CERTIFICATE OF SURVEY WILL NOT BE FILED AS A PART OF THIS SURVEY.
1.2. SEVERAL OFFSITE EASEMENTS OBTAINED BY THE SURVEYOR THAT MAY BE RELEVANT TO ENGINEERING SITE DESIGN FOR THE FUTURE DEVELOPMENT OF THE SURVEYED PROPERTY ARE SHOWN; OTHER EASEMENTS MAY EXIST.
1.3. AN UNEXECUTED WATER LINE EASEMENT IS SHOWN BASED ON EXHIBITS PROVIDED BY THE CITY OF HELENA, CITY COORDINATION REGARDING THE EASEMENT REQUIRED.

2. UTILITIES: INFORMATION FROM THE SOURCES SPECIFIED BELOW WAS COMBINED WITH VISIBLE OBSERVED EVIDENCE OF UTILITIES, HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY, AND RELIABLY DEPICTED. IN ADDITION, IN SOME JURISDICTIONS, 811 OR OTHER SIMILAR UTILITY LOCATE REQUESTS FROM DESIGN PROFESSIONALS MAY BE IGNORED OR RESULT IN AN INCOMPLETE RESPONSE.
2.1. SHALLOW UNDERGROUND UTILITIES WERE SURVEYED BASED ON MARKS PROVIDED IN RESPONSE TO 811 UTILITY LOCATE TICKET NO. 22108212 AND OBSERVED VISIBLE ABOVE GROUND EVIDENCE.
2.1.1. BASED ON WHERE THE UTILITY MARKS NORTHERLY OF THE SURVEYED PROPERTY END AND THE BEST AVAILABLE OBSERVABLE EVIDENCE ON THE DATE FIELD DATA WAS COLLECTED, UTILITIES POTENTIALLY RUN FURTHER EAST THAN THE SURVEYED MARKS. AN ADDITIONAL UTILITY LOCATE WILL BE CALLED IN AND THE ENGINEERING SURVEY DELIVERABLE WILL BE UPDATED ACCORDINGLY, WITH A NEW ENGINEERING SURVEY ISSUED BY OCTOBER 3, 2022.
2.2. SEWER, WATER AND STORM DRAIN MAINS, INCLUDING PIPE SIZES AND TYPES, ARE SHOWN BASED CITY OF HELENA GIS INFORMATION AND OBSERVED VISIBLE EVIDENCE.

MONTANA
RYLAN J
STAHLY
75890 LS
LICENSED
PROFESSIONAL LAND SURVEYOR
[illegible]

STAHLY ENGINEERING & ASSOCIATES
PROFESSIONAL ENGINEERS & SURVEYORS
www.seaeng.com

2223 MONTANA AVE.
STE. 201
BILLINGS, MT 59101
Phone: (406)601-4055

3530 CENTENNIAL DR.
HELENA, MT 59601
Phone: (406)442-8594
mail@seaeng.com

851 BRIDGER DR. STE. 1
BOZEMAN, MT 59715
Phone: (406)522-8594
mail@seaeng.com

ENGINEERING SURVEY

COUNTY: LEWIS & CLARK

PRINCIPAL MERIDIAN, MONTANA

1/4	SEC	T	R	1/4	SEC	T	R
☒	20	10N	3W				

FIELD: JMB
DRAWN: JMB & RJS
CHECKED: DRS
DATE: 9/21/2022

SHEET
1 OF 1

Michael Alvarez, Planner II
Community Development Department
316 North Park Avenue, Room 402
Helena, MT 59623

Phone: 406-447-8459
Fax: 406-447-8460
Email: malvarezl@helenamt.gov

helenamt.gov

Date: November 23, 2022
TO: Independent Record -- Legal Ads
PUBLICATION DATE: November 30, 2022

NOTICE OF PUBLIC HEARING

The **Helena Zoning Commission** will hold public hearings for the following items on **Thursday, December 15, 2022, at 6pm:**

The hearings will be conducted as hybrid in-person and online meeting utilizing the Zoom meeting platform. The meeting will serve to consider the following proposals:

> *To make a recommendation on an ordinance amending City of Helena ordinance no. 3097 and the official zoning map for the City of Helena that changes the zoning district from CLM (commercial-light manufacturing) to B-2 (General Commercial) for property legally described as Tract 2, situated in Section 20, Township 10 N, Range 3 W, P.M.M.; City of Helena, Lewis and Clark County, Montana, as shown and described on COS 3198943.*

The **Helena Zoning Commission** hearing can be accessed via the online meeting platform zoom at:
https://zoom.us/j/92989300533
Meeting ID: 929 8930 0533
Dial in at 1(346) 248-7799, or find your local number at: https://zoom.us/u/a7dWq98hm

The **Helena City Commission** will hold public hearings for the following items on **Monday, January 23, 2022, at 6pm:**

> *First passage of an ordinance amending City of Helena ordinance no. 3097 and the official zoning map for the City of Helena that changes the zoning district from CLM (commercial-light manufacturing) to B-2 (General Commercial) for property legally described as Tract 2, situated in Section 20, Township 10 N, Range 3 W, P.M.M.; City of Helena, Lewis and Clark County, Montana, as shown and described on COS 3198943.*

The **Helena City Commission** hearing can be accessed via the online meeting platform zoom at:
https://us06web.zoom.us/j/86919868695
Webinar ID: 869 1986 8695
Dial US: 1 (346) 248 7799

Public comment will be taken up to and at the above meeting. If you wish to submit written comments prior to the meeting please send them in via email to malvarez@helenamt.gov or mail to Michael Alvarez, Community Development Department, Room 403, 316 N. Park Ave, Helena MT, 59623. For any questions, please call 406-447-8459.
Michael Alvarez --Planner II

Persons with disabilities requiring accommodations to participate in the City's meetings, services, programs, or activities should contact the City's ADA Coordinator, Ellie Ray, as soon as possible to allow sufficient time to arrange for the requested accommodation, at any of the following: Phone: (406) 447- 8490; TTY Relay Service 1-800-253-4091 or 711; Email: Citycommunitydevelopment@helenamt.gov; Mailing Address & Physical Location: 316 North Park, Avenue, Room 445, Helena, MT 59623.

Customer Ad Proof

102-60120441 CITY OF HELENA Order Nbr 134202

Publication	**Helena Independent Record**		
Contact	CITY OF HELENA	PO Number	
Address 1	316 N PARK AVE RM 320	Rate	HEL Legal Folio
Address 2		Order Price	72.00
City St Zip	HELENA MT 59601	Amount Paid	0.00
Phone	4064478417	Amount Due	72.00
Fax			
Section	Legal	Start/End Dates	11/30/2022 - 11/30/2022
SubSection		Insertions	1
Category	0701 Legals Helena	Size	104
Ad Key	134202-1	Salesperson(s)	HEL Legals
Keywords	Zoning and City Commission Public Hearing	Taken By	Jamie Narjes
Notes			

Ad Proof

NOTICE OF PUBLIC HEARING

The Helena Zoning Commission will hold public hearings for the following items on Thursday, December 15, 2022, at 6pm:
The hearings will be conducted as hybrid in-person and online meeting utilizing the Zoom meeting platform. The meeting will serve to consider the following proposals:
To make a recommendation on an ordinance amending City of Helena ordinance no. 3097 and the official zoning map for the City of Helena that changes the zoning district from CLM (commercial-light manufacturing) to B-2 (General Commercial) for property legally described as Tract 2, situated in Section 20, Township 10 N, Range 3 W, P.M.M.; City of Helena, Lewis and Clark County, Montana, as shown and described on COS 3198943.
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The Helena City Commission will hold public hearings for the following items on Monday, January 23, 2022, at 6pm:
First passage of an ordinance amending City of Helena ordinance no. 3097 and the official zoning map for the City of Helena that changes the zoning district from CLM (commercial-light manufacturing) to B-2 (General Commercial) for property legally described as Tract 2, situated in Section 20, Township 10 N, Range 3 W, P.M.M.; City of Helena, Lewis and Clark County, Montana, as shown and described on COS 3198943.
The Helena City Commission hearing can be accessed via the online meeting platform zoom at:
https://us06web.zoom.us/j/86919868695
Webinar ID: 869 1986 8695
Dial US: 1 (346) 248 7799
Public comment will be taken up to and at the above meeting. If you wish to submit written comments prior to the meeting please send them in via email to malvarez@helenamt.gov or mail to Michael Alvarez, Community Development Department, Room 403, 316 N. Park Ave, Helena MT, 59623. For any questions, please call 406-447 8459.
Michael Alvarez --Planner II
Persons with disabilities requiring accommodations to participate in the City's meetings, services, programs, or activities should contact the City's ADA Coordinator, Ellie Ray, as soon as possible to allow sufficient time to arrange for the requested accommodation, at any of the following: Phone:
(406) 447- 8490; TTY Relay Service 1-800-253-4091 or 711; Email:
Citycommunitydevelopment@helenamt.gov; Mailing Address & Physical Location: 316 North Park, Avenue, Room 445, Helena, MT 59623.
November 30, 2022 134202 **MNAXLP**

Shopping Cart: 0 items [$0.00]

New Search | History | Payoff | PayTaxes | Help

Property Tax ID: 6308

Status: Current
Realware#: 188820204200000
Receipt:

2022 Owner(s):
SCHULKE THOMAS WALTER JR

Mailing Address:
1265 LARIAT RD
HELENA, MT 596029369

Levy District:
01-01, Tax District 01

2022 Value:

Market:	$543,315
Taxable:	$10,269

Detail

2022 Taxes:

First Half:	$0.00	**Due:**
Second Half:	$0.00	**Due:**
Total:	$0.00	

Detail

2022 Payments:

First Half:	$0.00
Second Half:	$0.00
Total:	$0.00

(May include penalty & interest)

2022 Legal Records:

Geo Code: 05-1888-20-2-04-20-0000 **Deed Book:** M43 **Page:** 862 **Instru#:** 3198942 **Date:** 2010-12-28

TRS: T10 N, R03 W, Sec. 20
Legal: S20, T10 N, R03 W, C.O.S. 3198943,
ACRES 4.38, TRACT 2, IN NE4NW4

Note: The accuracy of this data is not guaranteed. Property Tax data was last updated 09/27/2022 02:00 PM.

Send Payments to:
Lewis & Clark County
316 North Park Ave; Room #113
Helena, Montana 59623

Phone: (406) 447-8329
Email: propertytax@lccountymt.gov

tyler technologies

 iTax Version 2022.1.0.0

Trident Development Apartments
Traffic Impact Study

Helena, Montana

Prepared For:

Stahly Engineering & Associates, Inc
3530 Centennial Drive
Helena, MT 59601

October, 2022

130 South Howie Street
Helena, Montana 59601
406-459-1443

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Trident Development Apartments
Traffic Impact Study
Helena, Montana

A. EXECUTIVE SUMMARY

The proposed apartment site is located on a 4.38-acre vacant lot located east of Sanders Street in Helena, Montana. The project would consist of 132 multi-family residential units with full buildout and would convert the existing Commercial Light Manufacturing (CLM) zoning to B-2 zoning. As proposed the Trident Development Apartments would produce 890 new daily trips in the area at full build-out. The project will increase traffic volumes along Sanders Street by 600 vehicles per day (VPD) and will increase traffic at the nearby signalized intersections on Custer Avenue and Cedar Street by less than 1%. The project will not have a major impact at any intersection. Existing traffic operations at the Sanders Street/Cedar Street intersection is currently poor and will continue to degrade as traffic volumes in this area increase. This issue is primarily caused by drivers attempting to turn left onto Cedar Street from Sanders Street at this location. While the LOS and delay at this intersection is poor, there is not sufficient traffic to justify adding a higher form of traffic control. The most likely scenario for this intersection is that the approach from Sanders Street will reach functional capacity and any additional traffic in this area will redirect to other intersection to more easily access Cedar Street. While this intersection should continue to be monitored into the future, no improvement recommendations are provided at this time, as a result of the proposed 132-unit apartment project.

B. PROJECT DESCRIPTION

This document studies the possible effects on the surrounding road system from a proposed land use change from commercial and light manufacturing to multi-family residential use. The project would construct 132 apartment units and associated improvements east of Sanders Street. This property is legally described as Tract 2 in the NE ¼ of the NW ¼ of Section 10, T10N, R03W in Lewis and Clark County and is comprised of 4.38 acres. The document identifies any traffic mitigation efforts that the development may require. The site is located immediately south of the Winco Foods supermarket.

C. EXISTING CONDITIONS

The proposed development property currently consists of a 4.38-acre parcel of undeveloped land currently zone CLM located along Sanders Street south of the Winco Foods supermarket. The site topography is generally level with a slight slope to the northeast. See **Figure 1** for a location map of the proposed development.

Adjacent Roadways

Interstate-15 to the east, passes near the backside of the property. This access-controlled highway is operated under the jurisdiction of the Federal Highway Administration (FHWA). There are full movement interchanges at Custer Avenue, Cedar Street, and Prospect Avenue. Traffic counts gathered in 2021 from MDT sources, indicate I-15 currently carries 18,662 Vehicles per Day (VPD) between the Custer Avenue and Cedar Street Interchanges. Within the Helena urban limits, the speed limit on I-15 is 65 mph.

Sanders Street is an off-system local route maintained by the City of Helena and located adjoining the site to the west. The road provides access to the commercial properties north and south of Custer Avenue and a residential area to the west. It is a 36-foot-wide two-lane roadway having curb and gutter with an adjacent boulevard and sidewalks. Traffic volumes on Sanders Street have increased significantly in recent years as the adjacent roadside is in various stages of development. Abelin Traffic Services (ATS) collected traffic volume counts in September 2022 which indicated that Sanders Street currently carries 6,000 VPD near the proposed development site. The statutory speed limit on Sanders Street is 35 MPH. Traffic control devices in operation include a traffic signal at the intersection with Custer Avenue, an all-way STOP at the intersection with Cole Avenue, and STOP control at the intersection with Cedar Street. Additional roadway width and turn lanes are in place to manage traffic operation at the signalized intersection with Custer Avenue.

Custer Avenue is an east/west minor arterial roadway, provides access to the businesses and commercial areas near I-15 and North Montana Avenue on the north end of Helena. The road is comprised of an 80-foot five-lane cross-section between Montana Avenue and Washington Street. Custer Avenue has a posted speed limit of 40 MPH and currently carries 22,700 VPD. There are existing coordinated traffic signals at Montana Avenue, Sanders Street, the I-15 north/south ramps, and Washington Street. Pedestrian facilities are in place.

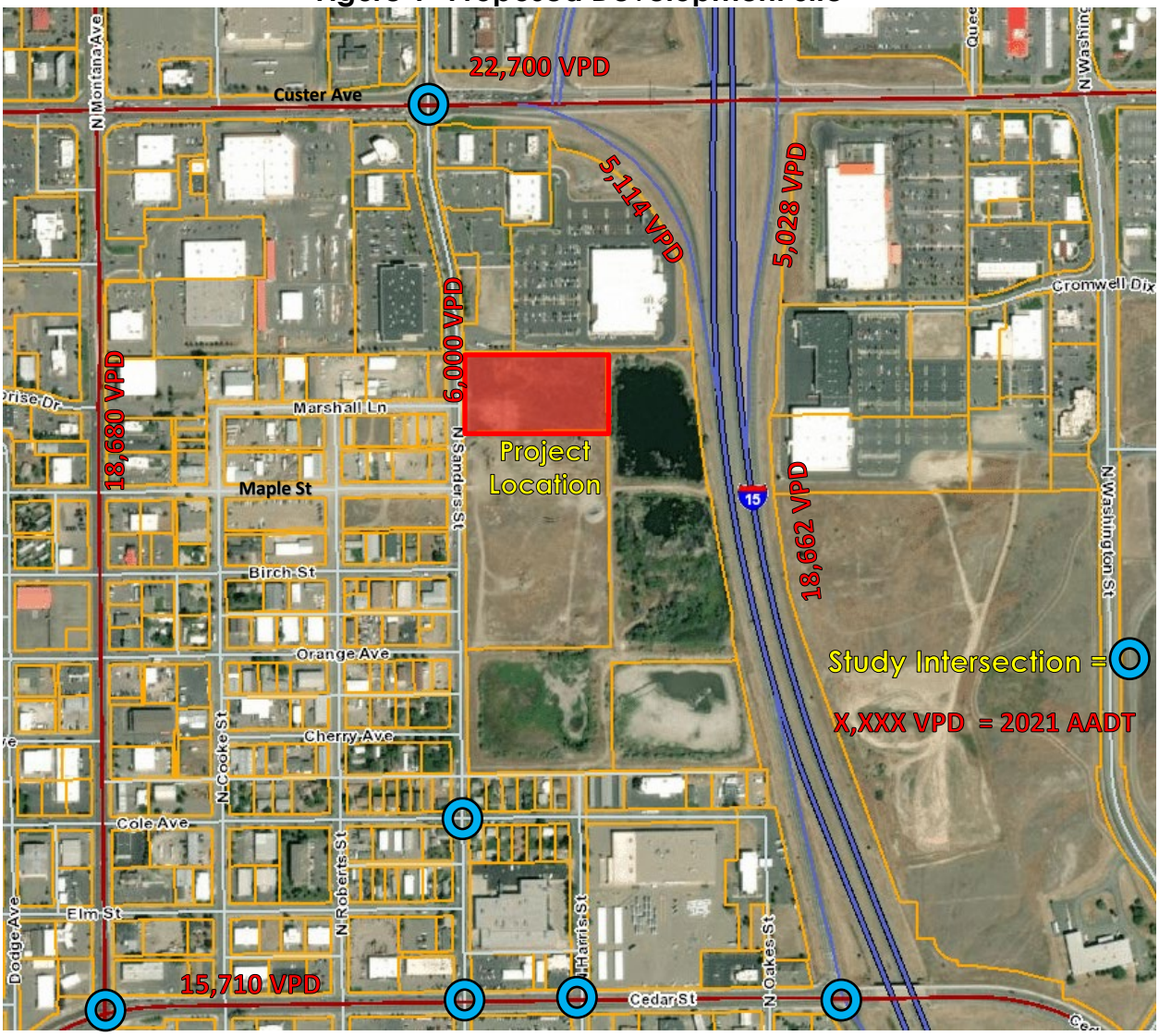
North Montana Avenue is a north/south minor arterial roadway providing access and through mobility through much of Helena. The road is comprised of two travel lanes in each direction separated by a raised median with dedicated left and right turn lanes at the intersection with Custer Avenue and carries 18,680 VPD. Adjacent roadside is densely developed commercial. The intersections of Custer Avenue and Partridge Place are under traffic signal control. Posted speed limit is 35 mph.

