Town of West Yellowstone

Tuesday, January 7, 2020
West Yellowstone Town Hall, 440 Yellowstone Avenue
TOWN COUNCIL WORK SESSION - 6:00 PM

West Yellowstone Gateway Study-Rob Gilmore, NRMEDD — Discussion ∞

Regional Economic Development Cooperation Program — Discussion

Water Well #4 Project, Change Orders and Payment — Discussion ∞

TOWN COUNCIL MEETING

(meeting will start immediately following the conclusion of the work session-approximately 7:30 PM)

Pledge of Allegiance

Oath of Office for New Town Council Members Travis Watt and Jeff Mathews
Election of Mayor and Deputy Mayor for 2020

Purchase Orders #6689 to Crimestar Corporation, CAD/RMS annual support, $14,050.00 ∞
#6874 to Anderson Zurmuehlen, FY 2019 Auditing Services, $12,500.00 ∞
Treasurer's Report & Securities Report
Claims ∞
Consent Agenda: **Minutes of the December 10, 2019 Town Council Meeting** ∞
Minutes of the December 20, 2019 Special Town Council Meeting ∞
Business License Applications
Advisory Board Report(s)
Town Manager & Department Head Reports
Comment Period

- **Public Comment**
- **Council Comments**

NEW BUSINESS

Water Well #4 Project, Change Orders and Payment — Discussion/Action ∞

Marketing and Promotions Fund Recommendation, Snow Shoot for 2021, $21,500 — Discussion/Action ∞

Marketing and Promotions Fund Board Appointments — Discussion/Action ∞

- John Greve
- Kimberly Howell

Planning Board, Town Council Representative Appointment — Discussion/Action ∞

Fir Ridge Cemetery Administration — Discussion ∞

- WYMC Chapter 12.30 revisions
- Plot Purchase procedures
- Town Cemetery Policy

Correspondence/Meeting Reminders/FYI

If viewing the agenda electronically, click the "∞" symbol to link to the associated documentation in the Town Council Packet.

Policy No. 16 (Abbreviated)
Policy on Public Hearings and Conduct at Public Meetings

Public Hearing/Public Meeting

A public hearing is a formal opportunity for citizens to give their views to the Town Council for consideration in its decision making process on a specific issue. At a minimum, a public hearing shall provide for submission of both oral and written testimony for and against the action or matter at issue.

Oral Communication

It is the Council's goal that citizens resolve their complaints for service or regarding employees' performance at the staff level. However, it is recognized that citizens may from time to time believe it is necessary to speak to Town Council on matters of concern. Accordingly, Town Council expects any citizen to speak in a civil manner, with due respect for the decorum of the meeting, and with due respect for all persons attending.

- No member of the public shall be heard until recognized by the presiding officer.
- Public comments related to non-agenda items will only be heard during the Public Comment portion of the meeting unless the issue is a Public Hearing. Public comments specifically related to an agenda item will be heard immediately prior to the Council taking up the item for deliberation.
- Speakers must state their name for the record.
- Any citizen requesting to speak shall limit him or herself to matters of fact regarding the issue of concern.
- Comments should be limited to three (3) minutes unless prior approval by the presiding officer.
- If a representative is elected to speak for a group, the presiding officer may approve an increased time allotment.
- If a response from the Council or Board is requested by the speaker and cannot be made verbally at the Council or Board meeting, the speaker's concerns should be addressed in writing within two weeks.
- Personal attacks made publicly toward any citizen, council member, or town employees are not allowed. Citizens are encouraged to bring their complaints regarding employee performance through the supervisory chain of command.

Any member of the public interrupting Town Council proceedings, approaching the dais without permission, otherwise creating a disturbance, or failing to abide by these rules of procedure in addressing Town Council, shall be deemed to have disrupted a public meeting and, at the direction of the presiding officer, shall be removed from the meeting room by Police Department personnel or other agent designated by Town Council or Operations Manager.

General Town Council Meeting Information

- Regular Town Council meetings are held at 7:00 PM on the first and third Tuesdays of each month at the West Yellowstone Town Hall, 440 Yellowstone Avenue, West Yellowstone, Montana.
- Presently, informal Town Council work sessions are held at 12 Noon on Tuesdays and occasionally on other mornings and evenings. Work sessions also take place at the Town Hall located at 440 Yellowstone Avenue.
- The schedule for Town Council meetings and work sessions is detailed on an agenda. The agenda is a list of business items to be considered at a meeting. Copies of agendas are available at the entrance to the meeting room.
- Agendas are published at least 48 hours prior to Town Council meetings and work sessions. Agendas are posted at the Town Offices and at the Post Office. In addition, agendas and packets are available online at the Town's website: www.townofwestyellowstone.com. Questions about the agenda may be directed to the Town Clerk at 646-7795.
- Official minutes of Town Council meetings are prepared and kept by the Town Clerk and are reviewed and approved by the Town Council. Copies of approved minutes are available at the Town Clerk's office or on the Town's website: www.townofwestyellowstone.com.

If viewing the agenda electronically, click the "∞" symbol to link to the associated documentation in the Town Council Packet.

West Yellowstone Gateway Study

December 19, 2019

Fehr & Peers

Acknowledgments

TOWN OF WEST YELLOWSTONE

- *Daniel Sabolsky*
- *Pierre Martineau*

NATIONAL PARK SERVICE

- *Christina White*
- *Patrick Kenney*
- *Beverly (Grace) Stephens*
- *Jamie Hanson*
- *Rachel Collins*
- *Joe Regula*

OTHER IMPORTANT GROUPS

- *Northern Rocky Mountain Economic Development District (NRMEDD)*
- *City of Bozeman*
- *Gallatin County*
- *Greater Yellowstone Coordinating Committee (GYCC)*
- *Idaho Environmental Staff Biologist for Region 6*
- *Idaho Fish & Game*
- *Idaho Transportation Department*
- *Montana Department of Transportation (MDT)*
- *Montana Fish, Wildlife & Parks (MFWP)*
- *US Forest Service*
- *West Yellowstone Chamber*

CONSULTANT TEAM

- *Preston Stinger, Fehr & Peers*
- *Jon Nepstad, Fehr & Peers*
- *Tim Baird, Fehr & Peers*
- *Kathrine Skollingsberg, Fehr & Peers*
- *Natalia Brown, Fehr & Peers*
- *Mandi Roberts, Otak*
- *D.J. Clark, Sanderson Stewart*
- *Audrey Stoltzfus, Sanderson Stewart*

CONTENTS

Introduction & Goals

This study is designed to help the Town of West Yellowstone and Yellowstone National Park (YNP) officials better understand the current and future issues related to transportation in the area, and provide recommendations for system improvements within the community that enhance mobility and encourage economic growth. The goal of this study is to improve transportation, both traffic flow and pedestrian and bicycle accessibility, on key corridors and throughout the community.

The Town of West Yellowstone has been experiencing transportation issues related to increasing visitation trends. Our goal is to provide mobility and parking management, along with economic development recommendations to the Town of West Yellowstone and west entrance gate to Yellowstone National Park. The recommendations and strategies herein are based on traffic and survey data collection efforts, quantitative analyses of traffic and circulation, qualitative reviews of existing plans and research, and best practices from similar gateway communities. The project team worked with stakeholders to develop relevant understanding of the current issues, challenges, and goals related to transportation, and economic growth opportunities.

Figure 1: Study Area

BACKGROUND & CONTEXT

As a recreation-focused community, West Yellowstone experiences large peaks in travel demand during the tourist season as visitors arrive to experience Yellowstone National Park. Congestion and related challenges are therefore heavily concentrated in peak periods when visitors are arriving at, departing from, and traveling between destinations in town and Yellowstone National Park. Prior circulation studies in the area have been focused on mobility into and within Yellowstone National Park, leaving a gap in understanding mobility-related issues within West Yellowstone's boundaries.

STUDY GOALS

Major goals of this study included the following:

- **Improving circulation through and within the Town for residents, visitors, & pass-through traffic.**
- **Providing safe and efficient networks for all modes of transportation, including automobiles, bicycles, and pedestrians.**
- **Ensuring transportation improvements compliment the Town's economic development strategies and support the economic viability of new and existing businesses.**
- **Enhancing parking management strategies and wayfinding signage to make it easier for visitors to find their way to their destinations and nearby available parking.**

Summary of Recommendations

This page summarizes all the study recommendations

RECOMMENDATIONS:

More information on these recommendations are located in "Recommendations" on page 28.

Circulation:

- Consider intersection reconfiguration at Iris Street, and US-20: create signalized intersection
- Distribute traffic bound for visitor center and park entry via Iris Street and Yellowstone Avenue.
- Evaluate signal timing.

Parking:

- Limit on-street parking on Canyon Street Madison Avenue, and Yellowstone Avenue, to two hours between 8:00 am - 8:00 pm with signage and enforcement
- Additional Parking signs directing to Dunraven Street and Electric Street
- Allow RV/large vehicles to only park on Boundary Street with signage and enforcement

Pedestrian & Bicycling:

- *US-20 and Hayden Street: Enhance pedestrian crossing:* Signage, Crosswalk Markings, Rapid Rectangular Flashing Beacons
- *US-20 and Electric Street: Enhance pedestrian crossing:* Signage, Crosswalk Markings, Rapid Rectangular Flashing Beacons
- *US-20 and Dunraven Street: Enhance pedestrian crossing:* Signage, Crosswalk Markings, Rapid Rectangular Flashing Beacons
- Reallocate right-of-way width from parking to enhance sidewalks and street furnishings along Canyon Street
- *Northeast of US-191:* Study and select alignment for north/south multi-use trail to Madison River campgrounds. Alignment must consider wildlife, habitat, and other environmental concerns and impacts.

Wayfinding:

- *Entry Signage at US-20 and Iris Street:* Straight for town/services and Bozeman; right for visitor center and Yellowstone National Park West Entrance
- *Entry Signage at Yellowstone Avenue, and Iris Street:* Left for visitor center and Yellowstone National Park West Entrance
- *Secondary Signage at US-20 and Electric Street:* Straight for town/services; right for visitor center and Yellowstone National Park West Entrance
- *Secondary Signage at Yellowstone Avenue, and Electric Street:* Straight for visitor center and Yellowstone National Park West Entrance
- *Directional Signage on Canyon Street, Alley A, Alley C, and Madison Avenue:* Towards on-street parking options and public restrooms
- *New signage on US-20 east of Canyon Street:* Facing westbound vehicles: right for Bozeman, straight for Idaho Falls
- *Signage on US-20 and Boundary Street:* Directing RV/large vehicles to park on Boundary St only
- *Advance signage between West Yellowstone and west entrance facing eastbound vehicles:* Clarifying express vs. regular entry gates
- *Yellowstone National Park monument sign & restroom facility:* Move both to prevent traffic issues caused by people stopping to take photos.

Public Outreach & Engagement

OUTREACH SUMMARY

Figure 2: Stakeholder Workshop on June 25th.

The Town of West Yellowstone, in conjunction with the Northern Rocky Mountain Economic Development District, held a series of stakeholder interview workshop sessions and a Public Open House on Tuesday, June 25, 2019 at the West Yellowstone Visitor Information Center. The objective for the stakeholder workshop sessions was to engage and gather information from a diverse set of West Yellowstone interests and expertise. Discussion topics for stakeholder interviews included identifying West Yellowstone's major problems related to traffic flow and congestion, visitor services, and public safety; ideas for improving mobility and access within the gateway community; and potential short- and long-term opportunities for transportation enhancements. The Open House sought public feedback from community residents, business owners, and visitors to identify the most important issues associated with transportation in and around West Yellowstone. Attendees were invited to share their comments and thoughts on how to improve congestion, parking availability, wayfinding, and information sharing. Below is a summary of the comments made at the stakeholder meeting.

SUMMARY OF PUBLIC & STAKEHOLDER PRIORITIES

Major themes and priorities that the team heard through community stakeholder meetings included existing traffic and parking issues, coordination between the Town and Yellowstone National Park administration, opportunities for improving wayfinding and visitor information, and issues related to the interface between Yellowstone National Park entry and the Town. Specific issues heard during these meetings included the following:

- The most serious perceived traffic congestion in town is at Yellowstone Avenue and Canyon Street, with left turns towards the park and right turns onto Canyon from the park entry operating poorly. An additional area of concern is the trucks passing through town via US-20, which create challenges for bikes and pedestrians crossing US-20 north/south.
- Enhancing bicycling as an in-town mobility option was raised as a favorable approach, due to the area's flat topography. E-bikes could be a valuable option, although liability concerns were raised with respect to a shared bicycle system. Crossing US-20 north to south was raised as a difficulty for bikes and pedestrians, particularly at Dunraven Street, Electric Street, and Hayden Street.
- Parking is perceived as a persistent issue in town, which is compounded by employees parking in prime on-street parking locations.
- Delays at the Yellowstone National Park West Entrance are frequent and are caused by a number of factors, including visitors purchasing passes at the gate, visitors queuing in the incorrect lane for their pass type (prepaid vs. purchasing at the gate) and weaving between lanes, shortages of park staff, slowdowns to view wildlife, and visitors pulling off and then back onto the road to take pictures at the park entry sign. These delays can result in park queues backing up into the Town during peak conditions.
  - Participants agreed that recent gate improvements have been successful in reducing congestion.
  - Suggested responses include enhancing and publicizing options to pre-purchase park passes in town, improving lane markings and signage approaching the entry gate, introducing a reservation system to enter Yellowstone National Park during peak conditions, and relocating the park entry sign away from the West Entrance to its previous location near the visitor center. However, NPS staff noted that the metering effect of delays at the gate helps to reduce congestion within the park, and that processing vehicles too quickly at this location may push other corridors and intersections to their tipping points.
- Inadequate supply of public restrooms was identified as an issue. Existing facilities at the Visitor Center and town interior parks along Canyon Street are perceived as overburdened. Potential options for expansion include restrooms (standalone or as part of a visitor information center) in advance of the town along US-20 from the West, and/or the Hebgen Lake Ranger Station north of town.
- Wayfinding was identified as a significant problem, particularly for visitors approaching from the West on US-20. Stakeholders indicated that a comprehensive wayfinding plan should be developed to reduce congestion

due to navigational difficulties. Specific suggestions included clear signage towards the park along US-20 and at Yellowstone Avenue and Canyon Street, clearer lane markings for express and standard lanes at the West Entrance, and signage for public restrooms and parking.

» In addition to enhanced wayfinding, providing better visitor information through other channels (e.g. videos at hotels and breakfast restaurants) could be used to communicate options for reducing delays, including buying passes at the Visitor Center and entering the park at less congested times.

» A desire was expressed for creating a public shuttle system between locations in town and Yellowstone National Park, with stops dispersed throughout the town and integrated into the streetscape. Springdale, Utah was brought up as a positive example.

» Working relationships between West Yellowstone staff and Yellowstone National Park staff was described as excellent, with good coordination and partnerships between stakeholders. Growth of West Yellowstone and other gateway communities was, however, raised as an area of concern for Yellowstone National Park staff, due to the likelihood of new development leading to increased park visitation during peak periods.

ONLINE & INTERCEPT SURVEYS

WEST YELLOWSTONE GATEWAY STUDY

1. Are you a...?
- o Resident – Live in or near (including seasonal employee) West Yellowstone **-End of Survey-**
- o Visitor/Guest

2. Where will you be staying during your stay?
- o Hotel/lodging in the town of West Yellowstone
- o Campground near the town of West Yellowstone
- o Inside Yellowstone National Park

3. Total days visiting West Yellowstone/Yellowstone NP?
Number of Days:_____

4. Did you fly on any part of your trip to reach West Yellowstone/Yellowstone NP?
- o No
- o Yes (Please select which airport you flew into): **Salt Lake City** **Bozeman** **Jackson** **Other:**_____

5. Which of the following forms of transportation did you personally use to enter the west entrance of Yellowstone NP?
- o Car, truck, or SUV
- o RV or motorhome
- o Tour bus or tour van
- o Motorcycle
- o Bicycle, walking, or hiking

6. Based on your expectations before arriving, does the town of West Yellowstone feel...?
- o Not crowded
- o Somewhat crowded
- o Very crowded

7. On a scale of 1-5, how easy was it to find a parking space in the town of West Yellowstone today?

Extremely Easy	Easy	Moderate	Difficult	Extremely Difficult
1	2	3	4	5

8. If you have been inside the park today - approximately how many minutes did you have to wait to go through the west entrance into Yellowstone NP?
- o Less than 5 minutes
- o 5-10 minutes
- o 11-20 minutes
- o 21-30 minutes
- o 31-45 minutes
- o 45-60 minutes

9. On a scale of 1-5, how acceptable was the amount of time you spent waiting in traffic to enter Yellowstone NP through the west entrance (nearest to the town of West Yellowstone)?

Not at all acceptable	Slightly acceptable	Moderately acceptable	Very acceptable	Extremely acceptable
1	2	3	4	5

10. Did you encounter any type of wildlife nearby or within the town of West Yellowstone?
- o No
- o Yes

11. What would improve your experience in the town of West Yellowstone? Select all that apply.
- o More available day parking spaces in town
- o More picnic or shaded rest areas
- o More maps, signs, or wayfinding information
- o Better pedestrian amenities (i.e. crosswalks, sidewalks, trails, etc.)
- o Better bicycle amenities (i.e. bike lanes, bike racks, etc.)
- o Group shuttle or bus service options into Yellowstone NP
- o Increase the number of available overnight campgrounds
- o Increase the number of accessible public restrooms
- o Increase the amount of visitor information in shops
- o Better WiFi or internet availability
- o Other (Please specify):_____

-End of Survey-

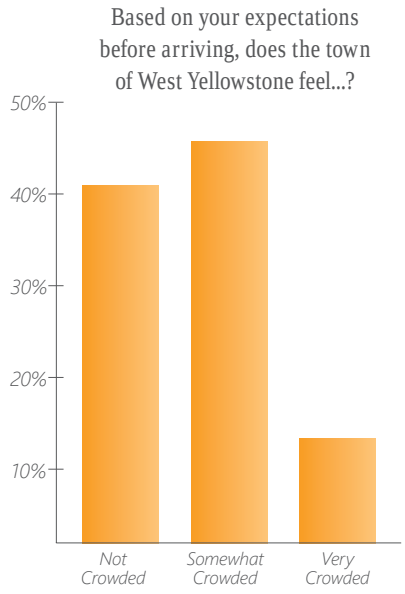
Thank you for your participation. For any questions or further comments on the West Yellowstone Gateway Study, please contact Preston Stinger, Project Manager, with Fehr & Peers. **Preston Stinger**, phone: +1 (385) 282-7064 Email: P.Stinger@fehrandpeers.com

Figure 3: Intercept survey questions

To better understand how people move in the West Yellowstone and Yellowstone area, an online survey was conducted in summer 2019. Questions focused on visitor interests and needs related to the types of facilities and services that should be offered within this context, including but not limited to camping, lodging, and other visitor accommodations; visitor wayfinding and orientation (including signage); visitor information dissemination; various access opportunities such as shuttling, bicycling, and pedestrian improvement needs (within town and to/from the park); parking and traffic flow considerations; restrooms and facilities; photo opportunity sites and gateway experiences; and other potential options to improve and enhance visitor experience. A draft of the survey questions were developed and passed along to the appropriate stakeholders for review prior to conducting the survey interviews. The visitor surveys were conducted during the week of June 24th and were performed by intercepting visitors on the sidewalks, at the visitor center, and other areas throughout West Yellowstone. Nearly 200 respondents completed the survey. A full compilation of the survey results are found in the "Appendix" on page a-1, with some results from the survey below.

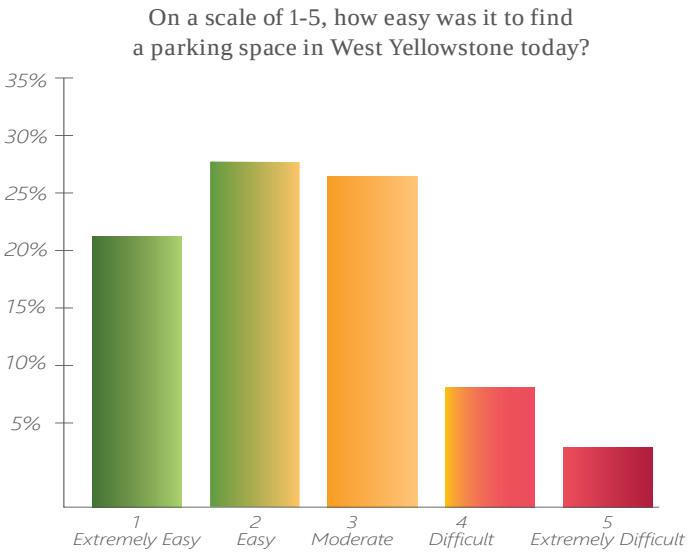
Question 6.

A large majority of visitors reported feeling that West Yellowstone felt either "not crowded" or "somewhat crowded," with only 12% of respondents reporting that it felt "very crowded." This indicates that even during peak visitation, the town itself is not perceived to be overcrowded.



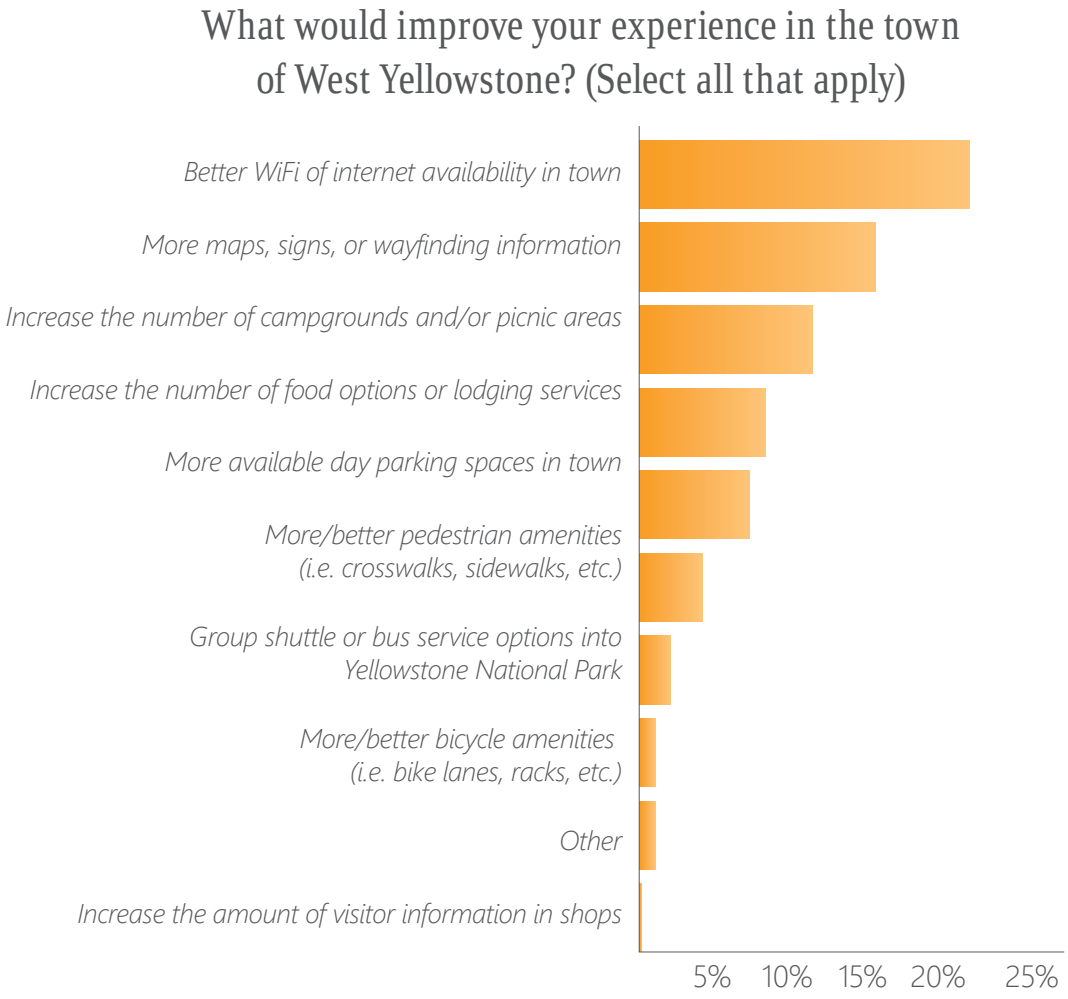
Question 7.

Most respondents did not report difficulty in finding a parking spot. Nearly 55% of respondents said that it was easy or very easy to find parking in Town, and another 29% reported that it was moderately easy to park. Just 16% said finding parking was difficult or extremely difficult. These results suggest that while the majority of visitors are able to find parking in a reasonable amount of time, there is room for improving the visitor experience from a parking standpoint.



Question 11.

When asked what improvements would enhance their experience visiting West Yellowstone, the most common request was providing better WiFi or internet availability in town, followed by providing more maps, signs, and wayfinding information; and providing more campgrounds and picnic areas. Few respondents indicated transit or active transportation facilities as a priority.



Existing Conditions

This chapter is designed to help the Town of West Yellowstone and Yellowstone National Park officials better understand the current conditions related to transportation in the area and provide recommendations for system improvements within the community.

PRIOR STUDIES

In order to understand the prior planning context for West Yellowstone's transportation situation, we reviewed material drawn from several existing plans, in addition to drawing on the project team's prior knowledge of the area gained through the 2016 and 2017 Yellowstone National Park Transportation and Vehicle Mobility Studies. After reviewing the provided prior studies, there was not much information directly relevant to this study, as most prior studies have focused on conditions within the Park itself, rather than the surrounding gateway communities. Relevant information for this study from these prior studies is summarized below.

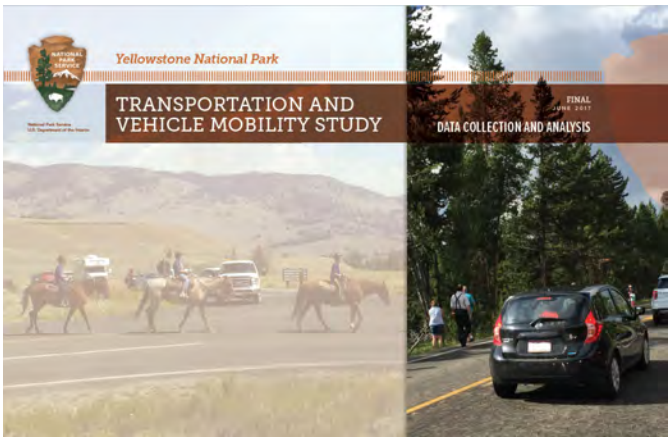


Figure 4: 2018 Mobility Study

The **Yellowstone National Park 2016 Visitor Survey** provides data on the demographics, trip behavior, and perceptions of park visitors. The most common visitor types represented in the survey are groups without children, and significant subgroups include Baby Boomers and people of white and Asian descent. The survey also shows that 17% of visitors are from outside the United States. Problems commonly described by visitors include a number of transportation-related issues, including parking, overcrowding, and traffic; as a result of these problems, 34% of visitors reported being unable to see all of the destinations they planned to due to longer-than-expected travel times.

When presented with a set of potential solutions to mitigate congestion, support was highest for a shuttle service, additional pullouts, more parking, and bike share options; conversely, support was very low for restrictions on the number of vehicles entering popular areas or closing down roads when overcrowded.

The prior **Transportation and Vehicle Mobility Study** (previously prepared by Fehr and Peers) examined vehicular circulation and parking in Yellowstone National Park. This study recorded that peak-season traffic volumes routinely exceed the capacity of key corridors and parking areas by 30%. The problem is particularly acute at parking areas around primary attractions in the park. Forecasting indicates that overall demand is likely to exceed capacity of the transportation system at some point between 2021-2023. However, the last few years visitation has been below that trend, hence it may not hit capacity by that time.

The **Bridger District Summary of Reports on Yellowstone National Park/West Yellowstone**, provided by Bridger District, summarizes available reports and studies produced by NPS, and provides a high-level summary of past work on visitation trends and vehicle mobility. Among these is a 2016 visitor use survey which found that 57% of respondents listed "too many people in the park" as a "big problem" or "moderate problem". Major challenges highlighted in the summary include the growth in visitation by approximately 1.2 million annual visitors over a decade, while staffing has remained relatively static. This same survey also found that 36% of respondents used the West Entrance. Respondents were more likely to have flown as part of their trip if they entered from the West Entrance. Respondents generally rated entrance facilities positively, but the West Entrance was rated least positively (83% say "good" or "very good").

SUMMARY OF PREVIOUS PLANS

Table 1. Summary of past and current work relevant to this study.

Year	Study Title	Description
2019	**Visitor Use Study**	*Survey of visitor's opinions about potential management scenarios that could be used to manage visitation in the future.*
2018	**Transportation & Mobility Study Phase II – Traffic & Parking Analysis**	*Collected and analyzed data to document existing transportation and visitor use conditions along the corridor between West Gate and Old Faithful.*
2018	**Visitor Use Survey Study**	*Examined how people experience and move through the park in real-time and how their experiences vary across the season (May-September).*
2018	**Visitor Use & Behavior at Attraction Sites Study**	*Yellowstone National Park employees monitored numbers of people, how they use the area, and if that is causing natural or person-made resource impacts.*
2018	**Visitor & Employee Safety Study**	*Internship program studied the relationship between increasing visitation and human safety.*
2017	**Long Range Transportation Study**	*Established a performance-based 20-year transportation and access vision for National Parks by providing goals, objectives, performance measures, and strategies to move toward the overall National Park Service's vision.*
2016	**Visitor Use Study**	*Gathered information about visitor and trip characteristics, trip planning efforts, visitor experience about access and transportation, and visitor satisfaction with park services and facilities.*
2016	**Transportation & Vehicle Mobility Study**	*Collected and analyzed data related to traffic and parking conditions at the entrance gates and within Yellowstone National Park.*
2016	**Exploring Chinese Tourism in U.S. National Parks: A Case Study in West Yellowstone**	*Exploratory study on Chinese tourism in West Yellowstone in response to the large influx of Chinese tourists to Yellowstone National Park and the gateway communities over the past five years.*

DATA COLLECTION & METHODS

Average daily traffic (ADT) counts are collected at six locations within West Yellowstone, providing an ongoing picture of traffic demand at key locations in the town and allowing for measurement of changes in traffic over time. The project team examined ADT between 2009 and 2018; in all six locations, vehicle counts grew by between 5% and 11% annually. Growth was slightly higher for traffic entering from the west on US-20, and entering Yellowstone National Park, than for traffic entering from the north on HWY 191 and within the town center area. Specific counts and locations are depicted on Figure 9.

General Approach to Data Collection

Data collection was conducted between June 25th-26th (parking) and July 9th-10th (roadway/intersection). Traffic data previously collected at the West Gate of Yellowstone National Park for previous studies was also utilized for this study. Data from Montana Department of Transportation was gathered for reference and use of determining traffic growth rates over the years.

Data Collection Field Work Plan

Survey questions were developed to explore specific needs in West Yellowstone and encompassed the entrance experience at the West Entrance to the park.

Parking occupancy counts were conducted five times a day (morning, midday, afternoon, evening, and night) for two days during the week of June 25th-26th. Locations counted include:

- Visitor Center parking lot;
- On-street parking between Electric St and Boundary St and between Gray Wolf Ave and Gibbon Ave;
- Up-to-five other parking lot locations determined through stakeholder interviews

Miovision Scout video-based data collection systems was used to collect intersection turning movement (ITM) counts. Data collection was performed at six intersection locations and vehicle counts and pedestrian/bicycle counts were collected at each location. The locations included:

- Yellowstone Ave / Canyon St
- Madison Ave / Canyon St
- US-20 / Canyon St
- US-20 / Iris St
- US-20 / Hayden St
- US-20 / Electric St
- US-20 / Dunraven St

The ITMs were collected for the AM and PM peak two-hour periods. These were conducted on July 9th.

The project team utilized Miovision Scout video-based counters and/or pneumatic tube counters to collect average daily traffic volumes and vehicle classification at one location on up-to-four key roadways. These locations included:

- US-20 (west of West Yellowstone)
- Hwy 191 (north of West Yellowstone)

The daily roadway counts were collected for 48 hours over two days (July 9th and 10th).

In order to better understand where visitors and pass-through trips to/through West Yellowstone begin and end, we used a sample of trips from vendor, StreetLight Data. These trip records are collected using location-based services (LBS) data from mobile phone apps and processed to provide an estimate of vehicle trips between given origins and destinations on an average day. Our data sample was based on activity during peak season months (May through September) for 2016 through 2018.

Inventories of existing traffic conditions and important wayfinding signage on four key routes were completed using an ArcGIS-based mobile application that allows field technicians to photograph and geocode locations for individual signs. Images and key data are saved on a GIS layer with database compatibility. This approach provides detailed and accurate sign inventory results. The detailed sign inventory data can be found in the Appendix. This information was used to understand the existing wayfinding system in West Yellowstone and were the baseline of our wayfinding recommendations that come as a result of our analysis.

TRAVEL PATTERNS

In order to understand the context of where travelers to, and through, West Yellowstone are ultimately bound for, the project team worked with StreetLight Data, a vendor that collects LBS data from Global Posistioning Service (GPS) and mobile phones to understand travel patterns. Using the StreetLight data portal, a sample of trips between major origins and destinations to and through West Yellowstone was collected. Origins and destinations evaluated included:

- US-20 west of West Yellowstone
- US-191 south of Big Sky
- US-89 east of US-191 and US-89 junction
- US-191 north of West Thumb
- West Yellowstone

Travel data from May through September of 2016 through 2018 was collected and analyzed. The origin-destination analysis showed that the largest volume of traffic into and out of West Yellowstone was to and from US-20, with 54% of vehicles sampled using this route. 17% of traffic passes through West Yellowstone from US-20 to US-191 or vice versa; an additional 6% arrives or departs from West Yellowstone via US-191. 19% arrives or departs West Yellowstone from Yellowstone National Park. A summary of significant movements to, from, and through West Yellowstone is shown in Figure 5.

