Aspire Subdivision
Traffic Impact Study UPDATE

East Missoula, Montana

Prepared For:

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April 2023

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A. EXECUTIVE SUMMARY

The Aspire Subdivision is a 35.2-acre residential project proposed along the west banks of the Clark Fork River in East Missoula, Montana. Upon anticipated completion by 2030, the development would include 258 residential units. The development would produce up to 2,266 new daily vehicle trips in this area. As proposed, the Aspire Subdivision will increase traffic volumes on the surrounding road network by 300 to 2,100 VPD. The developers would also plan to widen all of Sommers Street from the development boundary to Highway 200 with on-street parking and pedestrian sidewalks on both sides. It is recommended that the developers work with Missoula County and MDT to help implement the planned widening of Highway 200 through East Missoula and monitor the traffic conditions at the intersection of Highway 200 and Sommers Street during the development process to determine if a traffic signal is warranted at this intersection through 2030.

B. PROJECT DESCRIPTION

This document studies the possible effects on the surrounding road system from the proposed Aspire Subdivision located along the east side of the Clark Fork River just north of Interstate 90 in East Missoula, MT. The document provides information regarding possible traffic impacts in the area and identifies mitigation efforts that the development may require. The project would include up to 178 single-family residential units and 80 condominium units at full development.

C. EXISTING CONDITIONS

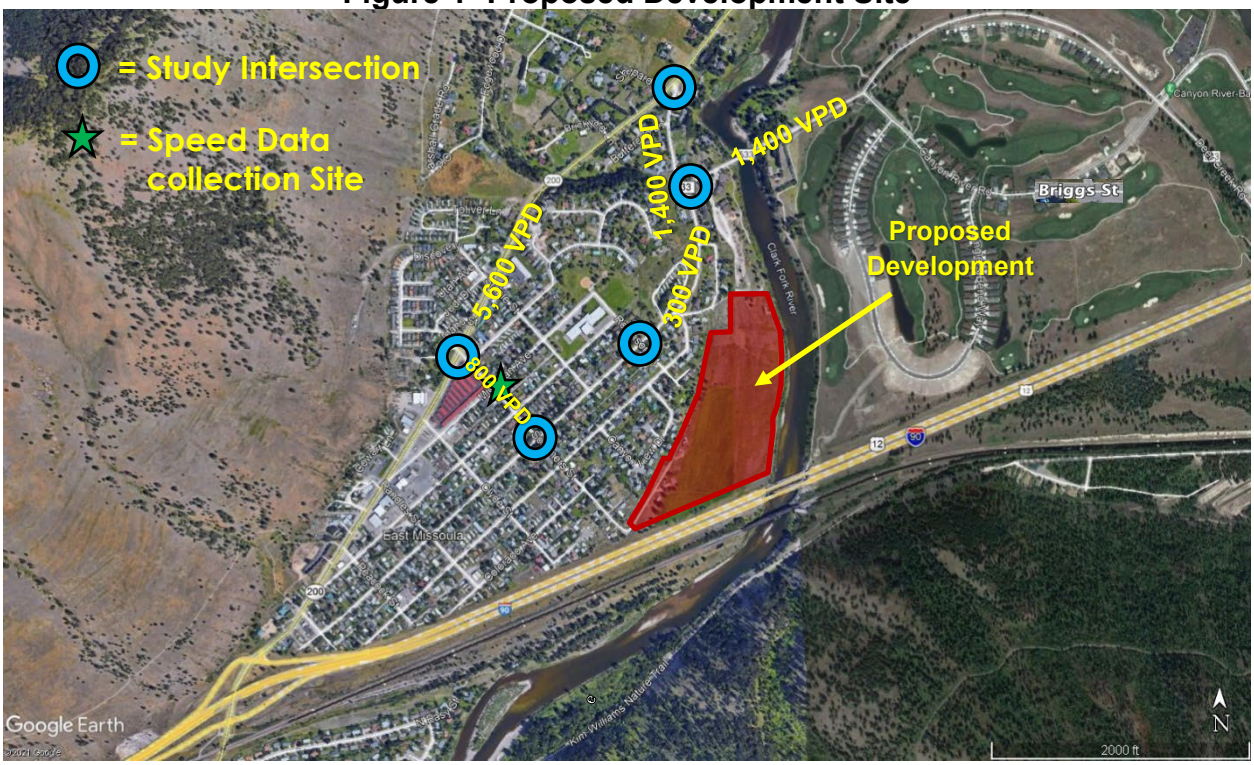
The Aspire Subdivision development is proposed on a 35.2-acre parcel of vacant land located west of Speedway Avenue just north of the Interstate 90 corridor. The site is located east of the existing residential areas along the banks of the Clark Fork River. See **Figure 1** for a location map of the proposed development.

Adjacent Roadways

MT Highway 200 is a southwest/northeast principle arterial route that extends from Missoula through East Missoula then on to Bonner to the east. The section of highway that passes through East Missoula has a two-lane cross-section with an average paved width of approximately 40 feet, although the shoulder width varies through East Missoula. Northeast

of Staple Street the shoulders narrow giving the highway a paved width of 26 feet. The posted speed limit through east Missoula is 35 MPH and increases to 45 MPH northeast of Staple Street. According to traffic counts conducted by MDT in 2021, the roadway currently carries 5,600 Vehicles per Day (VPD).

Figure 1- Proposed Development Site



Speedway Avenue is a southwest/northeast collector route that extends through the center of East Missoula and connects with Highway 200 in the northeast. Speedway Avenue has a rural two-lane cross-section with a paved width of 24 feet. Speedway Avenue provides residential access south of Highway 200. The posted speed limit along Speedway Avenue is 25 MPH. Speedway Avenue is four-way STOP controlled at the intersections with Sommers Street and Robinson Street and is STOP controlled at the tee-intersection with Highway 200. Traffic data collected by MDT indicates that the road currently carries 1,400 VPD north and 300 VPD south of Deer Creek Road.

Sommers Street is a northwest/southeast local road that provides residential access in East Missoula. Sommers Street extends 2,200 feet southwest from the STOP controlled intersection with Highway 200 before making a 90-degree bend and terminating at a dead-end 825 feet to the northwest. The roadway has a rural paved cross-section with a width of 22 feet and a posted speed limit of 25 MPH. Traffic data collected by ATS in 2021 indicates that the road currently carries 800 VPD.

Robinson Street is a northwest/southeast local road that provides access to residential areas south of Highway 200. The roadway has a rural 24-foot paved cross-section and has a 4-way STOP control at the intersection with Speedway Avenue. Robinson Street terminates at a dead-end 600 feet northwest, and 500 feet southeast of Speedway Avenue. The posted speed limit on Robinson Street is 25 MPH.

Deer Creek Road is an east/west minor arterial route that extends west from a tee-intersection with Speedway Avenue, across the Clark Fork River to the Canyon River-Badmann Golf Club. Deer Creek Road has a rural two-lane cross-section with a paved width of 24 feet. The posted speed limit on Deer Creek Road is 35 MPH. According to traffic counts conducted by MDT in 2020, the roadway currently carries 1,400 VPD.

Waterside Drive is a two-lane north/south local road that provides residential access south of Deer Creek Road along the western bank of the Clark Fork River. The roadway has an urban two-lane cross-section with a width of 29 feet and includes on-street parking. The road is bordered by residential homes only along the east side. Waterside Drive extends 650 feet south from a tee-intersection with Deer Creek Road before terminating at a dead-end.

Traffic Counts

In October 2021, Abelin Traffic Services (ATS) collected traffic data at area intersections to evaluate current operational characteristics. These counts included peak-hour turning movement counts and 24-hour volume counts along Sommers Street and Speedway Avenue south of Deer Creek Road. Peak-hour turning movement counts were performed at the intersections of Sommers Street with Highway 200, and Speedway Avenue and at the intersections with Robinson Street, Deer Creek Road, and Highway 200. Additional data was collected for the intersection of Deer Creek Road with Waterside Drive. The raw traffic data is included in **Appendix A** of this report.

Generally, raw traffic data is adjusted for seasonal variation using automatic count site data. However, with the impact of the COVID-19 outbreak, traffic data must also be reviewed for pandemic related variation. ATS obtained traffic data from MDT's automatic continuous count site located on Van Buren Street in Missoula (Site # A-067). The continuous count data indicates the traffic counts collected on October 6th and 7th are 107-108% of the 2019 AADT (Average Annual Daily Traffic) in this area (2020 traffic volumes for site A-67 were abnormally low). For a conservative result no factorization was applied to the raw data for the analysis of this project.

Vehicle speed data was also collected along Sommers Street just north of the intersection with Speedway Avenue. This information suggested that the average vehicle speed on Sommers Street was 24 MPH with an 85th percentile speed of 29 MPH for all recorded vehicles. In general, vehicle travel speeds on this section are in line with the posted 25 MPH speed limit.

Pedestrian & Bicycle Traffic

ATS reviewed the October 2021 traffic video for Speedway Avenue and Sommers Street to evaluate the existing pedestrian and bicycle usage along these routes. During the October traffic data collection periods, 10-15 pedestrians and bicycles per hour were observed going through the intersection at Sommers Street and Speedway Avenue during the AM and PM peak traffic periods. Similarly, 10-20 pedestrians and bicycles per hour were observed crossing the intersection at Robinson Street and Speedway Avenue during the peak periods. Currently, most of the routes within East Missoula do not have existing pedestrian facilities. The only study routes with existing sidewalks are on the east side of Waterslide Drive.

The Missoula Connect Long Range Transportation Plan 2050 includes recommendations for improvements to pedestrian facilities within East Missoula. Illustrative project #1 recommends the development of a pedestrian/bike trail along Deer Creek Road and Speedway Avenue between River Road and US Hwy 200 (estimated cost $718,450). Additionally, projects 215 and 216 recommend establishing greenways along Sommers Street and Speedway Avenue.

Bus Routes

The Missoula Mountain Line Bus operates a route daily from downtown Missoula to East Missoula down Speedway Avenue with a stop at Speedway Avenue and Staple Street (Route 4). The bus then continues east to Bonner and returns every 60 minutes. The route operates seven days a week during normal operating hours. The existing bus stop location at Speedway Avenue and Staple Street is 1,300 feet from the proposed Aspire Subdivision.

Historic Traffic Data

Abelin Traffic Services obtained historic traffic data for area roadways from the Montana DOT which is presented in **Table 1**. The traffic data history for this area indicates that traffic volumes in this area have increased at an average annual rate of 1.5% over this time period. This growth rate was used to factor raw data to projected 2030 volumes for intersection analysis upon completion of the Aspire Subdivision.

Additional Projects

Phases 8-12 of the Canyon River residential development are currently planned to the east of the proposed development site along Deer Creek Road. The five remaining phases of the project includes 84 single-family residential homes which are planned to be constructed over the next ten years. An additional 57 remain to be constructed from Phases 1-7. At full buildout the project will add an additional 1,331 daily vehicle trips to Deer Creek Road and the surrounding road network. The additional traffic from this development was included in the

future traffic projections for this analysis.

Table 1 – Historic Average Daily Traffic Data

Location	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Highway 200 E of Staple St #32-3A-269	3,910	3,850	4,880	4,370	4,019	4,262	4,266	4,292	3,992	5,612
Speedway Ave N of Deer Ck Rd #32-3A-270	950	960	960	1,000	997	1,204	1,205	1,212	1,127	1,461
Speedway Ave S of Deer Ck Rd #32-3A-272	290	290	290	300	317	314	319	321	299	323
Deer Creek Road E of Speedway Av #32-3A-271	820	830	830	860	1,127	1,258	1,375	1,354	1,259	1,432

East Missoula Highway 200 Corridor Plan

The East Missoula Highway 200 Corridor Plan (EMCP) adopts recommendations from the Activate Missoula 2045 Long Range Transportation Master Plan- 2018 (AMLRTP). Recommendations for improvements to the roadways and pedestrian facilities along the Highway 200 corridor through East Missoula include extending the roadway to a three-lane cross-section, improving intersection geometry, and improving pedestrian facilities. According to the EMCP these improvements are the third highest rank for recommended plans in the AMLRTP.

Missoula Connect Long Range Transportation Plan

The Missoula Connect Long Range Transportation Plan 2050 (LRTP) includes recommendations for improvements to the roadways and pedestrian facilities along this section of Highway 200. The recommended improvements include creating a complete street including curb and gutter, pedestrian crossings, and a lighted corridor from Highton Street to Staple Street (project 116). Plans also include multimodal improvements such as bus stops and bicycle lanes (project 86). This project is currently in the planning phase and is listed as a recommended medium-term project with completion between 2026 and 2035. The LRTP does address potential future growth along Highway 200 by widening the roadway to a three-lane cross-section. The common theme from the EMCP and LRTP are the recommended three lanes roadway expansion to improve roadway capacity long Highway 200 and the associated pedestrian improvements for the route.