Cedar Street is an 80-foot east/west principle arterial serving as a business route connecting I-15 to Helena and the greater outlying area. It is comprised of two travel lanes with curb and gutter separated by a two-way-left-turn lane and carries 15,710 VPD. Adjacent roadside is densely developed commercial. Traffic signal control is in place at

the intersections with North Montana Avenue, Harris Street, and the I-15 interchange ramps. The posted speed limit is 35 mph.

Maple Street is a 37-foot two-lane paved local road connector between Sanders Street and North Montana Avenue. It provides access to commercial-light industrial properties with Stop control in place on either end of the segment. Speed limit is statutorily 25 mph.

Figure 1- Proposed Development Site



Cole Avenue is an east/west 37-foot two-lane paved major collector. It provides access to commercial-light industrial properties and area residences. An all-way STOP is in operation at the intersection with Sanders Street. Speed limit is statutorily 25 mph.

Harris Street is a north/south 32-foot two-lane paved major collector. It provides access to the United States Post Office, commercial properties, and area residences. Traffic signal control is in place at the intersection with Cedar Street. The speed limit is statutorily 25 mph.

Traffic Counts

In September 2022 ATS gathered traffic data to evaluate current operational characteristics. The data collected includes a 48-hour traffic count along Sanders Street near the proposed development site. Other data used for this project was obtained from Montana Department of Transportation (MDT) and from a separate September 2022 transportation impact study supplied by the City of Helena. The raw traffic data is included in **Appendix A** of this report.

ATS obtained historic traffic data for Custer Avenue, North Montana Avenue, Cedar Street and Interstate-15 plus the Custer Interchange south-bound on-ramp and north-bound off-ramp. This data is presented in **Table 1**. Based on the available traffic data for surrounding non-interstate roadways, traffic volumes in this area have been stable. Whereas traffic volume on Interstate-15 and the Custer Interchange ramps has increased 1.2% annually over the past 9 years.

Table 1 - Historic Average Daily Traffic Data (Source: MDT)

Location	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Custer Av - E of Montana Av #25-7C-029	20,460	23,620	27,890	23,240	27,378	23,384	22,774	22,911	21,307	19,219
N Montana Av S of Custer Av #25-7C-053	18,980	20,370	20,160	18,500	22,356	19,190	17,807	17,914	16,660	18,681
Cedar St – W of I-15 Int. #25-7C-048	16,930	16,270	15,700	16,590	16,177	15,975	16,199	16,118	14,376	15,713
I-15 North of Cedar Int. #25-7C-003	15,530	16,990	16,250	16,400	17,779	17,672	17,466	17,309	15,994	18,662
Custer Av – I 15 Ramp SB #25-7-031	--	4,240	4,240	4,240	4,467	4,391	4,395	4,421	4,735	5,114
Custer Av – I 15 Ramp NB #25-7-035	--	4,790	4,800	4,790	5,057	4,971	4,976	5,006	4,656	5,028

Vehicle speed data was also collected along Sanders Street during the September count effort. This information suggested that the average vehicle speed on Sanders Street in the vicinity of Marshall Lane was 29 MPH with an 85th percentile speed of 33 MPH for all recorded vehicles. In general, vehicle travel speeds on this section are above the posted 25 MPH speed limit.

Additional Projects

The North Sanders Street multi-family development is proposing 288 apartment units along the east side of Sanders Street north of Orange Street. This project will generate 1,941 additional weekday daily trips. The traffic impact study prepared for this project in 2022 identified existing traffic congestion issues at the intersection of Sanders Street and Cedar Street. To correct these issues the report suggested converting the intersection to a right-out only onto Cedar Street from Sanders Street which would allow the intersection to function at acceptable Level of Service (LOS) with the planned developments in this area. The projected future traffic from this project is included with the overall analysis for the Trident Development Apartments.

Level of Service

Using the data collected for this project, ATS conducted a LOS analysis at area intersections. This evaluation was conducted in accordance with the procedures outlined in the Transportation Research Board's *Highway Capacity Manual (HCM) - Special Report 209* and the Synchro 11 traffic simulation software. Intersections are graded from A to F representing the average delay that a vehicle entering an intersection can expect. Typically, a LOS of C or better is considered acceptable for peak-hour conditions.

Table 2 shows the existing 2022 LOS for the AM and PM peak hours without the traffic from the proposed Trident Development Apartments. The LOS calculations are included in **Appendix C**. The table shows that most of the existing intersections study parameters are currently operating within acceptable limits. The calculated LOS for the intersection of Sanders Street and Custer Avenue is acceptable, however it is known that the lane utilization at this intersection is poor due to the currently configuration of the Montana Avenue/Custer Avenue intersection. This issue will persist until Custer Avenue can be full reconstructed to a five-lane cross-section west of Montana Avenue. This known issue will create additional queueing along Custer Avenue than is presently calculated in this traffic analysis. The intersection of Sanders Street and Cedar Street is currently experiencing peak-hour delay issues due to the heavy traffic volumes along Cedar Street. This issue is primarily caused by drivers attempting to turn left onto Cedar Street from Sanders Street at this location. While the LOS and delay at this intersection is poor, there is not sufficient traffic to justify adding a higher form of traffic control. Drivers in this area also have the opportunity to use the traffic signal at Harris Street to access Cedar Street, if needed. This issue was identified in the Greater Helena Area Long Range Transportation Plan 2014 Update, but no improvement recommendations were provided to correct this issue.

Table 2 – 2022 Level of Service Summary (Source: ATS)

	AM Peak Hour		PM Peak Hour	
Intersection	**Delay (Sec.)**	**LOS**	**Delay (Sec.)**	**LOS**
Sanders & Custer	23.0	C	29.9	C
Sanders & Cole	7.8	A	9.3	A
Sanders & Cedar	28.3	D	510	F
Cole & Harris	9.7	A	9.9	A
Cedar & Harris	16.2	B	20.2	C
Cedar & N Montana	21.6	C	29.5	C
Cedar & I-15	12.4	B	12.7	B

D. PROPOSED DEVELOPMENT

The development currently under consideration for this site includes 4.38-acres of land located east of Sanders Street across from the intersection with Marshall Lane and bordered to the north by the Winco Foods supermarket. This development would include up to 132-unit multi-family apartment building with 222 on-site parking spaces. The project would change the existing zoning from CLM to B-2 and eliminate the currently approved commercial and light-industrial land uses at the site. Access to the site would be provided through an existing approach from Sanders Street across from Marshall Lane. All roads within the development would be constructed to City of Helena standards and will include boulevard sidewalks. The project would be completed in 2024. The proposed development is provided in **Figure 2**.

E. TRIP GENERATION AND ASSIGNMENT

ATS performed a trip generation analysis to determine the anticipated future traffic volumes from the proposed development using the trip generation rates contained in *Trip Generation* (Institute of Transportation Engineers, Eleventh Edition (ITE). These rates are the national standard and are based on the most current information available to city planners. A vehicle "trip" is defined as any trip that either begins or ends at the development site. ATS determined that the critical traffic impacts on the intersections and roadways would occur during the weekday morning and evening peak hours. According to the ITE trip generation rates, the Trident Development Apartments would produce 53 AM peak hour trips, 67 PM peak hour trips, and 890 daily vehicle trips. If the site remained zoned as CLM and was developed as a commercial/light industrial facility as is currently approved, then the property would have the potential to produce 227 daily vehicle trips. The proposed change in land uses would increase the daily trips in the area by 663 daily trips compared to the currently approved zoning. See **Table 3** for detailed trip generation information.

Figure 2 – Proposed Development

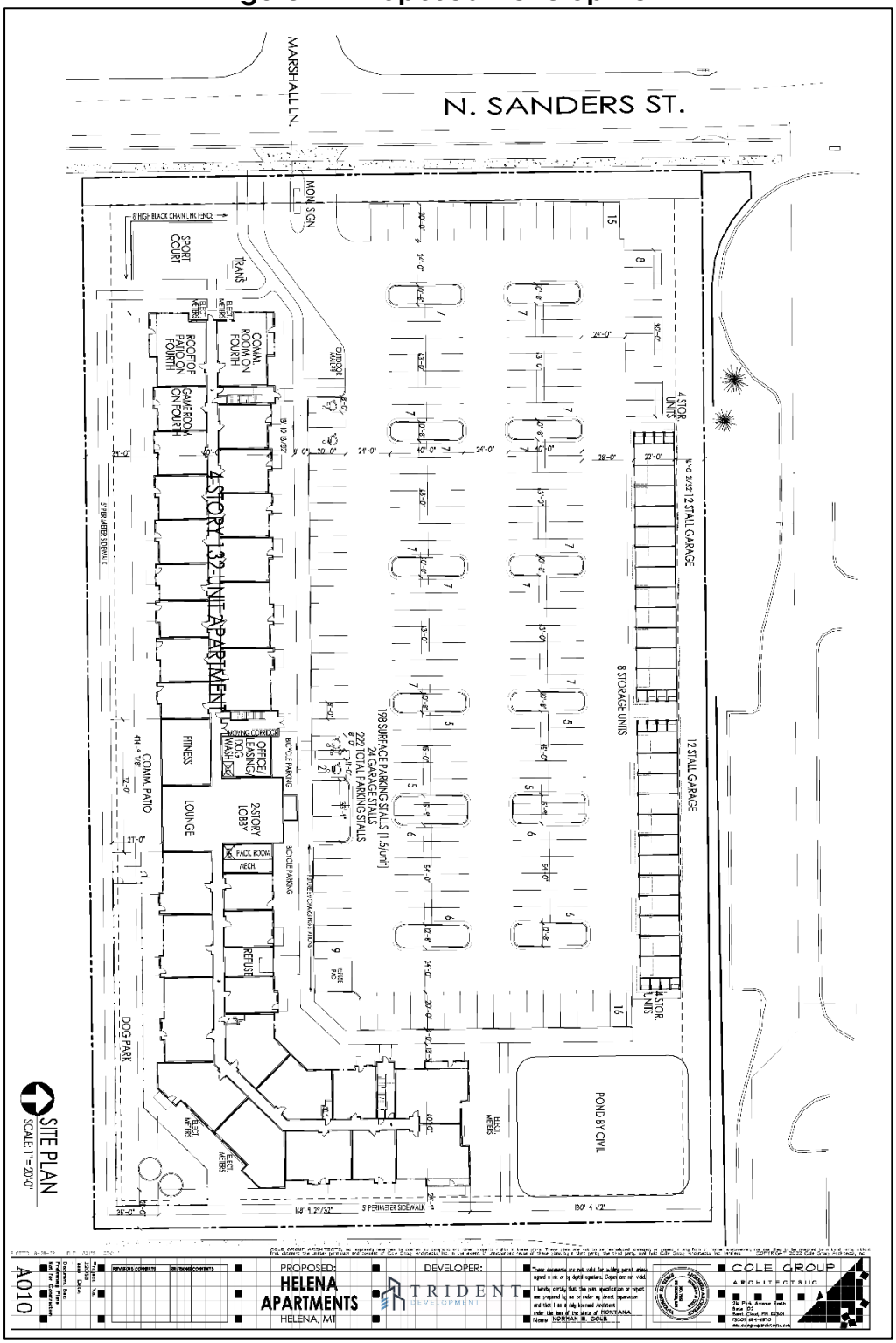


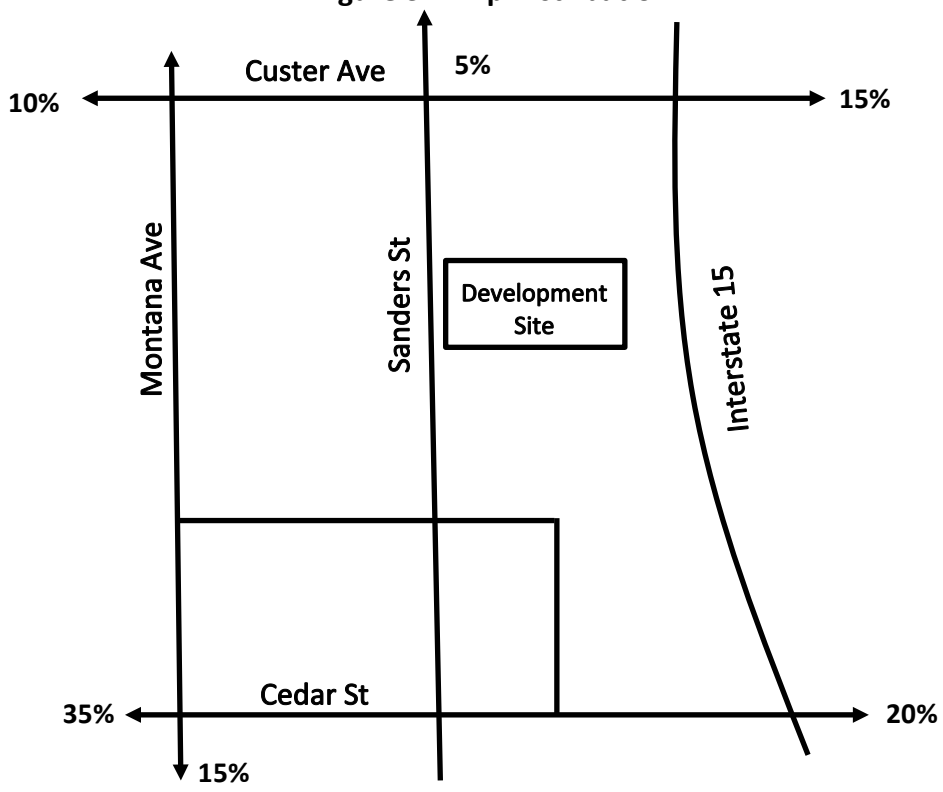
Table 3 - Trip Generation Rates (Source: ATS)

Units	Units	AM Peak Hour Trip Ends per Unit	Total AM Peak Hour Trip Ends	PM Peak Hour Trip Ends per Unit	Total PM Peak Hour Trip Ends	Weekday Trip Ends per Unit	Total Weekday Trip Ends
Apartment ITE #220	132	0.4	53	0.51	67	6.74	890
Light Industrial ITE #110	4.38	7.51	33	7.26	32	51.8	227
Difference			**20**		**35**		**663**

F. TRIP DISTRIBUTION

The traffic distribution and assignment for the proposed subdivision was based upon the existing Average Daily Traffic (ADT) volumes along the adjacent roadways and the peak-hour turning volumes. It is expected that 30% of the traffic from the proposed development site would use Sanders Street to access Custer Avenue to the north, 70% would distribute south on Sanders Street to Cedar Street west to Montana Avenue and to Harris Street to access Cedar Street and I-15 to the east. Traffic is expected to distribute onto the surrounding road network as shown on **Figure 3**.