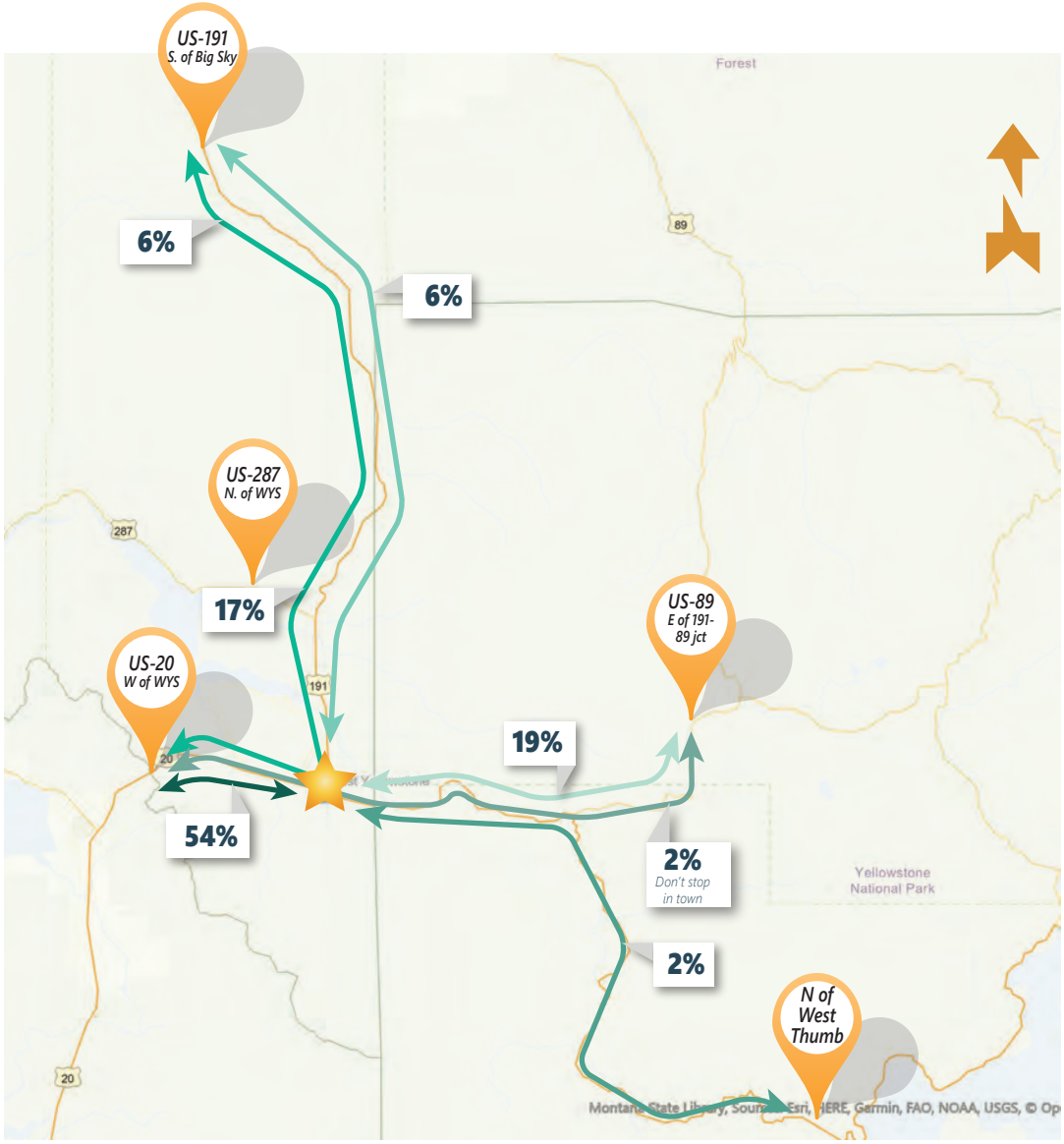


Figure 5: Major origins and destinations for West Yellowstone traffic. Source: StreetLight Data. The data doesn't add up to 100% due to rounding and minor movements.

The majority of traffic stops at least briefly in West Yellowstone. Approximately 2% of travelers go to/from US-20 and to/from Yellowstone National Park without stopping in town.

PARKING DATA

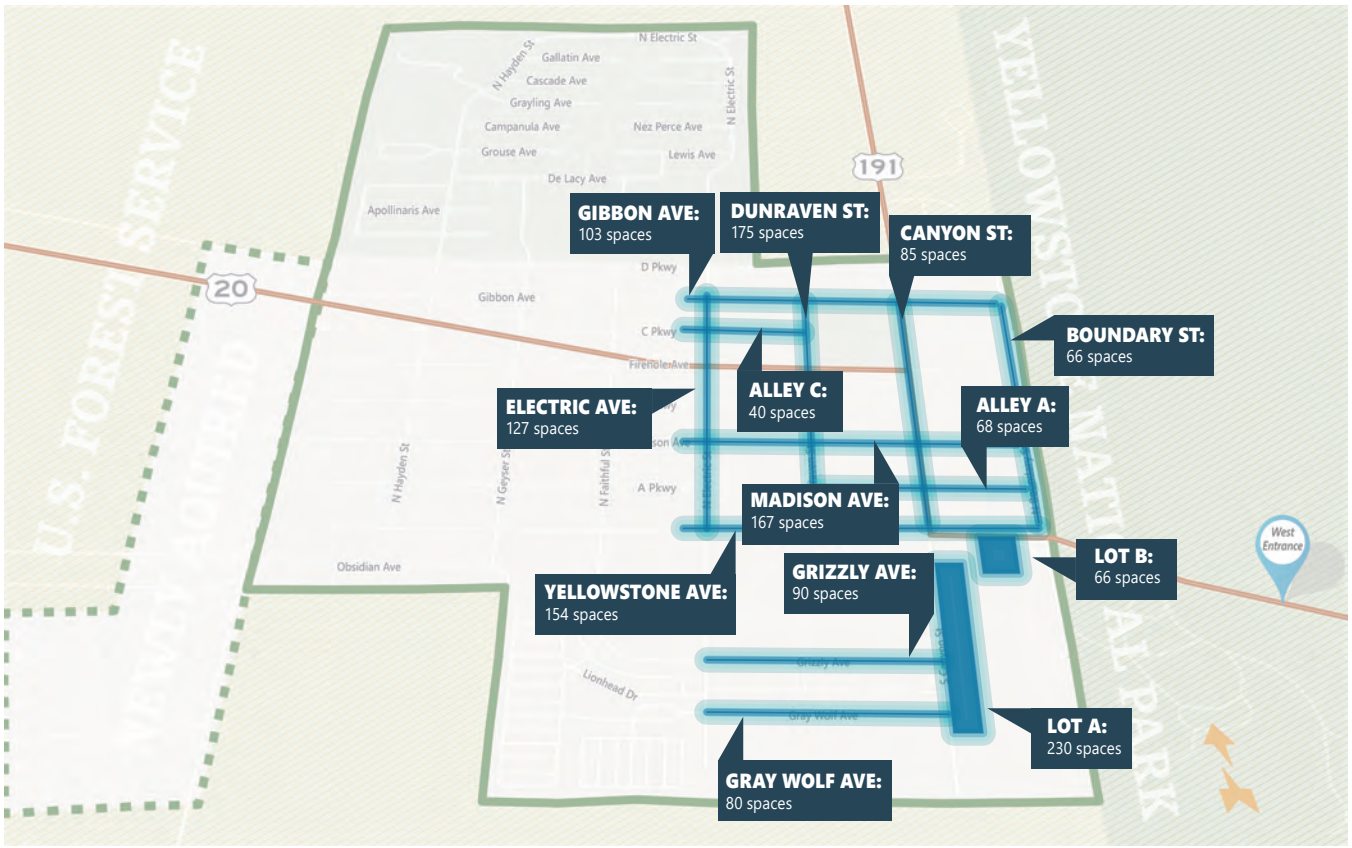


Figure 6: Current estimated public parking opportunities in West Yellowstone.

Parking availability was raised as an area of concern for local stakeholders. In order to provide a foundation of data for evaluating parking conditions, public parking occupancy counts were collected on June 25th and 26th, 2019 at the public surface lots south of Yellowstone Avenue, and on-street parking locations on the following streets:

- Boundary Street
- Canyon Street
- Dunraven Street
- Electric Street
- Gibbon Avenue
- Madison Avenue
- Yellowstone Avenue
- Grizzly Avenue
- Gray Wolf Avenue
- US-20
- Alley A
- Alley C

Counts were taken at five time periods across the day, reflecting morning, midday, afternoon, evening, and late evening conditions. Parking supply figures were collected using aerial imagery.

Table 2. Parking Demand (Average)

Location	Supply	9:00 AM	12:30 PM	5:00 PM	6:30 PM	8:00 PM	Average %	Max %
Boundary Street	**66**	31	12	9.5	46.5	30	39%	70%
Canyon Street	**85**	34.5	49	58.5	57.5	29	54%	69%
Dunraven Street	**175**	75	57.5	50.5	67	78	37%	45%
Electric Street	**127**	32	9	4.5	8	6.5	9%	25%
Gibbon Avenue	**103**	22.5	15	12	16	12	15%	22%
Madison Avenue	**167**	75	101	95.5	153	100.5	63%	**92%**
Yellowstone Avenue	**154**	50.5	63	59	72	33.5	36%	47%
Grizzly Avenue	**90**	0.5	0.5	0.5	0	0	0%	1%
Gray Wolf Avenue	**80**	0	0	1.5	0	0	0%	2%
Firehole Avenue	-	20.5	12.5	8.5	10.5	10	N/A	N/A
Alley A	**68**	6	7.5	4	12.5	6.5	11%	18%
Alley C	**40**	9	1	0.5	1	0	6%	23%
Parking Lot A	**230**	46	103	80	26.5	10.5	23%	45%
Parking Lot B	**66**	34	51	45.5	29	10	51%	77%
TOTAL Parking:	***1,451***	437	482	430	500	327	30%	34%
TOTAL On-Street:	***1,155***							
TOTAL Public Lot:	***296***							

Table 3. Parking Demand (Max)

Location	Supply	9:00 AM	12:30 PM	5:00 PM	6:30 PM	8:00 PM	Average %	Max %
Boundary Street	**66**	42	17	11	52	32	47%	79%
Canyon Street	**85**	55	50	62	58	30	60%	73%
Dunraven Street	**175**	81	64	53	71	85	40%	49%
Electric Street	**127**	56	10	5	9	9	14%	44%
Gibbon Avenue	**103**	25	18	15	16	15	17%	24%
Madison Avenue	**167**	80	119	116	162	108	70%	**97%**
Yellowstone Avenue	**154**	57	78	64	75	35	40%	51%
Grizzly Avenue	**90**	1	1	1	0	0	1%	1%
Gray Wolf Avenue	**80**	0	0	3	0	0	1%	4%
Firehole Avenue	-	32	14	11	15	11	N/A	N/A
Alley A	**68**	7	10	5	17	10	14%	25%
Alley C	**40**	16	1	1	2	0	10%	40%
Parking Lot A	**230**	62	104	82	27	11	25%	45%
Parking Lot B	**66**	38	55	51	31	12	57%	83%
TOTAL Parking:	***1,451***							

Figure 7: Angled parking on Yellowstone Avenue

As shown in Figure 8, peak utilization of public parking in the town's commercial core ranged from 22% on Gibbon Avenue to 92% on Madison Avenue, during each area's individual peak period. However, the maximum observed parking occupancy across the entire commercial core was 41%. This indicates that while certain areas may experience high demand and some crowding, the town's overall parking supply is adequate to meet current visitor demand and absorb some future demand. Accordingly, strategies to enhance parking in West Yellowstone should focus on providing wayfinding signage towards underutilized parking, encouraging turnover of parking spaces through time restriction signage[1], and discouraging all-day parking in prime locations by residents and workers through regulations/enforcement.

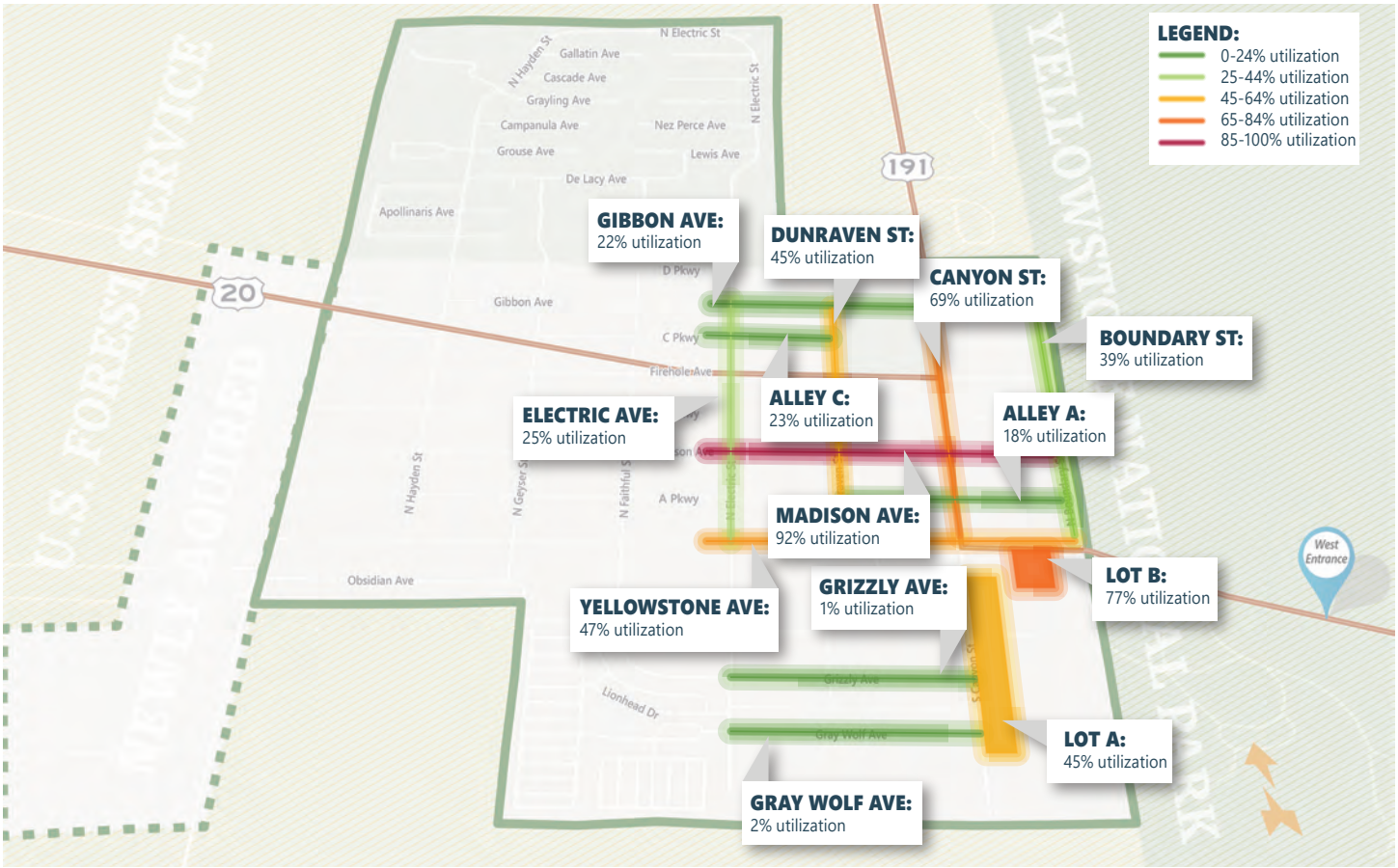


Figure 8: Current average public parking utilization in West Yellowstone.

1 *Data show that space is available but perception may be that it's difficult to find a spot during peak times which increases congestion as people circle for parking. Time restriction can increase turnover and encourage those who want to stay in the area longer to park outside of prime areas. This is a common recommendation for maximizing the value of free parking in high-demand locations.*

Traffic Analysis & Conditions

OVERVIEW

During West Yellowstone's summer season of peak visitation, observed current traffic conditions are generally acceptable along US-20 and US-191, with the exception of the intersection of Yellowstone Avenue and Canyon Street, which experiences higher levels of congestion and delay during the PM peak period (6:00 pm to 7:00 pm). However, future peak period volumes are anticipated to increase by 2030 to the point that several other intersections are likely to experience congested conditions during both AM (9:00 am to 10:00 am) and PM peak hours (6:00 pm to 7:00 pm). Accordingly, the project team evaluated several alternative scenarios for mitigating traffic congestion during peak conditions.

WEST YELLOWSTONE GROWTH RATES

The Town of West Yellowstone has experienced high rates of growth in traffic and visitation over the past 10 years, resulting in some traffic issues in the Town during the summer months. As part of this project, the project team evaluated existing and projected 2030 traffic conditions at key intersections in the Town. To do this, growth rates were derived from the last five years[2] of available data to project probable future conditions. Montana Department of Transportation maintains traffic counters at and near West Yellowstone, which provided insight into traffic growth in the area. Figure 9 shows existing and future forecasted average daily traffic volumes.

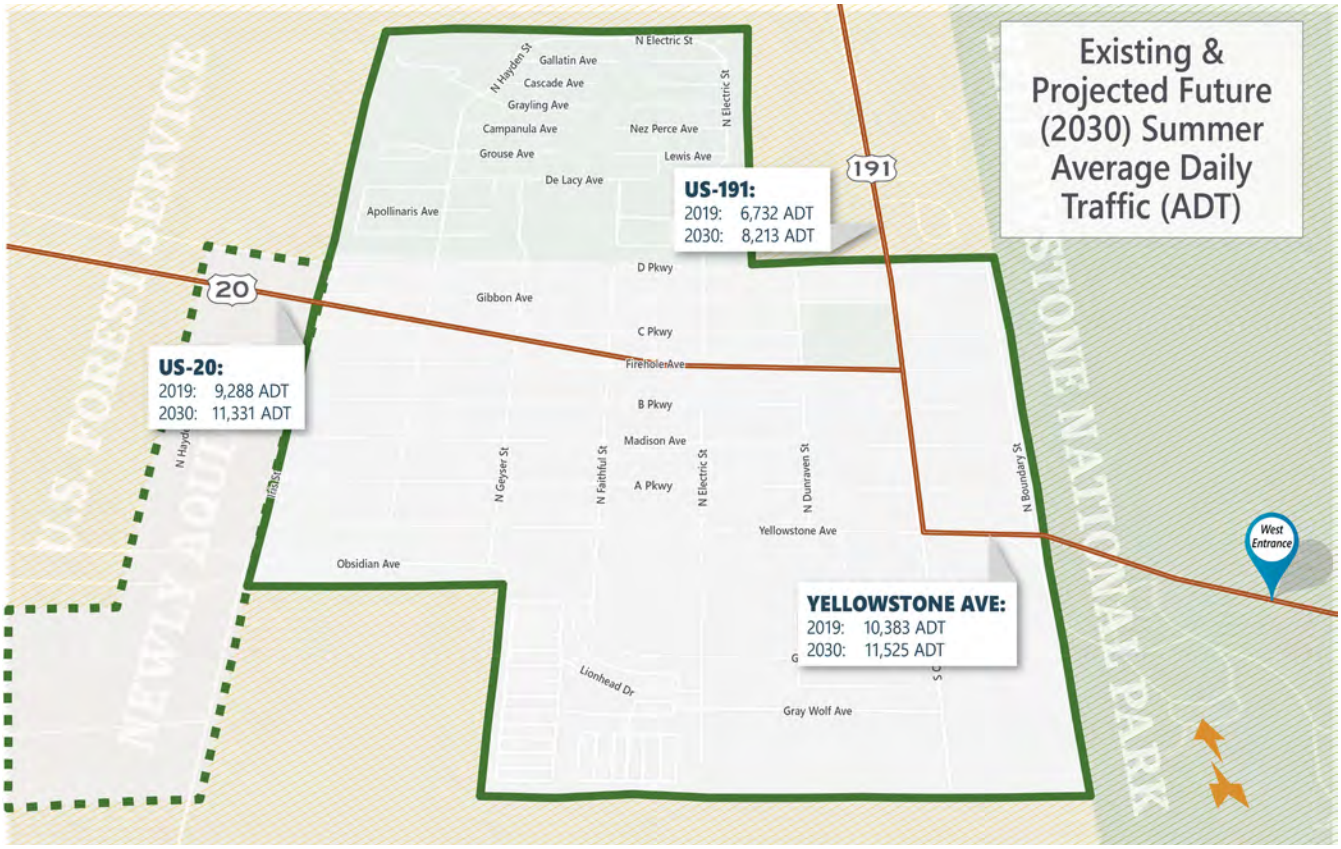


Figure 9: ADT and Annual Growth Rates

Using the information displayed in Figure 9 and knowledge of the area, the following growth rates were determined:

- 1% per year for minor side streets (Iris St, Electric St, etc.)
- 1% per year for Yellowstone Avenue
- 2% per year for US-20 and Canyon Street

These growth rates assume that development within the Town will continue to occur incrementally; however, large expansions of commercial development and/or lodging may drive additional growth in visitation and traffic. Refer to "Alternatives" on page 23, for comparisons of growth rate to capacity.

2 *Used low end of range of growth rates given recent spike.*

STUDY INTERSECTIONS

Figure 10: Study Intersections

For the West Yellowstone analysis, seven intersections are included as key intersections in the study:

1) US-20 / Iris Street
2) US-20 / Hayden Street
3) US-20 / Electric Street
4) US-20 / Dunraven Street
5) US-20 / Canyon Street
6) Madison Avenue / Canyon Street
7) Yellowstone Avenue / Canyon Street

This analysis focuses on analyzing these intersections during the AM and PM peak hour. Traffic counts were collected at the study intersections to establish a baseline of existing conditions and operations for the area. Traffic counts for the weekday 2-hour peak period were recorded at the following times based on data from the 24-hour roadway counts:

» 8:30 AM to 10:30 AM, Tuesday July 9th, 2019
» 5:00 PM to 7:00 PM, Tuesday July 9th, 2019

From these counts in this period, it was determined that the AM and PM peak hours are 9:00 AM to 10:00 AM and 6:00 PM to 7:00 PM.

METHODOLOGY

Level of Service (LOS) is a term that describes the operating performance of an intersection or roadway. LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst. Typically, LOS C or better is considered acceptable for communities similar to West Yellowstone.

Table 1 provides a brief description of each LOS letter designation and an accompanying average delay per vehicle for both signalized and unsignalized intersections. The Highway Capacity Manual 6th Edition (HCM 6) methodology was used in this study to remain consistent with "state of the practice" professional standards. This methodology has different quantitative evaluations for signalized and unsignalized intersections. For signalized intersections, the LOS is provided for the overall intersection (weighted average of all approach delays). Software used for this analysis includes Synchro for signalized and unsignalized intersections.

Based on park data at Madison Junction, weekends have lower traffic volumes than the first half of weekdays (Monday through Wednesday, with traffic peaking on Tuesdays). Therefore weekends were not part of this study.

Table 4. Level of Service Descriptions

LOS	Description	Signalized Intersections *Avg. Delay (sec/veh)*[2]	Unsignalized Intersections *Avg. Delay (sec/veh)*[2]
A	**Free Flow / Insignificant Delay** *Extremely favorable progression. Individual users are virtually unaffected by others in the traffic stream.*	< 10	< 10
B	**Stable Operations / Minimum Delays** *Good progression. The presence of other users in the traffic stream becomes noticeable.*	> 10 to 20	> 10 to 15
C	**Stable Operations / Acceptable Delays** *Fair progression. The operation of individual users is affected by interactions with others in the traffic stream*	> 20 to 35	> 15 to 25
D	**Approaching Unstable Flows / Tolerable Delays** *Marginal progression. Operating conditions are noticeably more constrained.*	> 35 to 55	> 25 to 35
E	**Unstable Operations / Significant Delays Can Occur** *Poor progression. Operating conditions are at or near capacity.*	> 55 to 80	> 35 to 50
F	**Forced, Unpredictable Flows / Excessive Delays** *Unacceptable progression with forced or breakdown of operating conditions.*	> 80	> 50

EXISTING CONDITIONS

Existing conditions analysis examines the pertinent intersections and roadways during the peak travel periods of the day under existing traffic and geometric conditions. Through this analysis, existing traffic operational deficiencies can be identified.

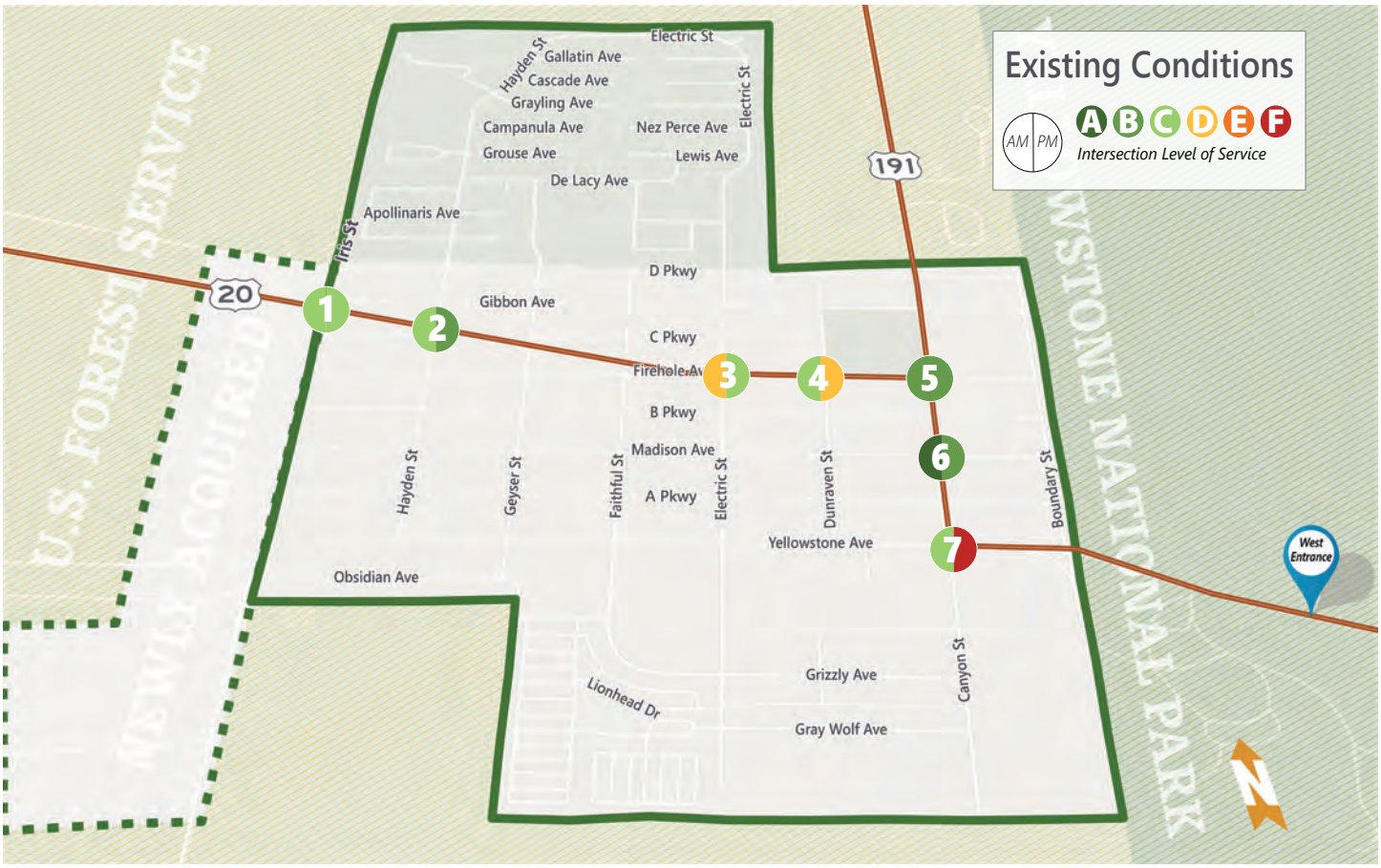


Figure 11: Existing Conditions

The HCM 6 delay thresholds provided in the methodology were used to compute the LOS at each study intersection for the existing conditions. Figure 11 shows the results of the existing conditions analysis. The results of this analysis show that the following intersections have higher delay when compared to other intersections:

- ***Electric Street & US-20:*** *LOS D during AM peak hour. This intersection has LOS D primarily because of the high number of northbound and southbound vehicles crossing or turning to US-20 and conflicting with eastbound and westbound traffic.*
- ***Dunraven Street & US-20:*** *LOS D during PM peak hour. This intersection has LOS D primarily because of the high number of northbound vehicles turning left to US-20 and conflicting with eastbound and westbound traffic.*
- ***Yellowstone Avenue & Canyon Street:*** *LOS F during the PM peak hour. This intersection fails in the PM peak hour primarily because the westbound left- and right-turning vehicles do not have enough green time to complete their maneuver.*

The data shows and the observations conclude conditions at intersection 7 in Figure 11 aren't adversely impacting conditions at the west gate inbound or outbound.

ALTERNATIVES

A series of transportation system performance scenarios, forecast models, and other data analysis was performed to develop several alternative options. The best-performing alternatives are presented in this section. Each alternative is described in detail on the following pages, with an overall description here:

- ***2030 No-Build Alternative:*** A baseline option that helps evaluate the impacts of staying the current course.
- ***2030 Diverted Alternative:*** Diverting a portion of the traffic to alleviate some of the issues that can develop in town as traffic increases.
- ***2030 Couplet Alternative:*** One-way couplets are a pair of parallel, one-way streets that carry opposite directions of traffic to alleviate congestion.

Table 5. Alternatives LOS Overview

ID	Address	Period	*Existing Conditions*	*2030 No-Build Alternative*	*2030 Diverted Alternative*	*2030 Couplet Alternative*
1	US-20 / Iris Street	AM	C	D	A	D
		PM	C	C	A	C
2	US-20 / Hayden Street	AM	C	C	C	C
		PM	B	C	B	C
3	US-20 / Electric Street	AM	D	F	D	F
		PM	C	C	C	C
4	US-20 / Dunraven Street	AM	C	D	C	D
		PM	D	E	D	E
5	US-20 / Canyon Street	AM	B	B	B	B
		PM	B	B	B	B
6	Madison Avenue / Canyon Street	AM	A	A	A	A
		PM	B	B	B	B
7	Yellowstone Avenue / Canyon Street	AM	C	E	B	B
		PM	F	F	B	B

2030 NO-BUILD ALTERNATIVE

Figure 12: 2030 No-Build Alternative

Generally, the No-Build Alternative is a baseline option that helps evaluate the impacts of doing nothing or staying the current course. The No-Build Alternative involves no addition of capacity and either no construction or minimal construction.

A future analysis was performed for the year 2030 to identify any deficiencies in the current network that should be addressed in order to maintain an acceptable LOS in the future. Fehr and Peers projected 2030 volumes using the linear annual growth rates previously stated in the West Yellowstone Growth Rates section.

The HCM 6 delay thresholds provided in the methodology were used to compute the LOS at each study intersection for the 2030 no build. Figure 12 shows the results of the 2030 no build analysis. The results of this analysis show that the following intersections have higher delay when compared to the No-Build Alternative:

» ***Iris Street & US-20:*** LOS D during AM peak hour. This intersection has LOS D primarily because of the high number of northbound vehicles crossing or turning to US-20 and conflicting with eastbound and westbound traffic.

» ***Electric Street & US-20:*** LOS F during AM peak hour. This intersection has LOS F primarily because of the high number of northbound and southbound vehicles crossing or turning to US-20 and conflicting with eastbound and westbound traffic.

» ***Dunraven Street & US-20:*** LOS D and LOS E during AM and PM peak hour, respectively. This intersection has LOS D/E primarily because of the high number of northbound and southbound vehicles turning left to US-20 or crossing it, which conflict with eastbound and westbound traffic.

» ***Yellowstone Avenue & Canyon Street:*** LOS E and LOS F during AM and PM peak hour, respectively. This intersection has LOS E/F primarily because the eastbound and westbound left- and right-turning vehicles do not have enough green time to complete their maneuver.

2030 DIVERTED ALTERNATIVE

Figure 13: 2030 Diverted Roadway Alternative

The 2030 No-Build showed that improvements should be made in West Yellowstone to improve the traffic flow in the town. One alternative is to divert a portion of both inbound and outbound traffic using Canyon Street coming from US-20 to Yellowstone National Park to Iris Street. Diverting a portion of the traffic through wayfinding signage would alleviate some of the issues that can develop as the traffic through the town increases. LBS data sources were used to determine the proportion of traffic that can be diverted, and it was found that 30% is a conservative estimate, as traffic can be diverted from Canyon Street to Iris Street. This alternative also changes the lane configuration for the eastbound and westbound approaches at Yellowstone Avenue and Canyon Street from a shared through-left and a right-turn bay to a separate left-turn, through, and right-turn lanes. A new traffic signal at Iris Street and US-20 is also recommended in this alternative. For more on recommended signage, see "Wayfinding Recommendations" on page 37.

The HCM 6 delay thresholds provided in the methodology were used to compute the LOS at each study intersection for the 2030 Diverted alternative. Figure 13 shows the results of the 2030 diverted conditions analysis. The results of this analysis show that the following intersections have higher delay as compared to other intersections:

- ***Electric Street & US-20:*** LOS D during AM peak hour. This intersection has LOS D primarily because of the high number of northbound and southbound vehicles crossing or turning to US-20 and conflicting with eastbound and westbound traffic.
- ***Dunraven Street & US-20:*** LOS D during PM peak hour. This intersection has LOS D primarily because of the high number of northbound and southbound vehicles turning left to US-20 or crossing it, which conflict with eastbound and westbound traffic.

Overall, the diverted alternative considerably improves the performance of most intersections, with a few specific intersections that perform at LOS D. However, these intersections have low volumes on the side streets compared to the heavy traffic volume movements.

2030 COUPLET ALTERNATIVE

Figure 14: 2030 One-way Couplet Alternative

Another alternative that was evaluated to improve traffic flow in the town is to reconfigure Canyon and Boundary Streets as a pair of one-way couplets. One-way couplets are a pair of parallel, usually one-way streets that carry opposite directions of traffic. In this configuration, Canyon Street was reduced to only two southbound lanes and no northbound lanes between US-20 and Yellowstone Avenue. Boundary Street was also reduced to two northbound lanes and no southbound lanes between US-20 and Yellowstone Avenue. The three currently existing signalized intersections along Canyon Street at US-20, Madison Avenue, and Yellowstone Avenue were assumed to continue to be signalized. The three corresponding intersections along Boundary Street were not projected to meet peak hour volume signal warrants, so those will remain as side-street stop controlled.

The HCM 6 delay thresholds provided in the methodology were used to compute the LOS at each study intersection for the 2030 couplet alternative. Figure 14 shows the results of the 2030 couplet conditions analysis. The results of this analysis show that the following intersections have higher delay compared to the No-Build Alternative:

- ***Iris Street & US-20:*** LOS D during AM peak hour. This intersection has LOS D primarily because of the high number of northbound vehicles crossing or turning to US-20 and conflicting with eastbound and westbound traffic.
- ***Electric Street & US-20:*** LOS D during AM peak hour. This intersection has LOS D primarily because of the high number of northbound and southbound vehicles crossing or turning to US-20 and conflicting with eastbound and westbound traffic.
- ***Dunraven Street & US-20:*** LOS D during PM peak hour. This intersection has LOS D primarily because of the high number of northbound and southbound vehicles turning left to US-20 or crossing it, which conflict with eastbound and westbound traffic.

Functionally, the couplet performed well, but not as well as the diverted alternative. Removing the opposing traffic along those two streets allowed for vehicle delay to remain at acceptable levels (LOS C or better) at each intersection. However, it should be noted that, with the couplet configuration, the roadway segments along US-20 and Madison Avenue between Canyon Street and Boundary street are likely to experience significantly increased vehicle trips. With existing signal timing, the intersection at Canyon Street and US-20 is expected to experience significant westbound queuing which is likely to spill back to Boundary Street in the PM peak hour. The high queues observed during the analysis are likely due to the increased volumes and limited lane capacity. With optimized timings, the queues observed in the model were reduced, but the queues still occasionally exceeded capacity and backed onto Boundary Street. The increased through traffic and long queueing are both likely to make accessing the existing retail storefronts along US-20 difficult. Because of the increased volumes and queues on the minor streets caused by the couplet configuration, Fehr and Peers does not recommend this alternative.