Level of Service

Using the data collected for this project, ATS conducted a Level of Service (LOS) analysis at area intersections. This evaluation was conducted in accordance with the procedures outlined in the Transportation Research Board's *Highway Capacity Manual 7th Edition: A Guide for Multimodal Mobility Analysis* and the Highway Capacity Software (HCS) version 8.2. 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 LOS for the AM and PM peak hours without the traffic from the proposed development. The LOS calculations are included in **Appendix C**. The table shows that all intersections are currently functioning at acceptable levels with reserve capacity for future growth.

Table 2 – 2021 Level of Service Summary

	AM Peak Hour		PM Peak Hour	
Intersection	**Delay (Sec.)**	**LOS**	**Delay (Sec.)**	**LOS**
Highway 200 & Sommers Street*	14.8/10.6	B/B	19.5/11.4	C/B
Highway 200 & Speedway Avenue*	11.2	B	13.1	B
Sommers Street & Speedway Avenue	7.2	A	7.1	A
Speedway Avenue & Robinson Street	7.0	A	7.1	A
Speedway Avenue & Deer Creek Road*	8.5	A	8.9	A
Deer Creek Road & Waterside Drive*	8.9	A	9.2	A

*Eastbound/Westbound or Northbound/Southbound Side Street LOS and Delay

Table 3 shows the projected 2030 LOS for the AM, and PM peak hours with the anticipated background traffic growth and the estimated traffic from Phases 8-12 of the Canyon River residential development, but without any estimated traffic from the Aspire Subdivision. The table shows that most of the intersections in this area will function at acceptable levels through 2030 with the planned developments and anticipated background growth in this area, but the intersection of Highway 200 & Sommers Street may begin to experience peak-hour operation issues by this time without any development within the Aspire Subdivision.

Area Crash Data

ATS collected crash data from MDT's public crash site to assess intersections for geometric, traffic control, and roadway characteristic deficiencies. Generally, crashes are expressed as a

rate of crashes per million vehicles entering (MVE). Crash rates at rural and urban intersections in Montana typically range from 0 to 1.5 crashes per MVE. The 5-year MDT data indicates that only one crash has occurred at all area intersections analyzed in this traffic study. This crash occurred at the intersection of Speedway Avenue with Highway 200. The crash rate at this intersection is 0.1 crashes per MVE. The crash rates indicate that no geometric, roadway characteristic, or traffic control deficiencies exist in the area and no roadway improvements are necessary to improve traffic safety.

Table 3 – 2030 Level of Service Summary with Canyon River Phases 8-12

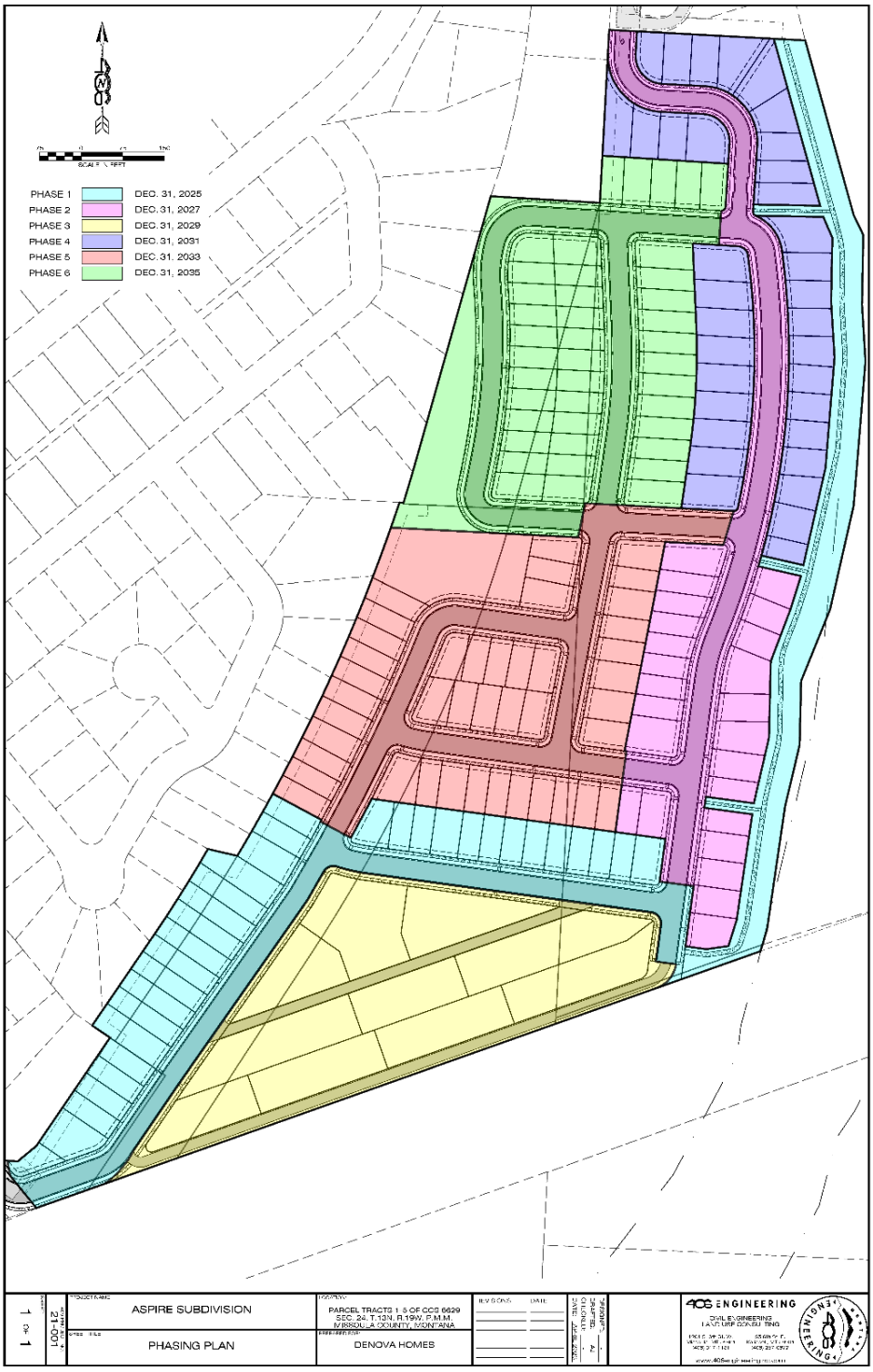
	AM Peak Hour		PM Peak Hour	
Intersection	**Delay (Sec.)**	**LOS**	**Delay (Sec.)**	**LOS**
Highway 200 & Sommers Street*	19.0/11.5	C/B	28.6/13.3	D/B
Highway 200 & Speedway Avenue*	12.8	B	17.1	C
Sommers Street & Speedway Avenue	7.2	A	7.2	A
Speedway Avenue & Robinson Street	7.1	A	7.2	A
Speedway Avenue & Deer Creek Road*	8.9	A	9.4	A
Deer Creek Road & Waterside Drive*	9.6	A	10.1	B

*Eastbound/Westbound or Northbound/Southbound Side Street LOS and Delay

D. PROPOSED DEVELOPMENT

The Aspire Subdivision development is currently proposed in the southeast portion of East Missoula along the Clark Fork River. The land to be developed is a 35.2-acre parcel of undeveloped property along the banks of the river. The development is planned to include two connections to the west at Sommers Street and to the north to Waterside Drive and Deer Creek Road. The developers explored providing an additional connection to Robinson Street and/or Montana Avenue, but these connections were not viable. Upon completion by 2030, the development would include 178 single-family residential units and 80 multi-family (condo/townhouse) units. The property would be annexed into the City of Missoula. The development is to include internal roadways built to City of Missoula specifications for lane widths and will include pedestrian sidewalks throughout and a 1.59-acre common area. The developers would also plan to widen all of Sommers Street from the development boundary to Highway 200 to include 11-foot travel lanes, on-street parking, and pedestrian sidewalks on both sides. The Aspire Subdivision development site plan is shown in **Figure 2**.

Figure 2- Proposed Development



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). These rates are the national standard and are based on the most current information available to 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, at full build-out the Aspire Subdivision would produce 169 AM peak hour trips, 221 PM peak hour trips, and 2,266 daily trips. See **Table 4** for detailed trip generation information

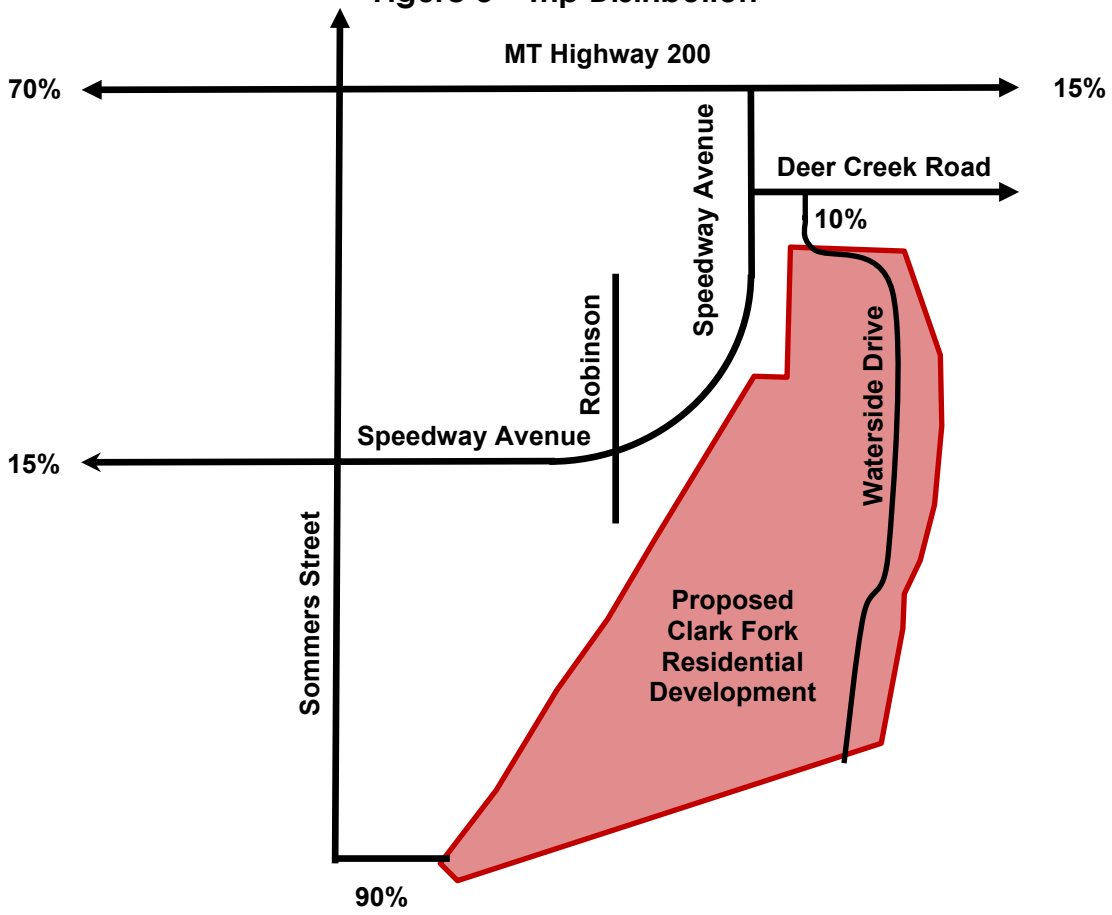
Table 4 - Trip Generation Rates

Land Use	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
Single Family #210	178	0.74	132 (33in/99out)	0.99	176 (111in/65out)	9.44	1,680
Condominium #220	80	0.46	37 (9in/28out)	0.56	45 (28in/17out)	7.32	586
Total	**258**		**169 (42in,127out)**		**221 (139in/82out)**		**2,266**

F. TRIP DISTRIBUTION

The traffic distribution and assignment for the proposed development was based upon the existing ADT volumes along the adjacent roadways and the peak-hour turning volumes. Most of the traffic from this location would head into Missoula using MT Highway 200 Via Speedway Avenue and Sommers Street (90%). While the road would connect to Waterslide Drive to the north, it is not expected that a large amount of traffic from the project would use this route. The majority of traffic from the development will use Speedway Avenue and Sommers Street to travel west from the development. Only vehicles near the north end of the development with destinations along Deer Creek Road or traveling east on Highway 200 would benefit from using Waterslide Drive to the north as the route distance is farther and slower from every point within the Aspire Subdivision for drivers traveling west. With the planned improvements to Sommers Street to improve the capacity and roadway operations, it is expected that 10% or less of the total traffic from the Aspire Subdivision would use Waterslide Drive to the north. The Traffic is expected to distribute onto the surrounding road network as shown on **Figure 3**. See the model in **Appendix B** for detailed trip distribution information.