Figure 3 – Trip Distribution



G. TRAFFIC IMPACTS OUTSIDE OF THE DEVELOPMENT

Using the trip generation and trip distribution numbers, ATS determined the future LOS for the area intersections. The anticipated intersection LOS with the proposed apartment site is shown in **Tables 4**. These calculations are based on the projected model volumes included in **Appendix B** of this report and includes the projected traffic from the 288 units from the North Sanders Street multi-family development, located adjoining to the south of the subject site.

Table 4 –Level of Service Summary
With the Trident Development Apartments (Source: ATS)

	AM Peak Hour		PM Peak Hour	
Intersection	**Delay (Sec.)**	**LOS**	**Delay (Sec.)**	**LOS**
Sanders & Custer	23.1	C	31.2	C
Sanders & Cole	8.3	A	10.7	B
Sanders & Cedar	33.6	D	999	F
Cole & Harris	9.9	A	10.1	B
Cedar & Harris	16.2	B	19.8	B
Cedar & N Montana	22.3	C	31.8	C
Cedar & I-15	12.4	B	13.0	B
Sanders & Site Approach	10.7	B	14.7	B

Table 4 indicates that the construction of the site apartments will have little to no effect on the traffic conditions within the area. Most area intersections will continue to function at LOS C or better at full build-out and no additional mitigation measures will be needed to improve intersection capacity at most locations. Total traffic volumes on Sanders Street in this area will increase by 600 VPD to a total of 6,600, which is within the capacity of a collector roadway. Traffic volume increases at the signalized intersections in this area will range from 10 to 30 VPH or less than 1% of the existing volumes. Existing traffic operations at the Sanders Street and Cedar Street is currently poor and will continue to degrade as traffic volumes in this area increase. This issue was identified in the Greater Helena Area Long Range Transportation Plan 2014 Update, but no improvement recommendations were provided to correct this issue. This issue is primarily caused by drivers attempting to turn left onto Cedar Street from Sanders Street at this location. While the LOS and delay at this intersection is poor, there is not sufficient traffic to justify adding a higher form of traffic control. The traffic impact study prepared for the North Sanders Street multi-family development immediately south of the proposed Trident Development suggested converting the intersection to a right-out only onto Cedar Street from Sanders Street which would allow the intersection to function at acceptable LOS with the planned developments in this area. However, drivers in this area also could use the traffic signal at Harris Street to access Cedar Street if needed. Permanently restricting traffic movements at this intersection, to correct an issue that primarily exists during only peak traffic conditions, may not be necessary. The most likely scenario for this intersection is that the approach from Sanders Street will reach functional capacity

and any additional traffic in this area will redirect to other intersections to more easily access Cedar Street. While this intersection should continue to be monitored into the future, no improvement recommendations are provided at this time.

H. IMPACT SUMMARY & RECOMMENDATIONS

As proposed the Trident Development Apartments would produce 890 new daily trips in the area at full build-out. The project will increase traffic volumes along Sanders Street by 600 VPD and will increase traffic at the nearby signalized intersections by less than 1%. The project will not have a major impact at any intersection. Existing traffic operations at the Sanders Street and Cedar Street is currently poor and will continue to degrade as traffic volumes in this area increase. This issue is primarily caused by drivers attempting to turn left onto Cedar Street from Sanders Street at this location. While the LOS and delay at this intersection is poor, there is not sufficient traffic to justify adding a higher form of traffic control. The most likely scenario for this intersection is that the approach from Sanders Street will reach functional capacity and any additional traffic in this area will redirect to other intersections to more easily access Cedar Street. While this intersection should continue to be monitored into the future, no improvement recommendations are provided at this time.

APPENDIX A

Traffic Data

For Project:	SandersApartments				
Project Notes:					
Location/Name:	Merged				
Report Generated:	10/19/2022	16:09			
Speed Intervals	1 MPH				
Time Intervals	Instant				
Traffic Report From	9/26/2022	15:00:00	through	9/28/2022	16:59:59
85th Percentile Speed	33 MPH				
85th Percentile Vehicles	10668				
Max Speed	71 MPH	on	9/27/2022	17:03:52	
Total Vehicles	12551				
AADT:	6024				

Volumes - weekly counts

	Time	5 Day	7 Day
Average Daily		4183	4183
AM Peak	11:00	453	453
PM Peak	05:00	560	560

Speed

Speed Limit:	35						
85th Percentile Speed:	33						
50th Percentile Speed:	29						
10 MPH Pace Interval:	24.0 MPH	to	34.0 MPH				
Average Speed:	28.94						

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Count over limit	131	389	292	N/A	N/A	N/A	N/A
% over limit	6.4	6.4	6.6	N/A	N/A	N/A	N/A
Avg Speeder	38.2	38.0	38.1	N/A	N/A	N/A	N/A

Class Counts

	Number	%
VEH_SM	368	2.9
VEH_MED	11801	94
VEH_LG	382	3

[VEH_SM=motorcycle, VEH_MED = sedan, VEH_LG = truck]

Merged Weekly Counts
SandersApartments

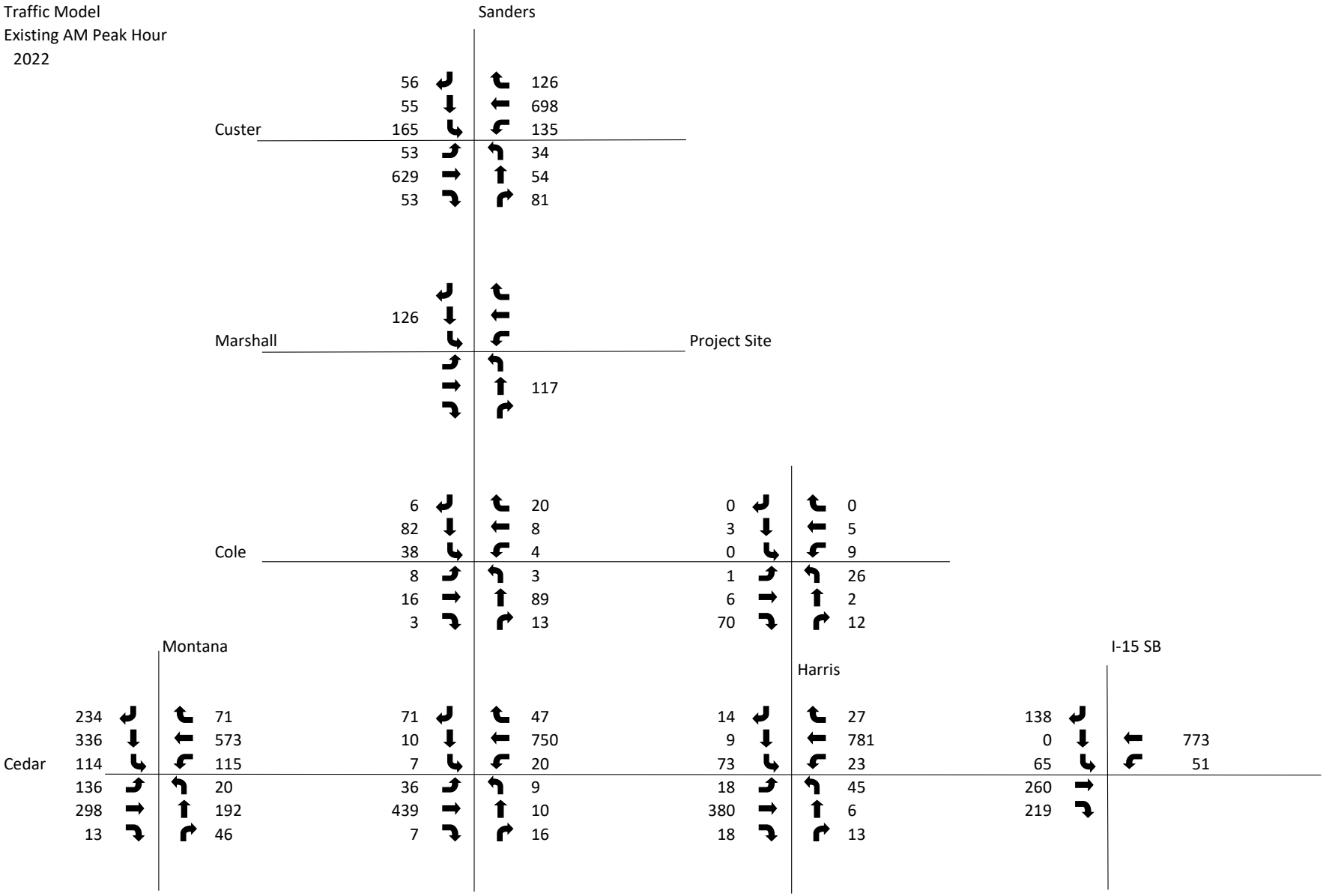
from Mon-Sep-26-2022-03-00-PM to Wed-Sep-28-2022-04-59-PM

	9/26/2022	to	10/2/2022							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Week	Weekend	Week Day 85%
Hour	9/26/2022	9/27/2022	9/28/2022	9/29/2022	9/30/2022	10/1/2022	10/2/2022	Day Avg	Avg	Avg Speed
0 - 1	*	21	20	*	*	*	*	20.5	0	30
1 - 2	*	10	6	*	*	*	*	8	0	32.5
2 - 3	*	11	18	*	*	*	*	14.5	0	31
3 - 4	*	9	10	*	*	*	*	9.5	0	32
4 - 5	*	6	17	*	*	*	*	11.5	0	32.5
5 - 6	*	42	33	*	*	*	*	37.5	0	33.05
6 - 7	*	122	117	*	*	*	*	119.5	0	34.2
7 - 8	*	235	241	*	*	*	*	238	0	34.55
8 - 9	*	315	323	*	*	*	*	319	0	33.5
9 - 10	*	352	367	*	*	*	*	359.5	0	33.4
10 - 11	*	371	385	*	*	*	*	378	0	32.85
11 - 12	*	486	421	*	*	*	*	453.5	0	32.8
12 - 13	*	498	519	*	*	*	*	508.5	0	32.65
13 - 14	*	436	480	*	*	*	*	458	0	32.6
14 - 15	*	453	470	*	*	*	*	461.5	0	32.55
15 - 16	56	534	507	*	*	*	*	365.67	0	33.47
16 - 17	568	630	477	*	*	*	*	558.33	0	32.6
17 - 18	563	557	*	*	*	*	*	560	0	32.75
18 - 19	323	474	*	*	*	*	*	398.5	0	33.05
19 - 20	254	257	*	*	*	*	*	255.5	0	32.1
20 - 21	136	154	*	*	*	*	*	145	0	32
21 - 22	62	52	*	*	*	*	*	57	0	31.25
22 - 23	31	36	*	*	*	*	*	33.5	0	33.35
23 - 24	41	45	*	*	*	*	*	43	0	31.75
Totals	2034	6106	4411	0	0	0	0			
% of Total	16.21%	48.65%	35.14%	0%	0%	0%	0%			

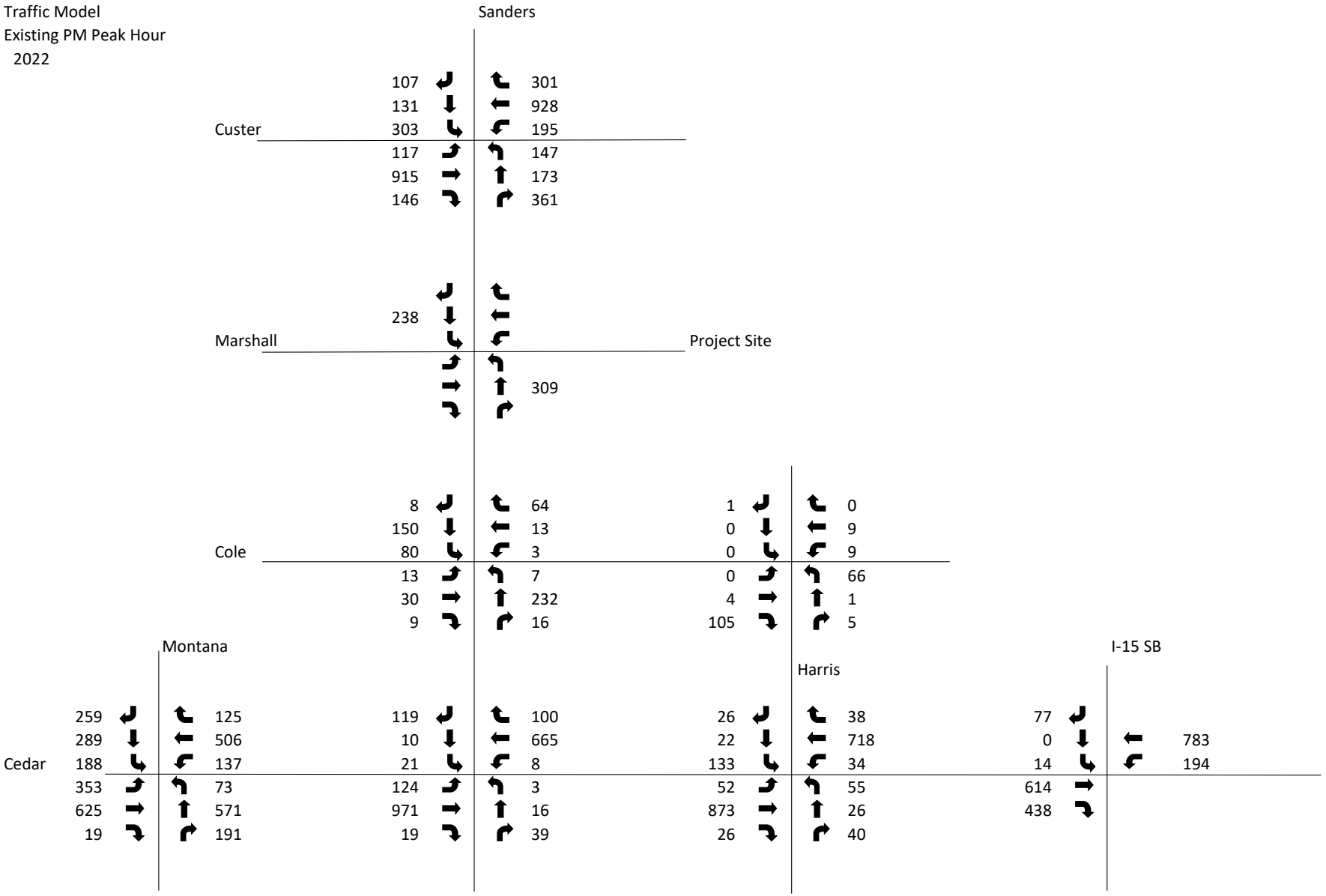
APPENDIX B

Traffic Model

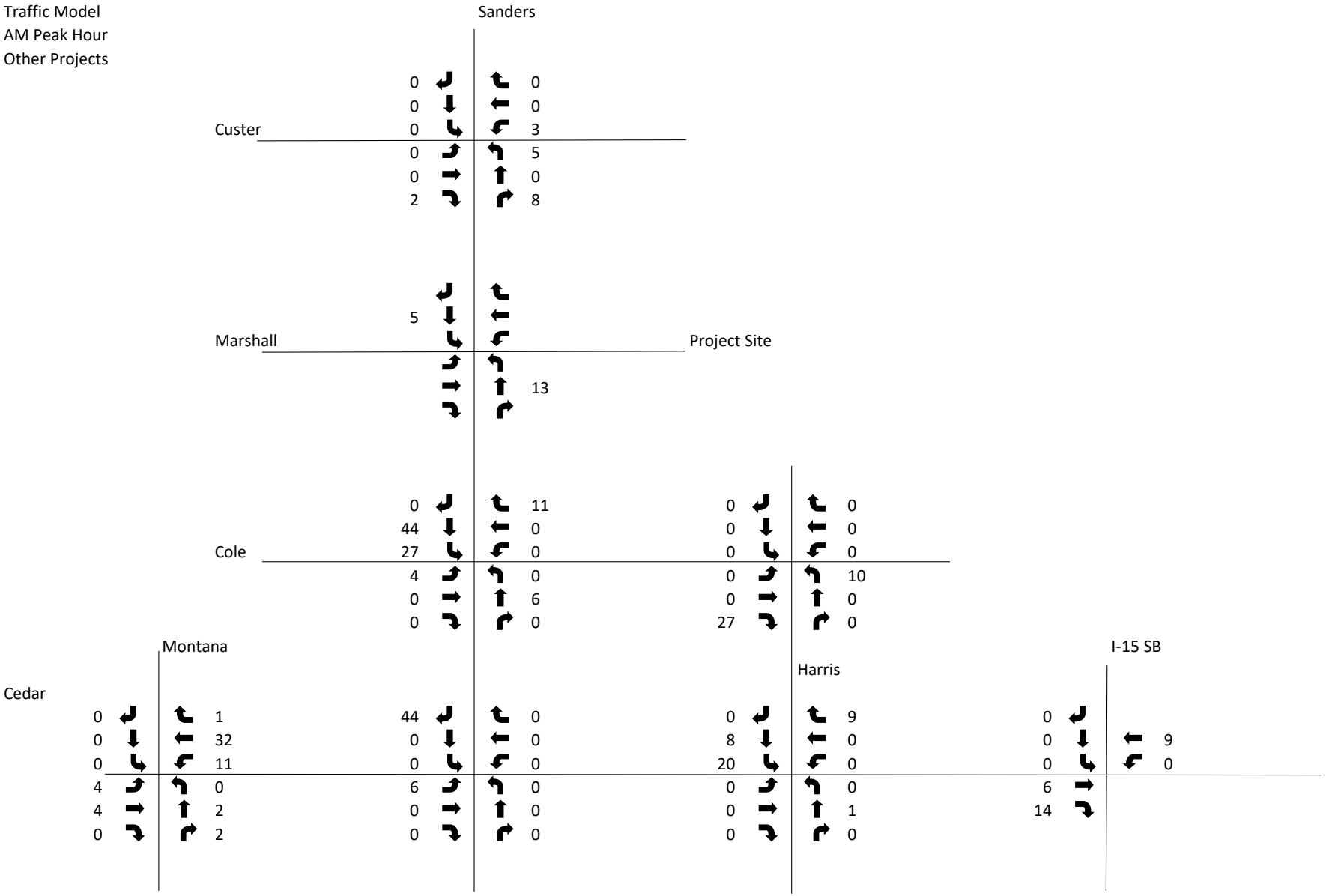
Trident Development Apartments
Traffic Model
Existing AM Peak Hour
2022