Recommendations

CIRCULATION RECOMMENDATIONS

Traffic analysis of operations on West Yellowstone's primary streets show that 2030 traffic conditions will likely be congested during summer peak hours. Alternatives for improving circulation on US-20 and Canyon Street are focused on providing alternate routes for visitors resulting in a dispersion of traffic. Two main alternatives were considered and analyzed. Conceptual Cost Estimates for the final recommendations can be found in the Appendix.

- ***2030 Diverted:*** 30%[3] of traffic between west US-20 and Yellowstone National Park diverted from Canyon Street to Iris Street via signage, a signal at Iris Street and US-20, and reconfiguration of eastbound and westbound approaches at Canyon Street and Yellowstone Avenue from a shared through-left and right-turn lanes to a left, through, and right turn lanes. See the Appendix for more information on signage.
- ***2030 Couplet:*** Canyon Street converted to a southbound only street and Boundary Street converted to a northbound only street.

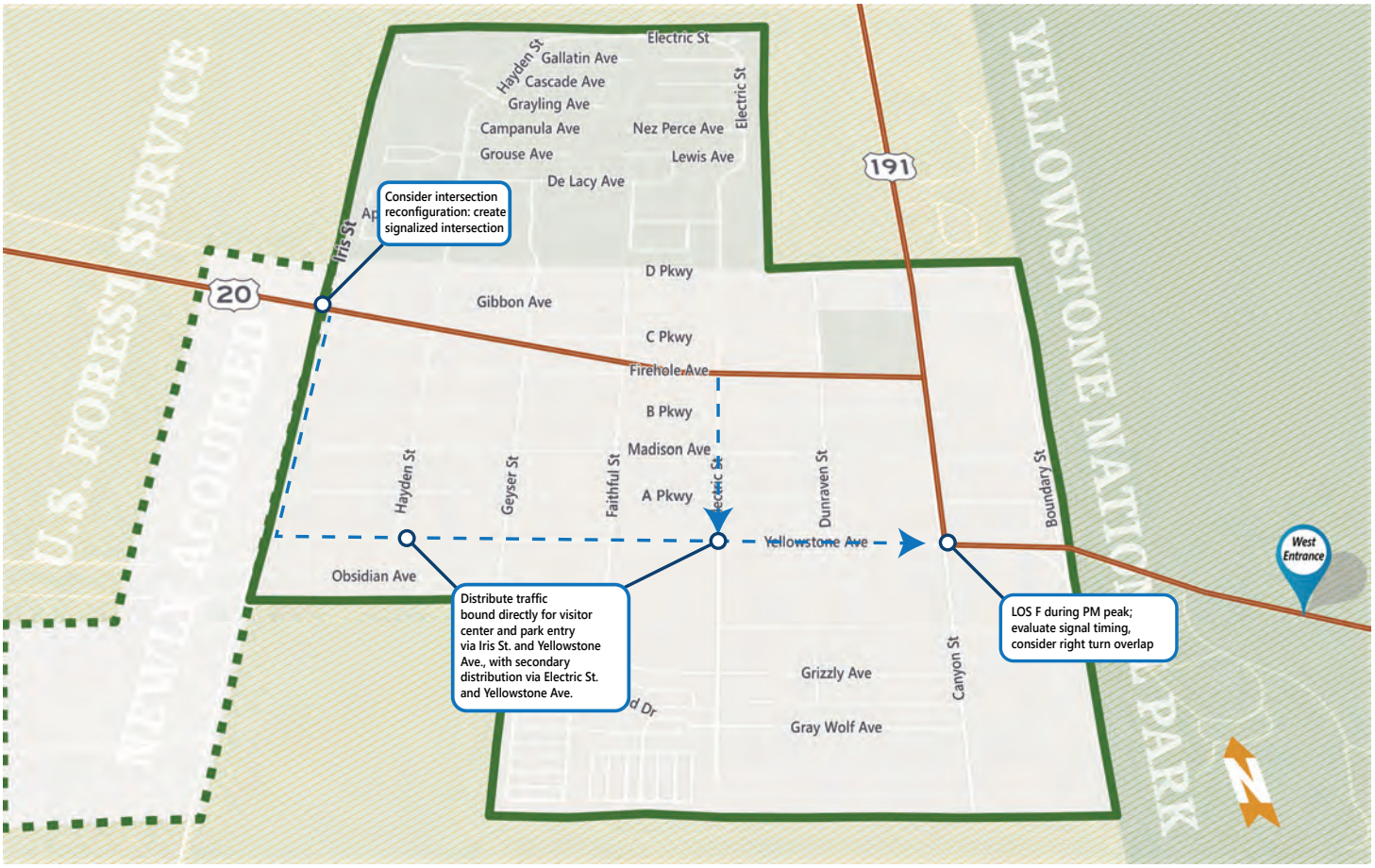


Figure 15: Map of traffic circulation recommendations

For the Diverted Alternative, wayfinding signage would be installed to direct traffic entering West Yellowstone on US-20 and bound for the visitor center and/or Yellowstone National Park to divert onto Iris Street to Yellowstone Avenue. This configuration would allow for better distribution of traffic utilizing the good existing street network, reducing congestion on US-20 and Canyon Street in town during the morning peak period. Additionally, wayfinding signage would be installed to direct visitors exiting the park to head west via the same route, reducing congestion on Canyon Street during the evening peak. This alternative also would encourage additional economic growth opportunities along Yellowstone Avenue and on Iris Street. The couplet alternative also provides promising LOS results (albeit not as good as diverted alternative); however, more queues will be expected the Canyon Street and US-20 that could hinder economic development in the area. In summary, the Diverted alternative is recommended for the town of West Yellowstone.

3 *This will not divert 100% of traffic, as many will want in-town services.*

2030 Diverted Roadway Alternative Intersection Concept Designs

Figure 16: 2030 Diverted Signal Eastbound Yellowstone Avenue Intersection

Figure 17: 2030 Diverted Signal Westbound Yellowstone Avenue Intersection

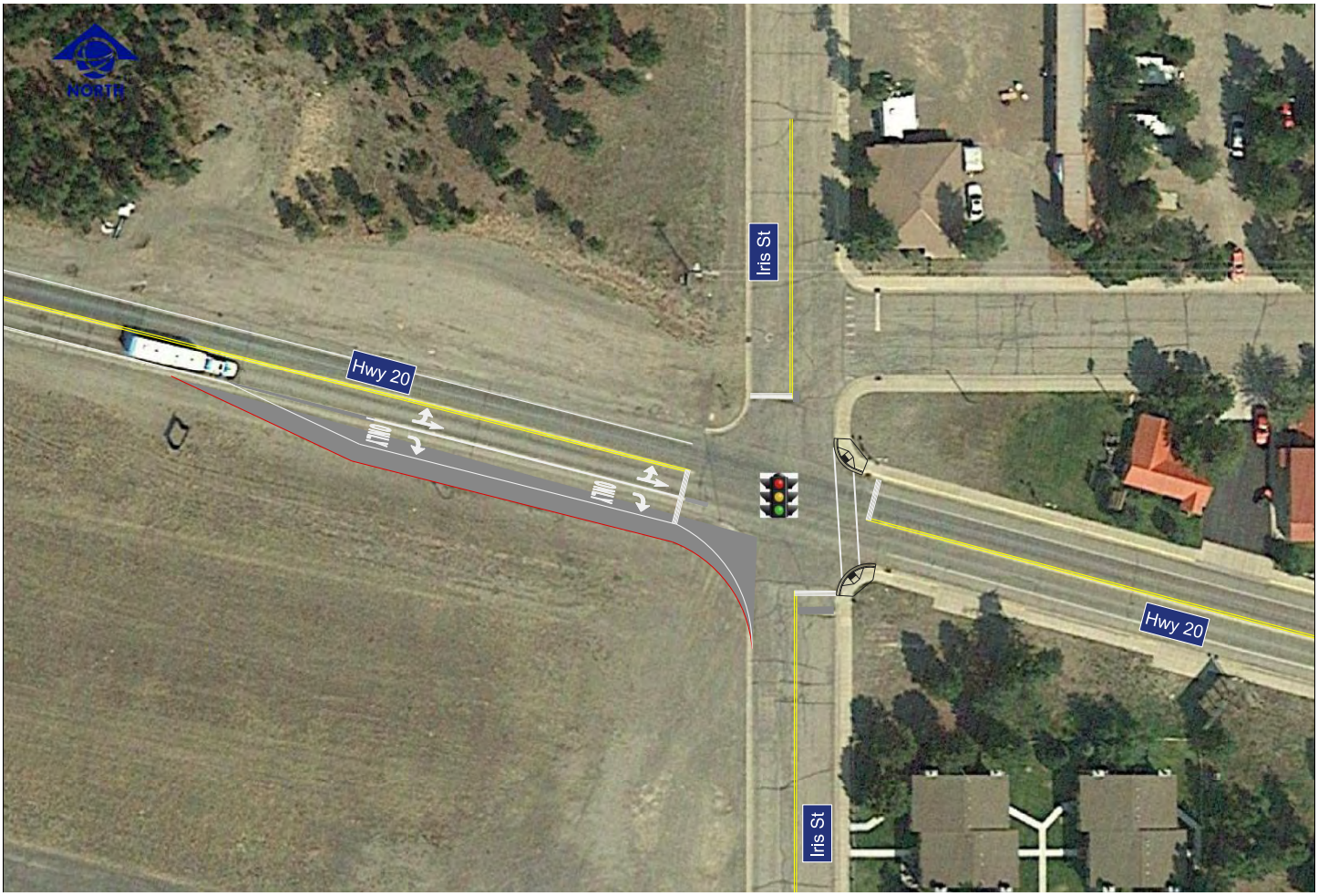


Figure 18: Iris Street and Highway 20 Intersection

TRANSIT

West Yellowstone stakeholders have expressed interest during the planning process in developing a transit/shuttle system to reduce congestion in town and at the West Entrance. Such a shuttle could have the dual benefits of reducing congestion within the town by providing connections between lodging and attractions, dining, and shopping in the town center, while also taking automobiles off the west entrance and certain roads within Yellowstone National Park by providing visitors with shuttle access to the most popular and parking-constrained destinations.

A dedicated transit feasibility study would be an appropriate next step in further developing this concept and determine to what level congestion could be reduced as a result. Such a study should be conducted collaboratively between NPS and Town staff and stakeholders, and consider factors such as alignment and stops in town; frequency and span of service; suitable locations for park and ride facilities; potential bypass or transit priority lanes to avoid congestion, and which destinations within the park to serve.

The existing Visitor Center parking lot would be a strong candidate location for shuttle parking bus, and should be reviewed to determine if it would provide adequate capacity for parking and transit operations.

While demand may not be there in terms of ridership yet, it should be further evaluated; visitor center parking would likely be structured, further study needed.

PARKING RECOMMENDATIONS

An analysis of parking conditions reveals that the overall supply of public parking in and around downtown West Yellowstone is adequate to accommodate existing demands. Accordingly, recommendations for enhancing parking are focused on enhancing navigability and user experience of parking, rather than expanding the supply of parking in the downtown area.

Figure 19: Map of parking recommendations

Existing on-street parking on Canyon Street between Yellowstone Avenue and US-20 is sized to accommodate large vehicles, with approximately 13 feet wide parking lanes. This configuration is sized in excess of needed widths for passenger vehicles, resulting in an unnecessarily wide curb-to-curb width that negatively impacts pedestrian connectivity and experiences and may encourage excessive speeds through town. Narrowing the parking lane to 9 feet and introducing signage directing oversized vehicles to park on adjacent streets would allow for wider sidewalks and pathways by reclaiming additional right-of-way for pedestrian use, and potentially increase the effective supply of parking on Canyon Street with fewer oversized vehicles occupying multiple parking spaces.

In addition to location-specific recommendations, policy efforts can also enhance the availability and utilization of prime parking locations. Working with local businesses to discourage employees from parking on Canyon Street in prime spots for long durations would enhance the effective supply of parking available to meet visitor demand during peak periods. On major streets (such as Canyon Street, Madison Avenue, and Yellowstone Avenue), in the town center area, two-hour parking signage should be installed in order to encourage parking turnover and discourage employee parking in these areas from 8:00 am to 8:00 pm.

Additionally, opportunities are available to enhance the attractiveness of existing parking areas. Existing gravel parking lots in the interior of downtown blocks could be made more attractive to visitors and employees with the addition of pavement, lighting, and signage.

PEDESTRIAN & BICYCLE RECOMMENDATIONS

Enhancing pedestrian and bicycle connections in West Yellowstone provides safety and quality of life benefits to both residents and visitors. Opportunities for improvement include enhancing north-south connections across US-20; expanding the space allocated and furnishings in the pedestrian realm on Canyon Street; and creating multi-use trails to nearby destinations including Yellowstone National Park and the Madison River area campgrounds.

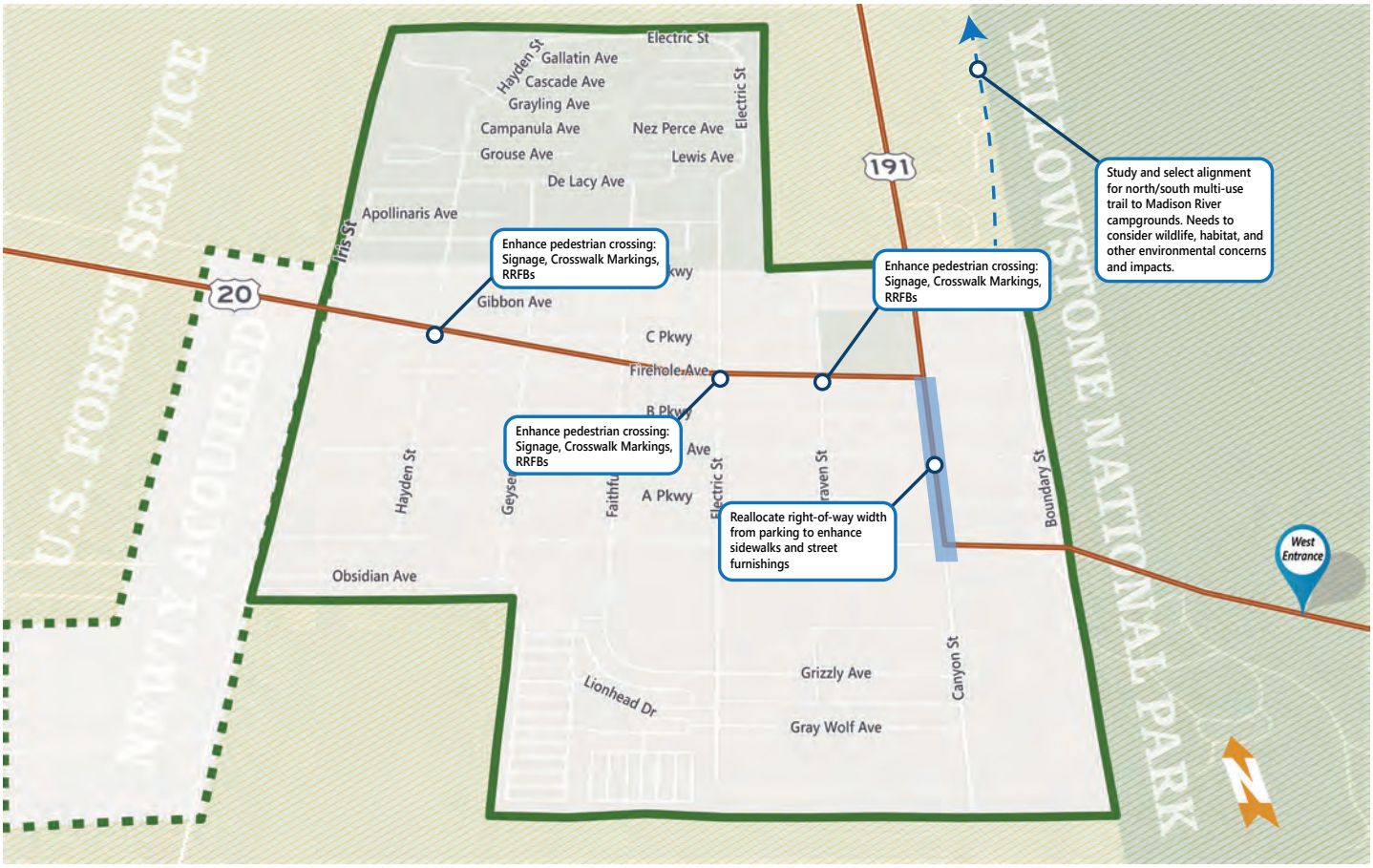


Figure 20: Map of pedestrian and bicycle recommendations

Public and stakeholder outreach indicated that residents have difficulty safely crossing US-20 on foot or bicycle during peak hour traffic conditions. Evaluation of potential crossing locations indicated that traffic and pedestrian volumes are sufficient to warrant installation of pedestrian-actuated rectangular rapid flashing beacons (RRFB) at Hayden Street, Electric Street, and Dunraven Street. Town officials have indicated that crossing improvements have been requested on US-20 at Electric Street, Dunraven Street, and Geyser Street, in the past. In addition to RRFBs, additional design features that can increase pedestrian comfort and safety include providing clear crossing signage, high-visibility crosswalk markings, and curb extensions. If curb extensions are planned in these locations, coordination with Montana Department of Transportation will be necessary to ensure compatibility with snow-clearing operations and equipment. Conceptual cost estimates for the final recommendations can be found in the Appendix.

Canyon Street currently serves as West Yellowstone's primary 'main street', providing shopping, restaurants, and services to visitors. Providing a high-quality pedestrian experience along this corridor can promote better visitor experience and increase the economic viability of adjacent businesses. As discussed above, the wide existing parking lanes have the dual effect of consuming an unnecessarily large share of the available right of way width on Canyon Street, and encouraging undesirably high traffic speeds through the corridor. The figures on the next page show approximate existing and potential alternative cross-sections of Canyon Street at Yellowstone Avenue.

Canyon Street – Existing Cross-Section

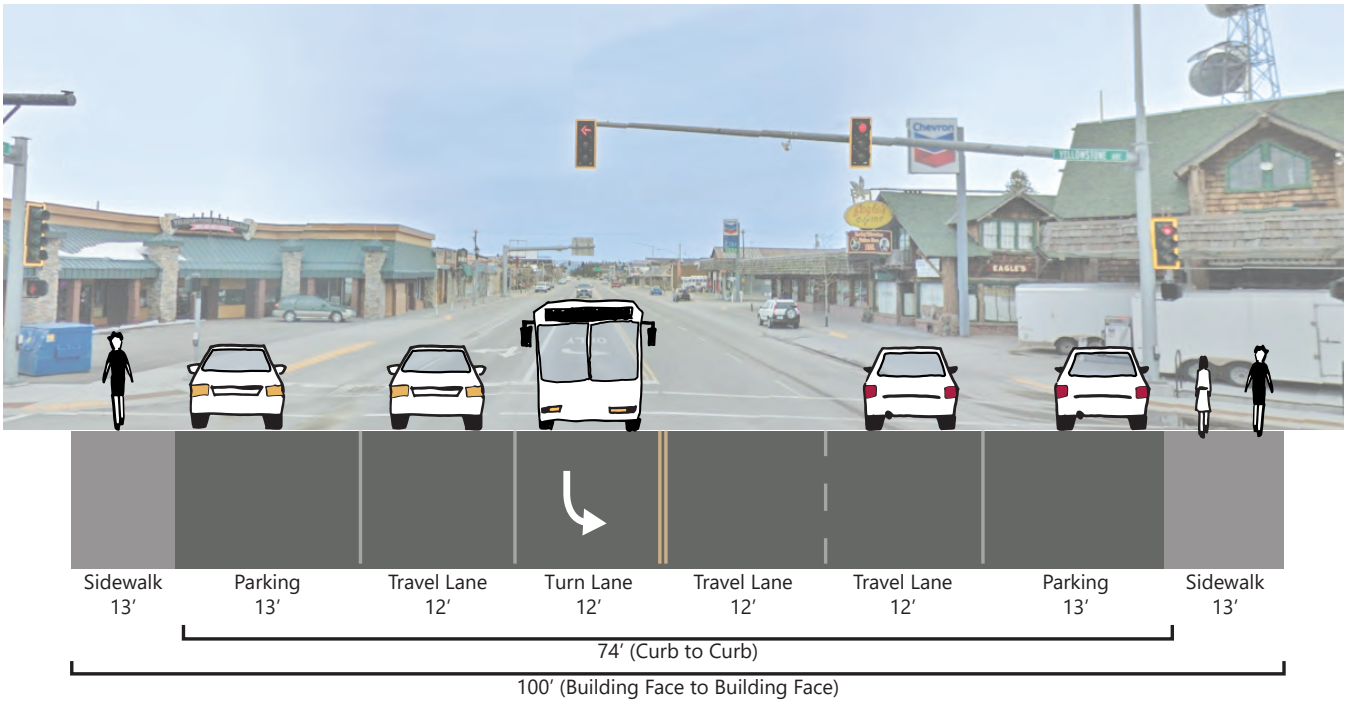


Figure 21: Existing cross section of Canyon Street

Canyon Street – Proposed Cross-Section

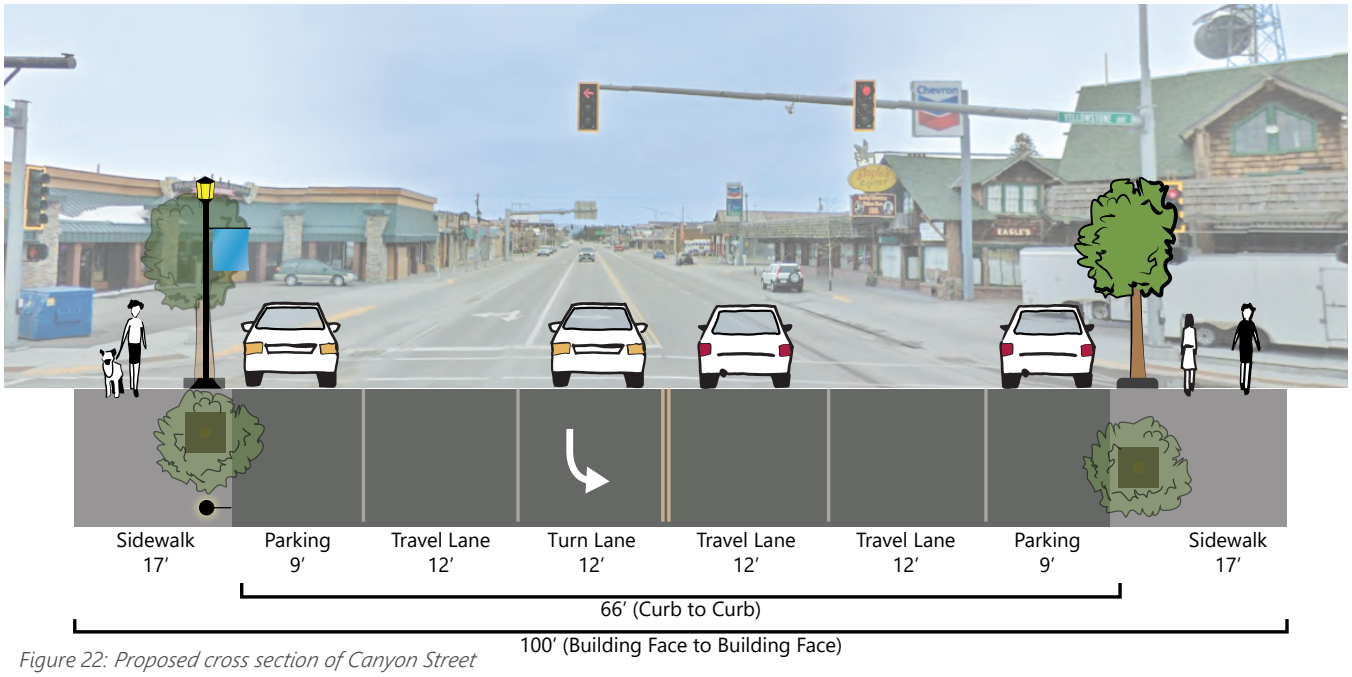


Figure 22: Proposed cross section of Canyon Street

Bicycle connections between West Yellowstone and nearby destinations would provide both transportation alternatives and recreational amenities for residents and visitors. In addition to the obvious destination of Yellowstone National Park, the campgrounds approximately 3 miles north of town between US-191 and the Madison River would also benefit from a trail connection, which would provide access to the river for town residents and visitors, and access to town for campers which could result in less parking demand and less vehicular traffic in town. Feasibility studies of potential alignments for both of these trail options should be undertaken in conjunction with NPS and USFS.

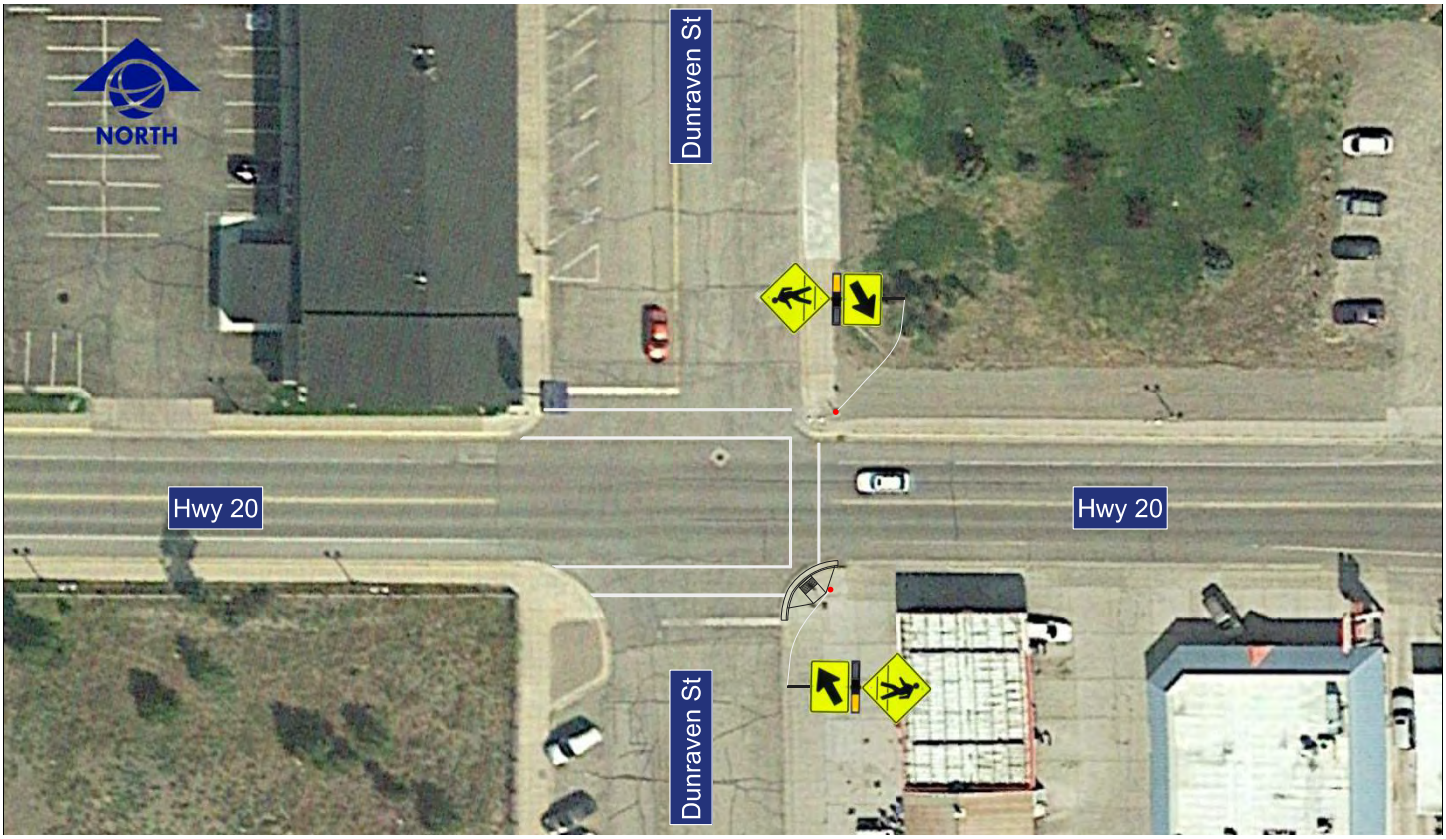


Figure 23: Concept design of crosswalk with Rapid Rectangular Flashing Beacon at Highway 20 and Dunraven Street

Figure 24: Concept design of crosswalk with Rapid Rectangular Flashing Beacon at Highway 20 and Electric Street

Concept Designs (cont'd)

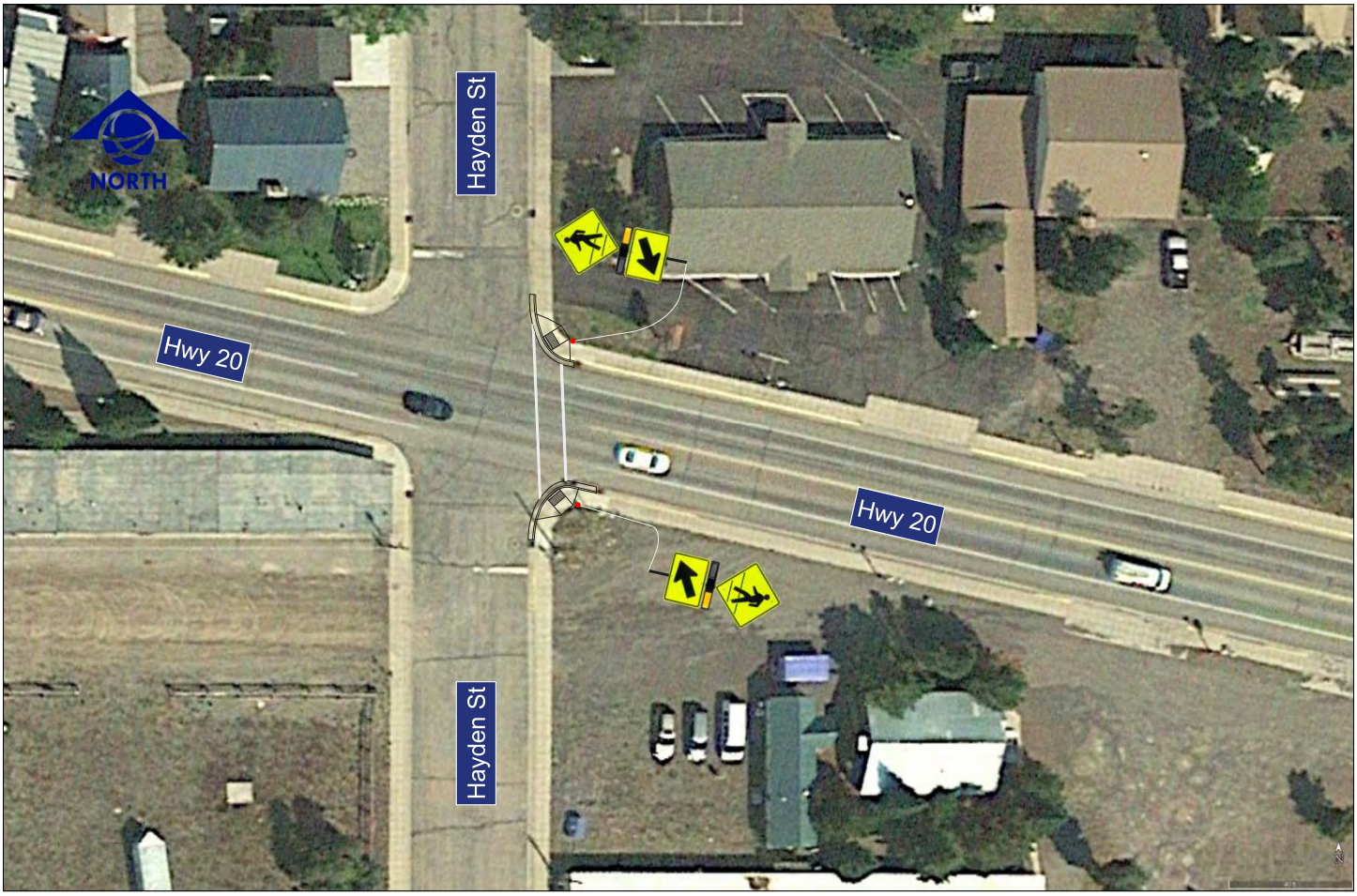


Figure 25: Concept design of crosswalk with Rapid Rectangular Flashing Beacon at Highway 20 and Hayden Street

WAYFINDING RECOMMENDATIONS

A clear system of wayfinding signage is a cost-effective way to improve traffic circulation, promote efficient utilization of parking and other amenities, provide better visitor access to local businesses, provide information for public restroom access, and enhance the overall experience of visitors in West Yellowstone. An overview of recommended wayfinding enhancements is provided in Figure 26.