Figure 3 – Trip Distribution



G. TRAFFIC IMPACTS OUTSIDE OF THE DEVELOPMENT

Using the trip generation and trip distribution numbers, ATS determined the future Level of Service for the area intersections. The anticipated intersection LOS with the Sommers Subdivision and the remaining 141 homes from the Canyon River residential development is shown in **Table 5**. The traffic volume calculations are included in **Appendix B** of this report. As the table shows, the addition of the Aspire Subdivision and the anticipated background traffic volume growth in this area will create additional delays at the area intersections.

Table 5 – Projected Level of Service with Development

	AM Peak Hour		PM Peak Hour	
Intersection	**Delay (Sec.)**	**LOS**	**Delay (Sec.)**	**LOS**
Highway 200 & Sommers Street*	25.7/11.6	D/B	47.1/14.9	E/B
Highway 200 & Speedway Avenue*	13.4	B	18.2	C
Sommers Street & Speedway Avenue	7.7	A	7.8	A
Speedway Avenue & Robinson Street	7.1	A	7.2	A
Speedway Avenue & Deer Creek Road*	9.1	A	9.5	A
Deer Creek Road & Waterside Drive*	9.9	A	10.6	B

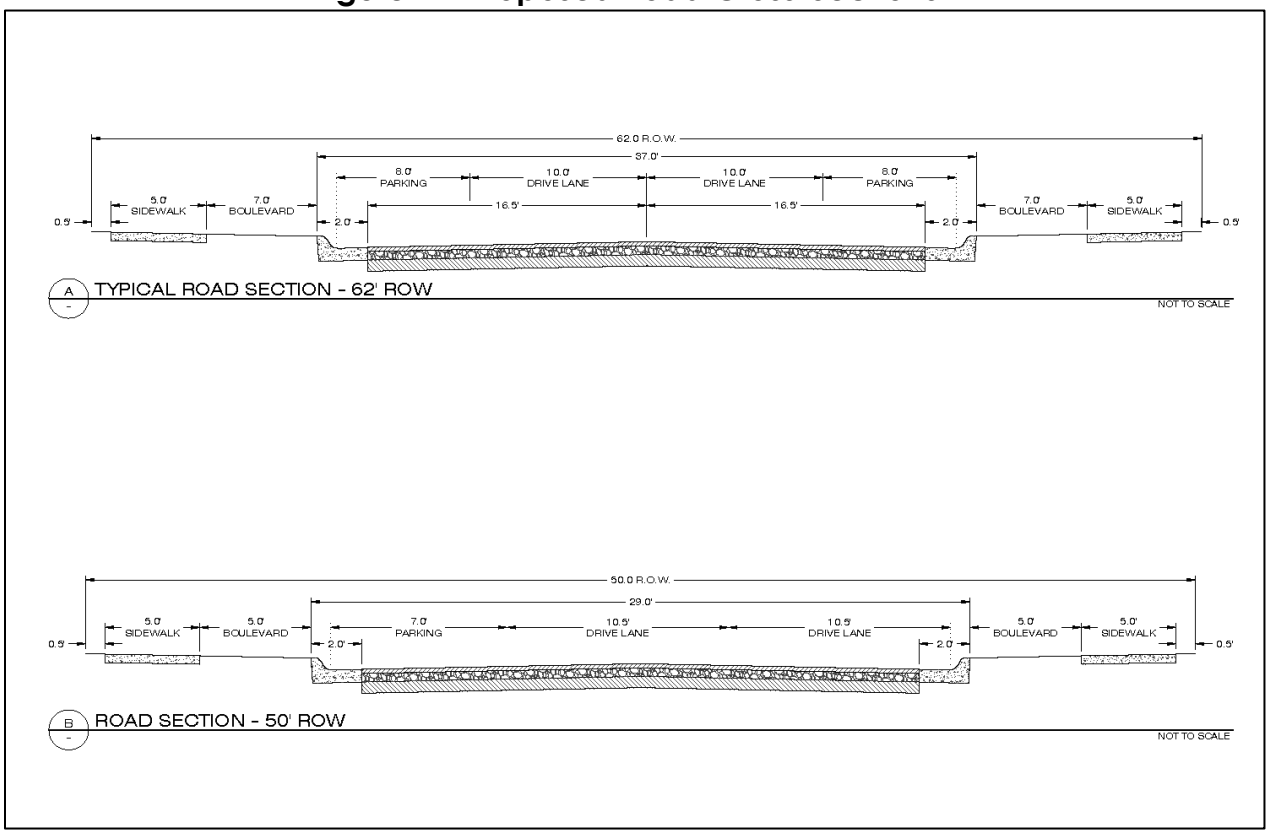
*Eastbound/Westbound or Northbound/Southbound Side Street LOS and Delay

The direct traffic impact from the Aspire Subdivision development would be increases of 13 to 14 percent at the two Highway 200 intersections and from 55 to 60 percent at the other intersections along Speedway Avenue. Although the percent of impact is high at the intersections along Speedway Avenue and at Waterside Drive, the total volumes along these roads will remain relatively low and the intersections will function with reserve capacity to support growth well into the future. Traffic volumes will likely reach 2,900 VPD along Sommers Street, 1,800 VPD along Speedway Avenue north of Dear Creek Road and 1,600 along Speedway Avenue near the middle of the project. Total traffic volumes along Highway 200 will likely reach 7,700 VPD by 2030 with the Aspire Subdivision. As traffic volumes in this area increase, it may become necessary to provide roadway and intersection modifications along Highway 200. As this area continues to develop, the need for widening Highway 200 to a three-lane facility through East Missoula as recommended in the *Missoula Connect Long Range Transportation* Plan will increase. The Aspire Subdivision will contribute to the need for the widening along Highway 200. Sommers Street is currently paved to a width of 22 feet which is below the minimum paved width for local County and City streets. It may be necessary to widen Sommers Street to 24 feet to improve traffic flow with the Aspire Subdivision. Under this configuration traffic volumes along Sommers Street will increase by 2,000 VPD and traffic volumes on Waterslide Drive will increase by approximately 200 to 300 VPD. The proposed cross-section for the proposed Sommers Street is shown in **Figure 4**. The developers would also waive the right to protest any future SID created to provide roadway improvements in this area.

The four-way STOP controlled intersections of Speedway Avenue with Sommers Street and Robinson Street will help control traffic speeds through this area and will maintain a high LOS for these intersections and has considerable reserve capacity (300 percent). While additional intersection improvements such as roundabout would be possible at the Speedway Avenue/

Sommers Street intersection, this additional traffic control would not be necessary for the projected traffic volumes and the right-of-way required to implement a roundabout would severely impact adjacent landowners.

Figure 4 – Proposed Road Cross-Sections



The projected LOS for the intersection of Speedway Avenue and Highway 200 is D and E for the peak hours. It is possible for residents of the Aspire Subdivision to divert and use Speedway Avenue to Highway 200 to attain better access onto Highway 200, but the LOS issues at the Summers Street intersection will likely remain above the desired condition. Although the intersection of Sommers Road with Highway 35 will reach LOS E conditions by 2030, it is unclear if signalization warrants will be met at the intersection. A grade of LOS E alone is not sufficient to warrant a traffic signal on an MDT controlled route. Unless traffic volumes reach certain minimum daily thresholds, a traffic signal may not be approved. Current projections for this intersection suggest that peak-hour traffic would not be sufficient to warrant signalization (see **Figure 5**). It should also be noted that the intersection will likely reach LOS D conditions by 2030 regardless of any development of the Sommers Subdivision due to background traffic volume growth in this area. If a traffic signal were developed at the Speedway Avenue/Highway 200 intersection, the operations would be LOS A for the peak traffic periods. The planned improvements to Highway 200 to a three-lane facility would improve the LOS at this intersection

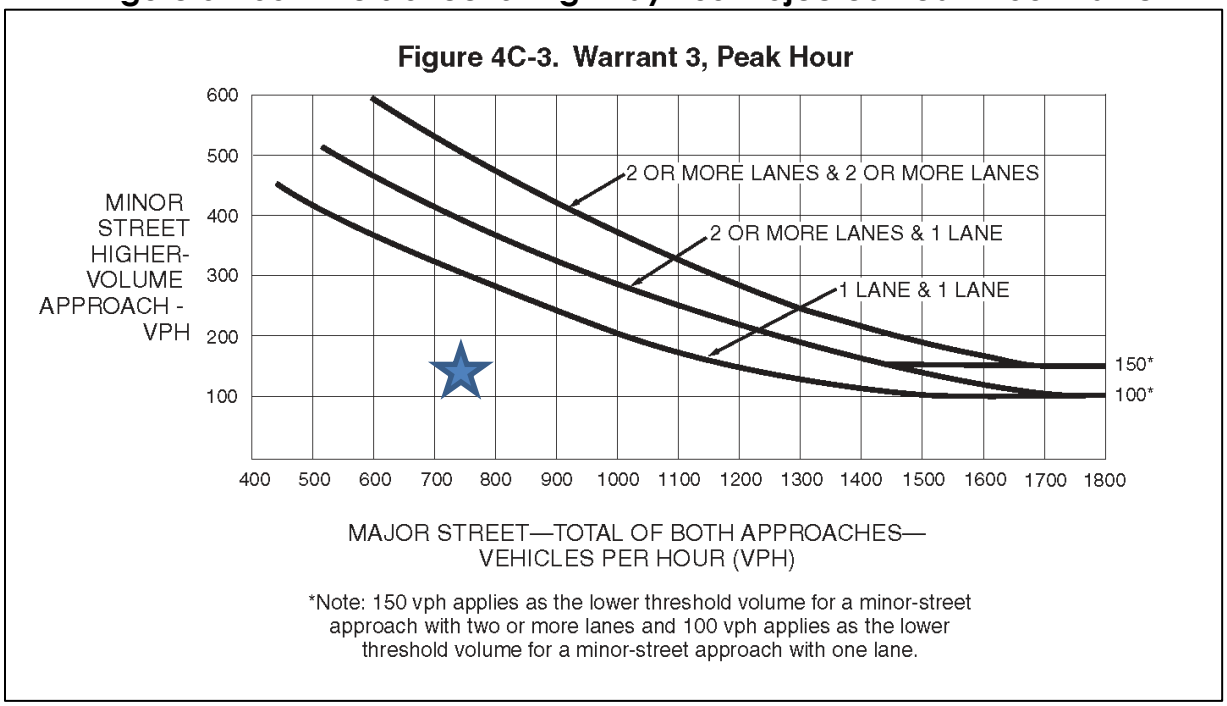
but would not bring it to LOS C conditions alone. The developers will work with Missoula County and MDT to help implement the planned widening of Highway 200 through East Missoula and monitor the traffic conditions at the intersection of Highway 200 and Sommers Street during the development process to determine if a traffic signal is warranted at this intersection through 2030.

The total traffic impacts Waterslide Drive will be low with an expected increase in traffic of 200 to 300 VPD with the full access configuration to the surrounding roadway. Typically, the operational capacity of a low volume local road is expected to be in the range of 1,000 to 1,500 VPD. At full buildout of the Sommer Subdivision, Waterslide Drive will operate at less than half of expected capacity for a two-lane local roadway (500 to 600 VPD).

H. IMPACT SUMMARY & RECOMMENDATIONS

As proposed, the Aspire Subdivision will increase traffic volumes on the surrounding road network by 300 to 2,100 VPD. The developers would also plan to widen all of Sommers Street from the development boundary to Highway 200 with on-street parking and pedestrian sidewalks on both sides. It is recommended that the developers work with Missoula County and MDT to help implement the planned widening of Highway 200 through East Missoula and monitor the traffic conditions at the intersection of Highway 200 and Sommers Street during the development process to determine if a traffic signal is warranted at this intersection through 2030.