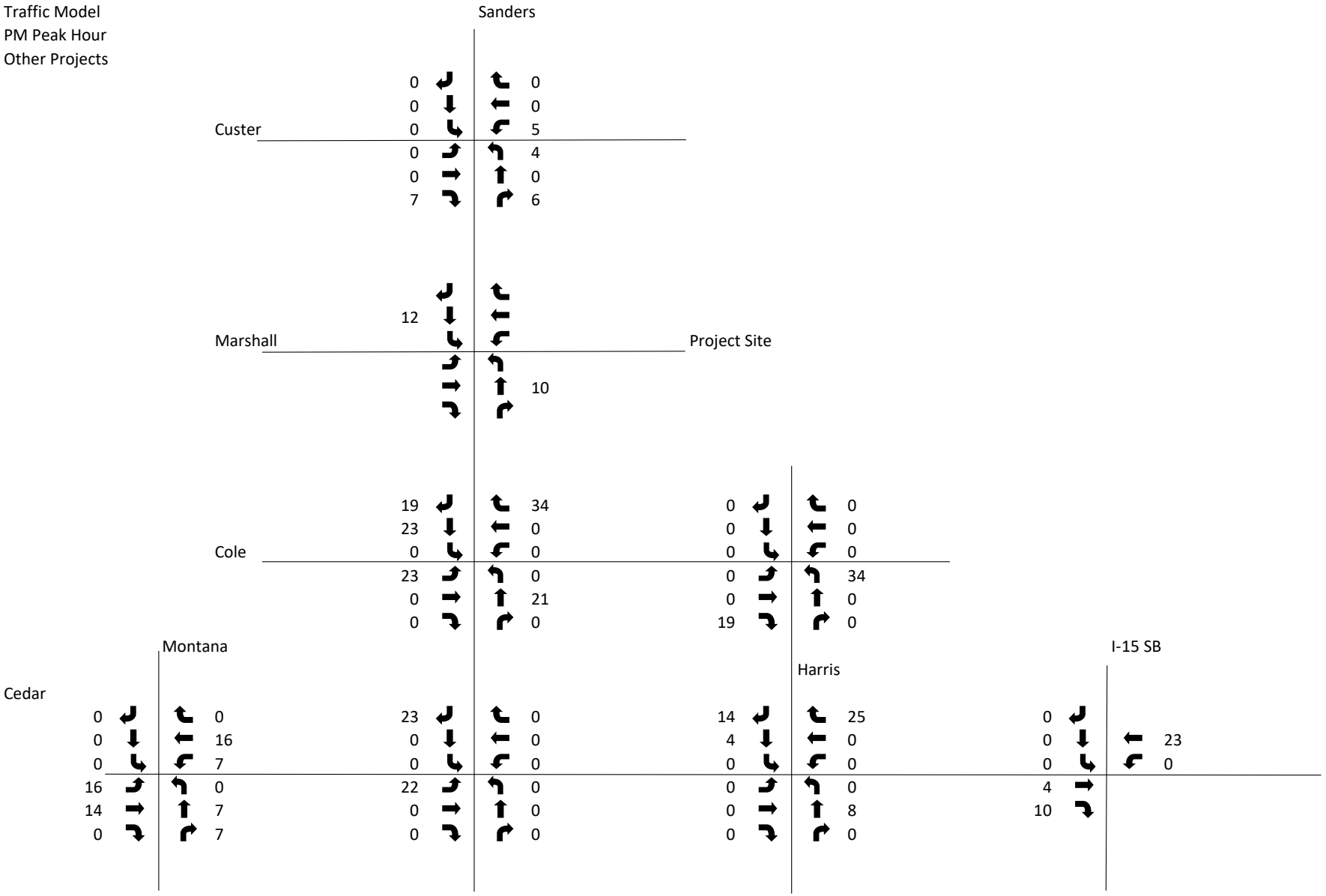
Trident Development Apartments
Traffic Model
Existing PM Peak Hour
2022



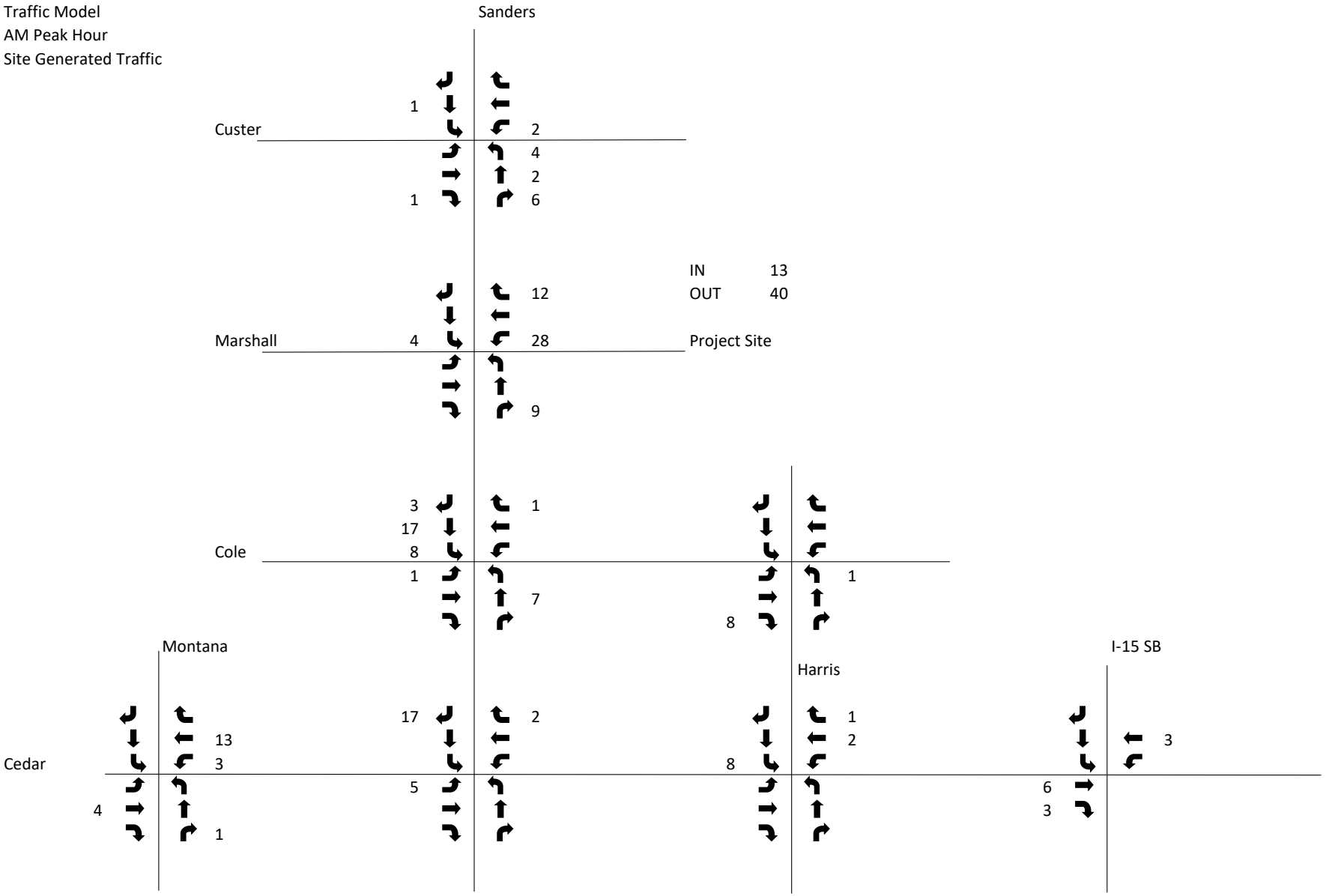
Trident Development Apartments
Traffic Model
AM Peak Hour
Other Projects



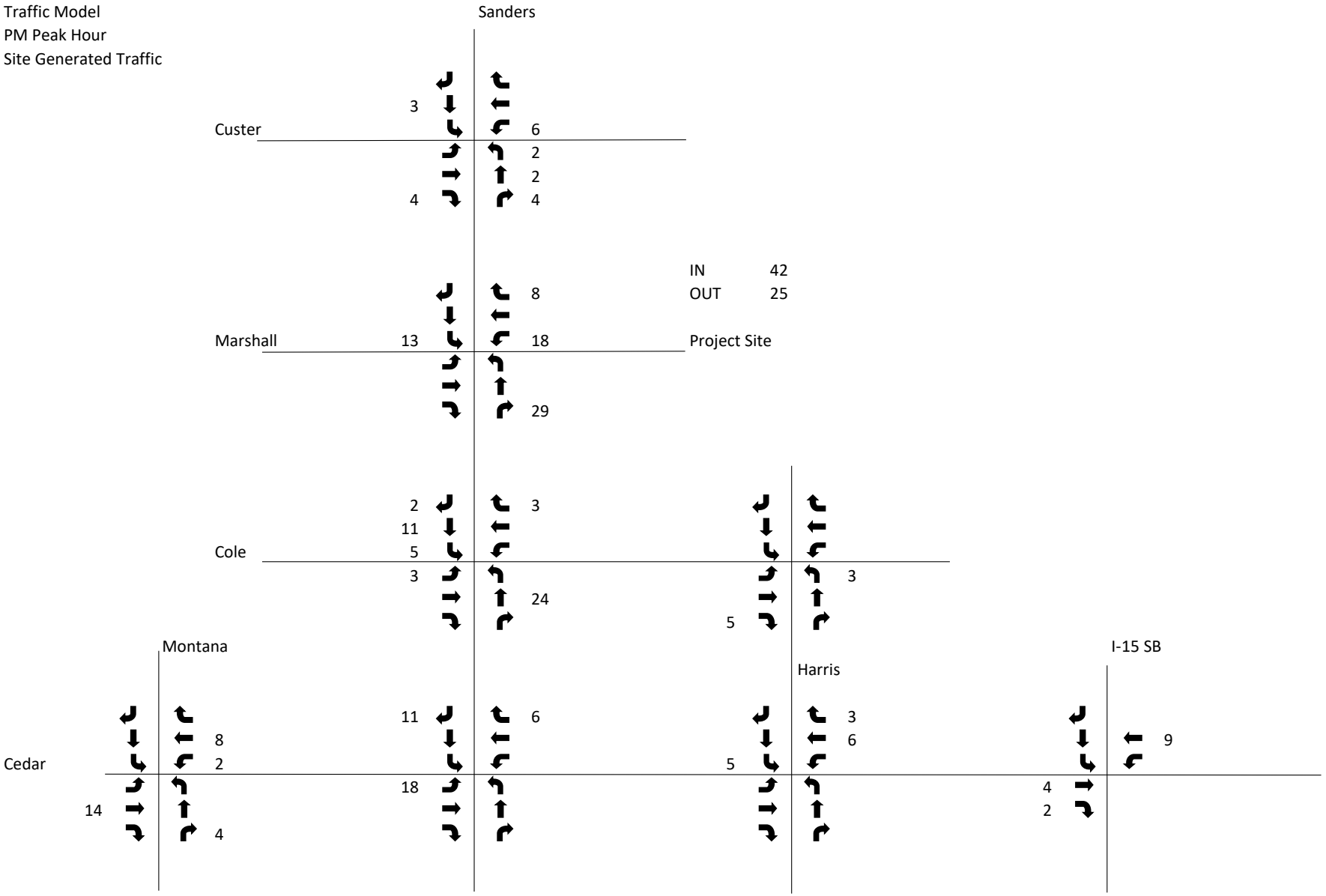
Trident Development Apartments
Traffic Model
PM Peak Hour
Other Projects