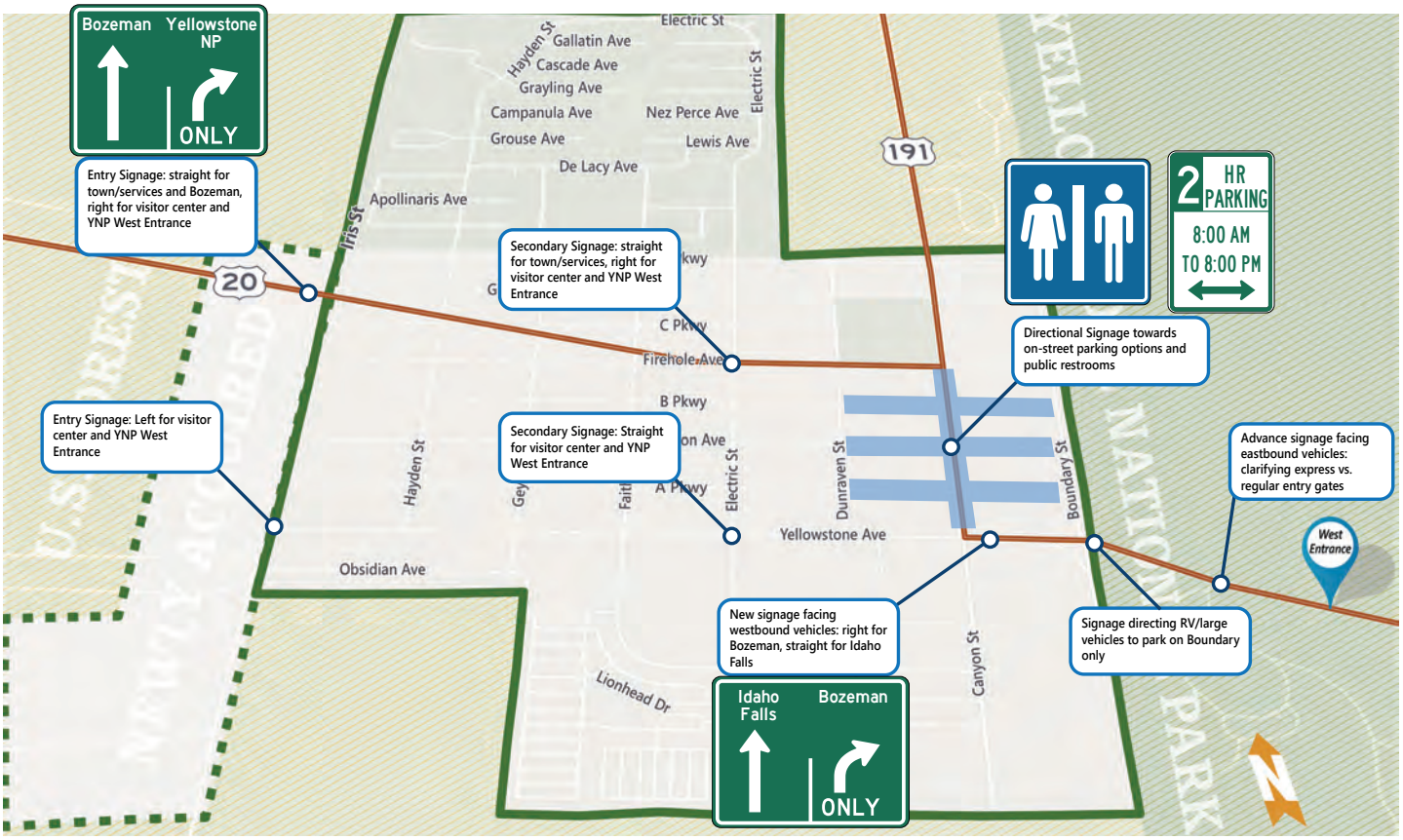


Figure 26: Signage and Wayfinding placement recommendations

Because US-20 provides a clear and direct path through West Yellowstone towards Yellowstone National Park, few first-time visitors are likely to be aware of alternative routes through town. If providing a bypass route towards Yellowstone National Park via Iris Street and Yellowstone Avenue is a desirable goal for the community, signage should be located at the western entrance to town directing traffic to continue on US-20 for in-town services, and to turn right onto Iris Street, with additional signage directing traffic towards Yellowstone National Park entrance and visitor center at Yellowstone Avenue. Optionally, secondary signage with the same messaging could be provided at another point along US-20, such as Electric Street.

Within West Yellowstone's commercial core on Canyon Street, signage should be provided that clearly directs visitors towards available on-street parking on adjacent streets and public restrooms available at the visitor center. These wayfinding signs should be visible to drivers traveling in both directions on Canyon, Yellowstone, US-20, and Madison.

Yellowstone Avenue between Canyon Street and the west entrance to Yellowstone National Park is a key location for providing additional wayfinding that can ease navigation for vehicles entering and exiting the park, reducing congestion associated with vehicles making wrong turns and last-minute lane changes. For vehicles entering the park, signage should clarify which lanes serve regular entry gates (for drivers who need to buy a pass) and express entry gates (for existing passholders). See page 25 "West Gate to Yellowstone National Park" for more information.

For vehicles traveling westbound out of the park, two complimentary signs are recommended. Signage at or ahead of the town line should direct RVs and other large vehicles to park on Boundary Street. Ensuring that large vehicles park on Boundary rather than Canyon Street will reduce impacts from such vehicles making parking maneuvers,

and provide greater capacity on Canyon Street for smaller vehicles. Signage at the intersection of Yellowstone Avenue and Canyon Street should be provided to direct visitors bound for US-20 westbound (Idaho Falls) to proceed along Yellowstone Avenue, while directing visitors wishing to access in-town services and those bound for US-191 northbound (Bozeman/Big Sky) to turn right on Canyon Street.

The west gate rarely backs up into town because of the things that the park is doing. We recommend that park staff continue to improve their west gate plans of having staff in queue lanes to answer questions, distribute maps, etc. This gate is the highest functioning gate of all five gates into Yellowstone. Transaction time at the west gate is less than any of the pother gates. Increasing the rates of vehicles entering the west gate will increase congestion in the park and reduce travel times.

West Gate to Yellowstone National Park

The west gate to Yellowstone National Park is heavily-used and experiences high congestion during specific times. One recommendation is to add context-appropriate lane signage and striping to guide visitors in and out of the park. Additionally, this signage can be used to create "flexible lanes" that can be changed to accommodate the traffic demand.

Figure 27: Aerial view of the west gate

Based on studies and observations of the west gate that have taken place over the last few years, drivers are frequently unsure of which lane they should be in as they approach the West Gate. Existing signage closer to town is not very visible to drivers traveling at prevailing speeds or in the inside lane. As a result, weaving between lanes in the queue leading up to the gate is common and causes additional congestion and delays. More clearly visible signage would reduce these behaviors and resulting congestion. Additionally, the current signage configuration provides for only one express lane, which typically has the longest queue but also processes vehicles more quickly than other lanes. Accordingly, gate operations could benefit from being able to change lane designations when the express lane is backing up, thereby moving cars through the gate more quickly and reducing the number of queued vehicles.

One consideration in implementing signage and related strategies to improve gate operations is that the west gate currently has the highest vehicle throughput per hour of the five Yellowstone National Park entrances. As a result, measures that further increase the efficiency of the west gate may cause downstream traffic issues within the park.

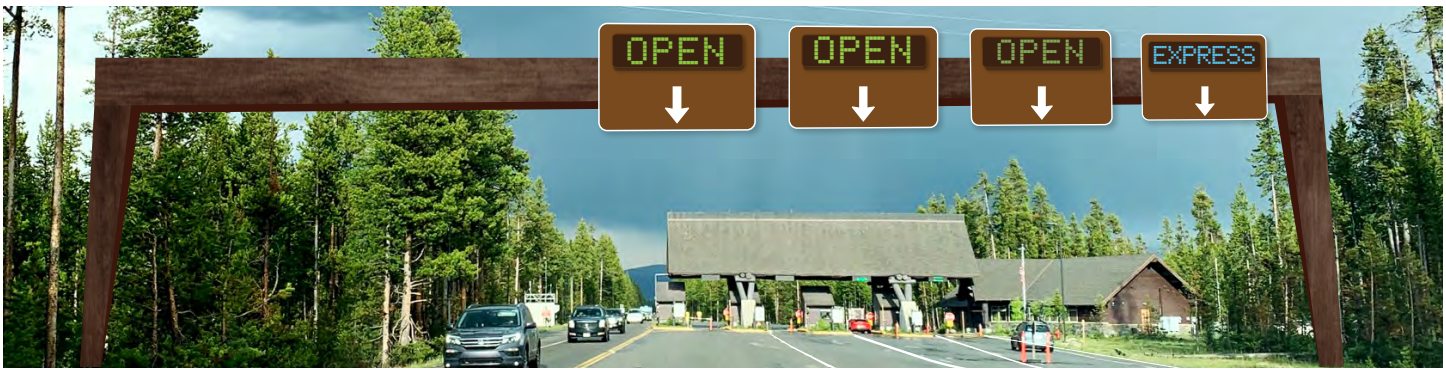


Figure 28: Proposed overhead gantry with signage for current lane configurations using context-appropriate and cost-efficient materials.

Figure 29: Proposed overhead gantry with "flexible lanes" signs that can be changed depending on current traffic needs.

Yellowstone National Park Sign & Restroom Facilities

Figure 30: Current Yellowstone National Park Sign

The existing 'Yellowstone National Park' monument sign at the West Entrance to Yellowstone National Park is a popular spot for visitors to stop and take photos. Also outside the at the West Entrance to Yellowstone National Park is a restroom facility with parking lot. The current placement of both the sign and restrooms being adjacent to queuing vehicles waiting to enter the park causes additional congestion and raises some safety issues. Vehicles frequently pull over onto the side of the road at these locations in order to take pictures, use the restroom, etc., causing delays when vehicles attempt to re-enter the roadway. Additionally, pedestrians often exit vehicles near this location, take a photo, or use the restroom and then walk back to their vehicles; this raises safety concerns with respect to vehicle-pedestrian collisions.


Figure 31: Current Restroom facility

In the past, the monument sign was located in West Yellowstone near the visitor center. In order to reduce delays and pedestrian safety risks at this location, it is recommended that the sign be relocated back to its previous location, where safe parking is available for visitors who wish to take a photo with the sign. Multiple signs located in different locations can help disperse the vehicle congestion and mitigate safety issues as well. This approach has worked successfully in other gateway communities such as Gardiner Montana, northwest of Yellowstone National Park's North Gate. An additional recommendation is to relocate the restroom facility further east, just inside of the West Gate entrance to help prevent traffic congestion and help mitigate safety risks of visitors outside the gate.

Figure 32: Map of current park restroom and monument sign location west of the West Gate.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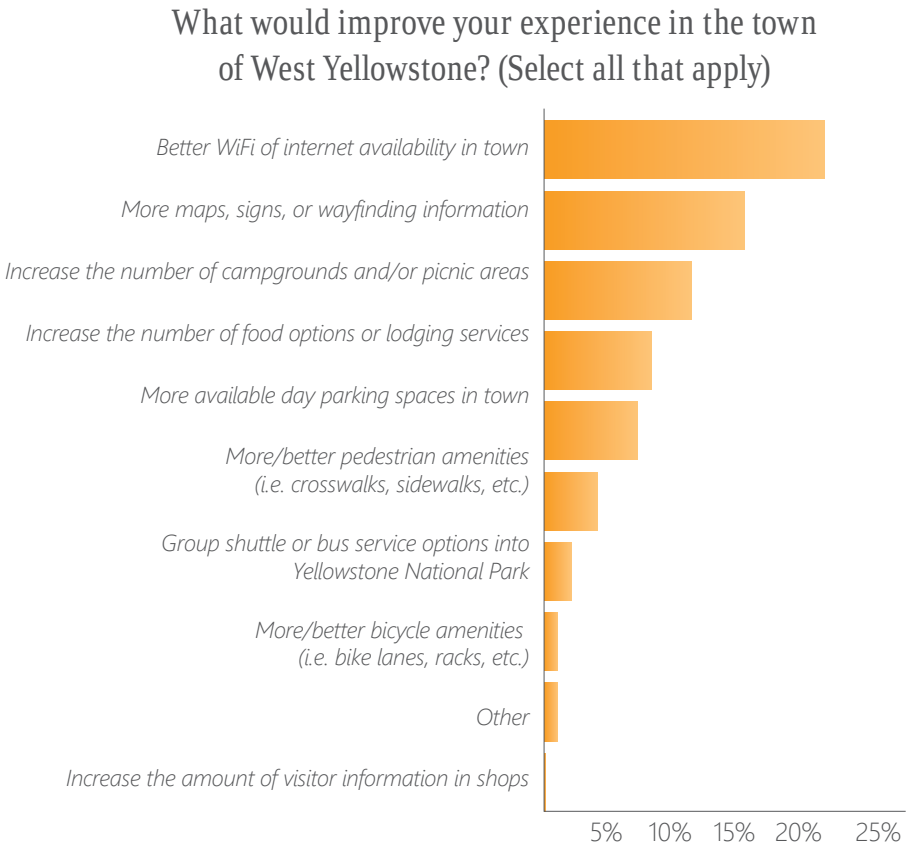
Appendix

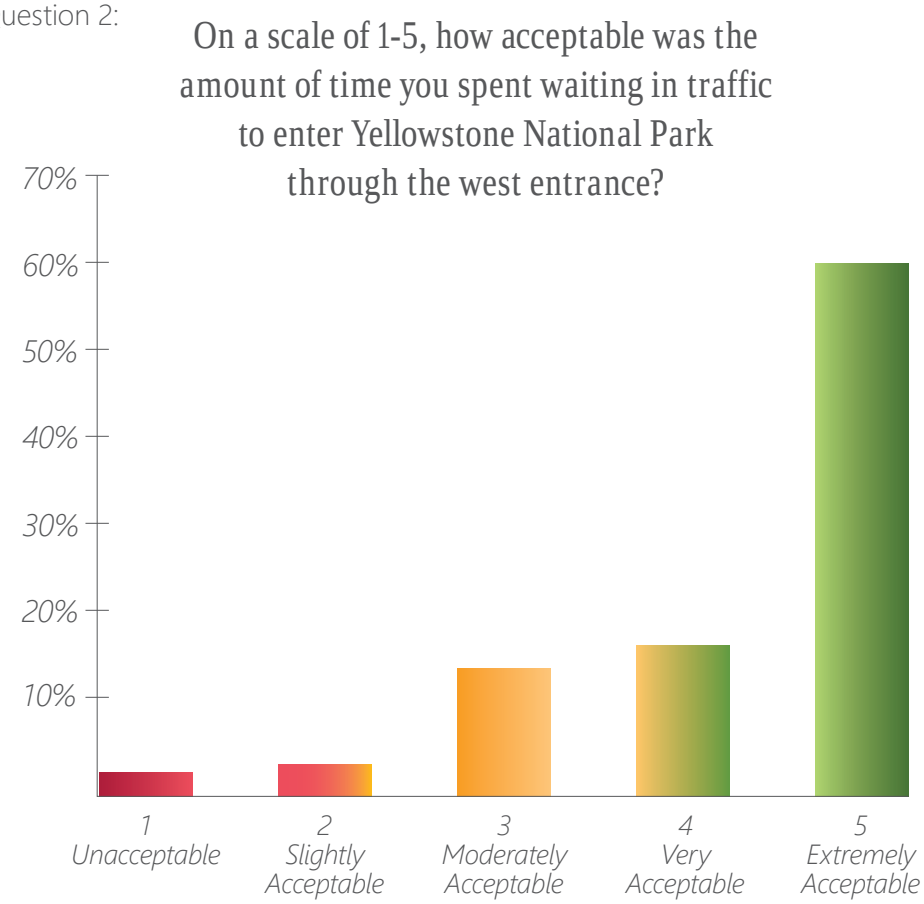
- PUBLIC SURVEY RESULTS
- DETAILED LOS REPORTS
- ARTERIAL LOS REPORTS
- TRAFFIC COUNT DATA
- TRAFFIC COUNT ADJUSTMENTS
- COST ESTIMATES
- SIGNAGE INVENTORY

PUBLIC SURVEY RESULTS

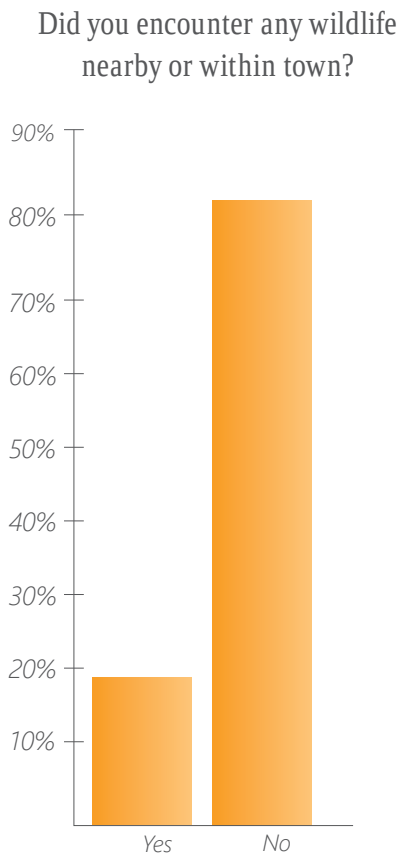
Question 1:



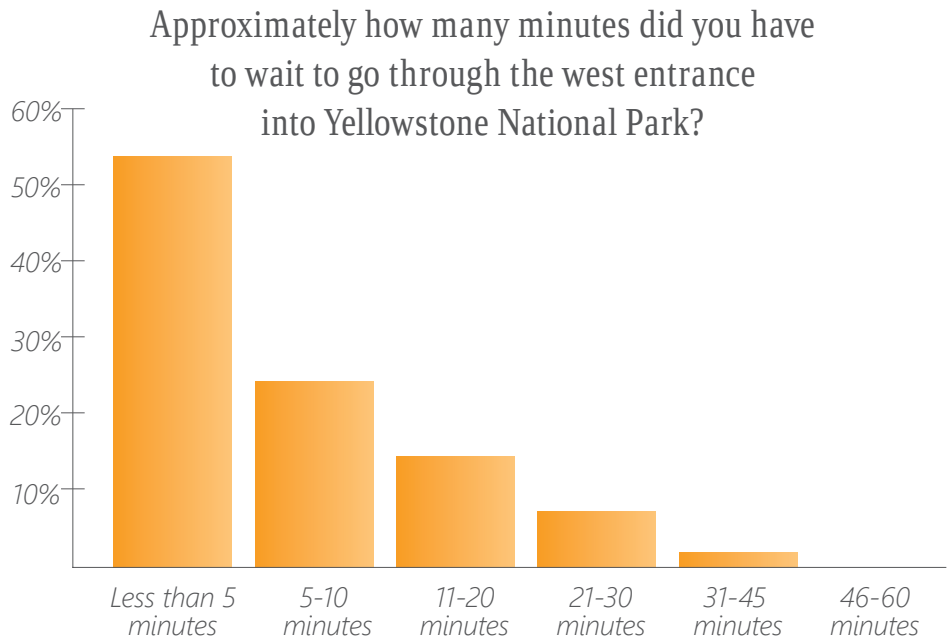
Question 2:



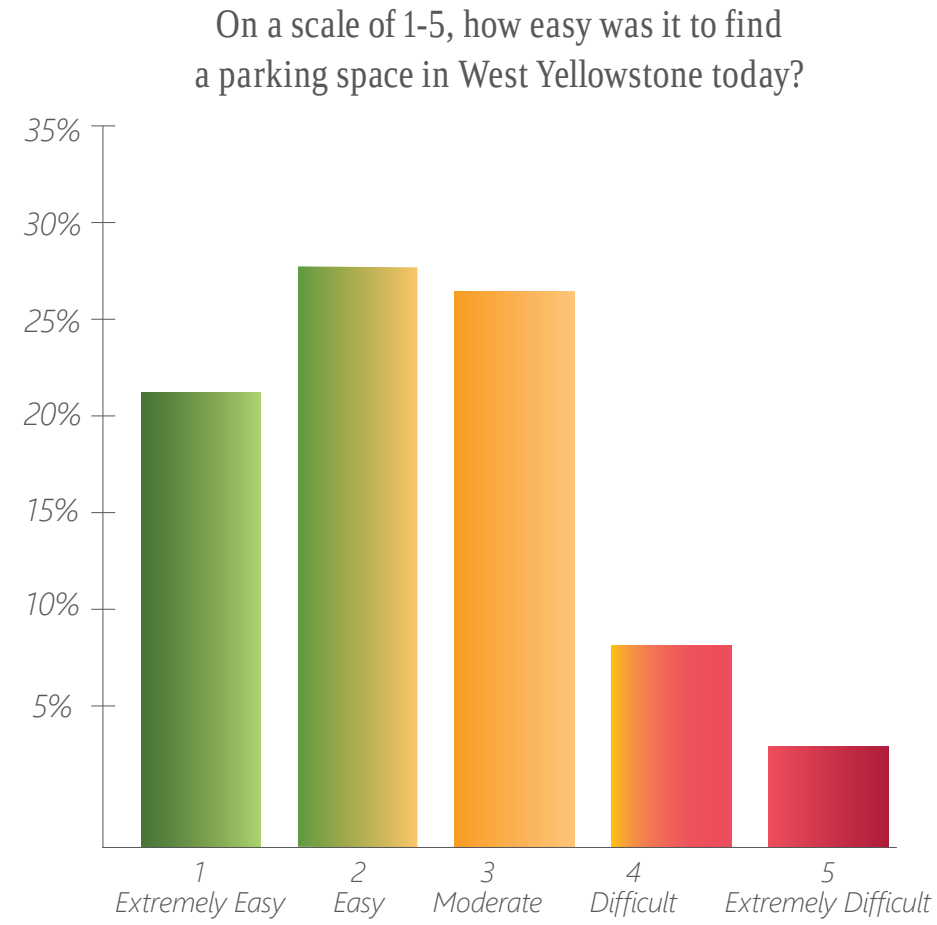
Question 3:



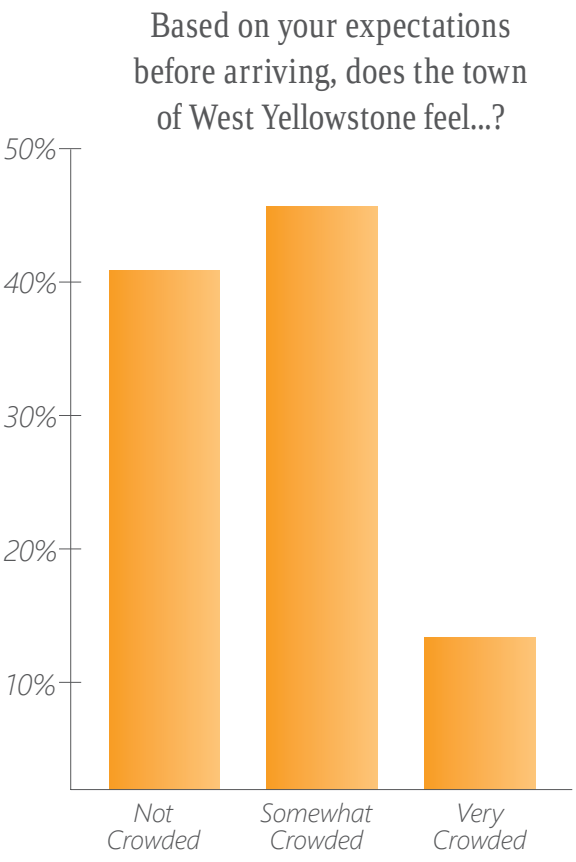
Question 4:



Question 5:

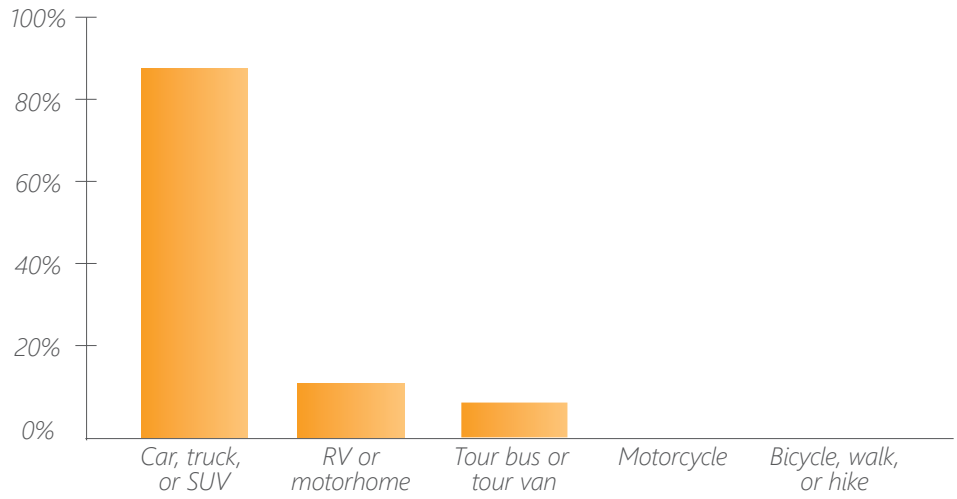


Question 6:



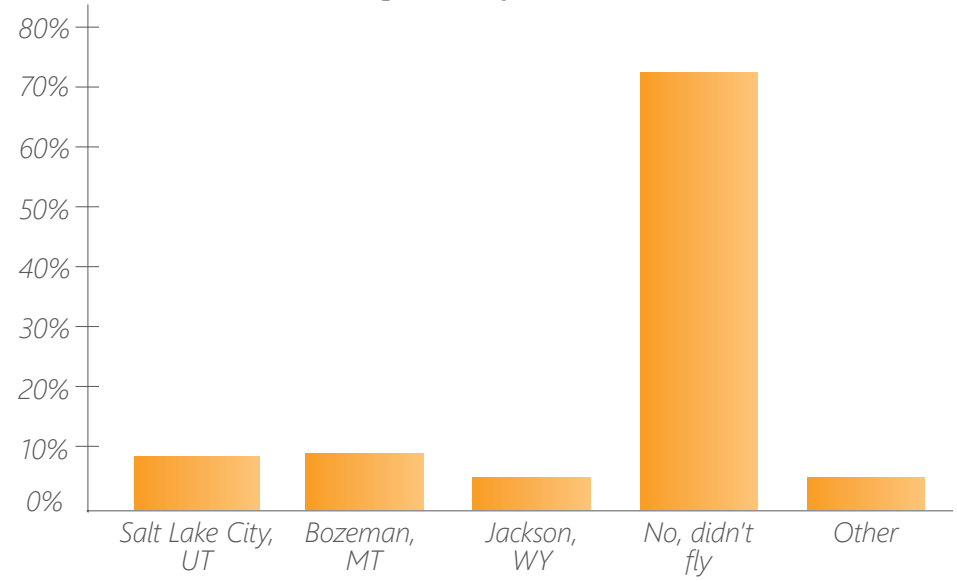
Question 7:

Which of the following forms of transportation did you personally use to enter the west entrance of Yellowstone National Park?

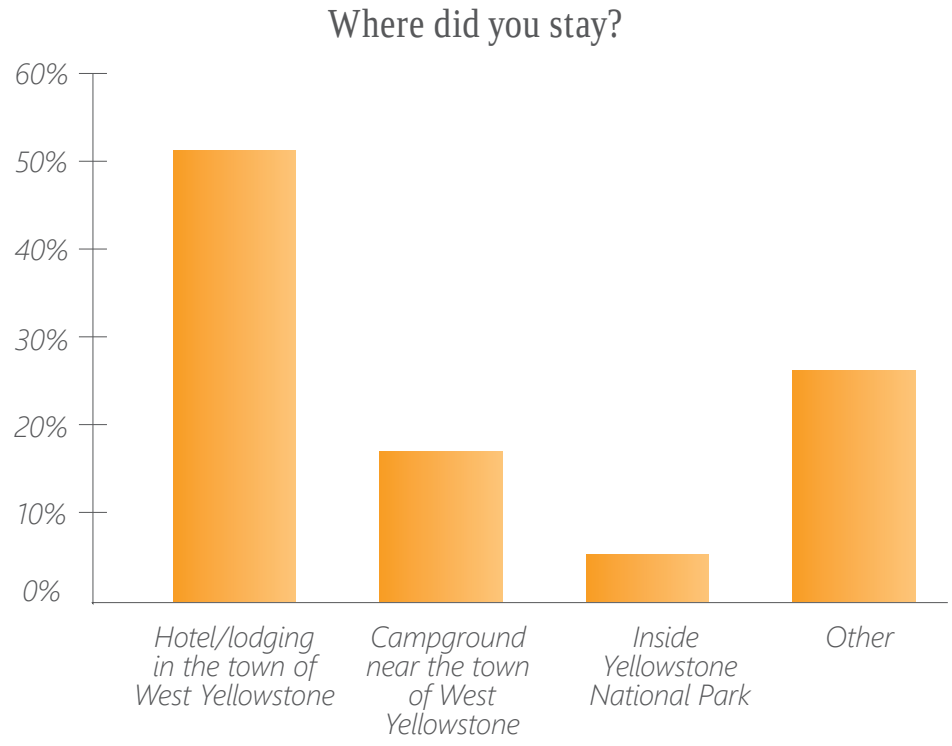


Question 8:

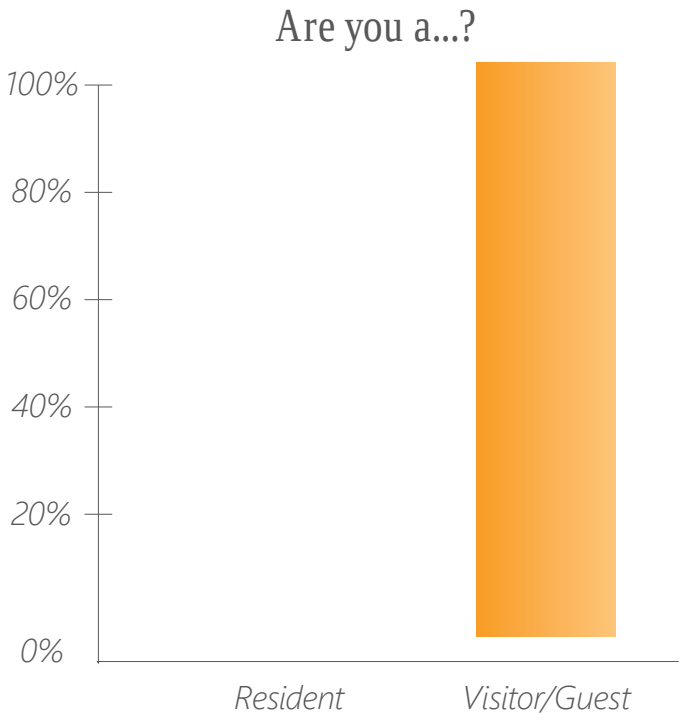
If you flew on any part of your trip to reach West Yellowstone/Yellowstone National Park, what airport did you use?



Question 9:



Question 10:



Existing Conditions: AM

HCM 6th TWSC
1: Iris & Firehole 12/18/2019

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	507	62	6	152	1	25	11	9	0	6	2
Future Vol, veh/h	10	507	62	6	152	1	25	11	9	0	6	2
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	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	4	3	0	10	0	4	0	0	0	0	0
Mvmt Flow	12	604	74	7	181	1	30	13	11	0	7	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	182	0	0	678	0	0	865	861	641	873	898	182
Stage 1	-	-	-	-	-	-	665	665	-	196	196	-
Stage 2	-	-	-	-	-	-	200	196	-	677	702	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.14	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.536	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1405	-	-	923	-	-	272	295	478	273	281	866
Stage 1	-	-	-	-	-	-	446	461	-	810	742	-
Stage 2	-	-	-	-	-	-	797	742	-	446	443	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1405	-	-	923	-	-	261	289	478	253	275	866
Mov Cap-2 Maneuver	-	-	-	-	-	-	261	289	-	253	275	-
Stage 1	-	-	-	-	-	-	440	455	-	799	736	-
Stage 2	-	-	-	-	-	-	781	736	-	418	437	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	19.9	16.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	295	1405	-	-	923	-	-	332
HCM Lane V/C Ratio	0.182	0.008	-	-	0.008	-	-	0.029
HCM Control Delay (s)	19.9	7.6	0	-	8.9	0	-	16.2
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	514	1	5	152	8	4	5	10	13	10	6
Future Vol, veh/h	1	514	1	5	152	8	4	5	10	13	10	6
Conflicting Peds, #/hr	1	0	2	2	0	1	1	0	20	20	0	1
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	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	4	0	40	10	0	0	20	0	8	0	0
Mvmt Flow	1	584	1	6	173	9	5	6	11	15	11	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	183	0	0	587	0	0	789	784	607	806	780	180
Stage 1	-	-	-	-	-	-	589	589	-	191	191	-
Stage 2	-	-	-	-	-	-	200	195	-	615	589	-
Critical Hdwy	4.1	-	-	4.5	-	-	7.1	6.7	6.2	7.18	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Follow-up Hdwy	2.2	-	-	2.56	-	-	3.5	4.18	3.3	3.572	4	3.3
Pot Cap-1 Maneuver	1404	-	-	826	-	-	311	305	500	293	329	868
Stage 1	-	-	-	-	-	-	498	468	-	797	746	-
Stage 2	-	-	-	-	-	-	806	707	-	468	499	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1403	-	-	824	-	-	297	301	490	275	325	866
Mov Cap-2 Maneuver	-	-	-	-	-	-	297	301	-	275	325	-
Stage 1	-	-	-	-	-	-	497	467	-	795	739	-
Stage 2	-	-	-	-	-	-	780	701	-	443	498	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	15.2	16.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	376	1403	-	-	824	-	-	341
HCM Lane V/C Ratio	0.057	0.001	-	-	0.007	-	-	0.097
HCM Control Delay (s)	15.2	7.6	0	-	9.4	0	-	16.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.3

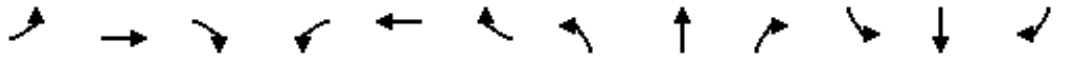
Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	470	82	18	133	2	22	8	45	16	18	13
Future Vol, veh/h	5	470	82	18	133	2	22	8	45	16	18	13
Conflicting Peds, #/hr	6	0	0	0	0	6	5	0	21	21	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
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, %	0	4	6	0	11	0	0	0	0	0	0	6
Mvmt Flow	6	522	91	20	148	2	24	9	50	18	20	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	156	0	0	613	0	0	791	776	589	825	820	160
Stage 1	-	-	-	-	-	-	580	580	-	195	195	-
Stage 2	-	-	-	-	-	-	211	196	-	630	625	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.354
Pot Cap-1 Maneuver	1436	-	-	976	-	-	310	331	512	294	312	875
Stage 1	-	-	-	-	-	-	504	503	-	811	743	-
Stage 2	-	-	-	-	-	-	796	742	-	473	480	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1428	-	-	976	-	-	282	320	502	247	301	866
Mov Cap-2 Maneuver	-	-	-	-	-	-	282	320	-	247	301	-
Stage 1	-	-	-	-	-	-	501	500	-	801	722	-
Stage 2	-	-	-	-	-	-	741	721	-	407	477	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1	15.4	17.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	291	502	1428	-	-	976	-	-	273	866
HCM Lane V/C Ratio	0.115	0.1	0.004	-	-	0.02	-	-	0.138	0.017
HCM Control Delay (s)	19	13	7.5	0	-	8.8	0	-	20.3	9.2
HCM Lane LOS	C	B	A	A	-	A	A	-	C	A
HCM 95th %tile Q(veh)	0.4	0.3	0	-	-	0.1	-	-	0.5	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	14	425	7	14	3	88	95	5	8	243	65
Future Volume (veh/h)	78	14	425	7	14	3	88	95	5	8	243	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.97	0.99		0.99	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1870	1900	1900	1900	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	85	15	462	8	15	3	96	103	5	9	264	71
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	2	0	0	0	3	3	3	5	5	5
Cap, veh/h	548	88	553	203	351	61	483	651	33	77	1150	295
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	1218	248	1562	339	992	174	828	1486	74	24	2627	675
Grp Volume(v), veh/h	100	0	462	26	0	0	106	0	98	185	0	159
Grp Sat Flow(s),veh/h/ln	1466	0	1562	1505	0	0	926	0	1463	1815	0	1511
Q Serve(g_s), s	2.0	0.0	15.5	0.0	0.0	0.0	3.5	0.0	2.3	0.0	0.0	3.8
Cycle Q Clear(g_c), s	2.6	0.0	15.5	0.5	0.0	0.0	7.3	0.0	2.3	3.6	0.0	3.8
Prop In Lane	0.85		1.00	0.31		0.12	0.91		0.05	0.05		0.45
Lane Grp Cap(c), veh/h	635	0	553	615	0	0	526	0	640	860	0	661
V/C Ratio(X)	0.16	0.00	0.84	0.04	0.00	0.00	0.20	0.00	0.15	0.21	0.00	0.24
Avail Cap(c_a), veh/h	757	0	684	733	0	0	714	0	896	1173	0	926
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.7	0.0	16.9	12.1	0.0	0.0	12.1	0.0	9.7	10.0	0.0	10.1
Incr Delay (d2), s/veh	0.1	0.0	7.4	0.0	0.0	0.0	0.2	0.0	0.1	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	6.1	0.2	0.0	0.0	0.9	0.0	0.7	1.3	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	0.0	24.3	12.1	0.0	0.0	12.2	0.0	9.8	10.2	0.0	10.3
LnGrp LOS	B	A	C	B	A	A	B	A	A	B	A	B
Approach Vol, veh/h		562			26			204			344	
Approach Delay, s/veh		22.3			12.1			11.1			10.2	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	30.9	26.2	30.9	26.2
Change Period (Y+Rc), s	5.9	6.0	5.9	6.0
Max Green Setting (Gmax), s	35.0	25.0	35.0	25.0
Max Q Clear Time (g_c+I1), s	9.3	17.5	5.8	2.5
Green Ext Time (p_c), s	1.4	1.5	2.3	0.1