Figure 5 – Sommers Street & Highway 200 Projected Peak-hour Traffic



APPENDIX A

Traffic Data

Summary of Turning Movement Counts
Study Name Sommers & 200
Observer
Location
Weather
Date 10/7/2021

	Northbound			Southbound			Eastbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total All
7:30 AM	15	0	0	0	0	7	1	25	5	0	87	0	140
7:45 AM	15	0	0	0	0	10	1	41	2	0	86	0	155
8:00 AM	7	0	0	0	0	3	2	29	2	0	61	0	104
8:15 AM	7	0	1	0	0	1	0	35	1	0	58	0	103
	44	0	1	0	0	21	4	130	10	0	292	0	502

	Northbound			Southbound			Eastbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total All
4:30 PM	6	0	2	0	0	2	3	105	17	1	78	0	214
4:45 PM	9	0	1	0	0	2	6	78	14	0	64	0	174
5:00 PM	7	1	0	0	0	3	6	101	15	1	85	1	220
5:15 PM	6	0	1	0	0	5	12	99	19	2	58	0	202
Total	28	1	4	0	0	12	27	383	65	4	285	1	810

Summary of Turning Movement Counts
Study Nam Sommers and Speedway
Observer
Location
Weather
Date 10/7/2021

	Northbound			Southbound			Eastbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total All
7:30 AM	0	6	0	1	0	0	0	3	1	2	0	4	17
7:45 AM	1	8	1	2	4	0	0	0	0	0	3	3	22
8:00 AM	0	3	0	0	1	1	0	0	0	1	1	2	9
8:15 AM	0	1	1	1	1	0	0	1	0	0	0	3	8

	Northbound			Southbound			Eastbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total All
4:30 PM	0	3	0	6	5	0	0	1	0	0	0	4	19
4:45 PM	1	5	0	0	8	0	0	3	2	2	2	2	25
5:00 PM	0	3	1	2	7	1	1	2	1	3	2	1	24
5:15 PM	0	4	2	6	9	1	0	3	0	2	0	0	27

Summary of Turning Movement Counts
Study Nam Speedway & 200
Observer
Location
Weather
Date 10/7/2021

	Northbound			Southbound			Eastbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total All
7:30 AM	11	0	1	0	0	0	0	11	9	3	57	0	92
7:45 AM	12	0	2	0	0	0	0	33	9	5	53	0	114
8:00 AM	15	0	0	0	0	0	0	18	10	2	31	0	76
8:15 AM	8	0	2	0	0	0	0	22	9	2	36	0	79

	Northbound			Southbound			Eastbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total All
4:30 PM	20	0	5	0	0	0	0	60	14	6	48	0	153
4:45 PM	16	0	6	0	0	0	0	52	18	5	42	0	139
5:00 PM	29	0	2	0	0	0	0	55	21	3	46	0	156
5:15 PM	17	0	5	0	0	0	0	61	19	2	31	0	135
Total	82	0	18	0	0	0	0	228	72	16	167	0	583

Summary of Turning Movement Counts
Study Name Deer Creek & Speedway
Observer
Location
Weather
Date 10/7/2021

	Northbound			Southbound			Eastbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total All
7:30 AM	0	2	1	10	3	0	0	0	0	0	0	7	23
7:45 AM	0	2	0	9	2	0	0	0	0	0	0	12	25
8:00 AM	0	0	0	10	0	0	0	0	0	0	0	12	22
8:15 AM	0	0	2	11	0	0	0	0	0	0	0	9	23

	Northbound			Southbound			Eastbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total All
4:30 PM	0	4	1	12	5	0	0	0	0	1	0	20	43
4:45 PM	0	6	1	14	5	0	0	0	0	0	0	16	42
5:00 PM	0	2	1	17	5	0	0	0	0	1	0	25	51
5:15 PM	0	6	0	16	2	0	0	0	0	2	0	16	42
Total	0	18	3	59	17	0	0	0	0	4	0	77	178

Summary of Turning Movement Counts
Study Nam Robinson & Speedway
Observer
Location
Weather
Date 10/7/2021

	Northbound			Southbound			Eastbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total All
7:30 AM	2	2	0	1	0	0	0	1	1	0	4	0	11
7:45 AM	0	5	0	2	0	2	2	1	0	1	0	0	13
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	1	0	0	0	0	0	0	2	0	0	3	0	6

	Northbound			Southbound			Eastbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total All
4:30 PM	0	0	0	1	0	0	1	5	1	0	8	0	16
4:45 PM	2	0	0	3	0	0	0	4	0	1	3	0	13
5:00 PM	0	0	0	0	0	0	0	4	2	1	6	0	13
5:15 PM	1	1	0	1	0	0	1	5	0	1	1	2	13

Summary of Turning Movement Counts
Study Nam Deer Creek & Waterside
Observer
Location
Weather
Date 10/7/2021

	Northbound			Southbound			Eastbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total All
7:30 AM	0	0	0	0	0	0	0	11	0	0	7	0	18
7:45 AM	0	0	0	0	0	0	0	9	0	0	12	0	21
8:00 AM	0	0	0	0	0	0	0	10	0	0	12	0	22
8:15 AM	1	0	0	0	0	0	0	12	1	0	9	0	23

	Northbound			Southbound			Eastbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total All
4:30 PM	0	0	0	0	0	0	0	13	0	0	21	0	34
4:45 PM	2	0	0	0	0	0	0	13	2	0	19	0	36
5:00 PM	1	0	0	0	0	0	0	17	1	0	25	0	44
5:15 PM	0	0	0	0	0	0	0	15	1	0	18	0	34
Total	3	0	0	0	0	0	0	58	4	0	83	0	148

Basic Volume Report: SPEEDWAY MISSU

Station ID : SPEEDWAY MISSU
Info Line 1 : ATS
Info Line 2 : UNICORN 5
GPS Lat/Lon :
DB File : SPEEDWAY MISSU.DB

Last Connected Device Type : Unic-L
Version Number : 1.50
Serial Number :

Number of Lanes : 1
Posted Speed Limit : 0.0 mph

Lane #4 Configuration

#	Dir.	Information	Volume Mode	Volume Sensors	Divide By 2	Comment
4.		E/W	Normal	Axle	Yes	

Lane #4 Basic Volume Data From: 17:00 - 10/06/2021 To: 13:59 - 10/11/2021

Date	DW	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
100621	W																		33	48	27	14	7	9	2	140
100721	T	1	1	2	1	1	0	10	25	16	11	28	23	28	44	20	29	38	32	38	25	14	12	3	7	409
100821	F	4	1	0	0	4	0	10	27	14	11	28	28	38	39	33	34	56	36	39	23	15	10	11	6	467
100921	S	2	4	4	0	0	2	2	14	16	15	25	28	32	40	34	37	47	33	18	19	11	14	4	3	404
101021	S	2	5	1	1	0	4	4	7	5	14	25	27	42	28	43	33	37	36	20	17	17	12	3	6	389
101121	M	3	0	0	2	1	5	7	24	17	20	21	26	38	46											210
Month Total :		12	11	7	4	6	11	33	97	68	71	127	132	178	197	130	133	178	170	163	111	71	55	30	24	2019
Percent :		1%	1%	0%	0%	0%	1%	2%	5%	3%	4%	6%	7%	9%	10%	6%	7%	9%	8%	8%	5%	4%	3%	1%	1%	
ADT :		2	2	1	1	1	2	7	19	14	14	25	26	36	39	33	33	45	34	33	22	14	11	6	5	425

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
DW Totals :	389	210	0	140	409	467	404
# Days :	1.0	0.6	0.0	0.3	1.0	1.0	1.0
ADT :	389	360	0	480	409	467	404
Percent :	19%	10%	0%	7%	20%	23%	20%

	Total	Percent
Weekday (Mon-Fri) :	1226	61%
ADT :	426	
Weekend (Sat-Sun) :	793	39%
ADT :	397	

APPENDIX B

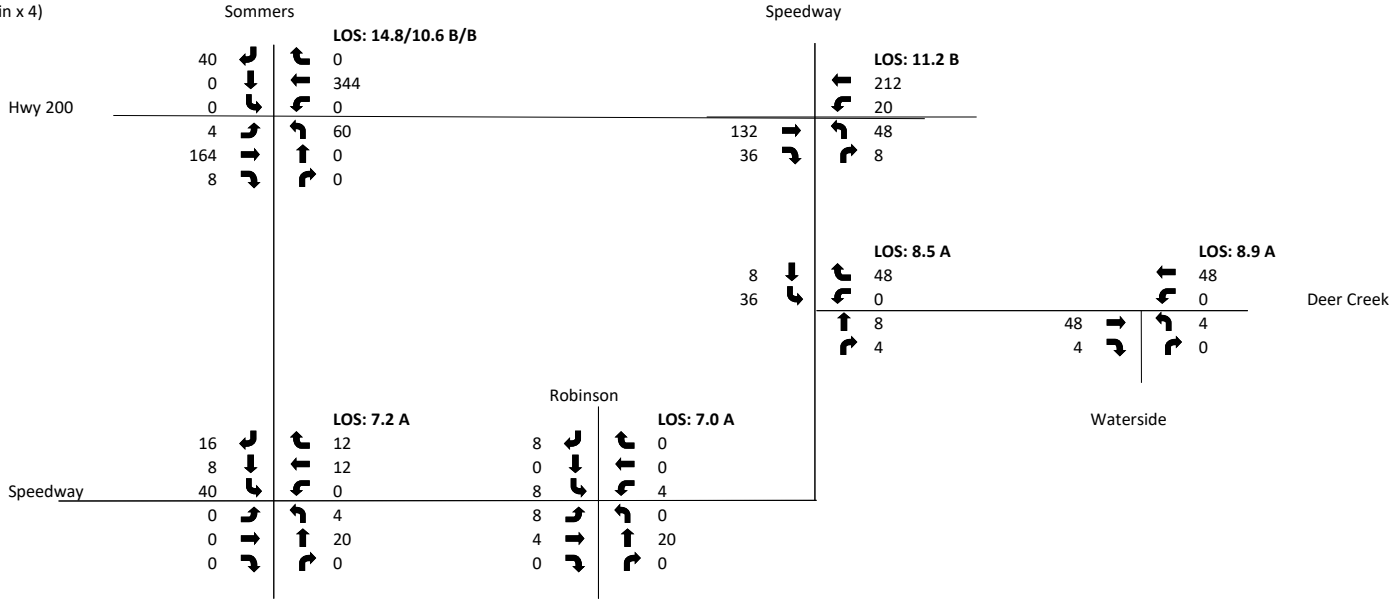
Traffic Model

Aspire Subdivision **Seasonal/Covid Factor** **1**

Traffic Model

Existing 2021 AM Peak Hour

(15 Min x 4)