Trident Development Apartments
Traffic Model
AM Peak Hour
Site Generated Traffic

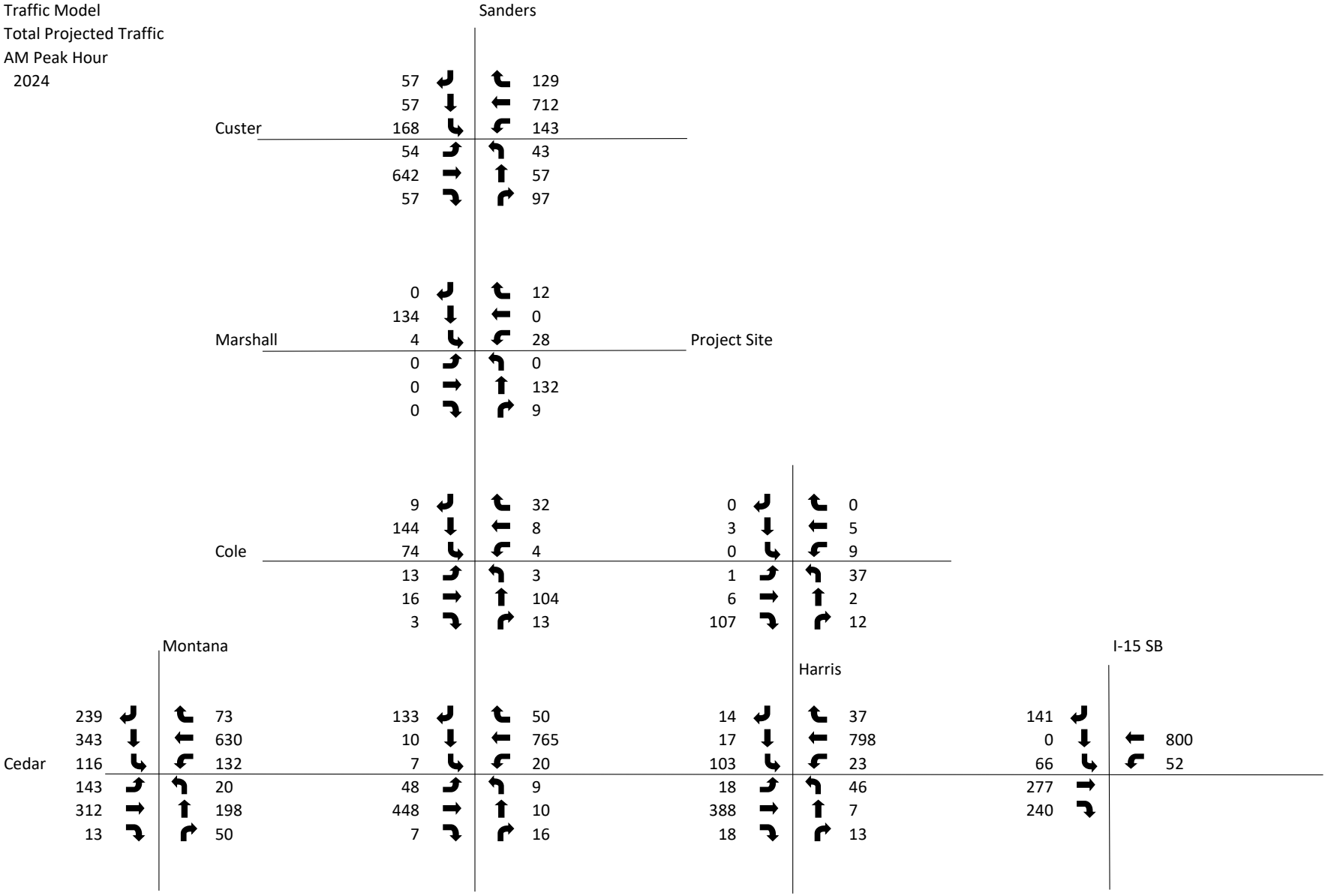


Trident Development Apartments
Traffic Model
PM Peak Hour
Site Generated Traffic



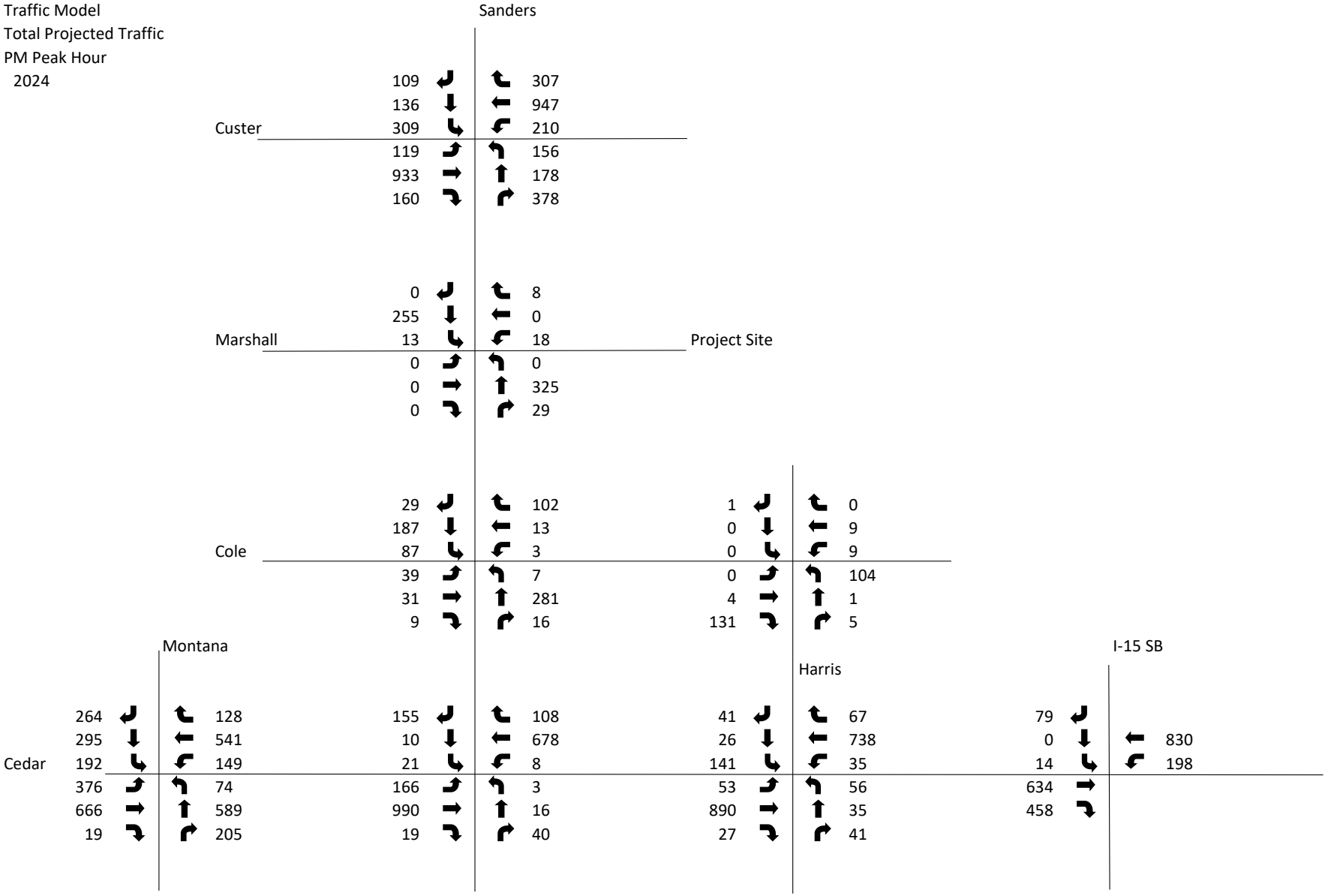
Trident Development Apartments
Traffic Model
Total Projected Traffic
AM Peak Hour
2024

Background Growth Factor 1.02



Trident Development Apartments
Traffic Model
Total Projected Traffic
PM Peak Hour
2024

Background Growth Factor 1.02



APPENDIX C

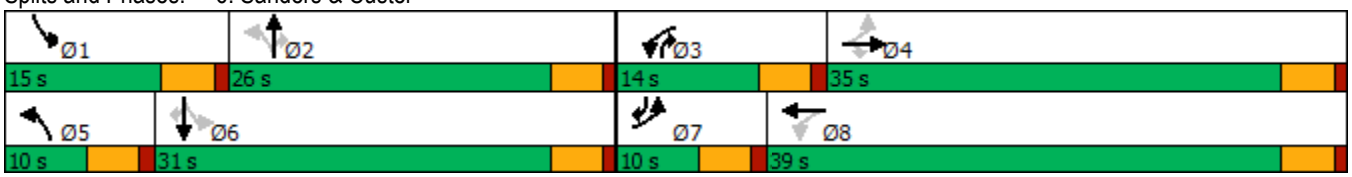
LOS Calculations

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	629	53	135	698	126	34	54	81	165	55	56
Future Volume (vph)	53	629	53	135	698	126	34	54	81	165	55	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	12	15	12	12	12	12	12	12	12	12
Storage Length (ft)	250		250	300		0	200		200	200		200
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.977				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1947	3539	1583	1947	3458	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.173			0.191			0.717			0.603		
Satd. Flow (perm)	354	3539	1583	391	3458	0	1336	1863	1583	1123	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182		27				127			73
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1608			2028			1205			510	
Travel Time (s)		36.5			46.1			27.4			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	59	699	59	150	776	140	38	60	90	183	61	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	699	59	150	916	0	38	60	90	183	61	62
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		15			15			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.88	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	7	4	4	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	10.0	35.0	35.0	14.0	39.0		10.0	26.0	14.0	15.0	31.0	10.0
Total Split (%)	11.1%	38.9%	38.9%	15.6%	43.3%		11.1%	28.9%	15.6%	16.7%	34.4%	11.1%
Maximum Green (s)	5.5	30.5	30.5	9.5	34.5		5.5	21.5	9.5	10.5	26.5	5.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	None	None	Max	None
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	30.2	24.6	24.6	37.0	30.0		27.3	21.7	34.8	35.8	30.1	40.2
Actuated g/C Ratio	0.37	0.30	0.30	0.45	0.36		0.33	0.26	0.42	0.43	0.36	0.49
v/c Ratio	0.25	0.66	0.10	0.45	0.72		0.08	0.12	0.12	0.33	0.09	0.08
Control Delay	15.3	28.6	0.3	17.3	26.2		16.6	26.8	1.9	18.2	22.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	28.6	0.3	17.3	26.2		16.6	26.8	1.9	18.2	22.2	3.8
LOS	B	C	A	B	C		B	C	A	B	C	A
Approach Delay		25.6			24.9			12.8			16.0	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 82.6			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 23.0		Intersection LOS: C	
Intersection Capacity Utilization 54.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: Sanders & Custer

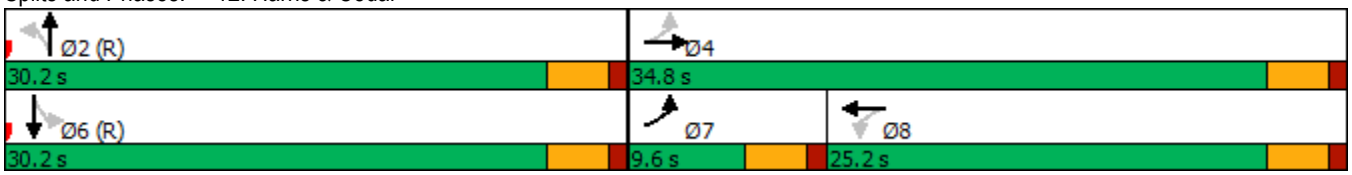


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	380	18	23	781	27	45	6	13	73	9	14
Future Volume (vph)	18	380	18	23	781	27	45	6	13	73	9	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.995			0.973			0.909	
Flt Protected	0.950			0.950				0.966		0.950		
Satd. Flow (prot)	1770	3514	0	1770	3522	0	0	1751	0	1770	1693	0
Flt Permitted	0.140			0.481				0.835		0.708		
Satd. Flow (perm)	261	3514	0	896	3522	0	0	1513	0	1319	1693	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			6			15			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		473			1034			369			733	
Travel Time (s)		10.8			23.5			8.4			16.7	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	21	452	21	27	930	32	54	7	15	87	11	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	473	0	27	962	0	0	76	0	87	28	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		22.5	22.5		30.0	30.0		30.0	30.0	
Total Split (s)	9.6	34.8		25.2	25.2		30.2	30.2		30.2	30.2	
Total Split (%)	14.8%	53.5%		38.8%	38.8%		46.5%	46.5%		46.5%	46.5%	
Maximum Green (s)	5.6	30.8		21.2	21.2		26.2	26.2		26.2	26.2	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	27.6	27.6		25.3	25.3			29.4		29.4	29.4	
Actuated g/C Ratio	0.42	0.42		0.39	0.39			0.45		0.45	0.45	
v/c Ratio	0.08	0.32		0.08	0.70			0.11		0.15	0.04	
Control Delay	8.3	11.9		11.1	19.1			13.0		15.5	10.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	8.3	11.9		11.1	19.1			13.0		15.5	10.4	
LOS	A	B		B	B			B		B	B	
Approach Delay		11.7			18.9			13.0			14.3	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 16.2		Intersection LOS: B	
Intersection Capacity Utilization 39.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 12: Harris & Cedar

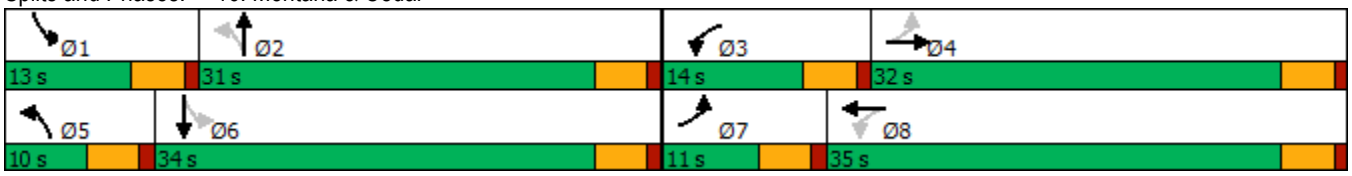


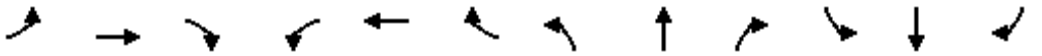
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	298	13	115	573	71	20	192	46	114	336	234
Future Volume (vph)	136	298	13	115	573	71	20	192	46	114	336	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	300		0	200		0	300		0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.994			0.983			0.971			0.938	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3518	0	1770	3479	0	1770	3437	0	1770	3320	0
Flt Permitted	0.194			0.428			0.386			0.503		
Satd. Flow (perm)	701	3518	0	797	3479	0	719	3437	0	937	3320	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			16			33			208	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1190			1430			635			790	
Travel Time (s)		27.0			32.5			14.4			18.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	155	339	15	131	651	81	23	218	52	130	382	266
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	354	0	131	732	0	23	270	0	130	648	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	15.0		9.5	22.5	
Total Split (s)	11.0	32.0		14.0	35.0		10.0	31.0		13.0	34.0	
Total Split (%)	12.2%	35.6%		15.6%	38.9%		11.1%	34.4%		14.4%	37.8%	
Maximum Green (s)	6.5	27.5		9.5	30.5		5.5	26.5		8.5	29.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	28.0	21.5		32.1	23.6		32.2	26.6		38.5	35.3	
Actuated g/C Ratio	0.34	0.26		0.39	0.29		0.39	0.32		0.47	0.43	
v/c Ratio	0.34	0.39		0.32	0.73		0.07	0.24		0.25	0.42	
Control Delay	16.9	26.1		17.1	30.6		14.2	19.7		15.0	13.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.9	26.1		17.1	30.6		14.2	19.7		15.0	13.5	
LOS	B	C		B	C		B	B		B	B	
Approach Delay		23.3			28.6			19.3			13.7	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 82.7			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 21.6		Intersection LOS: C	
Intersection Capacity Utilization 58.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 16: Montana & Cedar



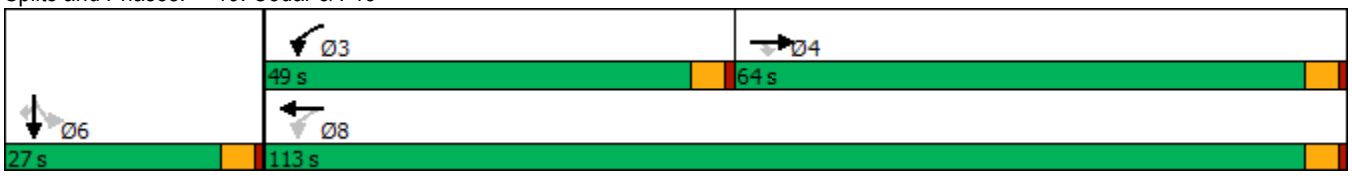


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	260	219	51	773	0	0	0	0	0	65	138
Future Volume (vph)	0	260	219	51	773	0	0	0	0	0	65	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	400		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frt			0.850									0.850
Flt Protected				0.950								
Satd. Flow (prot)	0	1863	1583	1770	3539	0	0	0	0	0	1863	2787
Flt Permitted				0.357								
Satd. Flow (perm)	0	1863	1583	665	3539	0	0	0	0	0	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			267									168
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1034			869			613			556	
Travel Time (s)		23.5			19.8			13.9			12.6	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	0	317	267	62	943	0	0	0	0	0	79	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	317	267	62	943	0	0	0	0	0	79	168
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1	2	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		6	20	20	6					20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA	Perm	pm+pt	NA						NA	Perm
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		4	4	3	8					6	6	6
Switch Phase												
Minimum Initial (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
Minimum Split (s)		22.5	22.5	9.5	22.5					22.5	22.5	22.5
Total Split (s)		64.0	64.0	49.0	113.0					27.0	27.0	27.0
Total Split (%)		45.7%	45.7%	35.0%	80.7%					19.3%	19.3%	19.3%
Maximum Green (s)		59.5	59.5	44.5	108.5					22.5	22.5	22.5
Yellow Time (s)		3.5	3.5	3.5	3.5					3.5	3.5	3.5
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0						0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5						4.5	4.5
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Recall Mode		None	None	None	None					Max	Max	Max
Walk Time (s)		7.0	7.0		7.0					7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0					0	0	0
Act Effct Green (s)		18.6	18.6	25.0	25.0						22.8	22.8
Actuated g/C Ratio		0.33	0.33	0.44	0.44						0.40	0.40
v/c Ratio		0.52	0.38	0.15	0.61						0.11	0.14
Control Delay		20.4	4.3	9.3	13.6						13.6	3.3
Queue Delay		0.0	0.0	0.0	0.0						0.0	0.0
Total Delay		20.4	4.3	9.3	13.6						13.6	3.3
LOS		C	A	A	B						B	A
Approach Delay		13.1			13.4						6.6	
Approach LOS		B			B						A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 56.9			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 12.4		Intersection LOS: B	
Intersection Capacity Utilization 33.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 19: Cedar & I-15



Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	16	3	4	8	20	3	89	13	38	82	6
Future Vol, veh/h	8	16	3	4	8	20	3	89	13	38	82	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	18	3	4	9	22	3	99	14	42	91	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.7	7.4	7.8	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	30%	12%	30%
Vol Thru, %	85%	59%	25%	65%
Vol Right, %	12%	11%	62%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	105	27	32	126
LT Vol	3	8	4	38
Through Vol	89	16	8	82
RT Vol	13	3	20	6
Lane Flow Rate	117	30	36	140
Geometry Grp	1	1	1	1
Degree of Util (X)	0.132	0.038	0.041	0.162
Departure Headway (Hd)	4.087	4.527	4.18	4.17
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	867	796	862	853
Service Time	2.16	2.528	2.181	2.234
HCM Lane V/C Ratio	0.135	0.038	0.042	0.164
HCM Control Delay	7.8	7.7	7.4	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.1	0.1	0.6