Intersection Summary	
HCM 6th Ctrl Delay	16.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	54	91	31	16	17	16	136	37	39	634	45
Future Volume (veh/h)	25	54	91	31	16	17	16	136	37	39	634	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	0.97		0.95	0.99		0.93	0.97		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1811	1811	1900	1826	1826	1826	1856	1856	1856
Adj Flow Rate, veh/h	27	57	97	33	17	18	17	145	39	41	674	48
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	6	6	0	5	5	5	3	3	3
Cap, veh/h	183	321	358	299	128	358	159	1163	302	128	1530	106
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.53	0.53	0.53	0.53	0.53	0.53
Sat Flow, veh/h	353	1375	1530	739	549	1532	136	2204	571	85	2899	201
Grp Volume(v), veh/h	84	0	97	50	0	18	112	0	89	433	0	330
Grp Sat Flow(s),veh/h/ln	1728	0	1530	1288	0	1532	1609	0	1301	1803	0	1382
Q Serve(g_s), s	0.0	0.0	2.5	0.0	0.0	0.4	0.0	0.0	1.6	0.0	0.0	7.0
Cycle Q Clear(g_c), s	1.7	0.0	2.5	1.7	0.0	0.4	1.5	0.0	1.6	6.8	0.0	7.0
Prop In Lane	0.32		1.00	0.66		1.00	0.15		0.44	0.09		0.15
Lane Grp Cap(c), veh/h	504	0	358	427	0	358	937	0	687	1035	0	729
V/C Ratio(X)	0.17	0.00	0.27	0.12	0.00	0.05	0.12	0.00	0.13	0.42	0.00	0.45
Avail Cap(c_a), veh/h	991	0	807	816	0	808	1247	0	961	1405	0	1021
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.6	0.0	14.8	14.3	0.0	14.1	5.6	0.0	5.7	6.9	0.0	6.9
Incr Delay (d2), s/veh	0.2	0.0	0.4	0.1	0.0	0.1	0.1	0.0	0.1	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.8	0.4	0.0	0.1	0.4	0.0	0.4	2.1	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.7	0.0	15.3	14.4	0.0	14.1	5.7	0.0	5.8	7.2	0.0	7.4
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		181			68			201			763	
Approach Delay, s/veh		15.0			14.3			5.7			7.3	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	30.3	17.1	30.3	17.1
Change Period (Y+Rc), s	* 5.3	6.0	* 5.3	6.0
Max Green Setting (Gmax), s	* 35	25.0	* 35	25.0
Max Q Clear Time (g_c+I1), s	3.6	4.5	9.0	3.7
Green Ext Time (p_c), s	1.4	0.7	5.6	0.3

Intersection Summary	
HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	205	38	38	25	58	20	103	114	552	126	43
Future Volume (veh/h)	30	205	38	38	25	58	20	103	114	552	126	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	0.98		0.96	1.00		0.90	0.95		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1900	1841	1841	1826	1900	1841	1841	1856	1885	1885
Adj Flow Rate, veh/h	32	220	41	41	27	62	22	111	123	594	135	46
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	0	4	4	5	0	4	4	3	1	1
Cap, veh/h	47	216	435	67	28	376	43	217	241	711	576	196
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.02	0.29	0.29	0.25	0.52	0.52
Sat Flow, veh/h	0	746	1504	0	97	1301	1810	750	831	1767	1110	378
Grp Volume(v), veh/h	252	0	41	68	0	62	22	0	234	594	0	181
Grp Sat Flow(s),veh/h/ln	746	0	1504	97	0	1301	1810	0	1581	1767	0	1488
Q Serve(g_s), s	0.0	0.0	1.7	0.0	0.0	3.1	1.0	0.0	10.7	19.0	0.0	5.8
Cycle Q Clear(g_c), s	25.0	0.0	1.7	25.0	0.0	3.1	1.0	0.0	10.7	19.0	0.0	5.8
Prop In Lane	0.13		1.00	0.60		1.00	1.00		0.53	1.00		0.25
Lane Grp Cap(c), veh/h	263	0	435	95	0	376	43	0	458	711	0	773
V/C Ratio(X)	0.96	0.00	0.09	0.72	0.00	0.16	0.51	0.00	0.51	0.84	0.00	0.23
Avail Cap(c_a), veh/h	263	0	435	95	0	376	524	0	641	775	0	773
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.5	0.0	22.4	33.2	0.0	22.9	41.7	0.0	25.6	14.3	0.0	11.4
Incr Delay (d2), s/veh	44.2	0.0	0.1	22.7	0.0	0.2	9.1	0.0	0.9	7.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	0.0	0.6	2.0	0.0	1.0	0.6	0.0	4.1	8.4	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.7	0.0	22.5	55.8	0.0	23.1	50.8	0.0	26.5	21.7	0.0	11.5
LnGrp LOS	E	A	C	E	A	C	D	A	C	C	A	B
Approach Vol, veh/h		293			130			256			775	
Approach Delay, s/veh		64.0			40.2			28.6			19.3	
Approach LOS		E			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.9	30.7		30.8	5.1	50.5		30.8
Change Period (Y+Rc), s	3.0	* 5.7		* 5.8	3.0	* 5.7		* 5.8
Max Green Setting (Gmax), s	25.0	* 35		* 25	25.0	* 35		* 25
Max Q Clear Time (g_c+I1), s	21.0	12.7		27.0	3.0	7.8		27.0
Green Ext Time (p_c), s	0.9	1.5		0.0	0.0	1.1		0.0

Intersection Summary	
HCM 6th Ctrl Delay	31.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	519	22	17	143	9	25	21	21	19	86	18
Future Vol, veh/h	14	519	22	17	143	9	25	21	21	19	86	18
Conflicting Peds, #/hr	2	0	6	6	0	2	3	0	24	24	0	3
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	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	5	5	0	11	0	0	5	0	0	2	0
Mvmt Flow	17	625	27	20	172	11	30	25	25	23	104	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	185	0	0	658	0	0	963	904	669	942	912	183
Stage 1	-	-	-	-	-	-	679	679	-	220	220	-
Stage 2	-	-	-	-	-	-	284	225	-	722	692	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.55	6.2	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.045	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1402	-	-	939	-	-	237	274	461	245	274	865
Stage 1	-	-	-	-	-	-	445	447	-	787	721	-
Stage 2	-	-	-	-	-	-	727	712	-	421	445	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1399	-	-	934	-	-	153	260	448	202	260	861
Mov Cap-2 Maneuver	-	-	-	-	-	-	153	260	-	202	260	-
Stage 1	-	-	-	-	-	-	434	436	-	770	702	-
Stage 2	-	-	-	-	-	-	588	693	-	359	434	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.9	28.9	32.2
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	230	1399	-	-	934	-	-	276
HCM Lane V/C Ratio	0.351	0.012	-	-	0.022	-	-	0.537
HCM Control Delay (s)	28.9	7.6	0	-	8.9	0	-	32.2
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	1.5	0	-	-	0.1	-	-	2.9

HCM 6th TWSC
1: Iris & Firehole

12/18/2019

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	149	21	2	450	0	48	12	12	0	1	5
Future Vol, veh/h	10	149	21	2	450	0	48	12	12	0	1	5
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	0	0	0	4
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	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	3	0	10	0	4	0	0	0	0	0
Mvmt Flow	11	157	22	2	474	0	51	13	13	0	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	474	0	0	179	0	0	675	668	168	681	679	478
Stage 1	-	-	-	-	-	-	190	190	-	478	478	-
Stage 2	-	-	-	-	-	-	485	478	-	203	201	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.14	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.536	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1099	-	-	1409	-	-	365	382	881	367	376	591
Stage 1	-	-	-	-	-	-	807	747	-	572	559	-
Stage 2	-	-	-	-	-	-	560	559	-	804	739	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1099	-	-	1409	-	-	356	377	881	349	371	589
Mov Cap-2 Maneuver	-	-	-	-	-	-	356	377	-	349	371	-
Stage 1	-	-	-	-	-	-	798	739	-	566	558	-
Stage 2	-	-	-	-	-	-	551	558	-	770	731	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	16.1	11.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	399	1099	-	-	1409	-	-	536
HCM Lane V/C Ratio	0.19	0.01	-	-	0.001	-	-	0.012
HCM Control Delay (s)	16.1	8.3	0	-	7.6	0	-	11.8
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	156	3	7	441	17	5	9	3	12	8	6
Future Vol, veh/h	2	156	3	7	441	17	5	9	3	12	8	6
Conflicting Peds, #/hr	3	0	1	1	0	3	2	0	2	2	0	2
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	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	40	10	0	0	20	0	8	0	0
Mvmt Flow	2	164	3	7	464	18	5	9	3	13	8	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	485	0	0	168	0	0	667	670	169	668	662	478
Stage 1	-	-	-	-	-	-	171	171	-	490	490	-
Stage 2	-	-	-	-	-	-	496	499	-	178	172	-
Critical Hdwy	4.1	-	-	4.5	-	-	7.1	6.7	6.2	7.18	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Follow-up Hdwy	2.2	-	-	2.56	-	-	3.5	4.18	3.3	3.572	4	3.3
Pot Cap-1 Maneuver	1088	-	-	1209	-	-	375	356	880	364	385	591
Stage 1	-	-	-	-	-	-	836	724	-	549	552	-
Stage 2	-	-	-	-	-	-	559	515	-	810	760	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1085	-	-	1208	-	-	361	351	877	351	380	588
Mov Cap-2 Maneuver	-	-	-	-	-	-	361	351	-	351	380	-
Stage 1	-	-	-	-	-	-	833	722	-	546	546	-
Stage 2	-	-	-	-	-	-	539	509	-	793	758	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	14.5	14.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	396	1085	-	-	1208	-	-	397
HCM Lane V/C Ratio	0.045	0.002	-	-	0.006	-	-	0.069
HCM Control Delay (s)	14.5	8.3	0	-	8	0	-	14.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

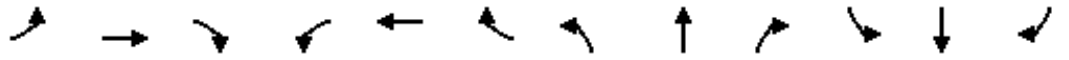
Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	170	35	17	379	19	71	21	42	7	16	23
Future Vol, veh/h	15	170	35	17	379	19	71	21	42	7	16	23
Conflicting Peds, #/hr	15	0	18	18	0	15	21	0	25	25	0	21
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	4	6	0	11	0	0	0	0	0	0	6
Mvmt Flow	17	195	40	20	436	22	82	24	48	8	18	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	473	0	0	253	0	0	797	780	258	812	789	483
Stage 1	-	-	-	-	-	-	267	267	-	502	502	-
Stage 2	-	-	-	-	-	-	530	513	-	310	287	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.354
Pot Cap-1 Maneuver	1099	-	-	1324	-	-	307	329	786	300	325	575
Stage 1	-	-	-	-	-	-	743	692	-	555	545	-
Stage 2	-	-	-	-	-	-	536	539	-	705	678	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1083	-	-	1301	-	-	261	307	754	247	303	555
Mov Cap-2 Maneuver	-	-	-	-	-	-	261	307	-	247	303	-
Stage 1	-	-	-	-	-	-	717	668	-	537	526	-
Stage 2	-	-	-	-	-	-	473	520	-	610	654	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	21.5	15.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	270	754	1083	-	-	1301	-	-	283	555
HCM Lane V/C Ratio	0.392	0.064	0.016	-	-	0.015	-	-	0.093	0.048
HCM Control Delay (s)	26.7	10.1	8.4	0	-	7.8	0	-	19	11.8
HCM Lane LOS	D	B	A	A	-	A	A	-	C	B
HCM 95th %tile Q(veh)	1.8	0.2	0	-	-	0	-	-	0.3	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	11	120	19	57	15	275	148	51	6	126	96
Future Volume (veh/h)	75	11	120	19	57	15	275	148	51	6	126	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.90	0.94		0.91	0.90		0.85	0.90		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1870	1900	1900	1900	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	78	11	125	20	59	16	286	154	53	6	131	100
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
Percent Heavy Veh, %	0	0	2	0	0	0	3	3	3	5	5	5
Cap, veh/h	537	68	518	158	422	102	514	432	149	74	791	494
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	1160	189	1433	229	1168	283	902	1000	344	20	1830	1141
Grp Volume(v), veh/h	89	0	125	95	0	0	286	0	207	134	0	103
Grp Sat Flow(s),veh/h/ln	1350	0	1433	1679	0	0	902	0	1344	1810	0	1181
Q Serve(g_s), s	0.0	0.0	3.5	0.0	0.0	0.0	13.8	0.0	6.0	0.0	0.0	3.2
Cycle Q Clear(g_c), s	2.0	0.0	3.5	2.0	0.0	0.0	16.9	0.0	6.0	2.6	0.0	3.2
Prop In Lane	0.88		1.00	0.21		0.17	1.00		0.26	0.04		0.97
Lane Grp Cap(c), veh/h	605	0	518	683	0	0	514	0	581	848	0	511
V/C Ratio(X)	0.15	0.00	0.24	0.14	0.00	0.00	0.56	0.00	0.36	0.16	0.00	0.20
Avail Cap(c_a), veh/h	698	0	620	797	0	0	693	0	814	1153	0	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	12.9	12.4	0.0	0.0	15.5	0.0	11.0	10.0	0.0	10.2
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.1	0.0	0.0	0.9	0.0	0.4	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.1	0.8	0.0	0.0	3.0	0.0	1.6	1.0	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.5	0.0	13.1	12.5	0.0	0.0	16.4	0.0	11.4	10.1	0.0	10.4
LnGrp LOS	B	A	B	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		214			95			493			237	
Approach Delay, s/veh		12.9			12.5			14.3			10.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	30.9	26.9	30.9	26.9
Change Period (Y+Rc), s	5.9	6.0	5.9	6.0
Max Green Setting (Gmax), s	35.0	25.0	35.0	25.0
Max Q Clear Time (g_c+I1), s	18.9	5.5	5.2	4.0
Green Ext Time (p_c), s	3.4	0.9	1.7	0.5

Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	46	29	31	71	62	84	424	73	42	155	57
Future Volume (veh/h)	20	46	29	31	71	62	84	424	73	42	155	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.76		0.68	0.73		0.68	0.79		0.65	0.89		0.66
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1811	1811	1900	1826	1826	1826	1856	1856	1856
Adj Flow Rate, veh/h	21	49	31	33	76	66	89	451	78	45	165	61
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	6	6	0	5	5	5	3	3	3
Cap, veh/h	220	477	441	219	462	448	188	846	141	170	563	210
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	353	1169	1082	349	1133	1099	282	2074	346	228	1380	514
Grp Volume(v), veh/h	70	0	31	109	0	66	353	0	265	148	0	123
Grp Sat Flow(s),veh/h/ln	1523	0	1082	1482	0	1099	1529	0	1172	1087	0	1036
Q Serve(g_s), s	0.0	0.0	1.1	0.0	0.0	2.3	4.2	0.0	10.6	0.8	0.0	4.9
Cycle Q Clear(g_c), s	1.4	0.0	1.1	2.3	0.0	2.3	9.8	0.0	10.6	11.4	0.0	4.9
Prop In Lane	0.30		1.00	0.30		1.00	0.25		0.29	0.30		0.50
Lane Grp Cap(c), veh/h	697	0	441	681	0	448	697	0	478	520	0	422
V/C Ratio(X)	0.10	0.00	0.07	0.16	0.00	0.15	0.51	0.00	0.55	0.28	0.00	0.29
Avail Cap(c_a), veh/h	697	0	441	681	0	448	933	0	669	732	0	591
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.2	0.0	11.1	11.4	0.0	11.4	13.4	0.0	13.9	12.0	0.0	12.2
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.1	0.0	0.1	0.6	0.0	1.0	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.2	0.9	0.0	0.5	3.4	0.0	2.7	1.2	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.2	0.0	11.1	11.5	0.0	11.6	14.0	0.0	14.9	12.3	0.0	12.6
LnGrp LOS	B	A	B	B	A	B	B	A	B	B	A	B
Approach Vol, veh/h		101			175			618			271	
Approach Delay, s/veh		11.2			11.6			14.4			12.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	30.3	31.0	30.3	31.0
Change Period (Y+Rc), s	* 5.3	6.0	* 5.3	6.0
Max Green Setting (Gmax), s	* 35	25.0	* 35	25.0
Max Q Clear Time (g_c+I1), s	12.6	3.4	13.4	4.3
Green Ext Time (p_c), s	4.7	0.5	2.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	22	30	98	181	375	27	128	21	91	80	60
Future Volume (veh/h)	41	22	30	98	181	375	27	128	21	91	80	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.68	0.85		0.80	1.00		0.85	0.90		0.77
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1900	1841	1841	1826	1900	1841	1841	1856	1885	1885
Adj Flow Rate, veh/h	45	24	33	107	197	408	29	139	23	99	87	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	0	4	4	5	0	4	4	3	1	1
Cap, veh/h	87	29	399	71	98	394	56	545	90	540	295	220
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.03	0.36	0.36	0.06	0.39	0.39
Sat Flow, veh/h	0	79	1097	0	270	1083	1810	1497	248	1767	748	559
Grp Volume(v), veh/h	69	0	33	304	0	408	29	0	162	99	0	152
Grp Sat Flow(s),veh/h/ln	79	0	1097	270	0	1083	1810	0	1745	1767	0	1307
Q Serve(g_s), s	0.0	0.0	1.4	0.0	0.0	25.0	1.1	0.0	4.5	2.3	0.0	5.5
Cycle Q Clear(g_c), s	25.0	0.0	1.4	25.0	0.0	25.0	1.1	0.0	4.5	2.3	0.0	5.5
Prop In Lane	0.65		1.00	0.35		1.00	1.00		0.14	1.00		0.43
Lane Grp Cap(c), veh/h	115	0	399	169	0	394	56	0	635	540	0	516
V/C Ratio(X)	0.60	0.00	0.08	1.80	0.00	1.04	0.52	0.00	0.26	0.18	0.00	0.29
Avail Cap(c_a), veh/h	115	0	399	169	0	394	658	0	889	1074	0	665
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	14.3	20.9	0.0	21.9	32.8	0.0	15.3	11.6	0.0	14.3
Incr Delay (d2), s/veh	8.2	0.0	0.1	382.2	0.0	54.9	7.2	0.0	0.2	0.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.3	19.7	0.0	11.9	0.6	0.0	1.7	0.9	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	0.0	14.4	403.1	0.0	76.8	40.0	0.0	15.6	11.8	0.0	14.6
LnGrp LOS	C	A	B	F	A	F	D	A	B	B	A	B
Approach Vol, veh/h		102			712			191			251	
Approach Delay, s/veh		26.6			216.1			19.3			13.5	
Approach LOS		C			F			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.2	30.7		30.8	5.1	32.8		30.8
Change Period (Y+Rc), s	3.0	* 5.7		* 5.8	3.0	* 5.7		* 5.8
Max Green Setting (Gmax), s	25.0	* 35		* 25	25.0	* 35		* 25
Max Q Clear Time (g_c+I1), s	14.3	6.5		27.0	3.1	7.5		27.0
Green Ext Time (p_c), s	0.2	1.0		0.0	0.0	1.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	130.3
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	192	17	13	427	23	42	25	16	12	19	18
Future Vol, veh/h	5	192	17	13	427	23	42	25	16	12	19	18
Conflicting Peds, #/hr	7	0	9	9	0	7	13	0	6	6	0	13
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	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	5	5	0	11	0	0	5	0	0	2	0
Mvmt Flow	5	194	17	13	431	23	42	25	16	12	19	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	461	0	0	220	0	0	722	709	218	715	706	463
Stage 1	-	-	-	-	-	-	222	222	-	476	476	-
Stage 2	-	-	-	-	-	-	500	487	-	239	230	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.55	6.2	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.045	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1111	-	-	1361	-	-	345	355	827	348	361	603
Stage 1	-	-	-	-	-	-	785	714	-	574	557	-
Stage 2	-	-	-	-	-	-	557	545	-	769	714	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1104	-	-	1349	-	-	309	343	815	314	349	592
Mov Cap-2 Maneuver	-	-	-	-	-	-	309	343	-	314	349	-
Stage 1	-	-	-	-	-	-	774	704	-	567	546	-
Stage 2	-	-	-	-	-	-	508	534	-	719	704	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	17.9	15.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	363	1104	-	-	1349	-	-	398
HCM Lane V/C Ratio	0.231	0.005	-	-	0.01	-	-	0.124
HCM Control Delay (s)	17.9	8.3	0	-	7.7	0	-	15.3
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	0.4

HCM 6th TWSC
1: Iris & Firehole

12/18/2019

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	15	630	70	5	185	5	30	15	10	0	10	5
Future Vol, veh/h	15	630	70	5	185	5	30	15	10	0	10	5
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	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	4	3	0	10	0	4	0	0	0	0	0
Mvmt Flow	18	750	83	6	220	6	36	18	12	0	12	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	226	0	0	833	0	0	1072	1066	792	1078	1104	223
Stage 1	-	-	-	-	-	-	828	828	-	235	235	-
Stage 2	-	-	-	-	-	-	244	238	-	843	869	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.14	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.536	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1354	-	-	809	-	-	196	224	392	198	213	822
Stage 1	-	-	-	-	-	-	362	389	-	773	714	-
Stage 2	-	-	-	-	-	-	755	712	-	361	372	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1354	-	-	809	-	-	181	217	392	175	206	822
Mov Cap-2 Maneuver	-	-	-	-	-	-	181	217	-	175	206	-
Stage 1	-	-	-	-	-	-	353	379	-	754	708	-
Stage 2	-	-	-	-	-	-	731	706	-	325	363	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	29.6	19
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	211	1354	-	-	809	-	-	275
HCM Lane V/C Ratio	0.31	0.013	-	-	0.007	-	-	0.065
HCM Control Delay (s)	29.6	7.7	0	-	9.5	0	-	19
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.3	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	630	5	10	185	10	5	10	15	15	15	10
Future Vol, veh/h	5	630	5	10	185	10	5	10	15	15	15	10
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	20	20	0	5
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	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	4	0	40	10	0	0	20	0	8	0	0
Mvmt Flow	6	716	6	11	210	11	6	11	17	17	17	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	226	0	0	727	0	0	993	984	744	1008	982	226
Stage 1	-	-	-	-	-	-	736	736	-	243	243	-
Stage 2	-	-	-	-	-	-	257	248	-	765	739	-
Critical Hdwy	4.1	-	-	4.5	-	-	7.1	6.7	6.2	7.18	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Follow-up Hdwy	2.2	-	-	2.56	-	-	3.5	4.18	3.3	3.572	4	3.3
Pot Cap-1 Maneuver	1354	-	-	726	-	-	226	231	418	214	251	818
Stage 1	-	-	-	-	-	-	414	399	-	747	708	-
Stage 2	-	-	-	-	-	-	752	669	-	387	427	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1348	-	-	723	-	-	205	223	408	189	242	810
Mov Cap-2 Maneuver	-	-	-	-	-	-	205	223	-	189	242	-
Stage 1	-	-	-	-	-	-	409	394	-	738	692	-
Stage 2	-	-	-	-	-	-	708	654	-	351	422	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	19.5	21.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	283	1348	-	-	723	-	-	260
HCM Lane V/C Ratio	0.12	0.004	-	-	0.016	-	-	0.175
HCM Control Delay (s)	19.5	7.7	0	-	10.1	0	-	21.8
HCM Lane LOS	C	A	A	-	B	A	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.6

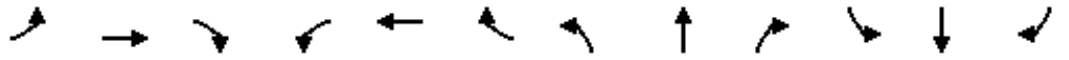
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	580	95	20	165	5	25	10	50	20	20	15
Future Vol, veh/h	5	580	95	20	165	5	25	10	50	20	20	15
Conflicting Peds, #/hr	10	0	10	10	0	10	5	0	25	25	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
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, %	0	4	6	0	11	0	0	0	0	0	0	6
Mvmt Flow	6	644	106	22	183	6	28	11	56	22	22	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	199	0	0	760	0	0	974	962	732	1008	1012	201
Stage 1	-	-	-	-	-	-	719	719	-	240	240	-
Stage 2	-	-	-	-	-	-	255	243	-	768	772	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.354
Pot Cap-1 Maneuver	1385	-	-	861	-	-	233	258	424	221	241	830
Stage 1	-	-	-	-	-	-	423	436	-	768	711	-
Stage 2	-	-	-	-	-	-	754	708	-	397	412	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1372	-	-	853	-	-	202	244	410	173	228	818
Mov Cap-2 Maneuver	-	-	-	-	-	-	202	244	-	173	228	-
Stage 1	-	-	-	-	-	-	416	428	-	755	683	-
Stage 2	-	-	-	-	-	-	691	680	-	324	405	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1	19.6	23.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	212	410	1372	-	-	853	-	-	197	818
HCM Lane V/C Ratio	0.183	0.136	0.004	-	-	0.026	-	-	0.226	0.02
HCM Control Delay (s)	25.8	15.2	7.6	0	-	9.3	0	-	28.5	9.5
HCM Lane LOS	D	C	A	A	-	A	A	-	D	A
HCM 95th %tile Q(veh)	0.7	0.5	0	-	-	0.1	-	-	0.8	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	15	520	10	15	5	110	115	5	10	285	80
Future Volume (veh/h)	95	15	520	10	15	5	110	115	5	10	285	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.97	0.99		0.98	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1870	1900	1900	1900	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	103	16	565	11	16	5	120	125	5	11	310	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	2	0	0	0	3	3	3	5	5	5
Cap, veh/h	611	88	634	231	318	87	417	579	23	72	1042	280
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1239	216	1562	378	784	215	752	1439	58	28	2589	696
Grp Volume(v), veh/h	119	0	565	32	0	0	124	0	126	220	0	188
Grp Sat Flow(s),veh/h/ln	1455	0	1562	1378	0	0	783	0	1466	1812	0	1501
Q Serve(g_s), s	2.5	0.0	20.9	0.0	0.0	0.0	6.0	0.0	3.5	0.0	0.0	5.3
Cycle Q Clear(g_c), s	3.1	0.0	20.9	0.7	0.0	0.0	11.3	0.0	3.5	5.1	0.0	5.3
Prop In Lane	0.87		1.00	0.34		0.16	0.97		0.04	0.05		0.46
Lane Grp Cap(c), veh/h	699	0	634	637	0	0	429	0	590	790	0	604
V/C Ratio(X)	0.17	0.00	0.89	0.05	0.00	0.00	0.29	0.00	0.21	0.28	0.00	0.31
Avail Cap(c_a), veh/h	880	0	830	800	0	0	461	0	637	847	0	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	17.2	11.2	0.0	0.0	16.4	0.0	12.1	12.6	0.0	12.7
Incr Delay (d2), s/veh	0.1	0.0	9.7	0.0	0.0	0.0	0.4	0.0	0.2	0.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	8.4	0.3	0.0	0.0	1.3	0.0	1.1	2.0	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.0	0.0	26.9	11.2	0.0	0.0	16.7	0.0	12.3	12.8	0.0	13.0
LnGrp LOS	B	A	C	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		684			32			250			408	
Approach Delay, s/veh		24.3			11.2			14.5			12.9	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	30.9	31.2	30.9	31.2
Change Period (Y+Rc), s	5.9	6.0	5.9	6.0
Max Green Setting (Gmax), s	27.0	33.0	27.0	33.0
Max Q Clear Time (g_c+I1), s	13.3	22.9	7.3	2.7
Green Ext Time (p_c), s	1.4	2.3	2.5	0.1

Intersection Summary	
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	55	105	35	20	20	20	170	45	45	780	50
Future Volume (veh/h)	30	55	105	35	20	20	20	170	45	45	780	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.95	0.99		0.93	0.97		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1811	1811	1900	1826	1826	1826	1856	1856	1856
Adj Flow Rate, veh/h	32	59	112	37	21	21	21	181	48	48	830	53
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	6	6	0	5	5	5	3	3	3
Cap, veh/h	204	322	383	300	144	383	152	1125	290	127	1503	94
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	412	1287	1528	714	574	1530	129	2179	561	88	2912	182
Grp Volume(v), veh/h	91	0	112	58	0	21	139	0	111	527	0	404
Grp Sat Flow(s),veh/h/ln	1700	0	1528	1288	0	1530	1566	0	1303	1796	0	1387
Q Serve(g_s), s	0.0	0.0	2.9	0.1	0.0	0.5	0.0	0.0	2.2	0.0	0.0	9.6
Cycle Q Clear(g_c), s	1.9	0.0	2.9	2.0	0.0	0.5	1.9	0.0	2.2	9.3	0.0	9.6
Prop In Lane	0.35		1.00	0.64		1.00	0.15		0.43	0.09		0.13
Lane Grp Cap(c), veh/h	526	0	383	444	0	383	894	0	673	1008	0	716
V/C Ratio(X)	0.17	0.00	0.29	0.13	0.00	0.05	0.15	0.00	0.17	0.52	0.00	0.56
Avail Cap(c_a), veh/h	960	0	789	795	0	790	1183	0	942	1369	0	1002
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.3	0.0	14.7	14.1	0.0	13.8	6.1	0.0	6.2	7.9	0.0	8.0
Incr Delay (d2), s/veh	0.2	0.0	0.4	0.1	0.0	0.1	0.1	0.0	0.1	0.4	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.9	0.5	0.0	0.2	0.6	0.0	0.5	3.0	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	0.0	15.1	14.2	0.0	13.9	6.2	0.0	6.3	8.3	0.0	8.7
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		203			79			250			931	
Approach Delay, s/veh		14.8			14.1			6.3			8.5	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	30.3	18.1	30.3	18.1
Change Period (Y+Rc), s	* 5.3	6.0	* 5.3	6.0
Max Green Setting (Gmax), s	* 35	25.0	* 35	25.0
Max Q Clear Time (g_c+I1), s	4.2	4.9	11.6	4.0
Green Ext Time (p_c), s	1.8	0.8	7.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	215	40	40	25	70	20	125	115	665	150	55
Future Volume (veh/h)	35	215	40	40	25	70	20	125	115	665	150	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.96	1.00		0.89	0.95		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1900	1841	1841	1826	1900	1841	1841	1856	1885	1885
Adj Flow Rate, veh/h	38	231	43	43	27	75	22	134	124	715	161	59
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	0	4	4	5	0	4	4	3	1	1
Cap, veh/h	44	167	399	62	25	346	42	220	204	759	602	221
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.02	0.27	0.27	0.31	0.55	0.55
Sat Flow, veh/h	0	625	1490	0	92	1293	1810	825	764	1767	1086	398
Grp Volume(v), veh/h	269	0	43	70	0	75	22	0	258	715	0	220
Grp Sat Flow(s),veh/h/ln	625	0	1490	92	0	1293	1810	0	1589	1767	0	1484
Q Serve(g_s), s	0.0	0.0	2.0	0.0	0.0	4.2	1.1	0.0	13.3	25.6	0.0	7.3
Cycle Q Clear(g_c), s	25.1	0.0	2.0	25.1	0.0	4.2	1.1	0.0	13.3	25.6	0.0	7.3
Prop In Lane	0.14		1.00	0.61		1.00	1.00		0.48	1.00		0.27
Lane Grp Cap(c), veh/h	211	0	399	87	0	346	42	0	424	759	0	823
V/C Ratio(X)	1.27	0.00	0.11	0.81	0.00	0.22	0.52	0.00	0.61	0.94	0.00	0.27
Avail Cap(c_a), veh/h	211	0	399	87	0	346	149	0	439	850	0	826
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	25.9	38.3	0.0	26.7	45.3	0.0	30.1	15.5	0.0	10.9
Incr Delay (d2), s/veh	154.8	0.0	0.1	41.3	0.0	0.3	9.7	0.0	2.3	17.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	0.0	0.7	2.6	0.0	1.3	0.6	0.0	5.3	13.0	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	185.1	0.0	26.0	79.6	0.0	27.0	55.0	0.0	32.4	32.9	0.0	11.1
LnGrp LOS	F	A	C	E	A	C	D	A	C	C	A	B
Approach Vol, veh/h		312			145			280			935	
Approach Delay, s/veh		163.2			52.4			34.2			27.8	
Approach LOS		F			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	32.2	30.7		30.9	5.2	57.7		30.9				
Change Period (Y+Rc), s	3.0	* 5.7		* 5.8	3.0	* 5.7		* 5.8				
Max Green Setting (Gmax), s	34.0	* 26		* 25	7.7	* 52		* 25				
Max Q Clear Time (g_c+I1), s	27.1	15.3		27.1	3.1	9.3		27.1				
Green Ext Time (p_c), s	1.6	1.2		0.0	0.0	1.6		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	56.3
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	13.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	15	635	25	20	175	10	30	25	25	20	95	20
Future Vol, veh/h	15	635	25	20	175	10	30	25	25	20	95	20
Conflicting Peds, #/hr	5	0	10	10	0	5	5	0	25	25	0	5
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	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	5	5	0	11	0	0	5	0	0	2	0
Mvmt Flow	18	765	30	24	211	12	36	30	30	24	114	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	228	0	0	805	0	0	1165	1102	815	1141	1111	227
Stage 1	-	-	-	-	-	-	826	826	-	270	270	-
Stage 2	-	-	-	-	-	-	339	276	-	871	841	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.55	6.2	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.045	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1352	-	-	828	-	-	173	209	381	179	209	817
Stage 1	-	-	-	-	-	-	369	382	-	740	686	-
Stage 2	-	-	-	-	-	-	680	676	-	349	380	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1346	-	-	820	-	-	84	194	368	135	194	809
Mov Cap-2 Maneuver	-	-	-	-	-	-	84	194	-	135	194	-
Stage 1	-	-	-	-	-	-	357	369	-	719	660	-
Stage 2	-	-	-	-	-	-	525	650	-	280	367	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.9	69.9	68.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	144	1346	-	-	820	-	-	204
HCM Lane V/C Ratio	0.669	0.013	-	-	0.029	-	-	0.797
HCM Control Delay (s)	69.9	7.7	0	-	9.5	0	-	68.8
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	3.7	0	-	-	0.1	-	-	5.6