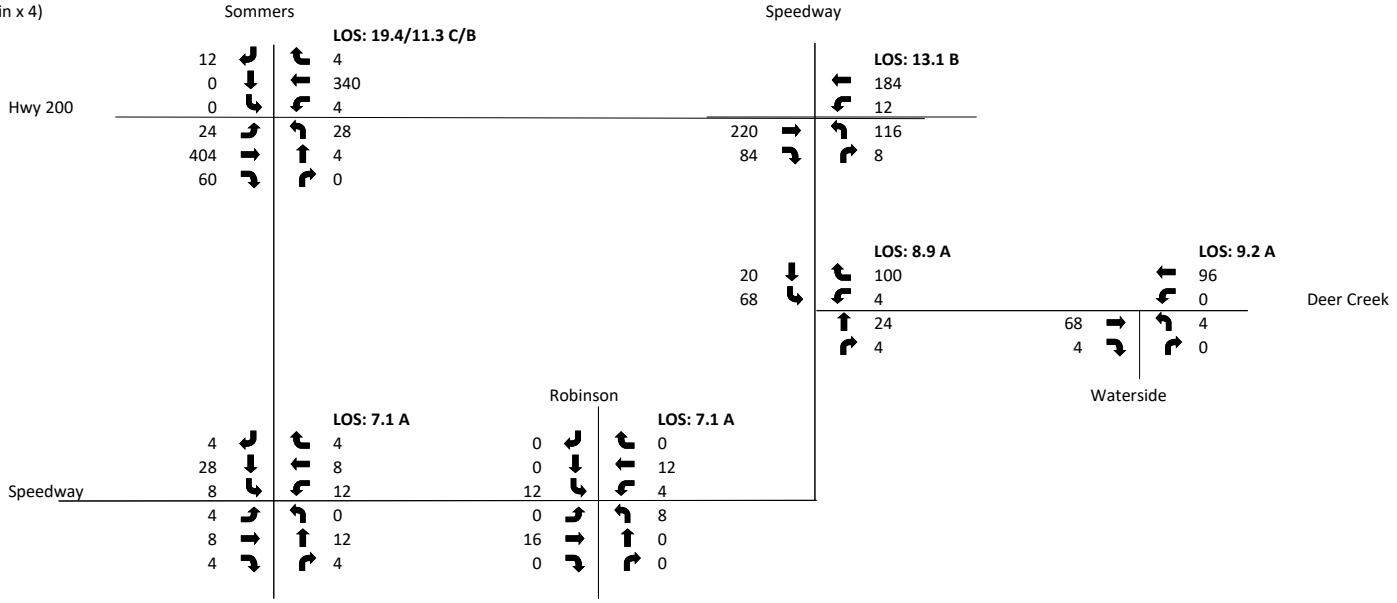


Sommers Subdivision

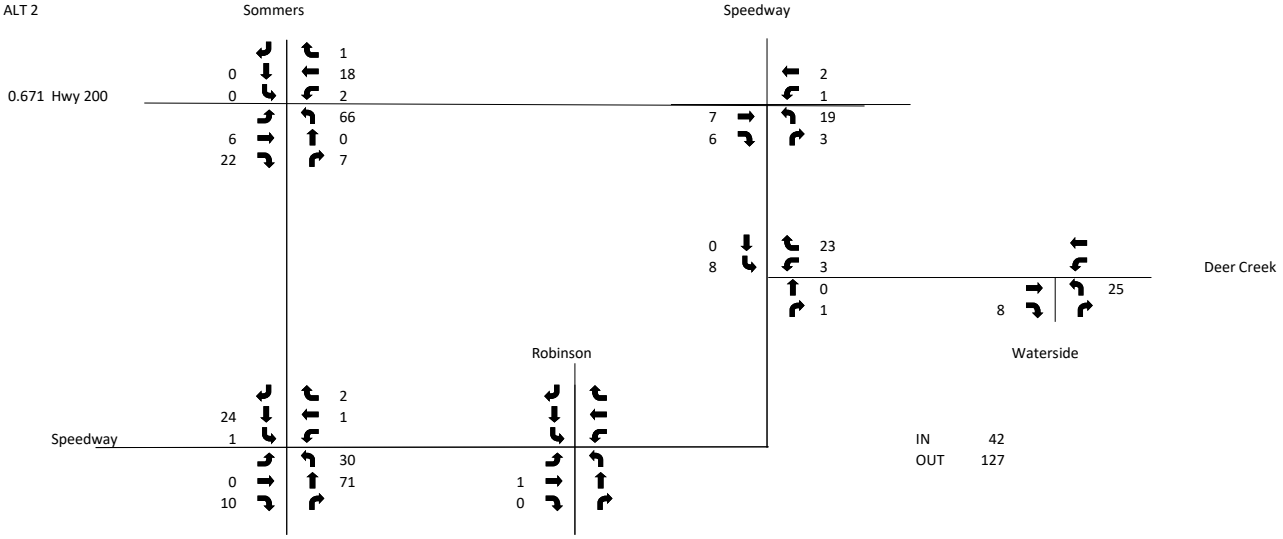
Traffic Model

Existing 2021 PM Peak Hour

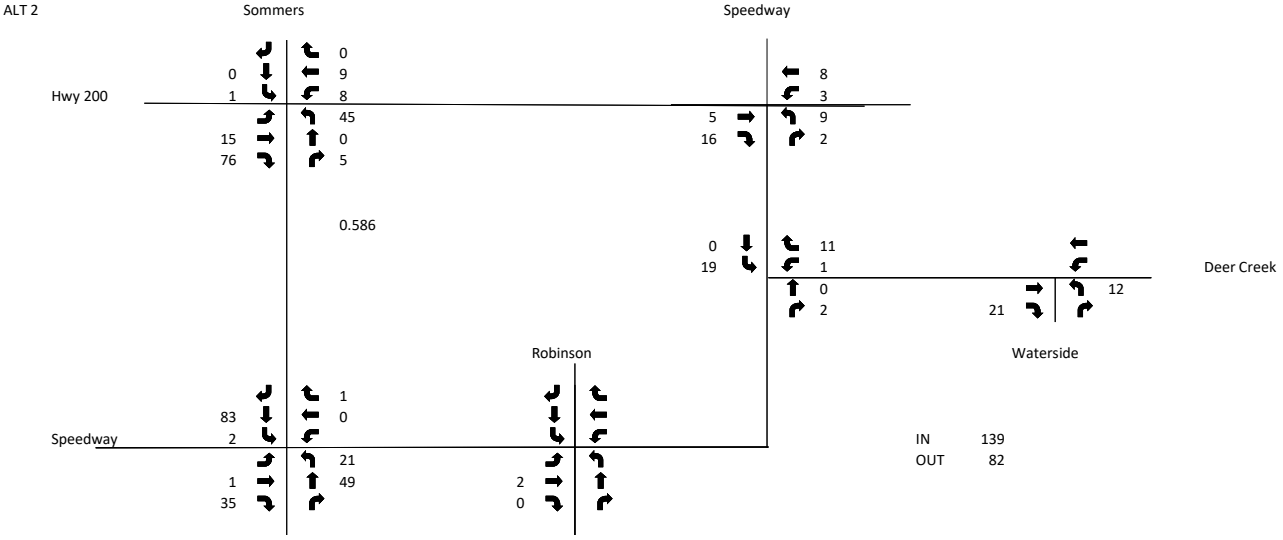
(15 Min x 4)



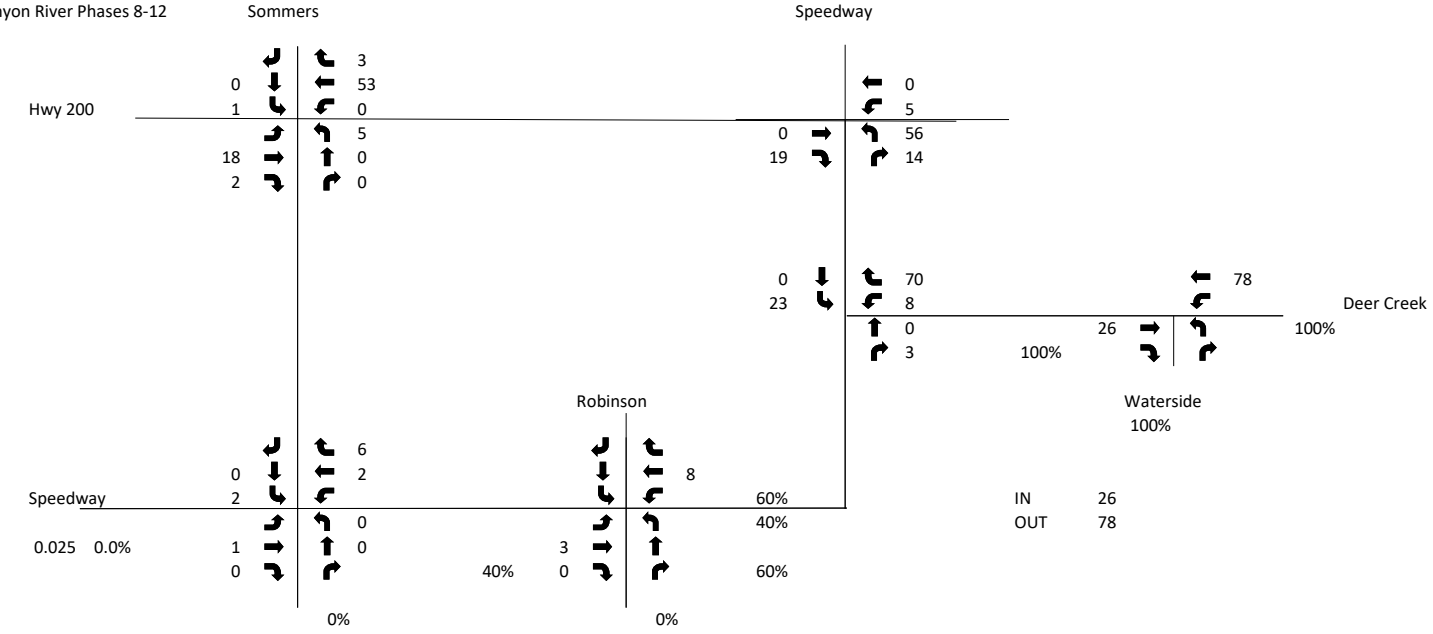
Aspire Subdivision
Traffic Model
AM Site Generated Traffic
ALT 2



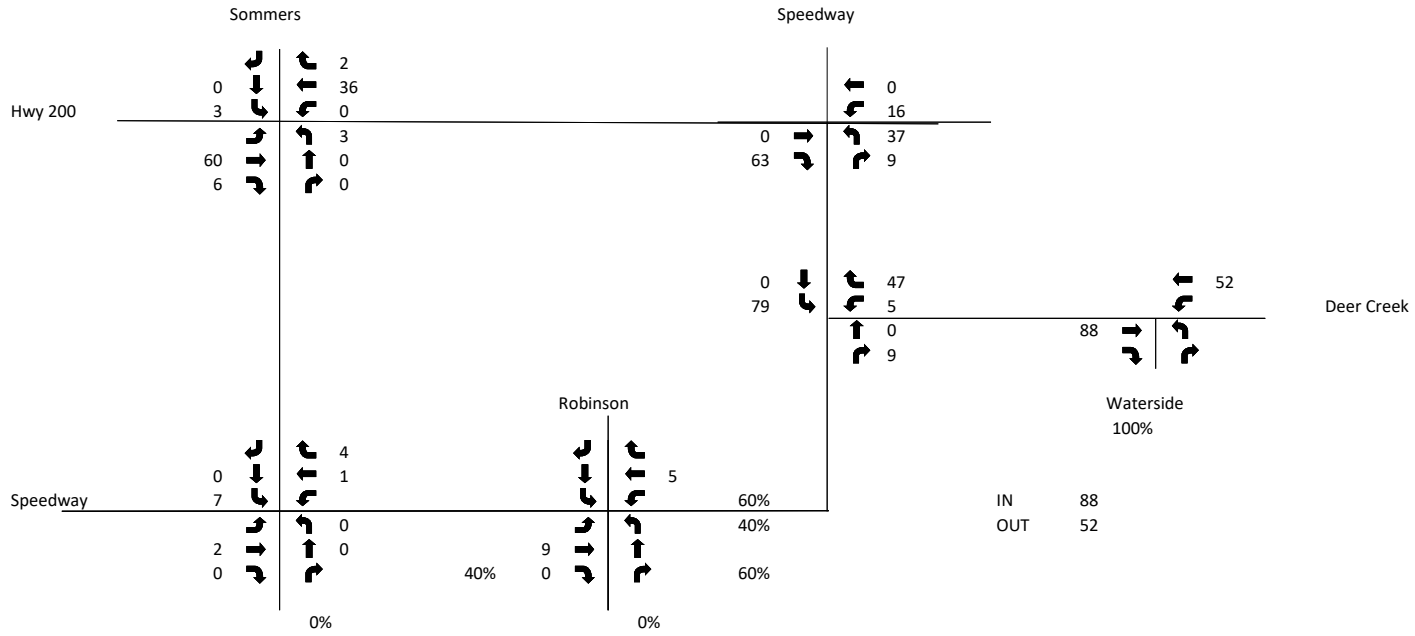
PM Site Generated Traffic
ALT 2



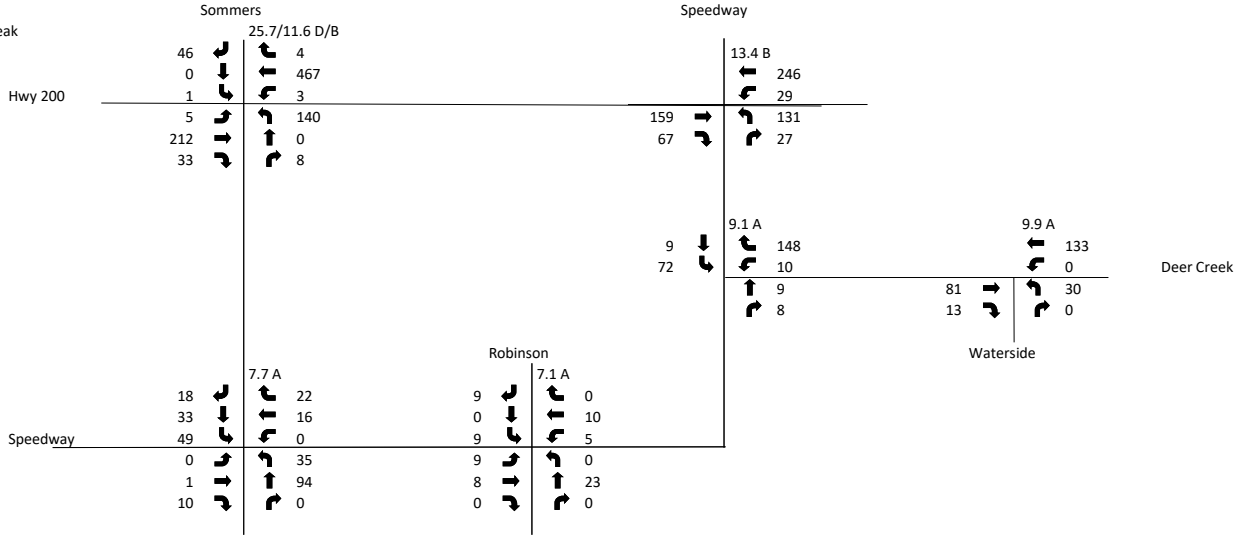
Aspire Subdivision
Traffic Model
AM Site Generated Traffic
Canyon River Phases 8-12