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	439	7	20	750	47	9	10	16	7	10	71
Future Vol, veh/h	36	439	7	20	750	47	9	10	16	7	10	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	488	8	22	833	52	10	11	18	8	11	79

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	885	0	0	496	0	0	1038	1501	248	1233	1479	443
Stage 1	-	-	-	-	-	-	572	572	-	903	903	-
Stage 2	-	-	-	-	-	-	466	929	-	330	576	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	760	-	-	1064	-	-	185	121	752	133	125	562
Stage 1	-	-	-	-	-	-	472	502	-	299	354	-
Stage 2	-	-	-	-	-	-	546	344	-	657	500	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	760	-	-	1064	-	-	134	108	752	110	111	562
Mov Cap-2 Maneuver	-	-	-	-	-	-	134	108	-	110	111	-
Stage 1	-	-	-	-	-	-	438	465	-	277	339	-
Stage 2	-	-	-	-	-	-	435	330	-	580	464	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.2	28.3	21.6
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	193	760	-	-	1064	-	-	314
HCM Lane V/C Ratio	0.201	0.053	-	-	0.021	-	-	0.311
HCM Control Delay (s)	28.3	10	-	-	8.5	-	-	21.6
HCM Lane LOS	D	B	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0.2	-	-	0.1	-	-	1.3

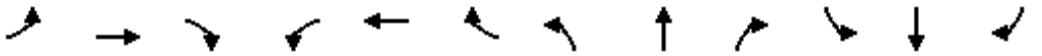
Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	6	70	9	5	0	26	2	12	0	3	0
Future Vol, veh/h	1	6	70	9	5	0	26	2	12	0	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	7	78	10	6	0	29	2	13	0	3	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	6	0	0	85	0	0	76	74	46	82	113	6
Stage 1	-	-	-	-	-	-	48	48	-	26	26	-
Stage 2	-	-	-	-	-	-	28	26	-	56	87	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1615	-	-	1512	-	-	914	816	1023	905	777	1077
Stage 1	-	-	-	-	-	-	965	855	-	992	874	-
Stage 2	-	-	-	-	-	-	989	874	-	956	823	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1615	-	-	1512	-	-	906	809	1023	886	771	1077
Mov Cap-2 Maneuver	-	-	-	-	-	-	906	809	-	886	771	-
Stage 1	-	-	-	-	-	-	964	854	-	991	868	-
Stage 2	-	-	-	-	-	-	978	868	-	940	822	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	4.8	9.1	9.7
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	932	1615	-	-	1512	-	-	771
HCM Lane V/C Ratio	0.048	0.001	-	-	0.007	-	-	0.004
HCM Control Delay (s)	9.1	7.2	0	-	7.4	0	-	9.7
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

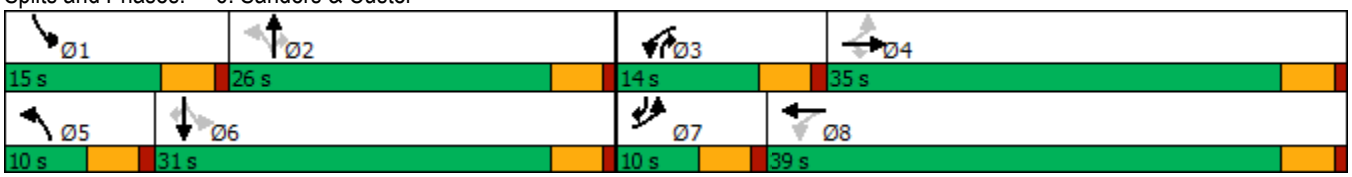


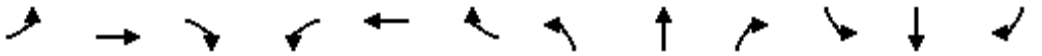
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	915	146	195	928	301	147	173	361	303	131	107
Future Volume (vph)	117	915	146	195	928	301	147	173	361	303	131	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	12	15	12	12	12	12	12	12	12	12
Storage Length (ft)	250		250	300		0	200		200	200		200
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.963				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1947	3539	1583	1947	3408	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.130			0.116			0.671			0.460		
Satd. Flow (perm)	266	3539	1583	238	3408	0	1250	1863	1583	857	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182		56				127			105
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1608			2028			1205			510	
Travel Time (s)		36.5			46.1			27.4			11.6	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	119	934	149	199	947	307	150	177	368	309	134	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	119	934	149	199	1254	0	150	177	368	309	134	109
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		15			15			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.88	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	7	4	4	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	10.0	35.0	35.0	14.0	39.0		10.0	26.0	14.0	15.0	31.0	10.0
Total Split (%)	11.1%	38.9%	38.9%	15.6%	43.3%		11.1%	28.9%	15.6%	16.7%	34.4%	11.1%
Maximum Green (s)	5.5	30.5	30.5	9.5	34.5		5.5	21.5	9.5	10.5	26.5	5.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	None	None	Max	None
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	36.3	30.8	30.8	43.5	34.4		27.0	21.5	35.1	36.5	26.5	36.5
Actuated g/C Ratio	0.40	0.34	0.34	0.48	0.38		0.30	0.24	0.39	0.41	0.29	0.41
v/c Ratio	0.57	0.77	0.23	0.69	0.94		0.37	0.40	0.53	0.68	0.24	0.15
Control Delay	24.2	31.7	2.8	28.7	40.0		22.1	32.0	16.5	28.5	25.6	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	31.7	2.8	28.7	40.0		22.1	32.0	16.5	28.5	25.6	4.5
LOS	C	C	A	C	D		C	C	B	C	C	A
Approach Delay		27.4			38.5			21.6			23.1	
Approach LOS		C			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 89.9			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 29.9		Intersection LOS: C	
Intersection Capacity Utilization 82.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 6: Sanders & Custer



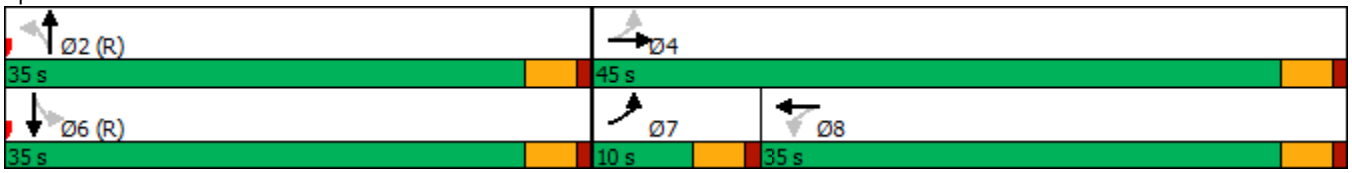


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	873	26	34	718	38	55	26	40	133	22	26
Future Volume (vph)	52	873	26	34	718	38	55	26	40	133	22	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.992			0.955			0.919	
Flt Protected	0.950			0.950				0.978		0.950		
Satd. Flow (prot)	1770	3525	0	1770	3511	0	0	1740	0	1770	1712	0
Flt Permitted	0.173			0.261				0.874		0.697		
Satd. Flow (perm)	322	3525	0	486	3511	0	0	1555	0	1298	1712	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			8			37			27	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		473			1034			369			733	
Travel Time (s)		10.8			23.5			8.4			16.7	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	54	909	27	35	748	40	57	27	42	139	23	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	936	0	35	788	0	0	126	0	139	50	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		22.5	22.5		30.0	30.0		30.0	30.0	
Total Split (s)	10.0	45.0		35.0	35.0		35.0	35.0		35.0	35.0	
Total Split (%)	12.5%	56.3%		43.8%	43.8%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	6.0	41.0		31.0	31.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	34.2	34.2		27.1	27.1			37.8		37.8	37.8	
Actuated g/C Ratio	0.43	0.43		0.34	0.34			0.47		0.47	0.47	
v/c Ratio	0.20	0.62		0.21	0.66			0.17		0.23	0.06	
Control Delay	12.3	18.9		21.4	24.9			12.0		16.8	9.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	12.3	18.9		21.4	24.9			12.0		16.8	9.9	
LOS	B	B		C	C			B		B	A	
Approach Delay		18.5			24.8			12.0			15.0	
Approach LOS		B			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 20.2		Intersection LOS: C	
Intersection Capacity Utilization 53.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 12: Harris & Cedar

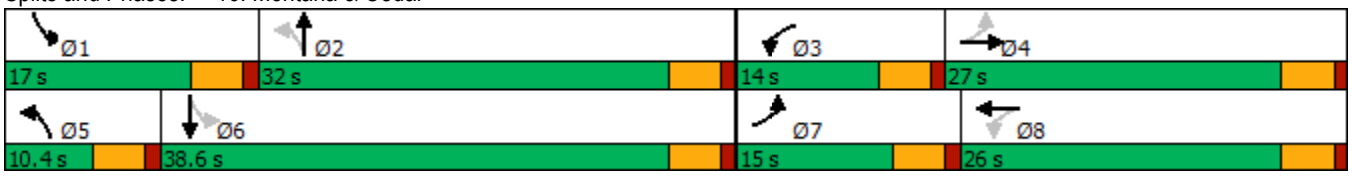


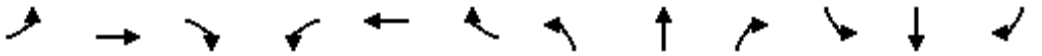
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	353	625	19	137	506	125	73	571	191	188	289	259
Future Volume (vph)	353	625	19	137	506	125	73	571	191	188	289	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	300		0	200		0	300		0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.996			0.970			0.962			0.929	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3525	0	1770	3433	0	1770	3405	0	1770	3288	0
Flt Permitted	0.183			0.194			0.412			0.145		
Satd. Flow (perm)	661	3525	0	361	3433	0	767	3405	0	270	3288	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			32			52			285	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1190			1430			635			790	
Travel Time (s)		27.0			32.5			14.4			18.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	388	687	21	151	556	137	80	627	210	207	318	285
Shared Lane Traffic (%)												
Lane Group Flow (vph)	388	708	0	151	693	0	80	837	0	207	603	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	15.0		9.5	22.5	
Total Split (s)	15.0	27.0		14.0	26.0		10.4	32.0		17.0	38.6	
Total Split (%)	16.7%	30.0%		15.6%	28.9%		11.6%	35.6%		18.9%	42.9%	
Maximum Green (s)	10.5	22.5		9.5	21.5		5.9	27.5		12.5	34.1	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.1	21.9		29.4	20.5		34.1	28.3		43.4	35.4	
Actuated g/C Ratio	0.37	0.25		0.33	0.23		0.39	0.32		0.49	0.40	
v/c Ratio	0.69	0.80		0.57	0.84		0.22	0.74		0.65	0.40	
Control Delay	25.0	39.4		26.9	41.3		14.4	30.0		24.6	11.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.0	39.4		26.9	41.3		14.4	30.0		24.6	11.0	
LOS	C	D		C	D		B	C		C	B	
Approach Delay		34.3			38.8			28.7			14.5	
Approach LOS		C			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 87.8			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 29.5		Intersection LOS: C	
Intersection Capacity Utilization 75.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 16: Montana & Cedar





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	614	438	194	783	0	0	0	0	0	14	77
Future Volume (vph)	0	614	438	194	783	0	0	0	0	0	14	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	400		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frt			0.850									0.850
Flt Protected				0.950								
Satd. Flow (prot)	0	1863	1583	1770	3539	0	0	0	0	0	1863	2787
Flt Permitted				0.196								
Satd. Flow (perm)	0	1863	1583	365	3539	0	0	0	0	0	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			309									82
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1034			869			613			556	
Travel Time (s)		23.5			19.8			13.9			12.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	653	466	206	833	0	0	0	0	0	15	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	653	466	206	833	0	0	0	0	0	15	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1	2	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		6	20	20	6					20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA	Perm	pm+pt	NA						NA	Perm
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		4	4	3	8					6	6	6
Switch Phase												
Minimum Initial (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
Minimum Split (s)		22.5	22.5	9.5	22.5					22.5	22.5	22.5
Total Split (s)		53.0	53.0	60.0	113.0					27.0	27.0	27.0
Total Split (%)		37.9%	37.9%	42.9%	80.7%					19.3%	19.3%	19.3%
Maximum Green (s)		48.5	48.5	55.5	108.5					22.5	22.5	22.5
Yellow Time (s)		3.5	3.5	3.5	3.5					3.5	3.5	3.5
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0						0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5						4.5	4.5
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Recall Mode		None	None	None	None					Max	Max	Max
Walk Time (s)		7.0	7.0		7.0					7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0					0	0	0
Act Effct Green (s)		47.2	47.2	63.8	63.8						22.6	22.6
Actuated g/C Ratio		0.49	0.49	0.67	0.67						0.24	0.24
v/c Ratio		0.71	0.50	0.49	0.35						0.03	0.11
Control Delay		24.7	7.4	9.9	7.2						30.7	7.9
Queue Delay		0.0	0.0	0.0	0.0						0.0	0.0
Total Delay		24.7	7.4	9.9	7.2						30.7	7.9
LOS		C	A	A	A						C	A
Approach Delay		17.5			7.7						11.4	
Approach LOS		B			A						B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 95.4			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 58.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 19: Cedar & I-15

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	30	9	3	13	64	7	232	16	80	150	8
Future Vol, veh/h	13	30	9	3	13	64	7	232	16	80	150	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	33	10	3	14	70	8	252	17	87	163	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.8	8.4	10	10
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	25%	4%	34%
Vol Thru, %	91%	58%	16%	63%
Vol Right, %	6%	17%	80%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	255	52	80	238
LT Vol	7	13	3	80
Through Vol	232	30	13	150
RT Vol	16	9	64	8
Lane Flow Rate	277	57	87	259
Geometry Grp	1	1	1	1
Degree of Util (X)	0.35	0.082	0.115	0.334
Departure Headway (Hd)	4.547	5.219	4.759	4.641
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	787	682	749	771
Service Time	2.591	3.283	2.818	2.686
HCM Lane V/C Ratio	0.352	0.084	0.116	0.336
HCM Control Delay	10	8.8	8.4	10
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.6	0.3	0.4	1.5

Intersection	
Int Delay, s/veh	14.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	124	971	19	8	665	100	3	16	39	21	10	119
Future Vol, veh/h	124	971	19	8	665	100	3	16	39	21	10	119
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	144	1129	22	9	773	116	3	19	45	24	12	138

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	889	0	0	1151	0	0	1839	2335	576	1711	2288	445
Stage 1	-	-	-	-	-	-	1428	1428	-	849	849	-
Stage 2	-	-	-	-	-	-	411	907	-	862	1439	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	758	-	-	603	-	-	47	36	460	59	39	561
Stage 1	-	-	-	-	-	-	142	199	-	322	375	-
Stage 2	-	-	-	-	-	-	589	353	-	316	197	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	758	-	-	603	-	-	10	~ 16	460	-	18	561
Mov Cap-2 Maneuver	-	-	-	-	-	-	10	~ 16	-	-	18	-
Stage 1	-	-	-	-	-	-	67	93	-	151	364	-
Stage 2	-	-	-	-	-	-	417	342	-	107	92	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.1	$ 510.8	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	42	758	-	-	603	-	-	-
HCM Lane V/C Ratio	1.606	0.19	-	-	0.015	-	-	-
HCM Control Delay (s)	$ 510.8	10.9	-	-	11.1	-	-	-
HCM Lane LOS	F	B	-	-	B	-	-	-
HCM 95th %tile Q(veh)	6.9	0.7	-	-	0	-	-	-

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

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	4	105	9	9	0	66	1	5	0	1	0
Future Vol, veh/h	1	4	105	9	9	0	66	1	5	0	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	4	114	10	10	0	72	1	5	0	1	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	10	0	0	118	0	0	94	93	61	96	150	10
Stage 1	-	-	-	-	-	-	63	63	-	30	30	-
Stage 2	-	-	-	-	-	-	31	30	-	66	120	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1610	-	-	1470	-	-	889	797	1004	887	742	1071
Stage 1	-	-	-	-	-	-	948	842	-	987	870	-
Stage 2	-	-	-	-	-	-	986	870	-	945	796	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1610	-	-	1470	-	-	883	791	1004	875	736	1071
Mov Cap-2 Maneuver	-	-	-	-	-	-	883	791	-	875	736	-
Stage 1	-	-	-	-	-	-	947	841	-	986	864	-
Stage 2	-	-	-	-	-	-	978	864	-	938	795	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	3.7	9.4	9.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	889	1610	-	-	1470	-	-	736
HCM Lane V/C Ratio	0.088	0.001	-	-	0.007	-	-	0.001
HCM Control Delay (s)	9.4	7.2	0	-	7.5	0	-	9.9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0