HCM 6th TWSC
1: Iris & Firehole

12/18/2019

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	10	185	25	5	550	0	55	15	15	0	5	5
Future Vol, veh/h	10	185	25	5	550	0	55	15	15	0	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	5	0	0	0	0	5
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	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	3	0	10	0	4	0	0	0	0	0
Mvmt Flow	11	195	26	5	579	0	58	16	16	0	5	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	579	0	0	221	0	0	829	819	208	835	832	584
Stage 1	-	-	-	-	-	-	230	230	-	589	589	-
Stage 2	-	-	-	-	-	-	599	589	-	246	243	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.14	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.536	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1005	-	-	1360	-	-	287	312	837	289	307	515
Stage 1	-	-	-	-	-	-	768	718	-	498	499	-
Stage 2	-	-	-	-	-	-	485	499	-	762	708	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1005	-	-	1360	-	-	275	306	837	269	301	513
Mov Cap-2 Maneuver	-	-	-	-	-	-	275	306	-	269	301	-
Stage 1	-	-	-	-	-	-	758	709	-	492	497	-
Stage 2	-	-	-	-	-	-	470	497	-	721	699	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.1	20.7	14.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	318	1005	-	-	1360	-	-	379
HCM Lane V/C Ratio	0.281	0.01	-	-	0.004	-	-	0.028
HCM Control Delay (s)	20.7	8.6	0	-	7.7	0	-	14.8
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	190	5	10	540	20	5	10	5	15	10	5
Future Vol, veh/h	0	190	5	10	540	20	5	10	5	15	10	5
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
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	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	40	10	0	0	20	0	8	0	0
Mvmt Flow	0	200	5	11	568	21	5	11	5	16	11	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	594	0	0	210	0	0	822	824	213	822	816	589
Stage 1	-	-	-	-	-	-	208	208	-	606	606	-
Stage 2	-	-	-	-	-	-	614	616	-	216	210	-
Critical Hdwy	4.1	-	-	4.5	-	-	7.1	6.7	6.2	7.18	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Follow-up Hdwy	2.2	-	-	2.56	-	-	3.5	4.18	3.3	3.572	4	3.3
Pot Cap-1 Maneuver	992	-	-	1164	-	-	295	289	832	286	314	512
Stage 1	-	-	-	-	-	-	799	697	-	474	490	-
Stage 2	-	-	-	-	-	-	483	455	-	773	732	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	987	-	-	1158	-	-	278	282	824	271	306	507
Mov Cap-2 Maneuver	-	-	-	-	-	-	278	282	-	271	306	-
Stage 1	-	-	-	-	-	-	795	694	-	472	481	-
Stage 2	-	-	-	-	-	-	459	446	-	753	728	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	16.4	18.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	336	987	-	-	1158	-	-	306
HCM Lane V/C Ratio	0.063	-	-	-	0.009	-	-	0.103
HCM Control Delay (s)	16.4	0	-	-	8.1	0	-	18.1
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.3

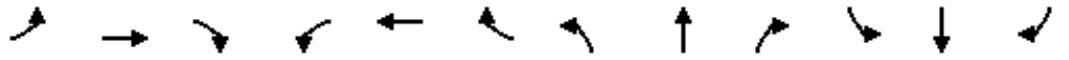
Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	210	40	20	470	20	80	25	45	10	20	25
Future Vol, veh/h	15	210	40	20	470	20	80	25	45	10	20	25
Conflicting Peds, #/hr	15	0	18	18	0	15	21	0	25	25	0	21
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	4	6	0	11	0	0	0	0	0	0	6
Mvmt Flow	17	241	46	23	540	23	92	29	52	11	23	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	578	0	0	305	0	0	961	940	307	977	952	588
Stage 1	-	-	-	-	-	-	316	316	-	613	613	-
Stage 2	-	-	-	-	-	-	645	624	-	364	339	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.354
Pot Cap-1 Maneuver	1006	-	-	1267	-	-	238	266	738	232	261	501
Stage 1	-	-	-	-	-	-	699	659	-	483	486	-
Stage 2	-	-	-	-	-	-	464	481	-	659	643	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	992	-	-	1245	-	-	193	246	708	182	241	484
Mov Cap-2 Maneuver	-	-	-	-	-	-	193	246	-	182	241	-
Stage 1	-	-	-	-	-	-	672	634	-	466	466	-
Stage 2	-	-	-	-	-	-	396	461	-	557	619	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.3	35.2	19.3
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	203	708	992	-	-	1245	-	-	217	484
HCM Lane V/C Ratio	0.595	0.073	0.017	-	-	0.018	-	-	0.159	0.059
HCM Control Delay (s)	45.8	10.5	8.7	0	-	7.9	0	-	24.7	12.9
HCM Lane LOS	E	B	A	A	-	A	A	-	C	B
HCM 95th %tile Q(veh)	3.3	0.2	0.1	-	-	0.1	-	-	0.6	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	15	150	20	65	15	340	180	55	10	155	120
Future Volume (veh/h)	90	15	150	20	65	15	340	180	55	10	155	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.90	0.94		0.90	0.92		0.86	0.92		0.84
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1870	1900	1900	1900	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	94	16	156	21	68	16	354	188	57	10	161	125
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
Percent Heavy Veh, %	0	0	2	0	0	0	3	3	3	5	5	5
Cap, veh/h	496	77	490	143	418	88	517	486	147	78	831	543
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	1131	222	1422	214	1211	256	863	1044	316	37	1785	1166
Grp Volume(v), veh/h	110	0	156	105	0	0	354	0	245	168	0	128
Grp Sat Flow(s),veh/h/ln	1354	0	1422	1682	0	0	863	0	1360	1797	0	1192
Q Serve(g_s), s	0.4	0.0	5.1	0.0	0.0	0.0	20.5	0.0	7.4	0.0	0.0	4.0
Cycle Q Clear(g_c), s	2.9	0.0	5.1	2.5	0.0	0.0	24.6	0.0	7.4	3.4	0.0	4.0
Prop In Lane	0.85		1.00	0.20		0.15	1.00		0.23	0.06		0.98
Lane Grp Cap(c), veh/h	573	0	490	648	0	0	517	0	633	898	0	555
V/C Ratio(X)	0.19	0.00	0.32	0.16	0.00	0.00	0.68	0.00	0.39	0.19	0.00	0.23
Avail Cap(c_a), veh/h	664	0	589	761	0	0	593	0	737	1030	0	646
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.4	0.0	15.1	14.3	0.0	0.0	17.4	0.0	10.9	9.9	0.0	10.0
Incr Delay (d2), s/veh	0.2	0.0	0.4	0.1	0.0	0.0	2.7	0.0	0.4	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.6	1.0	0.0	0.0	4.7	0.0	2.1	1.3	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	0.0	15.5	14.4	0.0	0.0	20.1	0.0	11.3	10.0	0.0	10.2
LnGrp LOS	B	A	B	B	A	A	C	A	B	A	A	B
Approach Vol, veh/h		266			105			599			296	
Approach Delay, s/veh		15.1			14.4			16.5			10.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	35.1	27.6	35.1	27.6
Change Period (Y+Rc), s	5.9	6.0	5.9	6.0
Max Green Setting (Gmax), s	34.0	26.0	34.0	26.0
Max Q Clear Time (g_c+I1), s	26.6	7.1	6.0	4.5
Green Ext Time (p_c), s	2.7	1.2	2.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	50	35	35	75	70	95	525	85	50	195	65
Future Volume (veh/h)	25	50	35	35	75	70	95	525	85	50	195	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.76		0.68	0.73		0.68	0.81		0.65	0.92		0.66
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1811	1811	1900	1826	1826	1826	1856	1856	1856
Adj Flow Rate, veh/h	27	53	37	37	80	74	101	559	90	53	207	69
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	6	6	0	5	5	5	3	3	3
Cap, veh/h	241	438	441	226	448	448	178	832	134	147	539	194
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	399	1075	1082	365	1100	1099	259	2040	329	172	1320	475
Grp Volume(v), veh/h	80	0	37	117	0	74	426	0	324	174	0	155
Grp Sat Flow(s),veh/h/ln	1474	0	1082	1465	0	1099	1444	0	1185	903	0	1065
Q Serve(g_s), s	0.0	0.0	1.3	0.0	0.0	2.6	9.1	0.0	13.7	1.5	0.0	6.2
Cycle Q Clear(g_c), s	1.6	0.0	1.3	2.5	0.0	2.6	15.3	0.0	13.7	15.1	0.0	6.2
Prop In Lane	0.34		1.00	0.32		1.00	0.24		0.28	0.30		0.45
Lane Grp Cap(c), veh/h	680	0	441	675	0	448	662	0	483	445	0	434
V/C Ratio(X)	0.12	0.00	0.08	0.17	0.00	0.17	0.64	0.00	0.67	0.39	0.00	0.36
Avail Cap(c_a), veh/h	680	0	441	675	0	448	898	0	676	649	0	608
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.2	0.0	11.1	11.5	0.0	11.5	15.1	0.0	14.8	12.7	0.0	12.6
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.1	0.0	0.2	1.1	0.0	1.6	0.6	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.3	0.9	0.0	0.6	4.7	0.0	3.5	1.5	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.3	0.0	11.2	11.6	0.0	11.7	16.1	0.0	16.4	13.2	0.0	13.1
LnGrp LOS	B	A	B	B	A	B	B	A	B	B	A	B
Approach Vol, veh/h		117			191			750			329	
Approach Delay, s/veh		11.3			11.6			16.2			13.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	30.3	31.0	30.3	31.0
Change Period (Y+Rc), s	* 5.3	6.0	* 5.3	6.0
Max Green Setting (Gmax), s	* 35	25.0	* 35	25.0
Max Q Clear Time (g_c+I1), s	17.3	3.6	17.1	4.6
Green Ext Time (p_c), s	5.4	0.6	2.3	1.1

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	25	30	100	185	450	30	150	25	105	100	80
Future Volume (veh/h)	50	25	30	100	185	450	30	150	25	105	100	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.78	1.00		0.86	1.00		0.79	0.87		0.66
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1900	1841	1841	1826	1900	1841	1841	1856	1885	1885
Adj Flow Rate, veh/h	54	27	33	109	201	489	33	163	27	114	109	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	0	4	4	5	0	4	4	3	1	1
Cap, veh/h	63	19	677	51	71	625	90	387	64	339	172	138
Arrive On Green	0.54	0.54	0.54	0.54	0.54	0.54	0.05	0.26	0.26	0.05	0.26	0.26
Sat Flow, veh/h	0	36	1262	0	133	1166	1810	1477	245	1767	658	525
Grp Volume(v), veh/h	81	0	33	310	0	489	33	0	190	114	0	196
Grp Sat Flow(s),veh/h/ln	36	0	1262	133	0	1166	1810	0	1722	1767	0	1183
Q Serve(g_s), s	0.0	0.0	1.2	0.0	0.0	32.0	1.7	0.0	8.7	0.0	0.0	14.0
Cycle Q Clear(g_c), s	51.2	0.0	1.2	51.2	0.0	32.0	1.7	0.0	8.7	0.0	0.0	14.0
Prop In Lane	0.67		1.00	0.35		1.00	1.00		0.14	1.00		0.44
Lane Grp Cap(c), veh/h	82	0	677	122	0	625	90	0	451	339	0	310
V/C Ratio(X)	0.98	0.00	0.05	2.54	0.00	0.78	0.37	0.00	0.42	0.34	0.00	0.63
Avail Cap(c_a), veh/h	82	0	677	122	0	625	148	0	469	395	0	322
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.6	0.0	10.5	26.6	0.0	17.7	43.9	0.0	29.2	32.6	0.0	31.2
Incr Delay (d2), s/veh	93.7	0.0	0.0	716.1	0.0	6.4	2.5	0.0	0.6	0.6	0.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	0.3	25.8	0.0	9.2	0.8	0.0	3.7	2.4	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	129.3	0.0	10.6	742.7	0.0	24.0	46.4	0.0	29.9	33.2	0.0	34.9
LnGrp LOS	F	A	B	F	A	C	D	A	C	C	A	C
Approach Vol, veh/h		114			799			223			310	
Approach Delay, s/veh		94.9			302.9			32.3			34.3	
Approach LOS		F			F			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	30.7		57.0	7.8	30.7		57.0
Change Period (Y+Rc), s	* 3	5.7		* 5.8	* 3	5.7		* 5.8
Max Green Setting (Gmax), s	* 7.8	26.0		* 51	* 7.8	26.0		* 51
Max Q Clear Time (g_c+I1), s	2.0	10.7		53.2	3.7	16.0		53.2
Green Ext Time (p_c), s	0.1	0.9		0.0	0.0	0.9		0.0

Intersection Summary	
HCM 6th Ctrl Delay	187.2
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	235	20	15	425	25	50	25	20	15	20	20
Future Vol, veh/h	5	235	20	15	425	25	50	25	20	15	20	20
Conflicting Peds, #/hr	10	0	10	10	0	10	15	0	10	10	0	15
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	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	5	5	0	11	0	0	5	0	0	2	0
Mvmt Flow	5	237	20	15	429	25	51	25	20	15	20	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	464	0	0	267	0	0	774	761	267	772	759	467
Stage 1	-	-	-	-	-	-	267	267	-	482	482	-
Stage 2	-	-	-	-	-	-	507	494	-	290	277	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.55	6.2	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.045	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1108	-	-	1308	-	-	318	332	777	319	336	600
Stage 1	-	-	-	-	-	-	743	683	-	569	553	-
Stage 2	-	-	-	-	-	-	552	542	-	722	681	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1097	-	-	1296	-	-	281	319	762	282	323	586
Mov Cap-2 Maneuver	-	-	-	-	-	-	281	319	-	282	323	-
Stage 1	-	-	-	-	-	-	733	673	-	561	539	-
Stage 2	-	-	-	-	-	-	498	528	-	667	671	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.3	19.9	16.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	336	1097	-	-	1296	-	-	369
HCM Lane V/C Ratio	0.286	0.005	-	-	0.012	-	-	0.151
HCM Control Delay (s)	19.9	8.3	0	-	7.8	0	-	16.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.2	0	-	-	0	-	-	0.5

HCM 6th Signalized Intersection Summary
1: Iris & Firehole

12/18/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	475	225	5	165	5	50	15	10	0	10	5
Future Volume (veh/h)	15	475	225	5	165	5	50	15	10	0	10	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1752	1752	1752	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	18	565	268	6	196	6	60	18	12	0	12	6
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
Percent Heavy Veh, %	4	4	4	10	10	10	0	0	0	0	0	0
Cap, veh/h	105	741	344	105	1048	31	276	62	27	0	158	79
Arrive On Green	0.63	0.63	0.63	0.63	0.63	0.63	0.13	0.13	0.13	0.00	0.13	0.13
Sat Flow, veh/h	13	1176	546	11	1663	50	885	467	208	0	1195	597
Grp Volume(v), veh/h	851	0	0	208	0	0	90	0	0	0	0	18
Grp Sat Flow(s),veh/h/ln	1735	0	0	1723	0	0	1561	0	0	0	0	1792
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.3
Cycle Q Clear(g_c), s	13.4	0.0	0.0	1.9	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.3
Prop In Lane	0.02		0.31	0.03		0.03	0.67		0.13	0.00		0.33
Lane Grp Cap(c), veh/h	1190	0	0	1184	0	0	365	0	0	0	0	237
V/C Ratio(X)	0.71	0.00	0.00	0.18	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.08
Avail Cap(c_a), veh/h	4133	0	0	4012	0	0	1067	0	0	0	0	1066
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	5.1	0.0	0.0	2.9	0.0	0.0	15.0	0.0	0.0	0.0	0.0	14.4
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.0	0.3	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.9	0.0	0.0	3.0	0.0	0.0	15.4	0.0	0.0	0.0	0.0	14.5
LnGrp LOS	A	A	A	A	A	A	B	A	A	A	A	B
Approach Vol, veh/h		851			208			90			18	
Approach Delay, s/veh		5.9			3.0			15.4			14.5	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.5		28.3		9.5		28.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		22.5		88.5		22.5		88.5				
Max Q Clear Time (g_c+I1), s		3.9		15.4		2.3		3.9				
Green Ext Time (p_c), s		0.4		8.5		0.0		1.5				

Intersection Summary												
HCM 6th Ctrl Delay			6.2									
HCM 6th LOS			A									

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	475	5	10	165	10	5	10	15	15	15	10
Future Vol, veh/h	5	475	5	10	165	10	5	10	15	15	15	10
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	20	20	0	5
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	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	4	0	40	10	0	0	20	0	8	0	0
Mvmt Flow	6	540	6	11	188	11	6	11	17	17	17	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	204	0	0	551	0	0	795	786	568	810	784	204
Stage 1	-	-	-	-	-	-	560	560	-	221	221	-
Stage 2	-	-	-	-	-	-	235	226	-	589	563	-
Critical Hdwy	4.1	-	-	4.5	-	-	7.1	6.7	6.2	7.18	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Follow-up Hdwy	2.2	-	-	2.56	-	-	3.5	4.18	3.3	3.572	4	3.3
Pot Cap-1 Maneuver	1380	-	-	854	-	-	308	304	526	292	327	842
Stage 1	-	-	-	-	-	-	516	483	-	768	724	-
Stage 2	-	-	-	-	-	-	773	685	-	484	512	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1373	-	-	850	-	-	284	295	514	263	317	834
Mov Cap-2 Maneuver	-	-	-	-	-	-	284	295	-	263	317	-
Stage 1	-	-	-	-	-	-	510	478	-	760	710	-
Stage 2	-	-	-	-	-	-	730	671	-	445	506	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	15.7	17.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	372	1373	-	-	850	-	-	344
HCM Lane V/C Ratio	0.092	0.004	-	-	0.013	-	-	0.132
HCM Control Delay (s)	15.7	7.6	0	-	9.3	0	-	17.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.5

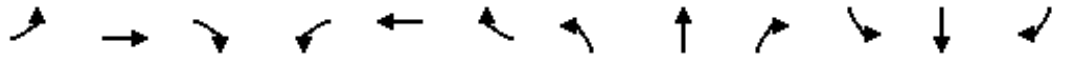
Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↱		↰	↱
Traffic Vol, veh/h	5	425	95	20	145	5	25	10	50	20	20	15
Future Vol, veh/h	5	425	95	20	145	5	25	10	50	20	20	15
Conflicting Peds, #/hr	10	0	10	10	0	10	5	0	25	25	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
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, %	0	4	6	0	11	0	0	0	0	0	0	6
Mvmt Flow	6	472	106	22	161	6	28	11	56	22	22	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	177	0	0	588	0	0	780	768	560	814	818	179
Stage 1	-	-	-	-	-	-	547	547	-	218	218	-
Stage 2	-	-	-	-	-	-	233	221	-	596	600	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.354
Pot Cap-1 Maneuver	1411	-	-	997	-	-	315	334	532	299	313	854
Stage 1	-	-	-	-	-	-	525	521	-	789	726	-
Stage 2	-	-	-	-	-	-	775	724	-	494	493	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1398	-	-	988	-	-	280	317	514	245	297	842
Mov Cap-2 Maneuver	-	-	-	-	-	-	280	317	-	245	297	-
Stage 1	-	-	-	-	-	-	517	513	-	777	701	-
Stage 2	-	-	-	-	-	-	714	699	-	418	485	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1	15.5	17.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	290	514	1398	-	-	988	-	-	269	842
HCM Lane V/C Ratio	0.134	0.108	0.004	-	-	0.022	-	-	0.165	0.02
HCM Control Delay (s)	19.3	12.9	7.6	0	-	8.7	0	-	21	9.4
HCM Lane LOS	C	B	A	A	-	A	A	-	C	A
HCM 95th %tile Q(veh)	0.5	0.4	0	-	-	0.1	-	-	0.6	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	15	365	10	15	5	90	115	5	10	285	80
Future Volume (veh/h)	95	15	365	10	15	5	90	115	5	10	285	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.99		0.97	0.99		0.98	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1870	1900	1900	1900	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	103	16	397	11	16	5	98	125	5	11	310	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	2	0	0	0	3	3	3	5	5	5
Cap, veh/h	534	75	522	216	292	78	451	700	29	80	1167	314
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	1232	223	1557	384	871	232	735	1556	65	27	2592	697
Grp Volume(v), veh/h	119	0	397	32	0	0	115	0	113	220	0	188
Grp Sat Flow(s),veh/h/ln	1455	0	1557	1488	0	0	891	0	1464	1813	0	1503
Q Serve(g_s), s	2.5	0.0	12.6	0.0	0.0	0.0	3.6	0.0	2.5	0.0	0.0	4.4
Cycle Q Clear(g_c), s	3.1	0.0	12.6	0.7	0.0	0.0	8.0	0.0	2.5	4.2	0.0	4.4
Prop In Lane	0.87		1.00	0.34		0.16	0.85		0.04	0.05		0.46
Lane Grp Cap(c), veh/h	609	0	522	586	0	0	521	0	659	884	0	677
V/C Ratio(X)	0.20	0.00	0.76	0.05	0.00	0.00	0.22	0.00	0.17	0.25	0.00	0.28
Avail Cap(c_a), veh/h	904	0	841	873	0	0	615	0	791	1045	0	812
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	0.0	16.5	12.5	0.0	0.0	11.5	0.0	9.1	9.5	0.0	9.6
Incr Delay (d2), s/veh	0.2	0.0	2.3	0.0	0.0	0.0	0.2	0.0	0.1	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	4.4	0.3	0.0	0.0	0.9	0.0	0.7	1.5	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	0.0	18.8	12.5	0.0	0.0	11.7	0.0	9.2	9.7	0.0	9.8
LnGrp LOS	B	A	B	B	A	A	B	A	A	A	A	A
Approach Vol, veh/h		516			32			228			408	
Approach Delay, s/veh		17.5			12.5			10.5			9.7	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	30.9	24.6	30.9	24.6
Change Period (Y+Rc), s	5.9	6.0	5.9	6.0
Max Green Setting (Gmax), s	30.0	30.0	30.0	30.0
Max Q Clear Time (g_c+I1), s	10.0	14.6	6.4	2.7
Green Ext Time (p_c), s	1.5	2.0	2.6	0.1

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	55	105	35	20	20	20	150	45	45	625	50
Future Volume (veh/h)	30	55	105	35	20	20	20	150	45	45	625	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.96	0.97		0.95	0.99		0.93	0.97		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1811	1811	1900	1826	1826	1826	1856	1856	1856
Adj Flow Rate, veh/h	32	59	112	37	21	21	21	160	48	48	665	53
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	6	6	0	5	5	5	3	3	3
Cap, veh/h	204	323	383	301	144	384	165	1090	315	137	1464	114
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	412	1287	1528	714	574	1530	152	2113	611	106	2837	220
Grp Volume(v), veh/h	91	0	112	58	0	21	128	0	101	434	0	332
Grp Sat Flow(s),veh/h/ln	1699	0	1528	1288	0	1530	1585	0	1290	1787	0	1377
Q Serve(g_s), s	0.0	0.0	2.9	0.1	0.0	0.5	0.0	0.0	2.0	0.0	0.0	7.4
Cycle Q Clear(g_c), s	1.9	0.0	2.9	2.0	0.0	0.5	1.8	0.0	2.0	7.2	0.0	7.4
Prop In Lane	0.35		1.00	0.64		1.00	0.16		0.47	0.11		0.16
Lane Grp Cap(c), veh/h	527	0	383	445	0	384	905	0	666	1004	0	710
V/C Ratio(X)	0.17	0.00	0.29	0.13	0.00	0.05	0.14	0.00	0.15	0.43	0.00	0.47
Avail Cap(c_a), veh/h	1027	0	852	849	0	853	1144	0	879	1290	0	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.3	0.0	14.7	14.1	0.0	13.8	6.1	0.0	6.2	7.4	0.0	7.5
Incr Delay (d2), s/veh	0.2	0.0	0.4	0.1	0.0	0.1	0.1	0.0	0.1	0.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.9	0.5	0.0	0.2	0.5	0.0	0.4	2.3	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.4	0.0	15.1	14.2	0.0	13.8	6.2	0.0	6.3	7.7	0.0	8.0
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		203			79			229			766	
Approach Delay, s/veh		14.8			14.1			6.2			7.8	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	30.3	18.1	30.3	18.1
Change Period (Y+Rc), s	* 5.3	6.0	* 5.3	6.0
Max Green Setting (Gmax), s	* 33	27.0	* 33	27.0
Max Q Clear Time (g_c+I1), s	4.0	4.9	9.4	4.0
Green Ext Time (p_c), s	1.6	0.9	5.5	0.3

Intersection Summary	
HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	215	40	40	45	50	20	125	115	510	150	55
Future Volume (veh/h)	35	215	40	40	45	50	20	125	115	510	150	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.92	0.96		0.95	1.00		0.91	0.96		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1856	1900	1826	1841	1826	1900	1841	1841	1856	1885	1885
Adj Flow Rate, veh/h	38	231	43	43	48	54	22	134	124	548	161	59
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	3	0	5	4	5	0	4	4	3	1	1
Cap, veh/h	386	468	374	244	464	325	44	271	251	717	581	213
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.02	0.32	0.32	0.24	0.54	0.54
Sat Flow, veh/h	1261	1856	1482	1033	1841	1289	1810	835	773	1767	1085	398
Grp Volume(v), veh/h	38	231	43	43	48	54	22	0	258	548	0	220
Grp Sat Flow(s),veh/h/ln	1261	1856	1482	1033	1841	1289	1810	0	1609	1767	0	1483
Q Serve(g_s), s	1.8	8.2	1.7	2.9	1.5	2.5	0.9	0.0	9.9	14.3	0.0	6.2
Cycle Q Clear(g_c), s	3.4	8.2	1.7	11.1	1.5	2.5	0.9	0.0	9.9	14.3	0.0	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.48	1.00		0.27
Lane Grp Cap(c), veh/h	386	468	374	244	464	325	44	0	522	717	0	794
V/C Ratio(X)	0.10	0.49	0.12	0.18	0.10	0.17	0.50	0.00	0.49	0.76	0.00	0.28
Avail Cap(c_a), veh/h	481	607	485	321	602	422	183	0	547	1072	0	1001
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.4	24.6	22.2	29.3	22.1	22.5	37.1	0.0	20.9	11.5	0.0	9.8
Incr Delay (d2), s/veh	0.1	0.8	0.1	0.3	0.1	0.2	8.5	0.0	0.7	1.9	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.6	0.6	0.7	0.7	0.8	0.5	0.0	3.7	5.3	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	25.4	22.3	29.7	22.2	22.7	45.6	0.0	21.7	13.3	0.0	9.9
LnGrp LOS	C	C	C	C	C	C	D	A	C	B	A	A
Approach Vol, veh/h		312			145			280			768	
Approach Delay, s/veh		24.8			24.6			23.5			12.4	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.1	30.7		25.2	4.9	46.9		25.2
Change Period (Y+Rc), s	3.0	* 5.7		* 5.8	3.0	* 5.7		* 5.8
Max Green Setting (Gmax), s	33.6	* 26		* 25	7.8	* 52		* 25
Max Q Clear Time (g_c+I1), s	10.3	11.9		10.2	2.9	8.2		13.1
Green Ext Time (p_c), s	1.8	1.4		1.4	0.0	1.6		0.4

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

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	480	25	20	155	10	30	25	25	20	95	20
Future Vol, veh/h	15	480	25	20	155	10	30	25	25	20	95	20
Conflicting Peds, #/hr	5	0	10	10	0	5	5	0	25	25	0	5
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	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	5	5	0	11	0	0	5	0	0	2	0
Mvmt Flow	18	578	30	24	187	12	36	30	30	24	114	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	204	0	0	618	0	0	954	891	628	930	900	203
Stage 1	-	-	-	-	-	-	639	639	-	246	246	-
Stage 2	-	-	-	-	-	-	315	252	-	684	654	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.55	6.2	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.045	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1380	-	-	972	-	-	240	278	487	250	278	843
Stage 1	-	-	-	-	-	-	468	466	-	762	703	-
Stage 2	-	-	-	-	-	-	700	693	-	442	463	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1373	-	-	963	-	-	146	261	471	200	261	835
Mov Cap-2 Maneuver	-	-	-	-	-	-	146	261	-	200	261	-
Stage 1	-	-	-	-	-	-	454	452	-	743	680	-
Stage 2	-	-	-	-	-	-	547	670	-	369	449	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1	32.3	34.9
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	226	1373	-	-	963	-	-	277
HCM Lane V/C Ratio	0.426	0.013	-	-	0.025	-	-	0.587
HCM Control Delay (s)	32.3	7.7	0	-	8.8	0	-	34.9
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	2	0	-	-	0.1	-	-	3.4

HCM 6th Signalized Intersection Summary
1: Iris & Firehole

12/18/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	140	70	5	415	0	190	15	15	0	5	5
Future Volume (veh/h)	10	140	70	5	415	0	190	15	15	0	5	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1752	1752	1752	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	11	147	74	5	437	0	200	16	16	0	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	10	10	10	0	0	0	0	0	0
Cap, veh/h	147	453	217	134	692	0	575	47	28	0	241	241
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.00	0.28	0.28	0.28	0.00	0.28	0.28
Sat Flow, veh/h	28	1141	547	6	1743	0	1199	169	101	0	867	867
Grp Volume(v), veh/h	232	0	0	442	0	0	232	0	0	0	0	10
Grp Sat Flow(s),veh/h/ln	1716	0	0	1748	0	0	1469	0	0	0	0	1735
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	2.6	0.0	0.0	5.6	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.1
Prop In Lane	0.05		0.32	0.01		0.00	0.86		0.07	0.00		0.50
Lane Grp Cap(c), veh/h	817	0	0	826	0	0	650	0	0	0	0	482
V/C Ratio(X)	0.28	0.00	0.00	0.54	0.00	0.00	0.36	0.00	0.00	0.00	0.00	0.02
Avail Cap(c_a), veh/h	3984	0	0	4127	0	0	2739	0	0	0	0	2977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	5.8	0.0	0.0	6.7	0.0	0.0	8.5	0.0	0.0	0.0	0.0	7.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.5	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.3	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.0	0.0	0.0	7.3	0.0	0.0	8.8	0.0	0.0	0.0	0.0	7.3
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		232			442			232			10	
Approach Delay, s/veh		6.0			7.3			8.8			7.3	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		12.2		15.5		12.2		15.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		47.5		63.5		47.5		63.5				
Max Q Clear Time (g_c+I1), s		5.7		4.6		2.1		7.6				
Green Ext Time (p_c), s		1.6		1.5		0.0		3.4				

Intersection Summary												
HCM 6th Ctrl Delay			7.3									
HCM 6th LOS			A									

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	145	5	10	405	20	5	10	5	15	10	5
Future Vol, veh/h	0	145	5	10	405	20	5	10	5	15	10	5
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
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	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	40	10	0	0	20	0	8	0	0
Mvmt Flow	0	153	5	11	426	21	5	11	5	16	11	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	452	0	0	163	0	0	633	635	166	633	627	447
Stage 1	-	-	-	-	-	-	161	161	-	464	464	-
Stage 2	-	-	-	-	-	-	472	474	-	169	163	-
Critical Hdwy	4.1	-	-	4.5	-	-	7.1	6.7	6.2	7.18	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Follow-up Hdwy	2.2	-	-	2.56	-	-	3.5	4.18	3.3	3.572	4	3.3
Pot Cap-1 Maneuver	1119	-	-	1215	-	-	395	373	884	384	403	616
Stage 1	-	-	-	-	-	-	846	732	-	567	567	-
Stage 2	-	-	-	-	-	-	576	529	-	819	767	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1114	-	-	1209	-	-	376	365	876	366	394	610
Mov Cap-2 Maneuver	-	-	-	-	-	-	376	365	-	366	394	-
Stage 1	-	-	-	-	-	-	842	728	-	564	557	-
Stage 2	-	-	-	-	-	-	551	520	-	798	763	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	13.8	14.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	431	1114	-	-	1209	-	-	402
HCM Lane V/C Ratio	0.049	-	-	-	0.009	-	-	0.079
HCM Control Delay (s)	13.8	0	-	-	8	0	-	14.7
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.3