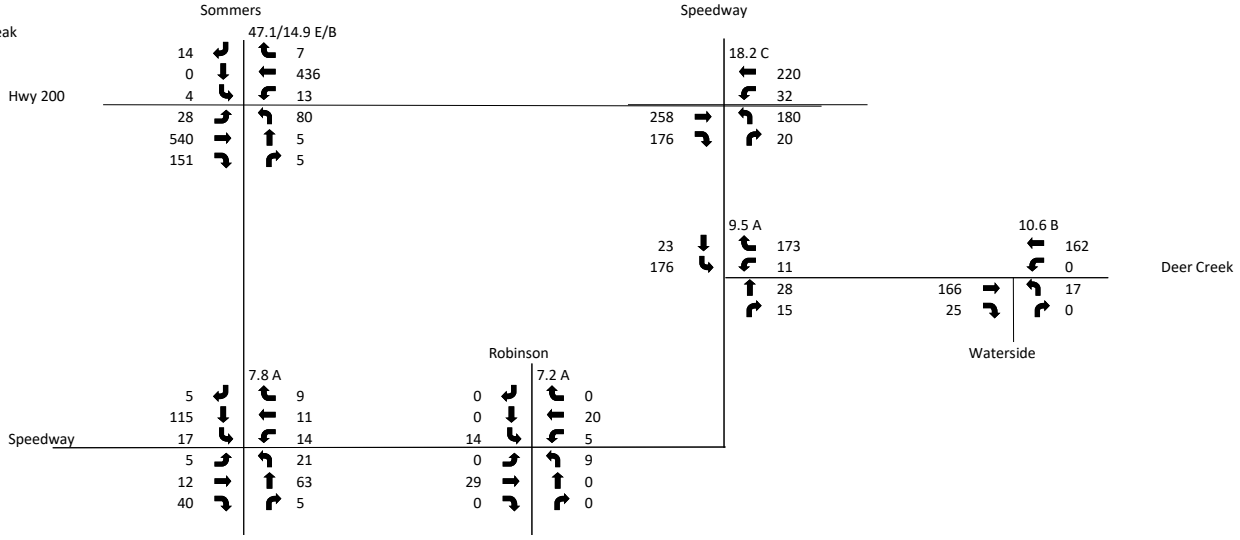
PM Site Generated Traffic
ALT 1



Aspire Subdivision **Growth Rate** **0.015**
Traffic Model **Growth Factor** **1.15**
Total Projected Traffic
ALT2
AM Peak



Sommers Subdivision
Traffic Model
Total Projected Traffic
ALT 2
PM Peak



APPENDIX C

LOS Calculations

HCS Two-Way Stop-Control Report

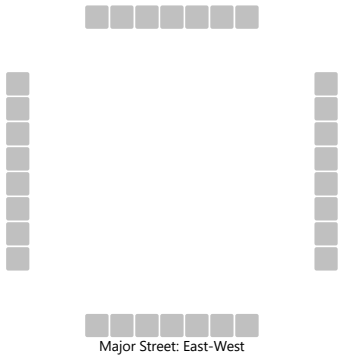
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2021
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	Aspire Subdivision

Site Information

Intersection	Hwy 200 & Sommers
Jurisdiction	MDT
East/West Street	Hwy 200
North/South Street	Sommers
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		4	164	8		1	344	1		60	1	1		1	1	40
Percent Heavy Vehicles (%)		3				3				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.10	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4				1					62				42	
Capacity, c (veh/h)		1208				1399					429				686	
v/c Ratio		0.00				0.00					0.14				0.06	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.5				0.2	
Control Delay (s/veh)		8.0	0.0	0.0		7.6	0.0	0.0			14.8				10.6	
Level of Service (LOS)		A	A	A		A	A	A			B				B	
Approach Delay (s/veh)	0.2				0.0				14.8				10.6			
Approach LOS	A				A				B				B			

HCS Two-Way Stop-Control Report

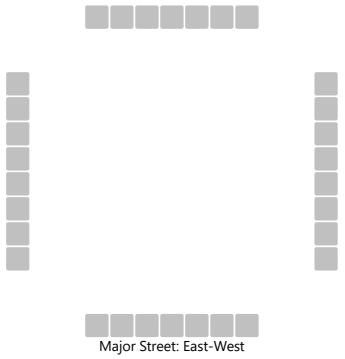
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2021
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	Aspire Subdivision

Site Information

Intersection	Hwy 200 & Sommers
Jurisdiction	MDT
East/West Street	Hwy 200
North/South Street	Sommers
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		24	404	60		4	340	4		28	4	1		1	1	12
Percent Heavy Vehicles (%)		3				3				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.10	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		24				4					33				14	
Capacity, c (veh/h)		1209				1092					281				580	
v/c Ratio		0.02				0.00					0.12				0.02	
95% Queue Length, Q_{95} (veh)		0.1				0.0					0.4				0.1	
Control Delay (s/veh)		8.0	0.2	0.2		8.3	0.0	0.0			19.5				11.4	
Level of Service (LOS)		A	A	A		A	A	A			C				B	
Approach Delay (s/veh)	0.6				0.1				19.5				11.4			
Approach LOS	A				A				C				B			

HCS Two-Way Stop-Control Report

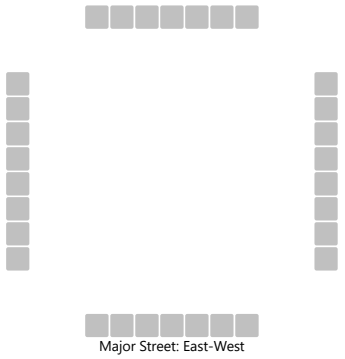
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2021
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	Aspire Subdivision

Site Information

Intersection	Hwy 200 & Speedway
Jurisdiction	MDT
East/West Street	Hwy 200
North/South Street	Speedway
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			132	36		20	212			48		8				
Percent Heavy Vehicles (%)						3				1		1				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.41		6.21				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.51		3.31				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						20				48		8				
Capacity, c (veh/h)						1404				596		899				
v/c Ratio						0.01				0.08		0.01				
95% Queue Length, Q_{95} (veh)						0.0				0.3		0.0				
Control Delay (s/veh)						7.6	0.1			11.6		9.0				
Level of Service (LOS)						A	A			B		A				
Approach Delay (s/veh)						0.8				11.2						
Approach LOS						A				B						

HCS Two-Way Stop-Control Report

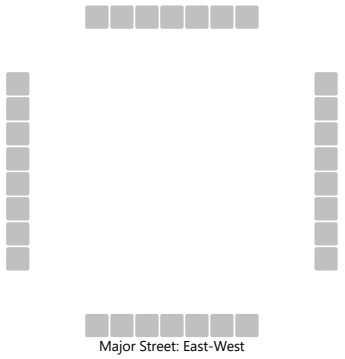
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2021
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	Aspire Subdivision

Site Information

Intersection	Hwy 200 & Speedway
Jurisdiction	MDT
East/West Street	Hwy 200
North/South Street	Speedway
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			220	84		12	184			116		8				
Percent Heavy Vehicles (%)						3				1		1				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.41		6.21				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.51		3.31				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						12				116		8				
Capacity, c (veh/h)						1251				548		779				
v/c Ratio						0.01				0.21		0.01				
95% Queue Length, Q_{95} (veh)						0.0				0.8		0.0				
Control Delay (s/veh)						7.9	0.1			13.3		9.7				
Level of Service (LOS)						A	A			B		A				
Approach Delay (s/veh)					0.6				13.1							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

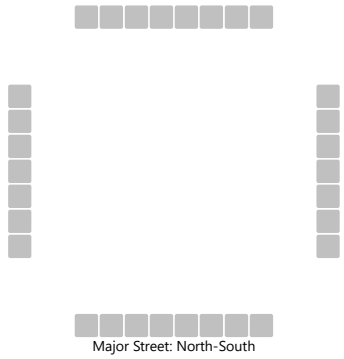
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2021
Time Analyzed	AM Peak Hour
Intersection Orientation	North-South
Project Description	Aspire Subdivision

Site Information

Intersection	Speedway & Deer Creek
Jurisdiction	MDT
East/West Street	Deer Creek
North/South Street	Speedway
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						1		48			8	4		36	8	
Percent Heavy Vehicles (%)						1		1						1		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.41		6.21						4.11		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.51		3.31						2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							49							36		
Capacity, c (veh/h)							1070							1613		
v/c Ratio							0.05							0.02		
95% Queue Length, Q_{95} (veh)							0.1							0.1		
Control Delay (s/veh)							8.5							7.3	0.2	
Level of Service (LOS)							A							A	A	
Approach Delay (s/veh)						8.5								6.0		
Approach LOS						A								A		

HCS Two-Way Stop-Control Report

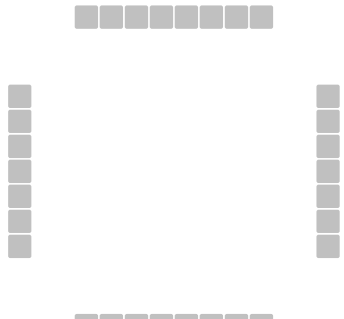
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2021
Time Analyzed	PM Peak Hour
Intersection Orientation	North-South
Project Description	Aspire Subdivision

Site Information

Intersection	Speedway & Deer Creek
Jurisdiction	MDT
East/West Street	Deer Creek
North/South Street	Speedway
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						4		100			24	4		68	20	
Percent Heavy Vehicles (%)						1		1						1		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.41		6.21						4.11		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.51		3.31						2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							104							68		
Capacity, c (veh/h)							1038							1592		
v/c Ratio							0.10							0.04		
95% Queue Length, Q_{95} (veh)							0.3							0.1		
Control Delay (s/veh)							8.9							7.4	0.3	
Level of Service (LOS)							A							A	A	
Approach Delay (s/veh)						8.9								5.8		
Approach LOS						A								A		

HCS Two-Way Stop-Control Report

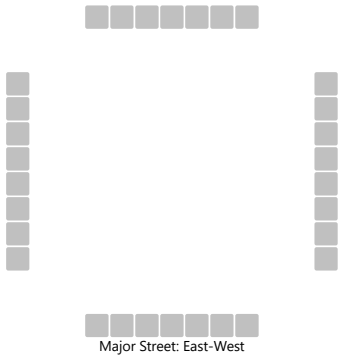
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2021
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	Aspire Subdivision

Site Information

Intersection	Deer Creek & Waterside
Jurisdiction	MDT
East/West Street	Deer Creek
North/South Street	Waterside
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			48	4		1	48			4		1				
Percent Heavy Vehicles (%)						1				1		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.11				6.41		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.21				3.51		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						1					5					
Capacity, c (veh/h)						1560					923					
v/c Ratio						0.00					0.01					
95% Queue Length, Q_{95} (veh)						0.0					0.0					
Control Delay (s/veh)						7.3	0.0				8.9					
Level of Service (LOS)						A	A				A					
Approach Delay (s/veh)					0.2				8.9							
Approach LOS					A				A							

HCS Two-Way Stop-Control Report

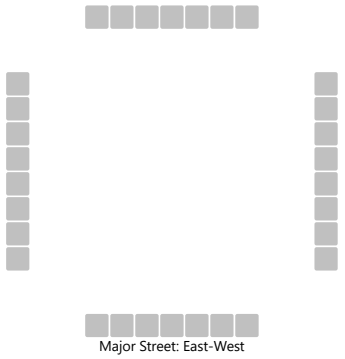
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2021
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	Aspire Subdivision

Site Information

Intersection	Deer Creek & Waterside
Jurisdiction	MDT
East/West Street	Deer Creek
North/South Street	Waterside
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			68	4		1	96			4		1				
Percent Heavy Vehicles (%)						1				1		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.11				6.41		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.21				3.51		3.30				