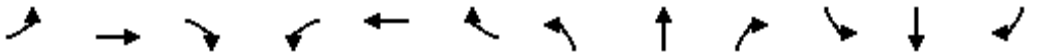
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	0	10	0	0	0	10	309	0	0	238	10
Future Vol, veh/h	10	0	10	0	0	0	10	309	0	0	238	10
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	11	0	0	0	11	336	0	0	259	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	623	623	265	628	628	336	270	0	0	336	0	0
Stage 1	265	265	-	358	358	-	-	-	-	-	-	-
Stage 2	358	358	-	270	270	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	398	402	774	395	400	706	1293	-	-	1223	-	-
Stage 1	740	689	-	660	628	-	-	-	-	-	-	-
Stage 2	660	628	-	736	686	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	395	398	774	386	396	706	1293	-	-	1223	-	-
Mov Cap-2 Maneuver	395	398	-	386	396	-	-	-	-	-	-	-
Stage 1	733	689	-	653	622	-	-	-	-	-	-	-
Stage 2	653	622	-	726	686	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.2	0	0.2	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1293	-	-	523	-	1223	-	-
HCM Lane V/C Ratio	0.008	-	-	0.042	-	-	-	-
HCM Control Delay (s)	7.8	0	-	12.2	0	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

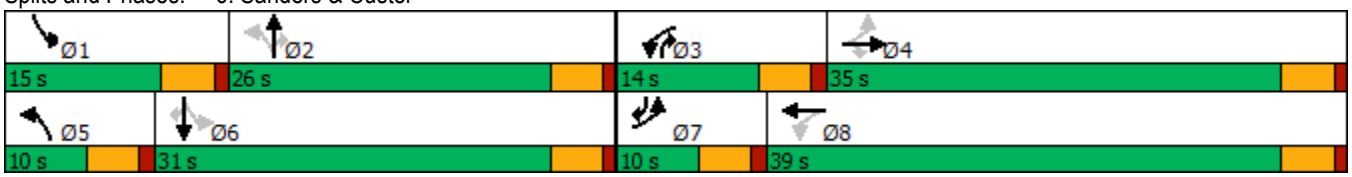


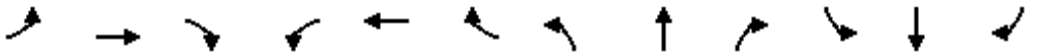
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	642	57	143	712	129	43	57	97	168	57	57
Future Volume (vph)	54	642	57	143	712	129	43	57	97	168	57	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	12	15	12	12	12	12	12	12	12	12
Storage Length (ft)	250		250	300		0	200		200	200		200
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.977				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1947	3539	1583	1947	3458	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.167			0.183			0.716			0.602		
Satd. Flow (perm)	342	3539	1583	375	3458	0	1334	1863	1583	1121	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182		27				127			73
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1608			2028			1205			510	
Travel Time (s)		36.5			46.1			27.4			11.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	713	63	159	791	143	48	63	108	187	63	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	713	63	159	934	0	48	63	108	187	63	63
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		15			15			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.88	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	7	4	4	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	10.0	35.0	35.0	14.0	39.0		10.0	26.0	14.0	15.0	31.0	10.0
Total Split (%)	11.1%	38.9%	38.9%	15.6%	43.3%		11.1%	28.9%	15.6%	16.7%	34.4%	11.1%
Maximum Green (s)	5.5	30.5	30.5	9.5	34.5		5.5	21.5	9.5	10.5	26.5	5.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	None	None	Max	None
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	30.5	25.0	25.0	37.5	30.5		27.3	21.7	34.9	35.8	30.2	40.3
Actuated g/C Ratio	0.37	0.30	0.30	0.45	0.37		0.33	0.26	0.42	0.43	0.36	0.48
v/c Ratio	0.26	0.67	0.10	0.48	0.73		0.10	0.13	0.15	0.34	0.09	0.08
Control Delay	15.5	28.8	0.4	17.9	26.4		16.9	27.1	3.1	18.4	22.3	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.5	28.8	0.4	17.9	26.4		16.9	27.1	3.1	18.4	22.3	3.8
LOS	B	C	A	B	C		B	C	A	B	C	A
Approach Delay		25.7			25.1			13.0			16.3	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 83.1			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 23.1		Intersection LOS: C	
Intersection Capacity Utilization 55.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 6: Sanders & Custer



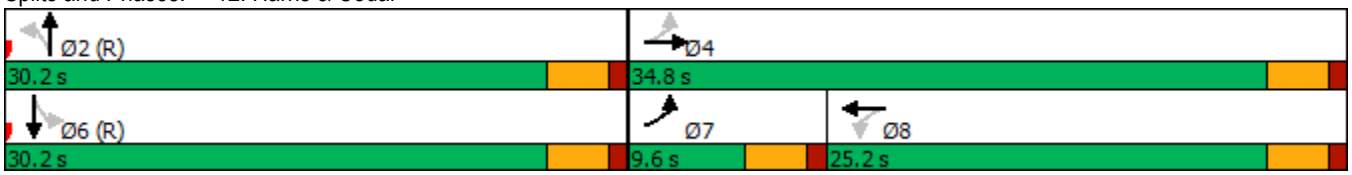


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	388	18	23	798	37	46	7	13	103	17	14
Future Volume (vph)	18	388	18	23	798	37	46	7	13	103	17	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.993			0.974			0.931	
Flt Protected	0.950			0.950				0.966		0.950		
Satd. Flow (prot)	1770	3514	0	1770	3514	0	0	1753	0	1770	1734	0
Flt Permitted	0.137			0.476				0.830		0.706		
Satd. Flow (perm)	255	3514	0	887	3514	0	0	1506	0	1315	1734	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			8			15			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		473			1034			369			733	
Travel Time (s)		10.8			23.5			8.4			16.7	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	21	462	21	27	950	44	55	8	15	123	20	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	483	0	27	994	0	0	78	0	123	37	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		22.5	22.5		30.0	30.0		30.0	30.0	
Total Split (s)	9.6	34.8		25.2	25.2		30.2	30.2		30.2	30.2	
Total Split (%)	14.8%	53.5%		38.8%	38.8%		46.5%	46.5%		46.5%	46.5%	
Maximum Green (s)	5.6	30.8		21.2	21.2		26.2	26.2		26.2	26.2	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	27.6	27.6		25.3	25.3			29.4		29.4	29.4	
Actuated g/C Ratio	0.42	0.42		0.39	0.39			0.45		0.45	0.45	
v/c Ratio	0.08	0.32		0.08	0.72			0.11		0.21	0.05	
Control Delay	8.6	12.0		11.7	19.8			12.4		15.2	10.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	8.6	12.0		11.7	19.8			12.4		15.2	10.3	
LOS	A	B		B	B			B		B	B	
Approach Delay		11.8			19.6			12.4			14.0	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 16.5		Intersection LOS: B	
Intersection Capacity Utilization 40.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 12: Harris & Cedar

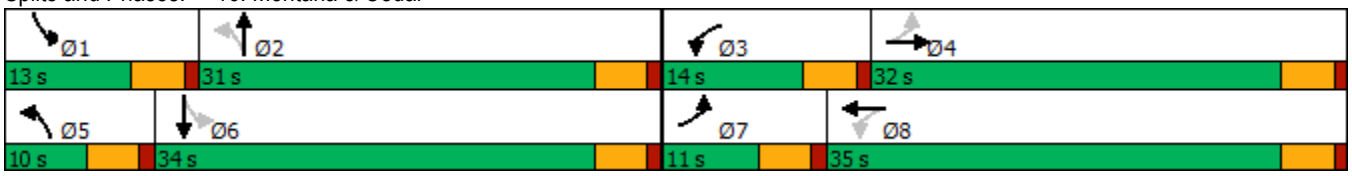


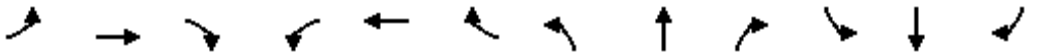
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	312	13	132	630	73	20	198	50	116	343	239
Future Volume (vph)	143	312	13	132	630	73	20	198	50	116	343	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	300		0	200		0	300		0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.994			0.984			0.970			0.938	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3518	0	1770	3483	0	1770	3433	0	1770	3320	0
Flt Permitted	0.173			0.417			0.371			0.490		
Satd. Flow (perm)	625	3518	0	777	3483	0	691	3433	0	913	3320	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			15			36			208	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1190			1430			635			790	
Travel Time (s)		27.0			32.5			14.4			18.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	163	355	15	150	716	83	23	225	57	132	390	272
Shared Lane Traffic (%)												
Lane Group Flow (vph)	163	370	0	150	799	0	23	282	0	132	662	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	15.0		9.5	22.5	
Total Split (s)	11.0	32.0		14.0	35.0		10.0	31.0		13.0	34.0	
Total Split (%)	12.2%	35.6%		15.6%	38.9%		11.1%	34.4%		14.4%	37.8%	
Maximum Green (s)	6.5	27.5		9.5	30.5		5.5	26.5		8.5	29.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	29.5	23.0		34.0	25.3		32.1	26.6		38.5	35.3	
Actuated g/C Ratio	0.35	0.27		0.40	0.30		0.38	0.32		0.46	0.42	
v/c Ratio	0.37	0.38		0.36	0.76		0.07	0.25		0.27	0.44	
Control Delay	17.1	25.8		17.4	31.4		14.8	20.4		15.8	14.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.1	25.8		17.4	31.4		14.8	20.4		15.8	14.2	
LOS	B	C		B	C		B	C		B	B	
Approach Delay		23.2			29.2			19.9			14.5	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 84.4			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 22.3		Intersection LOS: C	
Intersection Capacity Utilization 60.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 16: Montana & Cedar



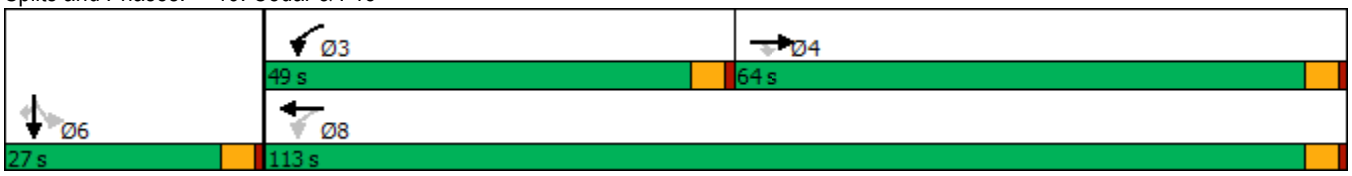


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	277	240	52	800	0	0	0	0	0	66	141
Future Volume (vph)	0	277	240	52	800	0	0	0	0	0	66	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	400		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frt			0.850									0.850
Flt Protected				0.950								
Satd. Flow (prot)	0	1863	1583	1770	3539	0	0	0	0	0	1863	2787
Flt Permitted				0.340								
Satd. Flow (perm)	0	1863	1583	633	3539	0	0	0	0	0	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			293									172
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1034			869			613			556	
Travel Time (s)		23.5			19.8			13.9			12.6	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	0	338	293	63	976	0	0	0	0	0	80	172
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	338	293	63	976	0	0	0	0	0	80	172
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1	2	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		6	20	20	6					20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA	Perm	pm+pt	NA						NA	Perm
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		4	4	3	8					6	6	6
Switch Phase												
Minimum Initial (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
Minimum Split (s)		22.5	22.5	9.5	22.5					22.5	22.5	22.5
Total Split (s)		64.0	64.0	49.0	113.0					27.0	27.0	27.0
Total Split (%)		45.7%	45.7%	35.0%	80.7%					19.3%	19.3%	19.3%
Maximum Green (s)		59.5	59.5	44.5	108.5					22.5	22.5	22.5
Yellow Time (s)		3.5	3.5	3.5	3.5					3.5	3.5	3.5
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0						0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5						4.5	4.5
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Recall Mode		None	None	None	None					Max	Max	Max
Walk Time (s)		7.0	7.0		7.0					7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0					0	0	0
Act Effct Green (s)		19.3	19.3	25.7	25.7						22.8	22.8
Actuated g/C Ratio		0.33	0.33	0.45	0.45						0.40	0.40
v/c Ratio		0.54	0.40	0.15	0.62						0.11	0.14
Control Delay		20.6	4.2	9.2	13.7						14.1	3.4
Queue Delay		0.0	0.0	0.0	0.0						0.0	0.0
Total Delay		20.6	4.2	9.2	13.7						14.1	3.4
LOS		C	A	A	B						B	A
Approach Delay		13.0			13.4						6.8	
Approach LOS		B			B						A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 57.7			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 12.4		Intersection LOS: B	
Intersection Capacity Utilization 34.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 19: Cedar & I-15



Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	16	3	4	8	32	3	104	13	74	144	9
Future Vol, veh/h	13	16	3	4	8	32	3	104	13	74	144	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	18	3	4	9	36	3	116	14	82	160	10
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	7.7	8.2	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	41%	9%	33%
Vol Thru, %	87%	50%	18%	63%
Vol Right, %	11%	9%	73%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	32	44	227
LT Vol	3	13	4	74
Through Vol	104	16	8	144
RT Vol	13	3	32	9
Lane Flow Rate	133	36	49	252
Geometry Grp	1	1	1	1
Degree of Util (X)	0.161	0.048	0.06	0.303
Departure Headway (Hd)	4.334	4.875	4.416	4.327
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	829	735	812	835
Service Time	2.351	2.9	2.44	2.327
HCM Lane V/C Ratio	0.16	0.049	0.06	0.302
HCM Control Delay	8.2	8.1	7.7	9.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.2	0.2	1.3

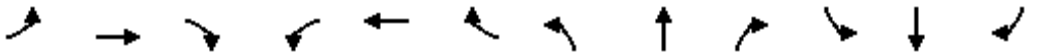
Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	448	7	20	765	50	9	10	16	7	10	133
Future Vol, veh/h	48	448	7	20	765	50	9	10	16	7	10	133
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	53	498	8	22	850	56	10	11	18	8	11	148

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	906	0	0	506	0	0	1083	1558	253	1283	1534	453
Stage 1	-	-	-	-	-	-	608	608	-	922	922	-
Stage 2	-	-	-	-	-	-	475	950	-	361	612	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	747	-	-	1055	-	-	172	111	746	122	115	554
Stage 1	-	-	-	-	-	-	450	484	-	291	347	-
Stage 2	-	-	-	-	-	-	539	337	-	630	482	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	747	-	-	1055	-	-	103	96	746	97	99	554
Mov Cap-2 Maneuver	-	-	-	-	-	-	103	96	-	97	99	-
Stage 1	-	-	-	-	-	-	405	436	-	262	332	-
Stage 2	-	-	-	-	-	-	366	323	-	540	434	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.2	33.6	23.1
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	164	747	-	-	1055	-	-	363
HCM Lane V/C Ratio	0.237	0.071	-	-	0.021	-	-	0.459
HCM Control Delay (s)	33.6	10.2	-	-	8.5	-	-	23.1
HCM Lane LOS	D	B	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.9	0.2	-	-	0.1	-	-	2.3