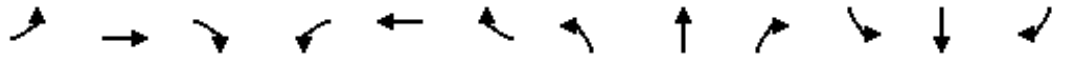
Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	165	40	20	335	20	80	25	45	10	20	25
Future Vol, veh/h	15	165	40	20	335	20	80	25	45	10	20	25
Conflicting Peds, #/hr	15	0	18	18	0	15	21	0	25	25	0	21
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	4	6	0	11	0	0	0	0	0	0	6
Mvmt Flow	17	190	46	23	385	23	92	29	52	11	23	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	423	0	0	254	0	0	755	734	256	771	746	433
Stage 1	-	-	-	-	-	-	265	265	-	458	458	-
Stage 2	-	-	-	-	-	-	490	469	-	313	288	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.354
Pot Cap-1 Maneuver	1147	-	-	1323	-	-	328	350	788	320	344	614
Stage 1	-	-	-	-	-	-	745	693	-	587	570	-
Stage 2	-	-	-	-	-	-	564	564	-	702	677	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1131	-	-	1300	-	-	276	326	756	260	320	593
Mov Cap-2 Maneuver	-	-	-	-	-	-	276	326	-	260	320	-
Stage 1	-	-	-	-	-	-	720	669	-	569	549	-
Stage 2	-	-	-	-	-	-	492	543	-	601	654	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.4	21.6	15.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	286	756	1131	-	-	1300	-	-	297	593
HCM Lane V/C Ratio	0.422	0.068	0.015	-	-	0.018	-	-	0.116	0.048
HCM Control Delay (s)	26.5	10.1	8.2	0	-	7.8	0	-	18.7	11.4
HCM Lane LOS	D	B	A	A	-	A	A	-	C	B
HCM 95th %tile Q(veh)	2	0.2	0	-	-	0.1	-	-	0.4	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	15	105	20	65	15	205	180	55	10	155	120
Future Volume (veh/h)	90	15	105	20	65	15	205	180	55	10	155	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.90	0.93		0.91	0.91		0.85	0.91		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1870	1900	1900	1900	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	94	16	109	21	68	16	214	188	57	10	161	125
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
Percent Heavy Veh, %	0	0	2	0	0	0	3	3	3	5	5	5
Cap, veh/h	527	81	521	153	446	94	465	466	144	80	769	498
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	1131	223	1430	215	1223	259	802	1082	335	33	1784	1156
Grp Volume(v), veh/h	110	0	109	105	0	0	230	0	229	169	0	127
Grp Sat Flow(s),veh/h/ln	1354	0	1430	1697	0	0	871	0	1347	1799	0	1174
Q Serve(g_s), s	0.3	0.0	3.0	0.0	0.0	0.0	10.4	0.0	6.8	0.0	0.0	4.0
Cycle Q Clear(g_c), s	2.6	0.0	3.0	2.3	0.0	0.0	14.4	0.0	6.8	3.4	0.0	4.0
Prop In Lane	0.85		1.00	0.20		0.15	0.93		0.25	0.06		0.98
Lane Grp Cap(c), veh/h	608	0	521	692	0	0	495	0	580	841	0	506
V/C Ratio(X)	0.18	0.00	0.21	0.15	0.00	0.00	0.46	0.00	0.40	0.20	0.00	0.25
Avail Cap(c_a), veh/h	763	0	690	886	0	0	619	0	743	1051	0	647
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	12.7	12.5	0.0	0.0	14.9	0.0	11.3	10.4	0.0	10.5
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.1	0.0	0.0	0.7	0.0	0.4	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.9	0.9	0.0	0.0	2.3	0.0	1.9	1.2	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	0.0	12.9	12.6	0.0	0.0	15.6	0.0	11.8	10.5	0.0	10.8
LnGrp LOS	B	A	B	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		219			105			459			296	
Approach Delay, s/veh		12.8			12.6			13.7			10.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	30.9	27.1	30.9	27.1
Change Period (Y+Rc), s	5.9	6.0	5.9	6.0
Max Green Setting (Gmax), s	32.0	28.0	32.0	28.0
Max Q Clear Time (g_c+I1), s	16.4	5.0	6.0	4.3
Green Ext Time (p_c), s	3.0	1.1	2.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	50	35	35	75	70	95	440	85	50	150	65
Future Volume (veh/h)	25	50	35	35	75	70	95	440	85	50	150	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.76		0.68	0.73		0.68	0.79		0.65	0.90		0.66
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1811	1811	1900	1826	1826	1826	1856	1856	1856
Adj Flow Rate, veh/h	27	53	37	37	80	74	101	468	90	53	160	69
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	6	6	0	5	5	5	3	3	3
Cap, veh/h	241	438	441	226	448	448	197	797	150	173	481	218
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	399	1075	1082	365	1100	1099	300	1955	368	230	1178	534
Grp Volume(v), veh/h	80	0	37	117	0	74	377	0	282	150	0	132
Grp Sat Flow(s),veh/h/ln	1474	0	1082	1465	0	1099	1469	0	1153	923	0	1019
Q Serve(g_s), s	0.0	0.0	1.3	0.0	0.0	2.6	6.6	0.0	11.8	1.1	0.0	5.4
Cycle Q Clear(g_c), s	1.6	0.0	1.3	2.5	0.0	2.6	12.0	0.0	11.8	12.9	0.0	5.4
Prop In Lane	0.34		1.00	0.32		1.00	0.27		0.32	0.35		0.52
Lane Grp Cap(c), veh/h	680	0	441	675	0	448	674	0	470	456	0	415
V/C Ratio(X)	0.12	0.00	0.08	0.17	0.00	0.17	0.56	0.00	0.60	0.33	0.00	0.32
Avail Cap(c_a), veh/h	726	0	476	720	0	484	860	0	621	617	0	548
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.2	0.0	11.1	11.5	0.0	11.5	14.0	0.0	14.2	12.3	0.0	12.3
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.1	0.0	0.2	0.7	0.0	1.2	0.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.3	0.9	0.0	0.6	3.8	0.0	2.9	1.3	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.3	0.0	11.2	11.6	0.0	11.7	14.8	0.0	15.5	12.7	0.0	12.8
LnGrp LOS	B	A	B	B	A	B	B	A	B	B	A	B
Approach Vol, veh/h		117			191			659			282	
Approach Delay, s/veh		11.3			11.6			15.1			12.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	30.3	31.0	30.3	31.0
Change Period (Y+Rc), s	* 5.3	6.0	* 5.3	6.0
Max Green Setting (Gmax), s	* 33	27.0	* 33	27.0
Max Q Clear Time (g_c+I1), s	14.0	3.6	14.9	4.6
Green Ext Time (p_c), s	4.8	0.6	2.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	70	30	100	320	315	30	150	25	60	100	80
Future Volume (veh/h)	50	70	30	100	320	315	30	150	25	60	100	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.69	0.75		0.81	1.00		0.85	0.90		0.75
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1856	1900	1826	1841	1826	1900	1841	1841	1856	1885	1885
Adj Flow Rate, veh/h	54	76	33	109	348	342	33	163	27	65	109	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	3	0	5	4	5	0	4	4	3	1	1
Cap, veh/h	275	705	425	435	699	415	93	539	89	494	256	204
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.05	0.36	0.36	0.05	0.36	0.36
Sat Flow, veh/h	729	1856	1118	938	1841	1094	1810	1497	248	1767	710	567
Grp Volume(v), veh/h	54	76	33	109	348	342	33	0	190	65	0	196
Grp Sat Flow(s),veh/h/ln	729	1856	1118	938	1841	1094	1810	0	1744	1767	0	1277
Q Serve(g_s), s	4.3	1.8	1.3	5.9	10.0	19.6	1.2	0.0	5.4	0.0	0.0	8.1
Cycle Q Clear(g_c), s	14.3	1.8	1.3	7.7	10.0	19.6	1.2	0.0	5.4	0.0	0.0	8.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		0.44
Lane Grp Cap(c), veh/h	275	705	425	435	699	415	93	0	628	494	0	460
V/C Ratio(X)	0.20	0.11	0.08	0.25	0.50	0.82	0.35	0.00	0.30	0.13	0.00	0.43
Avail Cap(c_a), veh/h	483	1234	744	703	1225	728	208	0	774	607	0	567
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.9	13.9	13.8	16.4	16.5	19.4	31.8	0.0	16.0	16.4	0.0	16.8
Incr Delay (d2), s/veh	0.3	0.1	0.1	0.3	0.6	4.1	2.3	0.0	0.3	0.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.7	0.3	1.2	4.1	5.1	0.6	0.0	2.1	0.7	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	14.0	13.8	16.7	17.0	23.6	34.1	0.0	16.2	16.6	0.0	17.4
LnGrp LOS	C	B	B	B	B	C	C	A	B	B	A	B
Approach Vol, veh/h		163			799			223			261	
Approach Delay, s/veh		16.7			19.8			18.9			17.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	30.7		32.2	6.6	30.7		32.2
Change Period (Y+Rc), s	* 3	5.7		* 5.8	* 3	5.7		* 5.8
Max Green Setting (Gmax), s	* 8	30.8		* 46	* 8	30.8		* 46
Max Q Clear Time (g_c+I1), s	12.0	7.4		16.3	3.2	10.1		21.6
Green Ext Time (p_c), s	0.1	1.1		1.0	0.0	1.3		4.8

Intersection Summary	
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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	5	190	20	15	290	25	50	25	20	15	20	20
Future Vol, veh/h	5	190	20	15	290	25	50	25	20	15	20	20
Conflicting Peds, #/hr	10	0	10	10	0	10	15	0	10	10	0	15
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	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	5	5	0	11	0	0	5	0	0	2	0
Mvmt Flow	5	192	20	15	293	25	51	25	20	15	20	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	328	0	0	222	0	0	593	580	222	591	578	331
Stage 1	-	-	-	-	-	-	222	222	-	346	346	-
Stage 2	-	-	-	-	-	-	371	358	-	245	232	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.55	6.2	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.045	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1243	-	-	1359	-	-	420	422	823	422	427	715
Stage 1	-	-	-	-	-	-	785	714	-	674	635	-
Stage 2	-	-	-	-	-	-	653	622	-	763	713	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1231	-	-	1346	-	-	378	406	807	379	411	698
Mov Cap-2 Maneuver	-	-	-	-	-	-	378	406	-	379	411	-
Stage 1	-	-	-	-	-	-	774	703	-	665	620	-
Stage 2	-	-	-	-	-	-	596	607	-	707	702	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.4	15.6	13.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	435	1231	-	-	1346	-	-	471
HCM Lane V/C Ratio	0.221	0.004	-	-	0.011	-	-	0.118
HCM Control Delay (s)	15.6	7.9	0	-	7.7	0	-	13.7
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.4

HCM 6th TWSC
1: Iris & Firehole

12/18/2019

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	15	630	70	5	185	5	30	15	10	0	10	5
Future Vol, veh/h	15	630	70	5	185	5	30	15	10	0	10	5
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	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	4	3	0	10	0	4	0	0	0	0	0
Mvmt Flow	18	750	83	6	220	6	36	18	12	0	12	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	226	0	0	833	0	0	1072	1066	792	1078	1104	223
Stage 1	-	-	-	-	-	-	828	828	-	235	235	-
Stage 2	-	-	-	-	-	-	244	238	-	843	869	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.14	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.536	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1354	-	-	809	-	-	196	224	392	198	213	822
Stage 1	-	-	-	-	-	-	362	389	-	773	714	-
Stage 2	-	-	-	-	-	-	755	712	-	361	372	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1354	-	-	809	-	-	181	217	392	175	206	822
Mov Cap-2 Maneuver	-	-	-	-	-	-	181	217	-	175	206	-
Stage 1	-	-	-	-	-	-	353	379	-	754	708	-
Stage 2	-	-	-	-	-	-	731	706	-	325	363	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	29.6	19
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	211	1354	-	-	809	-	-	275
HCM Lane V/C Ratio	0.31	0.013	-	-	0.007	-	-	0.065
HCM Control Delay (s)	29.6	7.7	0	-	9.5	0	-	19
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.3	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	630	5	10	185	10	5	10	15	15	15	10
Future Vol, veh/h	5	630	5	10	185	10	5	10	15	15	15	10
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	20	20	0	5
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	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	4	0	40	10	0	0	20	0	8	0	0
Mvmt Flow	6	716	6	11	210	11	6	11	17	17	17	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	226	0	0	727	0	0	993	984	744	1008	982	226
Stage 1	-	-	-	-	-	-	736	736	-	243	243	-
Stage 2	-	-	-	-	-	-	257	248	-	765	739	-
Critical Hdwy	4.1	-	-	4.5	-	-	7.1	6.7	6.2	7.18	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Follow-up Hdwy	2.2	-	-	2.56	-	-	3.5	4.18	3.3	3.572	4	3.3
Pot Cap-1 Maneuver	1354	-	-	726	-	-	226	231	418	214	251	818
Stage 1	-	-	-	-	-	-	414	399	-	747	708	-
Stage 2	-	-	-	-	-	-	752	669	-	387	427	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1348	-	-	723	-	-	205	223	408	189	242	810
Mov Cap-2 Maneuver	-	-	-	-	-	-	205	223	-	189	242	-
Stage 1	-	-	-	-	-	-	409	394	-	738	692	-
Stage 2	-	-	-	-	-	-	708	654	-	351	422	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	19.5	21.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	283	1348	-	-	723	-	-	260
HCM Lane V/C Ratio	0.12	0.004	-	-	0.016	-	-	0.175
HCM Control Delay (s)	19.5	7.7	0	-	10.1	0	-	21.8
HCM Lane LOS	C	A	A	-	B	A	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.6

Intersection	
Int Delay, s/veh	13.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	15	635	25	20	175	10	30	25	25	20	95	20
Future Vol, veh/h	15	635	25	20	175	10	30	25	25	20	95	20
Conflicting Peds, #/hr	5	0	10	10	0	5	5	0	25	25	0	5
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	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	5	5	0	11	0	0	5	0	0	2	0
Mvmt Flow	18	765	30	24	211	12	36	30	30	24	114	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	228	0	0	805	0	0	1165	1102	815	1141	1111	227
Stage 1	-	-	-	-	-	-	826	826	-	270	270	-
Stage 2	-	-	-	-	-	-	339	276	-	871	841	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.55	6.2	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.045	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1352	-	-	828	-	-	173	209	381	179	209	817
Stage 1	-	-	-	-	-	-	369	382	-	740	686	-
Stage 2	-	-	-	-	-	-	680	676	-	349	380	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1346	-	-	820	-	-	84	194	368	135	194	809
Mov Cap-2 Maneuver	-	-	-	-	-	-	84	194	-	135	194	-
Stage 1	-	-	-	-	-	-	357	369	-	719	660	-
Stage 2	-	-	-	-	-	-	525	650	-	280	367	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.9	69.9	68.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	144	1346	-	-	820	-	-	204
HCM Lane V/C Ratio	0.669	0.013	-	-	0.029	-	-	0.797
HCM Control Delay (s)	69.9	7.7	0	-	9.5	0	-	68.8
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	3.7	0	-	-	0.1	-	-	5.6

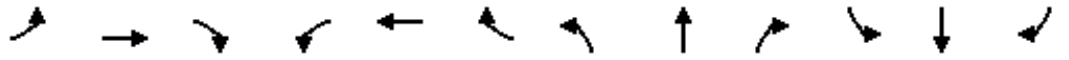
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↱		↰	↱
Traffic Vol, veh/h	5	580	95	20	165	5	25	10	50	20	20	15
Future Vol, veh/h	5	580	95	20	165	5	25	10	50	20	20	15
Conflicting Peds, #/hr	10	0	10	10	0	10	5	0	25	25	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
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, %	0	4	6	0	11	0	0	0	0	0	0	6
Mvmt Flow	6	644	106	22	183	6	28	11	56	22	22	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	199	0	0	760	0	0	974	962	732	1008	1012	201
Stage 1	-	-	-	-	-	-	719	719	-	240	240	-
Stage 2	-	-	-	-	-	-	255	243	-	768	772	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.354
Pot Cap-1 Maneuver	1385	-	-	861	-	-	233	258	424	221	241	830
Stage 1	-	-	-	-	-	-	423	436	-	768	711	-
Stage 2	-	-	-	-	-	-	754	708	-	397	412	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1372	-	-	853	-	-	202	244	410	173	228	818
Mov Cap-2 Maneuver	-	-	-	-	-	-	202	244	-	173	228	-
Stage 1	-	-	-	-	-	-	416	428	-	755	683	-
Stage 2	-	-	-	-	-	-	691	680	-	324	405	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1	19.6	23.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	212	410	1372	-	-	853	-	-	197	818
HCM Lane V/C Ratio	0.183	0.136	0.004	-	-	0.026	-	-	0.226	0.02
HCM Control Delay (s)	25.8	15.2	7.6	0	-	9.3	0	-	28.5	9.5
HCM Lane LOS	D	C	A	A	-	A	A	-	D	A
HCM 95th %tile Q(veh)	0.7	0.5	0	-	-	0.1	-	-	0.8	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	15	520	10	125	120	0	0	0	10	285	80
Future Volume (veh/h)	95	15	520	10	125	120	0	0	0	10	285	80
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.95				1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1900	1900	1870	1900	1900	1900				1900	1826	1900
Adj Flow Rate, veh/h	103	16	565	11	136	130				11	310	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	0	2	0	0	0				0	5	0
Cap, veh/h	508	72	635	69	355	322				37	1051	307
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41				0.40	0.40	0.40
Sat Flow, veh/h	984	176	1562	22	872	790				91	2615	765
Grp Volume(v), veh/h	119	0	565	277	0	0				220	0	188
Grp Sat Flow(s),veh/h/ln	1160	0	1562	1684	0	0				1821	0	1650
Q Serve(g_s), s	0.0	0.0	20.9	0.0	0.0	0.0				5.1	0.0	4.8
Cycle Q Clear(g_c), s	4.3	0.0	20.9	7.1	0.0	0.0				5.1	0.0	4.8
Prop In Lane	0.87		1.00	0.04		0.47				0.05		0.46
Lane Grp Cap(c), veh/h	580	0	635	745	0	0				732	0	663
V/C Ratio(X)	0.21	0.00	0.89	0.37	0.00	0.00				0.30	0.00	0.28
Avail Cap(c_a), veh/h	726	0	829	948	0	0				791	0	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	12.2	0.0	17.1	13.1	0.0	0.0				12.7	0.0	12.6
Incr Delay (d2), s/veh	0.2	0.0	9.6	0.3	0.0	0.0				0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	8.4	2.6	0.0	0.0				2.0	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	0.0	26.7	13.4	0.0	0.0				12.9	0.0	12.8
LnGrp LOS	B	A	C	B	A	A				B	A	B
Approach Vol, veh/h		684			277						408	
Approach Delay, s/veh		24.2			13.4						12.8	
Approach LOS		C			B						B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				31.3		30.9		31.3				
Change Period (Y+Rc), s				6.0		5.9		6.0				
Max Green Setting (Gmax), s				33.0		27.0		33.0				
Max Q Clear Time (g_c+I1), s				22.9		7.1		9.1				
Green Ext Time (p_c), s				2.4		2.5		1.9				

Intersection Summary												
HCM 6th Ctrl Delay			18.6									
HCM 6th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	85	105	35	40	0	0	0	0	45	780	50
Future Volume (veh/h)	0	85	105	35	40	0	0	0	0	45	780	50
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.98		1.00				1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	0.85
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1811	1811	0				1900	1856	1900
Adj Flow Rate, veh/h	0	90	112	37	43	0				48	830	53
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	6	6	0				0	3	0
Cap, veh/h	0	405	334	224	215	0				90	1620	109
Arrive On Green	0.00	0.22	0.22	0.22	0.22	0.00				0.54	0.54	0.54
Sat Flow, veh/h	0	1870	1541	508	991	0				167	3002	202
Grp Volume(v), veh/h	0	90	112	80	0	0				532	0	399
Grp Sat Flow(s),veh/h/ln	0	1870	1541	1499	0	0				1847	0	1524
Q Serve(g_s), s	0.0	1.8	2.8	0.0	0.0	0.0				8.6	0.0	7.6
Cycle Q Clear(g_c), s	0.0	1.8	2.8	1.7	0.0	0.0				8.6	0.0	7.6
Prop In Lane	0.00		1.00	0.46		0.00				0.09		0.13
Lane Grp Cap(c), veh/h	0	405	334	438	0	0				997	0	822
V/C Ratio(X)	0.00	0.22	0.34	0.18	0.00	0.00				0.53	0.00	0.49
Avail Cap(c_a), veh/h	0	1090	898	955	0	0				1316	0	1086
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.9	15.3	14.9	0.0	0.0				6.9	0.0	6.7
Incr Delay (d2), s/veh	0.0	0.3	0.6	0.2	0.0	0.0				0.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.9	0.6	0.0	0.0				2.6	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.2	15.9	15.1	0.0	0.0				7.3	0.0	7.1
LnGrp LOS	A	B	B	B	A	A				A	A	A
Approach Vol, veh/h		202			80						931	
Approach Delay, s/veh		15.6			15.1						7.2	
Approach LOS		B			B						A	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		16.0		30.3		16.0
Change Period (Y+Rc), s		6.0		5.3		6.0
Max Green Setting (Gmax), s		27.0		33.0		27.0
Max Q Clear Time (g_c+I1), s		4.8		10.6		3.7
Green Ext Time (p_c), s		0.8		6.8		0.4

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	250	40	40	25	0	20	0	240	665	150	55
Future Volume (veh/h)	0	250	40	40	25	0	20	0	240	665	150	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	0.97		1.00	1.00		1.00	1.00		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1900	1841	1841	0	1900	0	1856	1856	1885	1885
Adj Flow Rate, veh/h	0	269	43	43	27	0	22	0	258	715	161	59
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	3	0	4	4	0	0	0	3	3	1	1
Cap, veh/h	0	556	450	236	125	0	46	0	0	910	459	168
Arrive On Green	0.00	0.30	0.30	0.30	0.30	0.00	0.03	0.00	0.00	0.45	0.43	0.43
Sat Flow, veh/h	0	1856	1503	455	417	0	1810	22		1767	1076	394
Grp Volume(v), veh/h	0	269	43	70	0	0	22	35.4		715	0	220
Grp Sat Flow(s),veh/h/ln	0	1856	1503	872	0	0	1810	D		1767	0	1470
Q Serve(g_s), s	0.0	7.0	1.2	0.9	0.0	0.0	0.7			22.0	0.0	5.9
Cycle Q Clear(g_c), s	0.0	7.0	1.2	7.9	0.0	0.0	0.7			22.0	0.0	5.9
Prop In Lane	0.00		1.00	0.61		0.00	1.00			1.00		0.27
Lane Grp Cap(c), veh/h	0	556	450	361	0	0	46			910	0	628
V/C Ratio(X)	0.00	0.48	0.10	0.19	0.00	0.00	0.47			0.79	0.00	0.35
Avail Cap(c_a), veh/h	0	799	647	521	0	0	238			1143	0	1308
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	0.00	1.00			1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	16.8	14.8	16.2	0.0	0.0	28.1			15.0	0.0	11.3
Incr Delay (d2), s/veh	0.0	0.7	0.1	0.3	0.0	0.0	7.3			2.9	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.9	0.4	0.8	0.0	0.0	0.4			8.3	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.4	14.9	16.4	0.0	0.0	35.4			18.0	0.0	11.6
LnGrp LOS	A	B	B	B	A	A	D			B	A	B
Approach Vol, veh/h		312			70						935	
Approach Delay, s/veh		17.1			16.4						16.5	
Approach LOS		B			B						B	

Timer - Assigned Phs	1			4	5	6		8				
Phs Duration (G+Y+Rc), s	39.1			23.3	4.5	30.7		23.3				
Change Period (Y+Rc), s	3.0			* 5.8	3.0	* 5.7		* 5.8				
Max Green Setting (Gmax), s	33.8			* 25	7.7	* 52		* 25				
Max Q Clear Time (g_c+I1), s	24.0			9.0	2.7	7.9		9.9				
Green Ext Time (p_c), s	2.1			1.6	0.0	1.6		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	0	225	5	0	30
Future Volume (veh/h)	25	0	225	5	0	30
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	0	245	5	0	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	0	0	1511	576	0	488
Arrive On Green	0.00	0.00	0.31	0.31	0.00	0.31
Sat Flow, veh/h	0	0	1376	1870	0	1585
Grp Volume(v), veh/h	0	0	245	5	0	33
Grp Sat Flow(s),veh/h/ln	0	0	1376	1870	0	1585
Q Serve(g_s), s	0.0	0.0	1.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.0	0.0	1.1	0.0	0.0	0.1
Prop In Lane	0.00	0.00	1.00			1.00
Lane Grp Cap(c), veh/h	0	0	1511	576	0	488
V/C Ratio(X)	0.00	0.00	0.16	0.01	0.00	0.07
Avail Cap(c_a), veh/h	0	0	7860	9207	0	7681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	2.0	1.6	0.0	1.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	2.0	1.6	0.0	1.6
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	0			250	33	
Approach Delay, s/veh	0.0			2.0	1.6	
Approach LOS				A	A	

Timer - Assigned Phs	2		4		6
Phs Duration (G+Y+Rc), s	6.5		0.0		6.5
Change Period (Y+Rc), s	* 4.5		4.0		4.5
Max Green Setting (Gmax), s	* 32		20.0		31.5
Max Q Clear Time (g_c+I1), s	3.1		0.0		2.1
Green Ext Time (p_c), s	0.8		0.0		0.1

Intersection Summary	
HCM 6th Ctrl Delay	2.0
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	0	65	170	0	0
Future Volume (veh/h)	50	0	65	170	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1870	0	1870	1870		
Adj Flow Rate, veh/h	54	0	71	185		
Peak Hour Factor	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	0	2	2		
Cap, veh/h	0	0	1127	616		
Arrive On Green	0.00	0.00	0.24	0.24		
Sat Flow, veh/h	0		675	2681		
Grp Volume(v), veh/h	0.0		174	82		
Grp Sat Flow(s),veh/h/ln			1655	1617		
Q Serve(g_s), s			0.5	0.2		
Cycle Q Clear(g_c), s			0.5	0.2		
Prop In Lane			0.41			
Lane Grp Cap(c), veh/h			1359	384		
V/C Ratio(X)			0.13	0.21		
Avail Cap(c_a), veh/h			10745	9556		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			1.7	1.6		
Incr Delay (d2), s/veh			0.0	0.3		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.0	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			1.7	1.9		
LnGrp LOS			A	A		
Approach Vol, veh/h				256		
Approach Delay, s/veh				1.8		
Approach LOS				A		

Timer - Assigned Phs	2
Phs Duration (G+Y+Rc), s	5.2
Change Period (Y+Rc), s	4.0
Max Green Setting (Gmax), s	31.0
Max Q Clear Time (g_c+I1), s	2.5
Green Ext Time (p_c), s	1.5

Intersection Summary	
HCM 6th Ctrl Delay	1.8
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	995	0	0	65	70	0	0	0	0	0	0
Future Volume (veh/h)	160	995	0	0	65	70	0	0	0	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	174	1082	0	0	71	76	0	0	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	280	1420	0	0	406	435	0	639	542			
Arrive On Green	0.49	0.49	0.00	0.00	0.49	0.49	0.00	0.00	0.00			
Sat Flow, veh/h	398	2972	0	0	826	885	0	1870	1585			
Grp Volume(v), veh/h	649	607	0	0	0	147	0	0	0			
Grp Sat Flow(s),veh/h/ln	1668	1617	0	0	0	1711	0	1870	1585			
Q Serve(g_s), s	14.7	16.5	0.0	0.0	0.0	2.6	0.0	0.0	0.0			
Cycle Q Clear(g_c), s	17.3	16.5	0.0	0.0	0.0	2.6	0.0	0.0	0.0			
Prop In Lane	0.27		0.00	0.00		0.52	0.00		1.00			
Lane Grp Cap(c), veh/h	905	795	0	0	0	841	0	639	542			
V/C Ratio(X)	0.72	0.76	0.00	0.00	0.00	0.17	0.00	0.00	0.00			
Avail Cap(c_a), veh/h	1084	971	0	0	0	1028	0	639	542			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00			
Uniform Delay (d), s/veh	11.3	11.2	0.0	0.0	0.0	7.6	0.0	0.0	0.0			
Incr Delay (d2), s/veh	1.8	2.9	0.0	0.0	0.0	0.1	0.0	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.7	5.5	0.0	0.0	0.0	0.8	0.0	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	14.1	0.0	0.0	0.0	7.7	0.0	0.0	0.0			
LnGrp LOS	B	B	A	A	A	A	A	A	A			
Approach Vol, veh/h		1256			147			0				
Approach Delay, s/veh		13.6			7.7			0.0				
Approach LOS		B			A							

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	23.0	31.1	31.1
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	32.5	32.5
Max Q Clear Time (g_c+I1), s	0.0	19.3	4.6
Green Ext Time (p_c), s	0.0	7.3	0.9

Intersection Summary	
HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B

HCM 6th TWSC
1: Iris & Firehole

12/18/2019

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	10	185	25	5	550	0	55	15	15	0	5	5
Future Vol, veh/h	10	185	25	5	550	0	55	15	15	0	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	5	0	0	0	0	5
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	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	3	0	10	0	4	0	0	0	0	0
Mvmt Flow	11	195	26	5	579	0	58	16	16	0	5	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	579	0	0	221	0	0	829	819	208	835	832	584
Stage 1	-	-	-	-	-	-	230	230	-	589	589	-
Stage 2	-	-	-	-	-	-	599	589	-	246	243	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.14	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.536	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1005	-	-	1360	-	-	287	312	837	289	307	515
Stage 1	-	-	-	-	-	-	768	718	-	498	499	-
Stage 2	-	-	-	-	-	-	485	499	-	762	708	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1005	-	-	1360	-	-	275	306	837	269	301	513
Mov Cap-2 Maneuver	-	-	-	-	-	-	275	306	-	269	301	-
Stage 1	-	-	-	-	-	-	758	709	-	492	497	-
Stage 2	-	-	-	-	-	-	470	497	-	721	699	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.1	20.7	14.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	318	1005	-	-	1360	-	-	379
HCM Lane V/C Ratio	0.281	0.01	-	-	0.004	-	-	0.028
HCM Control Delay (s)	20.7	8.6	0	-	7.7	0	-	14.8
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	190	5	10	540	20	5	10	5	15	10	5
Future Vol, veh/h	0	190	5	10	540	20	5	10	5	15	10	5
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
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	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	40	10	0	0	20	0	8	0	0
Mvmt Flow	0	200	5	11	568	21	5	11	5	16	11	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	594	0	0	210	0	0	822	824	213	822	816	589
Stage 1	-	-	-	-	-	-	208	208	-	606	606	-
Stage 2	-	-	-	-	-	-	614	616	-	216	210	-
Critical Hdwy	4.1	-	-	4.5	-	-	7.1	6.7	6.2	7.18	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.7	-	6.18	5.5	-
Follow-up Hdwy	2.2	-	-	2.56	-	-	3.5	4.18	3.3	3.572	4	3.3
Pot Cap-1 Maneuver	992	-	-	1164	-	-	295	289	832	286	314	512
Stage 1	-	-	-	-	-	-	799	697	-	474	490	-
Stage 2	-	-	-	-	-	-	483	455	-	773	732	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	987	-	-	1158	-	-	278	282	824	271	306	507
Mov Cap-2 Maneuver	-	-	-	-	-	-	278	282	-	271	306	-
Stage 1	-	-	-	-	-	-	795	694	-	472	481	-
Stage 2	-	-	-	-	-	-	459	446	-	753	728	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	16.4	18.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	336	987	-	-	1158	-	-	306
HCM Lane V/C Ratio	0.063	-	-	-	0.009	-	-	0.103
HCM Control Delay (s)	16.4	0	-	-	8.1	0	-	18.1
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	235	20	15	425	25	50	25	20	15	20	20
Future Vol, veh/h	5	235	20	15	425	25	50	25	20	15	20	20
Conflicting Peds, #/hr	10	0	10	10	0	10	15	0	10	10	0	15
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	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	5	5	0	11	0	0	5	0	0	2	0
Mvmt Flow	5	237	20	15	429	25	51	25	20	15	20	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	464	0	0	267	0	0	774	761	267	772	759	467
Stage 1	-	-	-	-	-	-	267	267	-	482	482	-
Stage 2	-	-	-	-	-	-	507	494	-	290	277	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.55	6.2	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4.045	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1108	-	-	1308	-	-	318	332	777	319	336	600
Stage 1	-	-	-	-	-	-	743	683	-	569	553	-
Stage 2	-	-	-	-	-	-	552	542	-	722	681	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1097	-	-	1296	-	-	281	319	762	282	323	586
Mov Cap-2 Maneuver	-	-	-	-	-	-	281	319	-	282	323	-
Stage 1	-	-	-	-	-	-	733	673	-	561	539	-
Stage 2	-	-	-	-	-	-	498	528	-	667	671	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.3	19.9	16.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	336	1097	-	-	1296	-	-	369
HCM Lane V/C Ratio	0.286	0.005	-	-	0.012	-	-	0.151
HCM Control Delay (s)	19.9	8.3	0	-	7.8	0	-	16.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.2	0	-	-	0	-	-	0.5

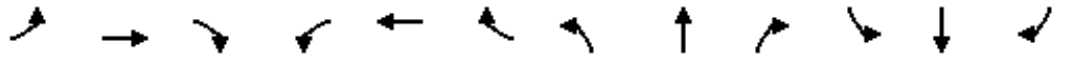
Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↱		↰	↱
Traffic Vol, veh/h	15	210	40	20	470	20	80	25	45	10	20	25
Future Vol, veh/h	15	210	40	20	470	20	80	25	45	10	20	25
Conflicting Peds, #/hr	15	0	18	18	0	15	21	0	25	25	0	21
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	4	6	0	11	0	0	0	0	0	0	6
Mvmt Flow	17	241	46	23	540	23	92	29	52	11	23	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	578	0	0	305	0	0	961	940	307	977	952	588
Stage 1	-	-	-	-	-	-	316	316	-	613	613	-
Stage 2	-	-	-	-	-	-	645	624	-	364	339	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.354
Pot Cap-1 Maneuver	1006	-	-	1267	-	-	238	266	738	232	261	501
Stage 1	-	-	-	-	-	-	699	659	-	483	486	-
Stage 2	-	-	-	-	-	-	464	481	-	659	643	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	992	-	-	1245	-	-	193	246	708	182	241	484
Mov Cap-2 Maneuver	-	-	-	-	-	-	193	246	-	182	241	-
Stage 1	-	-	-	-	-	-	672	634	-	466	466	-
Stage 2	-	-	-	-	-	-	396	461	-	557	619	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.3	35.2	19.3
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	203	708	992	-	-	1245	-	-	217	484
HCM Lane V/C Ratio	0.595	0.073	0.017	-	-	0.018	-	-	0.159	0.059
HCM Control Delay (s)	45.8	10.5	8.7	0	-	7.9	0	-	24.7	12.9
HCM Lane LOS	E	B	A	A	-	A	A	-	C	B
HCM 95th %tile Q(veh)	3.3	0.2	0.1	-	-	0.1	-	-	0.6	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	15	150	20	405	195	0	0	0	10	155	120
Future Volume (veh/h)	90	15	150	20	405	195	0	0	0	10	155	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.91	0.96		0.92	1.00		1.00	0.83		0.81
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1870	1900	1900	1900	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	94	16	156	21	422	203	0	0	0	10	161	125
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
Percent Heavy Veh, %	0	0	2	0	0	0	3	3	3	5	5	5
Cap, veh/h	279	40	617	68	495	232	0	1285	0	72	693	443
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.39	0.39	0.39
Sat Flow, veh/h	410	93	1449	25	1161	544	0	3595	0	33	1782	1141
Grp Volume(v), veh/h	110	0	156	646	0	0	0	0	0	170	0	126
Grp Sat Flow(s),veh/h/ln	504	0	1449	1730	0	0	0	1653	0	1807	0	1149
Q Serve(g_s), s	0.0	0.0	4.4	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8
Cycle Q Clear(g_c), s	12.8	0.0	4.4	21.9	0.0	0.0	0.0	0.0	0.0	4.0	0.0	4.8
Prop In Lane	0.85		1.00	0.03		0.31	0.00		0.00	0.06		0.99
Lane Grp Cap(c), veh/h	319	0	617	795	0	0	0	1285	0	762	0	447
V/C Ratio(X)	0.35	0.00	0.25	0.81	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.28
Avail Cap(c_a), veh/h	409	0	767	972	0	0	0	1338	0	790	0	465
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	11.9	16.8	0.0	0.0	0.0	0.0	0.0	13.2	0.0	13.5
Incr Delay (d2), s/veh	0.6	0.0	0.2	4.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.4	8.7	0.0	0.0	0.0	0.0	0.0	1.6	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.4	0.0	12.1	21.3	0.0	0.0	0.0	0.0	0.0	13.4	0.0	13.8
LnGrp LOS	B	A	B	C	A	A	A	A	A	B	A	B
Approach Vol, veh/h		266			646			0			296	
Approach Delay, s/veh		13.0			21.3			0.0			13.6	
Approach LOS		B			C						B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	30.9	33.4	30.9	33.4
Change Period (Y+Rc), s	5.9	6.0	5.9	6.0
Max Green Setting (Gmax), s	26.0	34.0	26.0	34.0
Max Q Clear Time (g_c+I1), s	0.0	14.8	6.8	23.9
Green Ext Time (p_c), s	0.0	1.5	1.9	3.5