Delay, Queue Length, and Level of Service

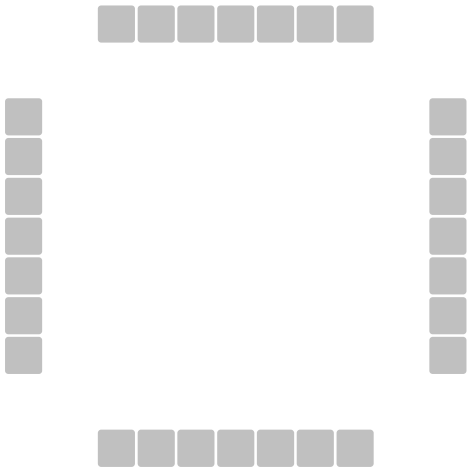
Flow Rate, v (veh/h)						1					5					
Capacity, c (veh/h)						1534					854					
v/c Ratio						0.00					0.01					
95% Queue Length, Q_{95} (veh)						0.0					0.0					
Control Delay (s/veh)						7.3	0.0				9.2					
Level of Service (LOS)						A	A				A					
Approach Delay (s/veh)						0.1				9.2						
Approach LOS						A				A						

HCS All-Way Stop Control Report

General and Site Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2021
Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak Hour
Project Description	Aspire Subdivision
Intersection	Sommers & Speedway
Jurisdiction	Missoula County
East/West Street	Speedway
North/South Street	Sommers
Peak Hour Factor	1.00

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	1	1	1	1	12	12	4	20	1	40	8	16
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	3			25			25			64		
Percent Heavy Vehicles	1			1			1			1		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.003			0.022			0.022			0.057		
Final Departure Headway, h_d (s)	4.00			3.83			4.04			3.97		
Final Degree of Utilization, x	0.003			0.027			0.028			0.071		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	2.00			1.83			2.04			1.97		

Capacity, Delay and Level of Service

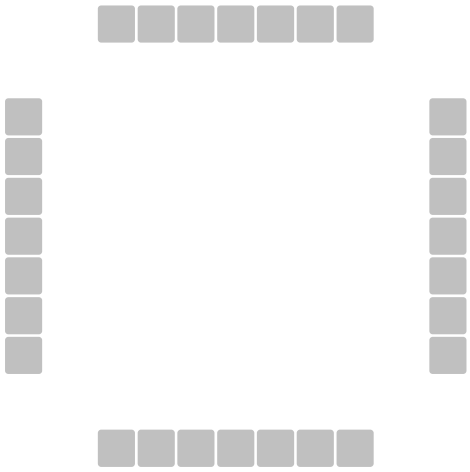
Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	3			25			25			64		
Capacity (veh/h)	901			940			891			906		
95% Queue Length, Q_{95} (veh)	0.0			0.1			0.1			0.2		
Control Delay (s/veh)	7.0			6.9			7.2			7.3		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh) | LOS	7.0	A		6.9	A		7.2	A		7.3	A	
Intersection Delay (s/veh) | LOS	7.2						A					

HCS All-Way Stop Control Report

General and Site Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2021
Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak Hour
Project Description	Aspire Subdivision
Intersection	Sommers & Speedway
Jurisdiction	Missoula County
East/West Street	Speedway
North/South Street	Sommers
Peak Hour Factor	1.00

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	4	8	4	12	8	4	1	12	4	8	28	4
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	16			24			17			40		
Percent Heavy Vehicles	1			1			1			1		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.014			0.021			0.015			0.036		
Final Departure Headway, h_d (s)	3.96			4.05			3.91			4.00		
Final Degree of Utilization, x	0.018			0.027			0.018			0.044		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	1.96			2.05			1.91			2.00		

Capacity, Delay and Level of Service

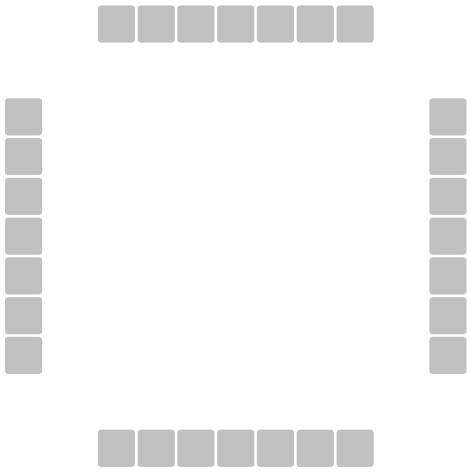
Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	16			24			17			40		
Capacity (veh/h)	909			888			921			900		
95% Queue Length, Q_{95} (veh)	0.1			0.1			0.1			0.1		
Control Delay (s/veh)	7.0			7.2			7.0			7.2		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh) | LOS	7.0	A		7.2	A		7.0	A		7.2	A	
Intersection Delay (s/veh) | LOS	7.1	A										

HCS All-Way Stop Control Report

General and Site Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2021
Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak Hour
Project Description	Aspire Subdivision
Intersection	Robinson & Speedway
Jurisdiction	Missoula County
East/West Street	Speedway
North/South Street	Robinson
Peak Hour Factor	1.00

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	8	4	1	4	1	1	1	20	1	8	0	8
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	13			6			22			16		
Percent Heavy Vehicles	1			1			1			1		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.012			0.005			0.020			0.014		
Final Departure Headway, h_d (s)	4.08			4.04			3.95			3.78		
Final Degree of Utilization, x	0.015			0.007			0.024			0.017		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	2.08			2.04			1.95			1.78		

Capacity, Delay and Level of Service

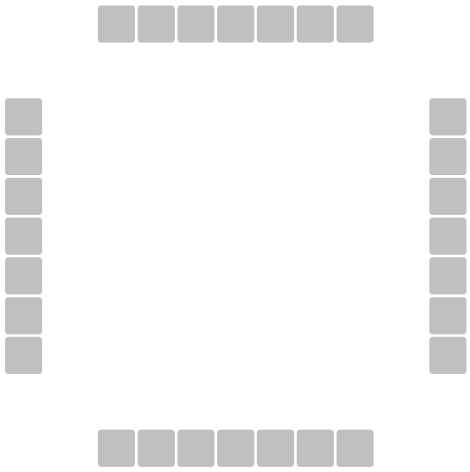
Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	13			6			22			16		
Capacity (veh/h)	883			891			910			953		
95% Queue Length, Q_{95} (veh)	0.0			0.0			0.1			0.1		
Control Delay (s/veh)	7.1			7.1			7.1			6.8		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh) | LOS	7.1	A		7.1	A		7.1	A		6.8	A	
Intersection Delay (s/veh) | LOS	7.0						A					

HCS All-Way Stop Control Report

General and Site Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2021
Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak Hour
Project Description	Aspire Subdivision
Intersection	Robinson & Speedway
Jurisdiction	Missoula County
East/West Street	Speedway
North/South Street	Robinson
Peak Hour Factor	1.00

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	1	16	1	4	12	1	8	1	1	12	1	1
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	18			17			10			14		
Percent Heavy Vehicles	1			1			1			1		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.016			0.015			0.009			0.012		
Final Departure Headway, h_d (s)	3.96			4.00			4.10			4.13		
Final Degree of Utilization, x	0.020			0.019			0.011			0.016		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	1.96			2.00			2.10			2.13		

Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	18			17			10			14		
Capacity (veh/h)	908			900			877			872		
95% Queue Length, Q_{95} (veh)	0.1			0.1			0.0			0.0		
Control Delay (s/veh)	7.0			7.1			7.2			7.2		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh) | LOS	7.0	A		7.1	A		7.2	A		7.2	A	
Intersection Delay (s/veh) | LOS	7.1						A					

HCS Two-Way Stop-Control Report

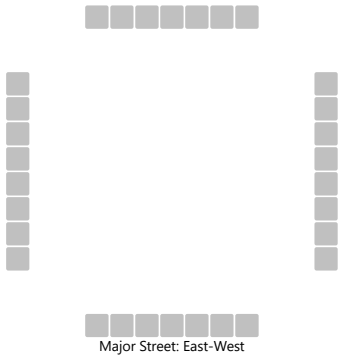
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2031
Time Analyzed	Projected AM Peak Hour 2
Intersection Orientation	East-West
Project Description	Aspire Subdivision

Site Information

Intersection	Hwy 200 & Sommers
Jurisdiction	MDT
East/West Street	Hwy 200
North/South Street	Sommers
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		5	212	33		3	467	4		140	0	8		1	0	46
Percent Heavy Vehicles (%)		3				3				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.10	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5				3					148				47	
Capacity, c (veh/h)		1086				1315					319				589	
v/c Ratio		0.00				0.00					0.46				0.08	
95% Queue Length, Q_{95} (veh)		0.0				0.0					2.3				0.3	
Control Delay (s/veh)		8.3	0.0	0.0		7.7	0.0	0.0			25.7				11.6	
Level of Service (LOS)		A	A	A		A	A	A			D				B	
Approach Delay (s/veh)	0.2				0.1				25.7				11.6			
Approach LOS	A				A				D				B			

HCS Two-Way Stop-Control Report

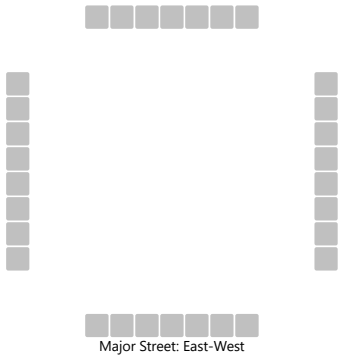
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2031
Time Analyzed	Projected PM Peak Hour 2
Intersection Orientation	East-West
Project Description	Aspire Subdivision

Site Information

Intersection	Hwy 200 & Sommers
Jurisdiction	MDT
East/West Street	Hwy 200
North/South Street	Sommers
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		28	540	151		13	436	7		80	5	5		4	0	14
Percent Heavy Vehicles (%)		3				3				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.10	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		28				13					90				18	
Capacity, c (veh/h)		1112				899					172				382	
v/c Ratio		0.03				0.01					0.52				0.05	
95% Queue Length, Q_{95} (veh)		0.1				0.0					2.6				0.1	
Control Delay (s/veh)		8.3	0.4	0.4		9.1	0.2	0.2			47.1				14.9	
Level of Service (LOS)		A	A	A		A	A	A			E				B	
Approach Delay (s/veh)	0.7				0.4				47.1				14.9			
Approach LOS	A				A				E				B			

HCS Two-Way Stop-Control Report

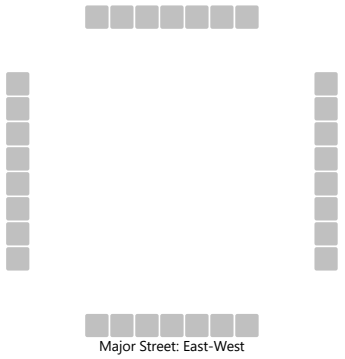
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2031
Time Analyzed	Projected AM Peak Hour 2
Intersection Orientation	East-West
Project Description	Aspire Subdivision

Site Information

Intersection	Hwy 200 & Speedway
Jurisdiction	MDT
East/West Street	Hwy 200
North/South Street	Speedway
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			159	67		29	246			131		27				
Percent Heavy Vehicles (%)						3				1		1				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.41		6.21				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.51		3.31				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						29				131		27				
Capacity, c (veh/h)						1337				521		852				
v/c Ratio						0.02				0.25		0.03				
95% Queue Length, Q_{95} (veh)						0.1				1.0		0.1				
Control Delay (s/veh)						7.8	0.2			14.2		9.4				
Level of Service (LOS)						A	A			B		A				
Approach Delay (s/veh)						1.0				13.4						
Approach LOS						A				B						

HCS Two-Way Stop-Control Report

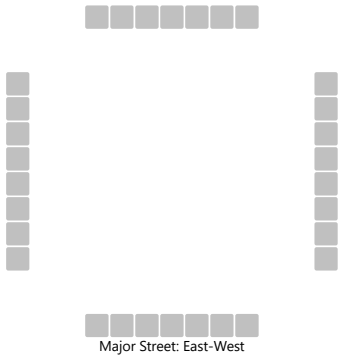
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2031
Time Analyzed	Projected PM Peak Hour 2
Intersection Orientation	East-West
Project Description	Aspire Subdivision

Site Information

Intersection	Hwy 200 & Speedway
Jurisdiction	MDT
East/West Street	Hwy 200
North/South Street	Speedway
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			258	176		32	220			180		20				
Percent Heavy Vehicles (%)						3				1		1				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized										No						
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.41		6.21				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.51		3.31				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						32				180		20				
Capacity, c (veh/h)						1120				433		699				
v/c Ratio						0.03				0.42		0.03				
95% Queue Length, Q_{95} (veh)						0.1				2.0		0.1				
Control Delay (s/veh)						8.3	0.3			19.1		10.3				
Level of Service (LOS)						A	A			C		B				
Approach Delay (s/veh)					1.3				18.2							
Approach LOS					A				C							