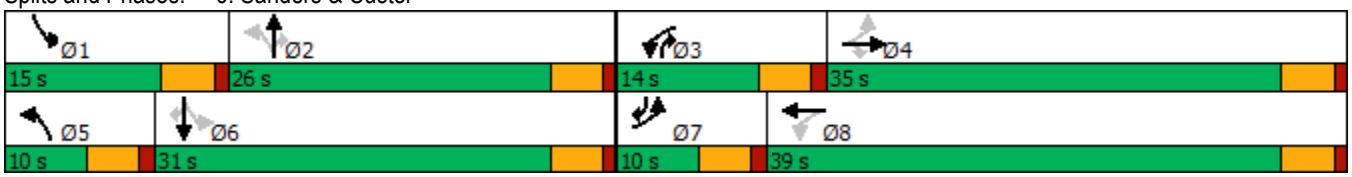


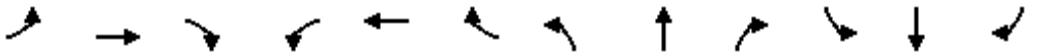
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	933	160	210	947	307	156	178	378	309	136	109
Future Volume (vph)	119	933	160	210	947	307	156	178	378	309	136	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	12	12	15	12	12	12	12	12	12	12	12
Storage Length (ft)	250		250	300		0	200		200	200		200
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.963				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1947	3539	1583	1947	3408	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.130			0.116			0.668			0.452		
Satd. Flow (perm)	266	3539	1583	238	3408	0	1244	1863	1583	842	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182		56				127			99
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1608			2028			1205			510	
Travel Time (s)		36.5			46.1			27.4			11.6	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	121	952	163	214	966	313	159	182	386	315	139	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	952	163	214	1279	0	159	182	386	315	139	111
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		15			15			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.88	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	7	4	4	3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5	9.5	9.5	22.5	9.5
Total Split (s)	10.0	35.0	35.0	14.0	39.0		10.0	26.0	14.0	15.0	31.0	10.0
Total Split (%)	11.1%	38.9%	38.9%	15.6%	43.3%		11.1%	28.9%	15.6%	16.7%	34.4%	11.1%
Maximum Green (s)	5.5	30.5	30.5	9.5	34.5		5.5	21.5	9.5	10.5	26.5	5.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	None	None	Max	None
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	36.3	30.8	30.8	43.7	34.5		27.0	21.5	35.2	36.5	26.5	36.5
Actuated g/C Ratio	0.40	0.34	0.34	0.49	0.38		0.30	0.24	0.39	0.41	0.29	0.41
v/c Ratio	0.58	0.79	0.25	0.74	0.95		0.39	0.41	0.55	0.70	0.25	0.16
Control Delay	24.8	32.4	3.6	32.4	42.7		22.6	32.2	17.3	29.7	25.8	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	32.4	3.6	32.4	42.7		22.6	32.2	17.3	29.7	25.8	5.2
LOS	C	C	A	C	D		C	C	B	C	C	A
Approach Delay		27.9			41.2			22.2			23.9	
Approach LOS		C			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 31.2		Intersection LOS: C	
Intersection Capacity Utilization 84.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 6: Sanders & Custer



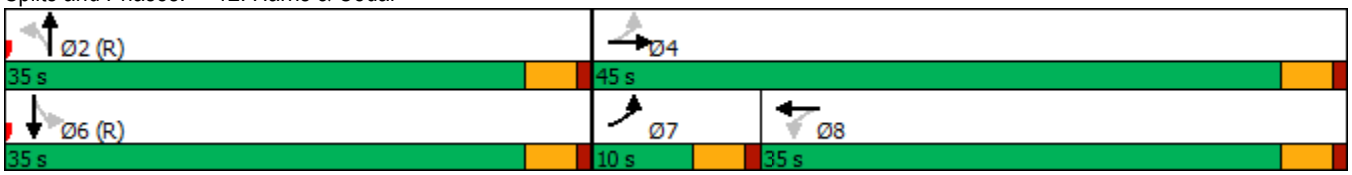


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	890	27	35	738	67	56	35	41	141	26	41
Future Volume (vph)	53	890	27	35	738	67	56	35	41	141	26	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	0		0	100		0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.987			0.958			0.908	
Flt Protected	0.950			0.950				0.979		0.950		
Satd. Flow (prot)	1770	3525	0	1770	3493	0	0	1747	0	1770	1691	0
Flt Permitted	0.159			0.258				0.873		0.685		
Satd. Flow (perm)	296	3525	0	481	3493	0	0	1558	0	1276	1691	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			14			34			43	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		473			1034			369			733	
Travel Time (s)		10.8			23.5			8.4			16.7	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	55	927	28	36	769	70	58	36	43	147	27	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	55	955	0	36	839	0	0	137	0	147	70	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		22.5	22.5		30.0	30.0		30.0	30.0	
Total Split (s)	10.0	45.0		35.0	35.0		35.0	35.0		35.0	35.0	
Total Split (%)	12.5%	56.3%		43.8%	43.8%		43.8%	43.8%		43.8%	43.8%	
Maximum Green (s)	6.0	41.0		31.0	31.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	35.3	35.3		28.1	28.1			36.7		36.7	36.7	
Actuated g/C Ratio	0.44	0.44		0.35	0.35			0.46		0.46	0.46	
v/c Ratio	0.21	0.61		0.21	0.68			0.19		0.25	0.09	
Control Delay	11.7	18.1		20.4	24.4			13.4		18.1	9.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	11.7	18.1		20.4	24.4			13.4		18.1	9.3	
LOS	B	B		C	C			B		B	A	
Approach Delay		17.7			24.3			13.4			15.3	
Approach LOS		B			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 19.8		Intersection LOS: B	
Intersection Capacity Utilization 54.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 12: Harris & Cedar

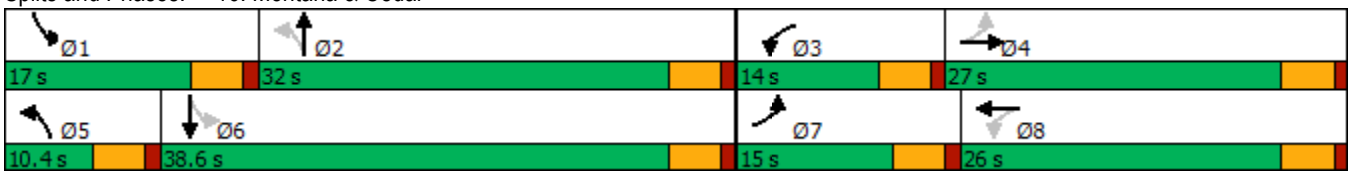


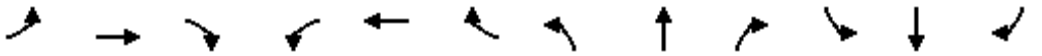
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	376	666	19	149	541	128	74	589	205	192	295	264
Future Volume (vph)	376	666	19	149	541	128	74	589	205	192	295	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	300		0	200		0	300		0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.996			0.971			0.961			0.929	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3525	0	1770	3437	0	1770	3401	0	1770	3288	0
Flt Permitted	0.180			0.191			0.405			0.126		
Satd. Flow (perm)	650	3525	0	356	3437	0	754	3401	0	235	3288	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			30			55			290	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1190			1430			635			790	
Travel Time (s)		27.0			32.5			14.4			18.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	413	732	21	164	595	141	81	647	225	211	324	290
Shared Lane Traffic (%)												
Lane Group Flow (vph)	413	753	0	164	736	0	81	872	0	211	614	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	15.0		9.5	22.5	
Total Split (s)	15.0	27.0		14.0	26.0		10.4	32.0		17.0	38.6	
Total Split (%)	16.7%	30.0%		15.6%	28.9%		11.6%	35.6%		18.9%	42.9%	
Maximum Green (s)	10.5	22.5		9.5	21.5		5.9	27.5		12.5	34.1	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.5	22.2		29.8	20.8		34.0	28.2		43.5	35.4	
Actuated g/C Ratio	0.37	0.25		0.34	0.24		0.39	0.32		0.49	0.40	
v/c Ratio	0.73	0.85		0.62	0.88		0.23	0.78		0.69	0.41	
Control Delay	26.8	42.3		28.8	45.2		14.5	31.6		28.4	11.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.8	42.3		28.8	45.2		14.5	31.6		28.4	11.1	
LOS	C	D		C	D		B	C		C	B	
Approach Delay		36.8			42.2			30.2			15.5	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.2			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 31.8		Intersection LOS: C	
Intersection Capacity Utilization 78.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 16: Montana & Cedar





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	634	458	198	830	0	0	0	0	0	14	79
Future Volume (vph)	0	634	458	198	830	0	0	0	0	0	14	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	400		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		2
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88
Frt			0.850									0.850
Flt Protected				0.950								
Satd. Flow (prot)	0	1863	1583	1770	3539	0	0	0	0	0	1863	2787
Flt Permitted				0.186								
Satd. Flow (perm)	0	1863	1583	346	3539	0	0	0	0	0	1863	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			313									84
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1034			869			613			556	
Travel Time (s)		23.5			19.8			13.9			12.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	674	487	211	883	0	0	0	0	0	15	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	674	487	211	883	0	0	0	0	0	15	84
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1	2	1
Detector Template		Thru	Right	Left	Thru					Left	Thru	Right
Leading Detector (ft)		100	20	20	100					20	100	20
Trailing Detector (ft)		0	0	0	0					0	0	0
Detector 1 Position(ft)		0	0	0	0					0	0	0
Detector 1 Size(ft)		6	20	20	6					20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA	Perm	pm+pt	NA						NA	Perm
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		4	4	3	8					6	6	6
Switch Phase												
Minimum Initial (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
Minimum Split (s)		22.5	22.5	9.5	22.5					22.5	22.5	22.5
Total Split (s)		53.0	53.0	60.0	113.0					27.0	27.0	27.0
Total Split (%)		37.9%	37.9%	42.9%	80.7%					19.3%	19.3%	19.3%
Maximum Green (s)		48.5	48.5	55.5	108.5					22.5	22.5	22.5
Yellow Time (s)		3.5	3.5	3.5	3.5					3.5	3.5	3.5
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0						0.0	0.0
Total Lost Time (s)		4.5	4.5	4.5	4.5						4.5	4.5
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Recall Mode		None	None	None	None					Max	Max	Max
Walk Time (s)		7.0	7.0		7.0					7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0					0	0	0
Act Effct Green (s)		48.6	48.6	65.5	65.5						22.5	22.5
Actuated g/C Ratio		0.50	0.50	0.67	0.67						0.23	0.23
v/c Ratio		0.72	0.51	0.51	0.37						0.03	0.12
Control Delay		25.3	7.9	10.2	7.3						30.9	7.8
Queue Delay		0.0	0.0	0.0	0.0						0.0	0.0
Total Delay		25.3	7.9	10.2	7.3						30.9	7.8
LOS		C	A	B	A						C	A
Approach Delay		18.0			7.8						11.3	
Approach LOS		B			A						B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 97.1			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 13.0		Intersection LOS: B	
Intersection Capacity Utilization 59.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 19: Cedar & I-15

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	31	9	3	13	102	7	281	16	87	167	29
Future Vol, veh/h	39	31	9	3	13	102	7	281	16	87	167	29
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	34	10	3	14	111	8	305	17	95	182	32
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	9.4	12	11.7
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	49%	3%	31%
Vol Thru, %	92%	39%	11%	59%
Vol Right, %	5%	11%	86%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	304	79	118	283
LT Vol	7	39	3	87
Through Vol	281	31	13	167
RT Vol	16	9	102	29
Lane Flow Rate	330	86	128	308
Geometry Grp	1	1	1	1
Degree of Util (X)	0.453	0.138	0.184	0.426
Departure Headway (Hd)	4.937	5.775	5.159	4.991
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	734	621	695	726
Service Time	2.946	3.813	3.195	3
HCM Lane V/C Ratio	0.45	0.138	0.184	0.424
HCM Control Delay	12	9.7	9.4	11.7
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	2.4	0.5	0.7	2.1

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	166	990	19	8	678	108	3	16	40	21	10	155
Future Vol, veh/h	166	990	19	8	678	108	3	16	40	21	10	155
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	193	1151	22	9	788	126	3	19	47	24	12	180

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	914	0	0	1173	0	0	1966	2480	587	1840	2428	457
Stage 1	-	-	-	-	-	-	1548	1548	-	869	869	-
Stage 2	-	-	-	-	-	-	418	932	-	971	1559	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	742	-	-	591	-	-	37	29	453	47	32	551
Stage 1	-	-	-	-	-	-	119	174	-	313	367	-
Stage 2	-	-	-	-	-	-	583	343	-	271	172	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	742	-	-	591	-	-	-	~ 7	453	-	~ 8	551
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 7	-	-	~ 8	-
Stage 1	-	-	-	-	-	-	30	43	-	78	355	-
Stage 2	-	-	-	-	-	-	367	332	-	34	43	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.6	0.1		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	742	-	-	591	-	-	-
HCM Lane V/C Ratio	-	0.26	-	-	0.016	-	-	-
HCM Control Delay (s)	-	11.5	-	-	11.2	-	-	-
HCM Lane LOS	-	B	-	-	B	-	-	-
HCM 95th %tile Q(veh)	-	1	-	-	0	-	-	-

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

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	4	131	9	9	0	104	1	5	0	1	0
Future Vol, veh/h	1	4	131	9	9	0	104	1	5	0	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	4	142	10	10	0	113	1	5	0	1	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	10	0	0	146	0	0	108	107	75	110	178	10
Stage 1	-	-	-	-	-	-	77	77	-	30	30	-
Stage 2	-	-	-	-	-	-	31	30	-	80	148	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1610	-	-	1436	-	-	871	783	986	868	716	1071
Stage 1	-	-	-	-	-	-	932	831	-	987	870	-
Stage 2	-	-	-	-	-	-	986	870	-	929	775	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1610	-	-	1436	-	-	865	777	986	857	710	1071
Mov Cap-2 Maneuver	-	-	-	-	-	-	865	777	-	857	710	-
Stage 1	-	-	-	-	-	-	931	830	-	986	864	-
Stage 2	-	-	-	-	-	-	978	864	-	922	774	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	3.8	9.8	10.1
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	869	1610	-	-	1436	-	-	710
HCM Lane V/C Ratio	0.138	0.001	-	-	0.007	-	-	0.002
HCM Control Delay (s)	9.8	7.2	0	-	7.5	0	-	10.1
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	10	18	0	8	10	325	29	13	255	10
Future Vol, veh/h	10	0	10	18	0	8	10	325	29	13	255	10
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	11	20	0	9	11	353	32	14	277	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	707	718	283	707	707	369	288	0	0	385	0	0
Stage 1	311	311	-	391	391	-	-	-	-	-	-	-
Stage 2	396	407	-	316	316	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	350	355	756	350	360	677	1274	-	-	1173	-	-
Stage 1	699	658	-	633	607	-	-	-	-	-	-	-
Stage 2	629	597	-	695	655	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	339	346	756	338	351	677	1274	-	-	1173	-	-
Mov Cap-2 Maneuver	339	346	-	338	351	-	-	-	-	-	-	-
Stage 1	691	649	-	626	600	-	-	-	-	-	-	-
Stage 2	614	590	-	675	646	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.1	14.7	0.2	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1274	-	-	468	400	1173	-	-
HCM Lane V/C Ratio	0.009	-	-	0.046	0.071	0.012	-	-
HCM Control Delay (s)	7.8	0	-	13.1	14.7	8.1	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	6	107	9	5	0	37	2	12	0	3	0
Future Vol, veh/h	1	6	107	9	5	0	37	2	12	0	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	7	119	10	6	0	41	2	13	0	3	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	6	0	0	126	0	0	97	95	67	102	154	6
Stage 1	-	-	-	-	-	-	69	69	-	26	26	-
Stage 2	-	-	-	-	-	-	28	26	-	76	128	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1615	-	-	1460	-	-	885	795	997	879	738	1077
Stage 1	-	-	-	-	-	-	941	837	-	992	874	-
Stage 2	-	-	-	-	-	-	989	874	-	933	790	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1615	-	-	1460	-	-	876	789	997	861	732	1077
Mov Cap-2 Maneuver	-	-	-	-	-	-	876	789	-	861	732	-
Stage 1	-	-	-	-	-	-	940	836	-	991	868	-
Stage 2	-	-	-	-	-	-	978	868	-	917	789	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	4.8	9.3	9.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	898	1615	-	-	1460	-	-	732
HCM Lane V/C Ratio	0.063	0.001	-	-	0.007	-	-	0.005
HCM Control Delay (s)	9.3	7.2	0	-	7.5	0	-	9.9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	10	28	0	12	10	132	9	4	134	10
Future Vol, veh/h	10	0	10	28	0	12	10	132	9	4	134	10
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	11	30	0	13	11	143	10	4	146	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	337	335	152	335	335	148	157	0	0	153	0	0
Stage 1	160	160	-	170	170	-	-	-	-	-	-	-
Stage 2	177	175	-	165	165	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	617	585	894	619	585	899	1423	-	-	1428	-	-
Stage 1	842	766	-	832	758	-	-	-	-	-	-	-
Stage 2	825	754	-	837	762	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	603	579	894	607	579	899	1423	-	-	1428	-	-
Mov Cap-2 Maneuver	603	579	-	607	579	-	-	-	-	-	-	-
Stage 1	835	764	-	825	752	-	-	-	-	-	-	-
Stage 2	807	748	-	824	760	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	10.7	0.5	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1423	-	-	720	673	1428	-	-
HCM Lane V/C Ratio	0.008	-	-	0.03	0.065	0.003	-	-
HCM Control Delay (s)	7.5	0	-	10.2	10.7	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-