HCS Two-Way Stop-Control Report

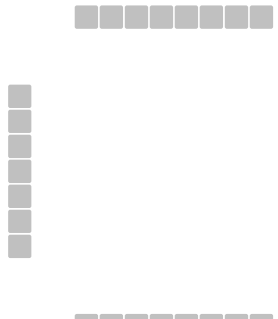
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2031
Time Analyzed	Projected AM Peak Hour 2
Intersection Orientation	North-South
Project Description	Aspire Subdivision

Site Information

Intersection	Speedway & Deer Creek
Jurisdiction	MDT
East/West Street	Deer Creek
North/South Street	Speedway
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						10		148			9	8		72	9	
Percent Heavy Vehicles (%)						1		1						1		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.41		6.21						4.11		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.51		3.31						2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							158							72		
Capacity, c (veh/h)							1047							1607		
v/c Ratio							0.15							0.04		
95% Queue Length, Q_{95} (veh)							0.5							0.1		
Control Delay (s/veh)							9.1							7.3	0.3	
Level of Service (LOS)							A							A	A	
Approach Delay (s/veh)						9.1								6.6		
Approach LOS						A								A		

HCS Two-Way Stop-Control Report

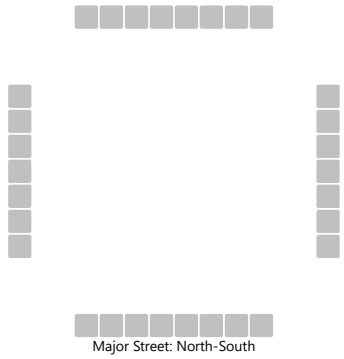
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2031
Time Analyzed	Projected PM Peak Hour 2
Intersection Orientation	North-South
Project Description	Aspire Subdivision

Site Information

Intersection	Speedway & Deer Creek
Jurisdiction	MDT
East/West Street	Deer Creek
North/South Street	Speedway
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						11		173			28	15		176	23	
Percent Heavy Vehicles (%)						1		1						1		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.41		6.21						4.11		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.51		3.31						2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							184							176		
Capacity, c (veh/h)							984							1572		
v/c Ratio							0.19							0.11		
95% Queue Length, Q_{95} (veh)							0.7							0.4		
Control Delay (s/veh)							9.5							7.6	0.9	
Level of Service (LOS)							A							A	A	
Approach Delay (s/veh)						9.5								6.8		
Approach LOS						A								A		

HCS Two-Way Stop-Control Report

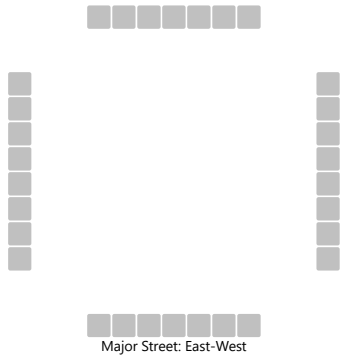
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2031
Time Analyzed	Projected AM Peak Hour 2
Intersection Orientation	East-West
Project Description	Aspire Subdivision

Site Information

Intersection	Deer Creek & Waterside
Jurisdiction	MDT
East/West Street	Deer Creek
North/South Street	Waterside
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			81	13		1	133			30		1				
Percent Heavy Vehicles (%)						1				1		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.11				6.41		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.21				3.51		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						1					31					
Capacity, c (veh/h)						1506					773					
v/c Ratio						0.00					0.04					
95% Queue Length, Q_{95} (veh)						0.0					0.1					
Control Delay (s/veh)						7.4	0.0				9.9					
Level of Service (LOS)						A	A				A					
Approach Delay (s/veh)						0.1				9.9						
Approach LOS						A				A						

HCS Two-Way Stop-Control Report

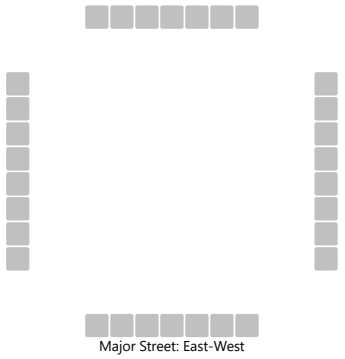
General Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2031
Time Analyzed	Projected PM Peak Hour 2
Intersection Orientation	East-West
Project Description	Aspire Subdivision

Site Information

Intersection	Deer Creek & Waterside
Jurisdiction	MDT
East/West Street	Deer Creek
North/South Street	Waterside
Peak Hour Factor	1.00
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			166	25		1	162			17		1				
Percent Heavy Vehicles (%)						1				1		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.11				6.41		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.21				3.51		3.30				

Delay, Queue Length, and Level of Service

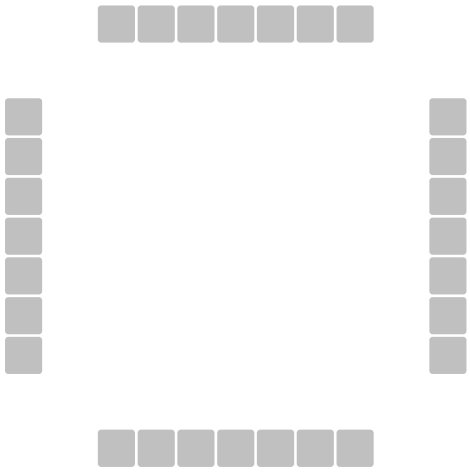
Flow Rate, v (veh/h)						1					18					
Capacity, c (veh/h)						1389					664					
v/c Ratio						0.00					0.03					
95% Queue Length, Q_{95} (veh)						0.0					0.1					
Control Delay (s/veh)						7.6	0.0				10.6					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					0.1				10.6							
Approach LOS					A				B							

HCS All-Way Stop Control Report

General and Site Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2031
Analysis Time Period (hrs)	0.25
Time Analyzed	Projected AM Peak Hour 2
Project Description	Aspire Subdivision
Intersection	Sommers & Speedway
Jurisdiction	Missoula County
East/West Street	Speedway
North/South Street	Sommers
Peak Hour Factor	1.00

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	1	1	10	1	16	22	35	94	1	49	33	18
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	12			39			130			100		
Percent Heavy Vehicles	1			1			1			1		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.011			0.035			0.116			0.089		
Final Departure Headway, h_d (s)	3.97			4.09			4.17			4.14		
Final Degree of Utilization, x	0.013			0.044			0.151			0.115		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	1.97			2.09			2.17			2.14		

Capacity, Delay and Level of Service

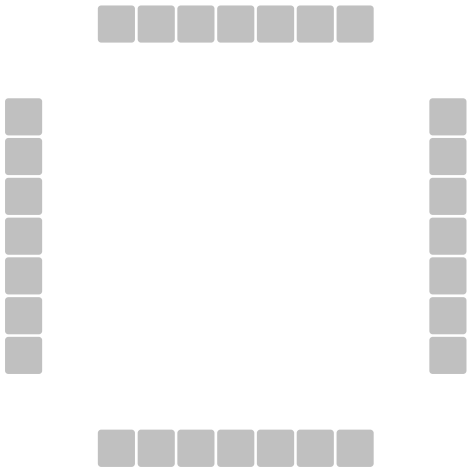
Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	12			39			130			100		
Capacity (veh/h)	906			880			862			869		
95% Queue Length, Q_{95} (veh)	0.0			0.1			0.5			0.4		
Control Delay (s/veh)	7.0			7.3			7.9			7.7		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh) | LOS	7.0	A		7.3	A		7.9	A		7.7	A	
Intersection Delay (s/veh) | LOS	7.7						A					

HCS All-Way Stop Control Report

General and Site Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2031
Analysis Time Period (hrs)	0.25
Time Analyzed	Projected PM Peak Hour 2
Project Description	Aspire Subdivision
Intersection	Sommers & Speedway
Jurisdiction	Missoula County
East/West Street	Speedway
North/South Street	Sommers
Peak Hour Factor	1.00

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	5	12	40	14	11	9	21	63	5	17	115	5
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	57			34			89			137		
Percent Heavy Vehicles	1			1			1			1		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.051			0.030			0.079			0.122		
Final Departure Headway, h_d (s)	4.05			4.40			4.27			4.21		
Final Degree of Utilization, x	0.064			0.042			0.106			0.160		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	2.05			2.40			2.27			2.21		

Capacity, Delay and Level of Service

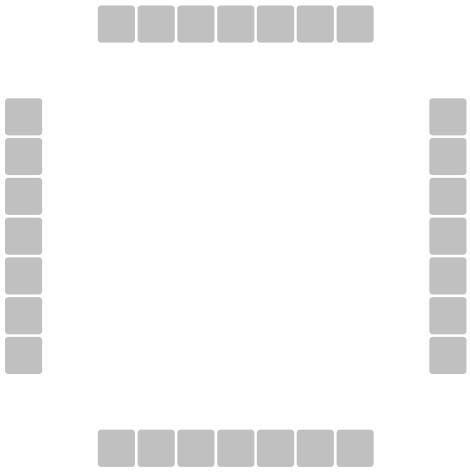
Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	57			34			89			137		
Capacity (veh/h)	890			819			843			854		
95% Queue Length, Q_{95} (veh)	0.2			0.1			0.4			0.6		
Control Delay (s/veh)	7.3			7.6			7.8			8.0		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh) | LOS	7.3	A		7.6	A		7.8	A		8.0	A	
Intersection Delay (s/veh) | LOS	7.8						A					

HCS All-Way Stop Control Report

General and Site Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2031
Analysis Time Period (hrs)	0.25
Time Analyzed	Projected AM Peak Hour 2
Project Description	Aspire Subdivision
Intersection	Robinson & Speedway
Jurisdiction	Missoula County
East/West Street	Speedway
North/South Street	Robinson
Peak Hour Factor	1.00

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	9	8	1	5	10	1	1	23	1	9	1	9
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	18			16			25			19		
Percent Heavy Vehicles	1			1			1			1		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.016			0.014			0.022			0.017		
Final Departure Headway, h_d (s)	4.09			4.05			3.99			3.82		
Final Degree of Utilization, x	0.020			0.018			0.028			0.020		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	2.09			2.05			1.99			1.82		

Capacity, Delay and Level of Service

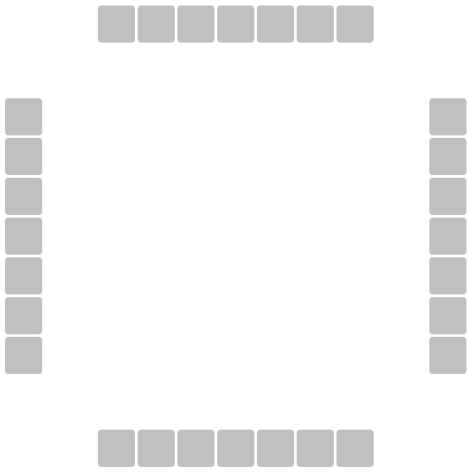
Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	18			16			25			19		
Capacity (veh/h)	880			889			902			941		
95% Queue Length, Q_{95} (veh)	0.1			0.1			0.1			0.1		
Control Delay (s/veh)	7.2			7.1			7.1			6.9		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh) | LOS	7.2	A		7.1	A		7.1	A		6.9	A	
Intersection Delay (s/veh) | LOS	7.1						A					

HCS All-Way Stop Control Report

General and Site Information

Analyst	RLA
Agency/Co.	ATS
Date Performed	10/15/2021
Analysis Year	2031
Analysis Time Period (hrs)	0.25
Time Analyzed	Projected PM Peak Hour 2
Project Description	Aspire Subdivision
Intersection	Robinson & Speedway
Jurisdiction	Missoula County
East/West Street	Speedway
North/South Street	Robinson
Peak Hour Factor	1.00

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	1	29	1	5	20	1	9	1	1	14	1	1
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	31			26			11			16		
Percent Heavy Vehicles	1			1			1			1		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.028			0.023			0.010			0.014		
Final Departure Headway, h_d (s)	3.99			4.02			4.16			4.19		
Final Degree of Utilization, x	0.034			0.029			0.013			0.019		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	1.99			2.02			2.16			2.19		

Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	31			26			11			16		
Capacity (veh/h)	903			895			865			860		
95% Queue Length, Q_{95} (veh)	0.1			0.1			0.0			0.1		
Control Delay (s/veh)	7.1			7.1			7.2			7.3		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh) | LOS	7.1	A		7.1	A		7.2	A		7.3	A	
Intersection Delay (s/veh) | LOS	7.2						A					