Intersection Summary	
HCM 6th Ctrl Delay	17.6
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	75	35	35	170	0	0	0	0	50	195	65
Future Volume (veh/h)	0	75	35	35	170	0	0	0	0	50	195	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.69	0.75		1.00	1.00		1.00	0.66		0.66
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	1.00	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1811	1811	0	1826	1826	1826	1856	1856	1856
Adj Flow Rate, veh/h	0	80	37	37	181	0	0	0	0	53	207	69
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	6	6	0	5	5	5	3	3	3
Cap, veh/h	0	763	443	138	602	0	0	1326	0	202	704	216
Arrive On Green	0.00	0.41	0.41	0.41	0.41	0.00	0.00	0.00	0.00	0.41	0.41	0.41
Sat Flow, veh/h	0	1870	1086	171	1475	0	0	3538	0	313	1727	529
Grp Volume(v), veh/h	0	80	37	218	0	0	0	0	0	195	0	134
Grp Sat Flow(s),veh/h/ln	0	1870	1086	1646	0	0	0	1626	0	1546	0	1023
Q Serve(g_s), s	0.0	1.6	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4
Cycle Q Clear(g_c), s	0.0	1.6	1.3	5.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	5.4
Prop In Lane	0.00		1.00	0.17		0.00	0.00		0.00	0.27		0.52
Lane Grp Cap(c), veh/h	0	763	443	740	0	0	0	1326	0	705	0	417
V/C Ratio(X)	0.00	0.10	0.08	0.29	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.32
Avail Cap(c_a), veh/h	0	916	532	867	0	0	0	1592	0	824	0	501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.2	11.1	12.2	0.0	0.0	0.0	0.0	0.0	12.0	0.0	12.4
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.3	1.9	0.0	0.0	0.0	0.0	0.0	1.7	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.3	11.2	12.4	0.0	0.0	0.0	0.0	0.0	12.2	0.0	12.8
LnGrp LOS	A	B	B	B	A	A	A	A	A	B	A	B
Approach Vol, veh/h		117			218			0			329	
Approach Delay, s/veh		11.3			12.4			0.0			12.5	
Approach LOS		B			B						B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	30.3	31.0	30.3	31.0
Change Period (Y+Rc), s	* 5.3	6.0	* 5.3	6.0
Max Green Setting (Gmax), s	* 30	30.0	* 30	30.0
Max Q Clear Time (g_c+I1), s	0.0	3.6	7.4	7.0
Green Ext Time (p_c), s	0.0	0.6	2.4	1.4

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	75	30	100	185	0	30	0	175	105	100	80
Future Volume (veh/h)	0	75	30	100	185	0	30	0	175	105	100	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.69	0.74		1.00	1.00		1.00	1.00		0.76
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1856	1900	1841	1841	0	1900	0	1856	1856	1885	1885
Adj Flow Rate, veh/h	0	82	33	109	201	0	33	0	190	114	109	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	3	0	4	4	0	0	0	3	3	1	1
Cap, veh/h	0	690	412	226	384	0	62	0	0	949	269	215
Arrive On Green	0.00	0.37	0.37	0.37	0.37	0.00	0.03	0.00	0.00	0.50	0.38	0.38
Sat Flow, veh/h	0	1856	1108	411	1032	0	1810	33		1767	716	571
Grp Volume(v), veh/h	0	82	33	310	0	0	33	38.5		114	0	196
Grp Sat Flow(s),veh/h/ln	0	1856	1108	1443	0	0	1810	D		1767	0	1287
Q Serve(g_s), s	0.0	1.9	1.3	6.9	0.0	0.0	1.2			0.0	0.0	7.5
Cycle Q Clear(g_c), s	0.0	1.9	1.3	10.6	0.0	0.0	1.2			0.0	0.0	7.5
Prop In Lane	0.00		1.00	0.35		0.00	1.00			1.00		0.44
Lane Grp Cap(c), veh/h	0	690	412	610	0	0	62			949	0	484
V/C Ratio(X)	0.00	0.12	0.08	0.51	0.00	0.00	0.53			0.12	0.00	0.41
Avail Cap(c_a), veh/h	0	1261	753	1033	0	0	245			949	0	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	0.00	1.00			1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.7	13.5	16.1	0.0	0.0	31.6			9.5	0.0	15.3
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.7	0.0	0.0	6.9			0.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.3	3.5	0.0	0.0	0.6			0.8	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.8	13.6	16.8	0.0	0.0	38.5			9.6	0.0	15.8
LnGrp LOS	A	B	B	B	A	A	D			A	A	B
Approach Vol, veh/h		115			310						310	
Approach Delay, s/veh		13.7			16.8						13.5	
Approach LOS		B			B						B	

Timer - Assigned Phs	1			4	5	6		8				
Phs Duration (G+Y+Rc), s	36.0			30.5	5.3	30.7		30.5				
Change Period (Y+Rc), s	3.0			* 5.8	* 3	5.7		* 5.8				
Max Green Setting (Gmax), s	9.0			* 45	* 9	30.8		* 45				
Max Q Clear Time (g_c+I1), s	12.6			3.9	3.2	9.5		12.6				
Green Ext Time (p_c), s	0.1			0.7	0.0	1.3		2.5				

Intersection Summary	
HCM 6th Ctrl Delay	16.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	0	520	55	0	100
Future Volume (veh/h)	25	0	520	55	0	100
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	0	565	60	0	109
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	0	0	1123	1395	0	253
Arrive On Green	0.00	0.00	0.33	0.75	0.00	0.16
Sat Flow, veh/h	0	0	1781	1870	0	1585
Grp Volume(v), veh/h	0	0	565	60	0	109
Grp Sat Flow(s),veh/h/ln	0	0	1781	1870	0	1585
Q Serve(g_s), s	0.0	0.0	3.3	0.1	0.0	1.1
Cycle Q Clear(g_c), s	0.0	0.0	3.3	0.1	0.0	1.1
Prop In Lane	0.00	0.00	1.00			1.00
Lane Grp Cap(c), veh/h	0	0	1123	1395	0	253
V/C Ratio(X)	0.00	0.00	0.50	0.04	0.00	0.43
Avail Cap(c_a), veh/h	0	0	1589	3488	0	1613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	2.5	0.6	0.0	6.7
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.1	0.0	0.0	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	2.8	0.6	0.0	7.9
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	0			625	109	
Approach Delay, s/veh	0.0			2.6	7.9	
Approach LOS				A	A	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	17.7		0.0	10.4	7.3
Change Period (Y+Rc), s	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s	33.0		18.0	10.5	18.0
Max Q Clear Time (g_c+I1), s	2.1		0.0	5.3	3.1
Green Ext Time (p_c), s	0.3		0.0	1.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	3.4
HCM 6th LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	95	0	180	525	0	0
Future Volume (veh/h)	95	0	180	525	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1870	0	1870	1870		
Adj Flow Rate, veh/h	103	0	196	571		
Peak Hour Factor	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	0	2	2		
Cap, veh/h	0	0	778	1756		
Arrive On Green	0.00	0.00	0.64	0.64		
Sat Flow, veh/h	0		556	2839		
Grp Volume(v), veh/h	0.0		425	342		
Grp Sat Flow(s),veh/h/ln			1693	1617		
Q Serve(g_s), s			0.0	1.2		
Cycle Q Clear(g_c), s			1.3	1.2		
Prop In Lane			0.46			
Lane Grp Cap(c), veh/h			1503	1031		
V/C Ratio(X)			0.28	0.33		
Avail Cap(c_a), veh/h			4337	3842		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			1.1	1.0		
Incr Delay (d2), s/veh			0.1	0.2		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.0	0.1		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			1.2	1.2		
LnGrp LOS			A	A		
Approach Vol, veh/h				767		
Approach Delay, s/veh				1.2		
Approach LOS				A		

Timer - Assigned Phs	2
Phs Duration (G+Y+Rc), s	12.4
Change Period (Y+Rc), s	4.5
Max Green Setting (Gmax), s	29.5
Max Q Clear Time (g_c+I1), s	3.3
Green Ext Time (p_c), s	5.2

Intersection Summary	
HCM 6th Ctrl Delay	1.2
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	155	0	0	285	450	0	0	0	0	0	0
Future Volume (veh/h)	200	155	0	0	285	450	0	0	0	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	217	168	0	0	310	489	0	0	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	207	876	0	0	354	559	0	577	489			
Arrive On Green	0.54	0.54	0.00	0.00	0.54	0.54	0.00	0.00	0.00			
Sat Flow, veh/h	161	1702	0	0	654	1031	0	1870	1585			
Grp Volume(v), veh/h	217	168	0	0	0	799	0	0	0			
Grp Sat Flow(s),veh/h/ln	161	1617	0	0	0	1685	0	1870	1585			
Q Serve(g_s), s	7.7	3.2	0.0	0.0	0.0	24.8	0.0	0.0	0.0			
Cycle Q Clear(g_c), s	32.5	3.2	0.0	0.0	0.0	24.8	0.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.61	0.00		1.00			
Lane Grp Cap(c), veh/h	207	876	0	0	0	913	0	577	489			
V/C Ratio(X)	1.05	0.19	0.00	0.00	0.00	0.88	0.00	0.00	0.00			
Avail Cap(c_a), veh/h	207	876	0	0	0	913	0	577	489			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00			
Uniform Delay (d), s/veh	28.4	7.0	0.0	0.0	0.0	12.0	0.0	0.0	0.0			
Incr Delay (d2), s/veh	75.4	0.1	0.0	0.0	0.0	9.5	0.0	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.2	1.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.8	7.1	0.0	0.0	0.0	21.5	0.0	0.0	0.0			
LnGrp LOS	F	A	A	A	A	C	A	A	A			
Approach Vol, veh/h		385			799			0				
Approach Delay, s/veh		61.6			21.5			0.0				
Approach LOS		E			C							

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	23.0	37.0	37.0
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	32.5	32.5
Max Q Clear Time (g_c+I1), s	0.0	34.5	26.8
Green Ext Time (p_c), s	0.0	0.0	2.9

Intersection Summary	
HCM 6th Ctrl Delay	34.6
HCM 6th LOS	C

Arterial Level of Service

10/15/2019

Arterial Level of Service: NB Canyon

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Yellowstone	IV	25	25.9	18.9	44.8	0.12	9.5	D
Madison	IV	25	27.1	5.7	32.8	0.12	13.5	C
Firehole	IV	25	26.2	8.2	34.4	0.12	12.5	D
Total	IV		79.2	32.8	112.0	0.36	11.6	D

Arterial Level of Service: SB Canyon

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Firehole	IV	25	37.8	6.9	44.7	0.25	19.9	B
Madison	IV	25	26.2	7.7	33.9	0.12	12.7	D
Yellowstone	IV	25	27.1	9.5	36.6	0.12	12.1	D
Total	IV		91.1	24.1	115.2	0.49	15.3	C

Arterial Level of Service: EB Firehole

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Canyon	IV	27	117.9	17.6	135.5	0.87	23.2	B
Total	IV		117.9	17.6	135.5	0.87	23.2	B

Arterial Level of Service: WB Firehole

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Canyon	IV	25	25.6	12.3	37.9	0.12	11.1	D
Total	IV		25.6	12.3	37.9	0.12	11.1	D

Arterial Level of Service

10/15/2019

Arterial Level of Service: NB Canyon

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Yellowstone	IV	25	25.9	17.1	43.0	0.12	9.9	D
Madison	IV	25	27.1	6.2	33.3	0.12	13.3	C
Firehole	IV	25	26.2	6.6	32.8	0.12	13.1	C
Total	IV		79.2	29.9	109.1	0.36	11.9	D

Arterial Level of Service: SB Canyon

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Firehole	IV	25	37.8	3.7	41.5	0.25	21.4	B
Madison	IV	25	26.2	5.3	31.5	0.12	13.6	C
Yellowstone	IV	25	27.1	12.0	39.1	0.12	11.3	D
Total	IV		91.1	21.0	112.1	0.49	15.7	C

Arterial Level of Service: EB Firehole

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Canyon	IV	27	117.9	21.4	139.3	0.87	22.6	B
Total	IV		117.9	21.4	139.3	0.87	22.6	B

Arterial Level of Service: WB Firehole

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Canyon	IV	25	25.6	15.8	41.4	0.12	10.1	D
Total	IV		25.6	15.8	41.4	0.12	10.1	D

Arterial Level of Service

10/17/2019

Arterial Level of Service: NB Canyon

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Yellowstone	IV	25	25.9	27.1	53.0	0.12	8.0	E
Madison	IV	25	27.1	5.5	32.6	0.12	13.6	C
Firehole	IV	25	26.2	11.5	37.7	0.12	11.4	D
Total	IV		79.2	44.1	123.3	0.36	10.5	D

Arterial Level of Service: SB Canyon

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Firehole	IV	25	37.8	10.1	47.9	0.25	18.6	C
Madison	IV	25	26.2	8.2	34.4	0.12	12.5	D
Yellowstone	IV	25	27.1	8.9	36.0	0.12	12.3	D
Total	IV		91.1	27.2	118.3	0.49	14.9	C

Arterial Level of Service: EB Firehole

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Canyon	IV	27	117.9	15.4	133.3	0.87	23.6	B
Total	IV		117.9	15.4	133.3	0.87	23.6	B

Arterial Level of Service: WB Firehole

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Canyon	IV	25	25.6	10.4	36.0	0.12	11.6	D
Total	IV		25.6	10.4	36.0	0.12	11.6	D

Arterial Level of Service

10/17/2019

Arterial Level of Service: NB Canyon

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Yellowstone	IV	25	25.9	19.7	45.6	0.12	9.3	D
Madison	IV	25	27.1	7.2	34.3	0.12	12.9	D
Firehole	IV	25	26.2	8.3	34.5	0.12	12.5	D
Total	IV		79.2	35.2	114.4	0.36	11.3	D

Arterial Level of Service: SB Canyon

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Firehole	IV	25	37.8	4.2	42.0	0.25	21.2	B
Madison	IV	25	26.2	5.7	31.9	0.12	13.5	C
Yellowstone	IV	25	27.1	16.0	43.1	0.12	10.3	D
Total	IV		91.1	25.9	117.0	0.49	15.1	C

Arterial Level of Service: EB Firehole

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Canyon	IV	27	117.9	21.7	139.6	0.87	22.5	B
Total	IV		117.9	21.7	139.6	0.87	22.5	B

Arterial Level of Service: WB Firehole

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Canyon	IV	25	25.6	15.8	41.4	0.12	10.1	D
Total	IV		25.6	15.8	41.4	0.12	10.1	D

Arterial Level of Service

10/17/2019

Arterial Level of Service: NB Canyon

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Yellowstone	IV	25	25.9	21.1	47.0	0.12	9.0	D
Madison	IV	25	27.1	5.6	32.7	0.12	13.6	C
Firehole	IV	25	26.2	8.5	34.7	0.12	12.4	D
Total	IV		79.2	35.2	114.4	0.36	11.3	D

Arterial Level of Service: SB Canyon

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Firehole	IV	25	37.8	7.5	45.3	0.25	19.6	B
Madison	IV	25	26.2	7.8	34.0	0.12	12.6	D
Yellowstone	IV	25	27.1	8.8	35.9	0.12	12.3	D
Total	IV		91.1	24.1	115.2	0.49	15.3	C

Arterial Level of Service: EB Firehole

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Iris	IV	35	25.4	12.1	37.5	0.20	18.8	C
Canyon	IV	25	97.8	18.6	116.4	0.68	21.0	B
Total	IV		123.2	30.7	153.9	0.87	20.5	B

Arterial Level of Service: WB Firehole

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Canyon	IV	25	25.6	11.9	37.5	0.12	11.2	D
Iris	IV	25	97.8	4.3	102.1	0.68	23.9	B
Total	IV		123.4	16.2	139.6	0.80	20.5	B

Arterial Level of Service

10/17/2019

Arterial Level of Service: NB Canyon

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Yellowstone	IV	25	25.9	16.5	42.4	0.12	10.0	D
Madison	IV	25	27.1	6.6	33.7	0.12	13.2	C
Firehole	IV	25	26.2	6.8	33.0	0.12	13.0	C
Total	IV		79.2	29.9	109.1	0.36	11.9	D

Arterial Level of Service: SB Canyon

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Firehole	IV	25	37.8	4.0	41.8	0.25	21.3	B
Madison	IV	25	26.2	5.4	31.6	0.12	13.6	C
Yellowstone	IV	25	27.1	13.8	40.9	0.12	10.8	D
Total	IV		91.1	23.2	114.3	0.49	15.4	C

Arterial Level of Service: EB Firehole

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Iris	IV	35	25.4	8.2	33.6	0.20	20.9	B
Canyon	IV	25	97.8	22.2	120.0	0.68	20.4	B
Total	IV		123.2	30.4	153.6	0.87	20.5	B

Arterial Level of Service: WB Firehole

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Canyon	IV	25	25.6	15.9	41.5	0.12	10.1	D
Iris	IV	25	97.8	13.1	110.9	0.68	22.0	B
Total	IV		123.4	29.0	152.4	0.80	18.8	C

TRAFFIC COUNT DATA

Below and on the following pages are the traffic count reports from Sanderson Stewart

SANDERSON STEWART

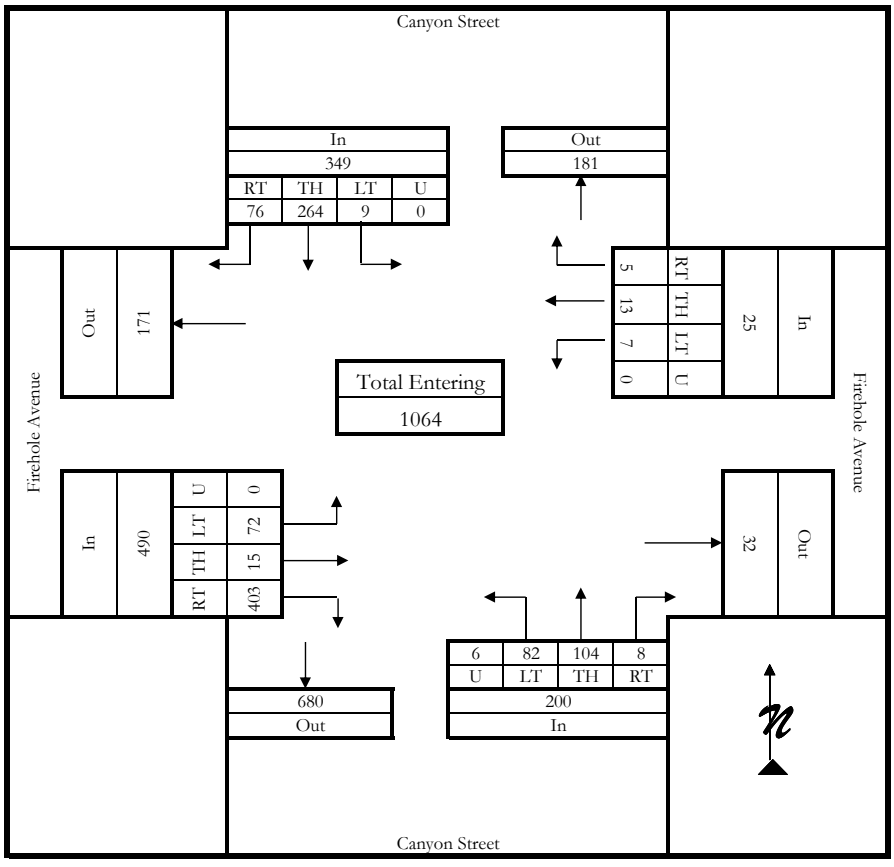
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Firehole Avenue & Canyon Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	AM Peak Hour (9:15 - 10:15 AM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Canyon Street	East/West Street:	Firehole Avenue

Vehicle Volumes and Adjustments

	Canyon Street Southbound					Canyon Street Northbound					Firehole Avenue Eastbound					Firehole Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
9:15 AM	15	70	2	0	87	2	31	25	1	59	99	4	25	0	128	1	2	3	0	6	280
9:30 AM	16	69	2	0	87	2	19	21	4	46	91	2	21	0	114	1	2	1	0	4	251
9:45 AM	21	54	2	0	77	1	22	16	1	40	123	3	10	0	136	1	6	1	0	8	261
10:00 AM	24	71	3	0	98	3	32	20	0	55	90	6	16	0	112	2	3	2	0	7	272
Grand Total	76	264	9	0	349	8	104	82	6	200	403	15	72	0	490	5	13	7	0	25	1064
Medium Truck %	0.0	0.4	11.1	0.0	0.6	0.0	0.0	1.2	0.0	0.5	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	
Heavy Truck %	13.2	4.9	0.0	0.0	6.6	0.0	2.9	1.2	0.0	2.0	2.5	0.0	11.1	0.0	3.7	0.0	0.0	14.3	0.0	4.0	
Total Truck %	13.2	5.3	11.1	0.0	7.2	0.0	2.9	2.4	0.0	2.5	2.7	0.0	11.1	0.0	3.9	0.0	0.0	14.3	0.0	4.0	
Total %	7.1	24.8	0.8	0.0	32.8	0.8	9.8	7.7	0.6	18.8	37.9	1.4	6.8	0.0	46.1	0.5	1.2	0.7	0.0	2.3	100.0
PHF	1.00	1.00	1.00			0.85	0.85	0.85			0.96	0.96	0.96			1.00	1.00	1.00			0.95



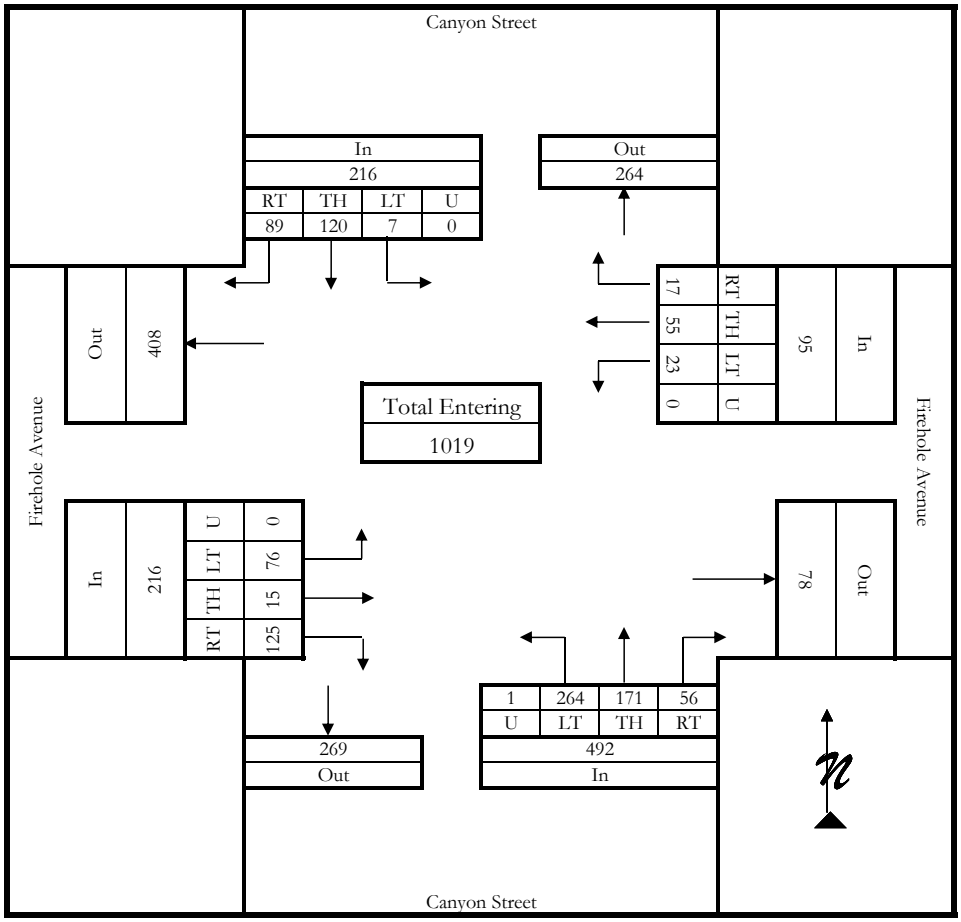
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Firehole Avenue & Canyon Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	PM Peak Hour (5:30 - 6:30 PM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Canyon Street	East/West Street:	Firehole Avenue

Vehicle Volumes and Adjustments

	Canyon Street Southbound					Canyon Street Northbound					Firehole Avenue Eastbound					Firehole Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
5:30 PM	15	33	2	0	50	13	57	52	0	122	40	4	23	0	67	2	15	3	0	20	259
5:45 PM	23	27	2	0	52	15	46	76	1	138	25	5	18	0	48	10	15	5	0	30	268
6:00 PM	25	29	0	0	54	13	41	74	0	128	22	0	15	0	37	4	13	7	0	24	243
6:15 PM	26	31	3	0	60	15	27	62	0	104	38	6	20	0	64	1	12	8	0	21	249
Grand Total	89	120	7	0	216	56	171	264	1	492	125	15	76	0	216	17	55	23	0	95	1019
Medium Truck %	1.1	0.0	0.0	0.0	0.5	0.0	0.0	0.4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	5.9	0.0	4.3	0.0	2.1	
Heavy Truck %	20.2	4.2	14.3	0.0	11.1	0.0	3.5	3.4	0.0	3.0	2.4	0.0	17.1	0.0	7.4	5.9	3.6	4.3	0.0	4.2	
Total Truck %	21.3	4.2	14.3	0.0	11.6	0.0	3.5	3.8	0.0	3.3	2.4	0.0	17.1	0.0	7.4	11.8	3.6	8.7	0.0	6.3	
Total %	8.7	11.8	0.7	0.0	21.2	5.5	16.8	25.9	0.1	48.3	12.3	1.5	7.5	0.0	21.2	1.7	5.4	2.3	0.0	9.3	100.0
PHF	1.00	1.00	1.00			0.89	0.89	0.89			1.00	1.00	1.00			0.79	0.79	0.79			0.95



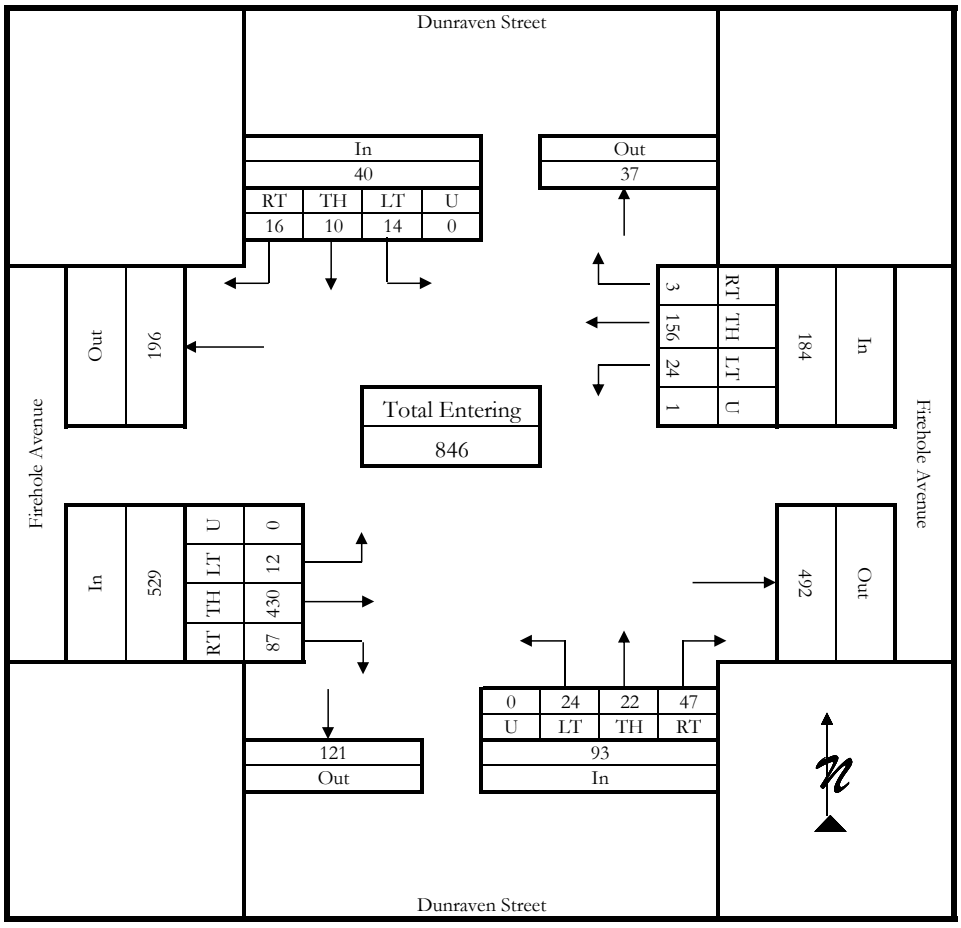
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Firehole Avenue & Dunraven Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	AM Peak Hour (9:30 - 10:30 AM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Dunraven Street	East/West Street:	Firehole Avenue

Vehicle Volumes and Adjustments

	Dunraven Street Southbound					Dunraven Street Northbound					Firehole Avenue Eastbound					Firehole Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
9:30 AM	2	3	4	0	9	15	3	4	0	22	17	99	1	0	117	1	33	7	0	41	189
9:45 AM	5	3	5	0	13	7	2	7	0	16	24	132	3	0	159	0	39	2	1	42	230
10:00 AM	5	0	3	0	8	13	13	8	0	34	14	111	7	0	132	1	33	9	0	43	217
10:15 AM	4	4	2	0	10	12	4	5	0	21	32	88	1	0	121	1	51	6	0	58	210
Grand Total	16	10	14	0	40	47	22	24	0	93	87	430	12	0	529	3	156	24	1	184	846
Medium Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	
Heavy Truck %	6.3	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	5.7	4.2	0.0	0.0	4.3	0.0	10.9	0.0	0.0	9.2	
Total Truck %	6.3	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	5.7	4.4	0.0	0.0	4.5	0.0	10.9	0.0	0.0	9.2	
Total %	1.9	1.2	1.7	0.0	4.7	5.6	2.6	2.8	0.0	11.0	10.3	50.8	1.4	0.0	62.5	0.4	18.4	2.8	0.1	21.7	100.0
PHF	0.77	0.77	0.77			1.00	1.00	1.00			0.83	0.83	0.83			1.00	1.00	1.00			0.92



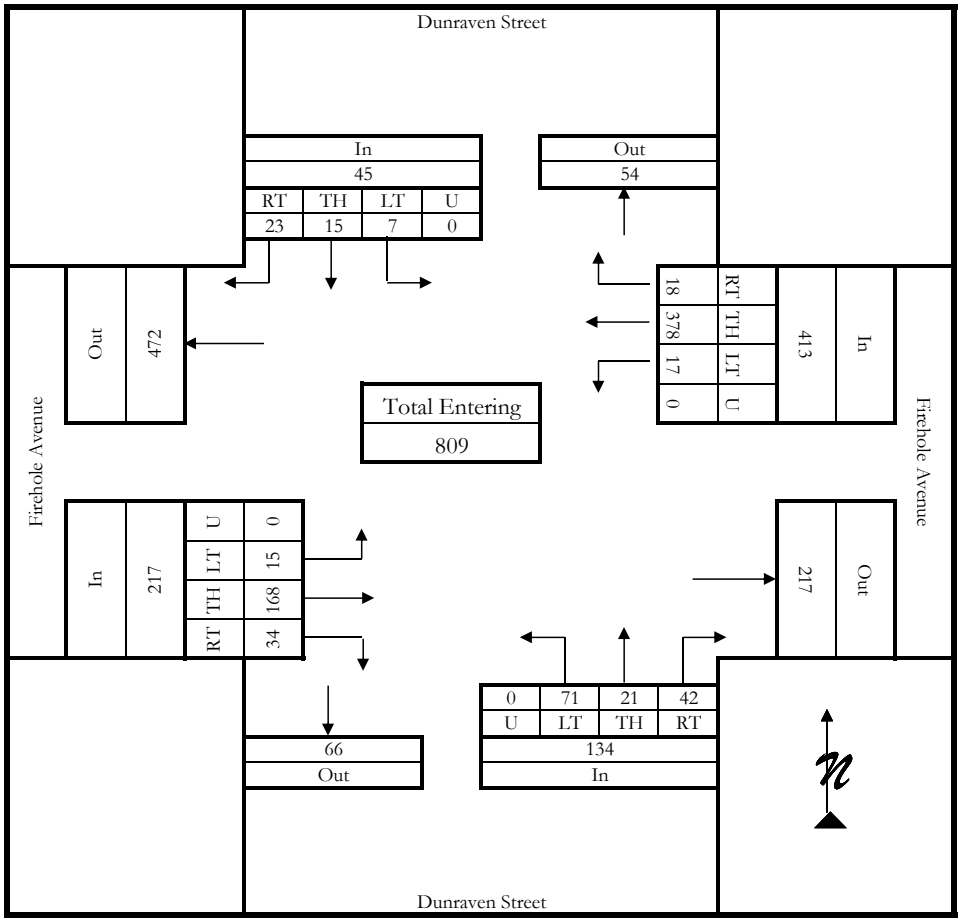
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Firehole Avenue & Dunraven Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	PM Peak Hour (6:00 - 7:00 PM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Dunraven Street	East/West Street:	Firehole Avenue

Vehicle Volumes and Adjustments

	Dunraven Street Southbound					Dunraven Street Northbound					Firehole Avenue Eastbound					Firehole Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
6:00 PM	4	5	1	0	10	9	5	17	0	31	9	30	2	0	41	4	93	7	0	104	186
6:15 PM	10	1	3	0	14	16	7	16	0	39	12	56	6	0	74	7	92	6	0	105	232
6:30 PM	2	5	2	0	9	5	4	18	0	27	6	39	5	0	50	4	96	2	0	102	188
6:45 PM	7	4	1	0	12	12	5	20	0	37	7	43	2	0	52	3	97	2	0	102	203
Grand Total	23	15	7	0	45	42	21	71	0	134	34	168	15	0	217	18	378	17	0	413	809
Medium Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	
Heavy Truck %	8.7	0.0	0.0	0.0	4.4	0.0	0.0	2.8	0.0	1.5	0.0	11.9	0.0	0.0	9.2	5.6	5.8	11.8	0.0	6.1	
Total Truck %	8.7	0.0	0.0	0.0	4.4	0.0	0.0	4.2	0.0	2.2	0.0	11.9	0.0	0.0	9.2	5.6	6.3	11.8	0.0	6.5	
Total %	2.8	1.9	0.9	0.0	5.6	5.2	2.6	8.8	0.0	16.6	4.2	20.8	1.9	0.0	26.8	2.2	46.7	2.1	0.0	51.1	100.0
PHF	0.80	0.80	0.80			0.86	0.86	0.86			0.73	0.73	0.73			0.98	0.98	0.98			0.87



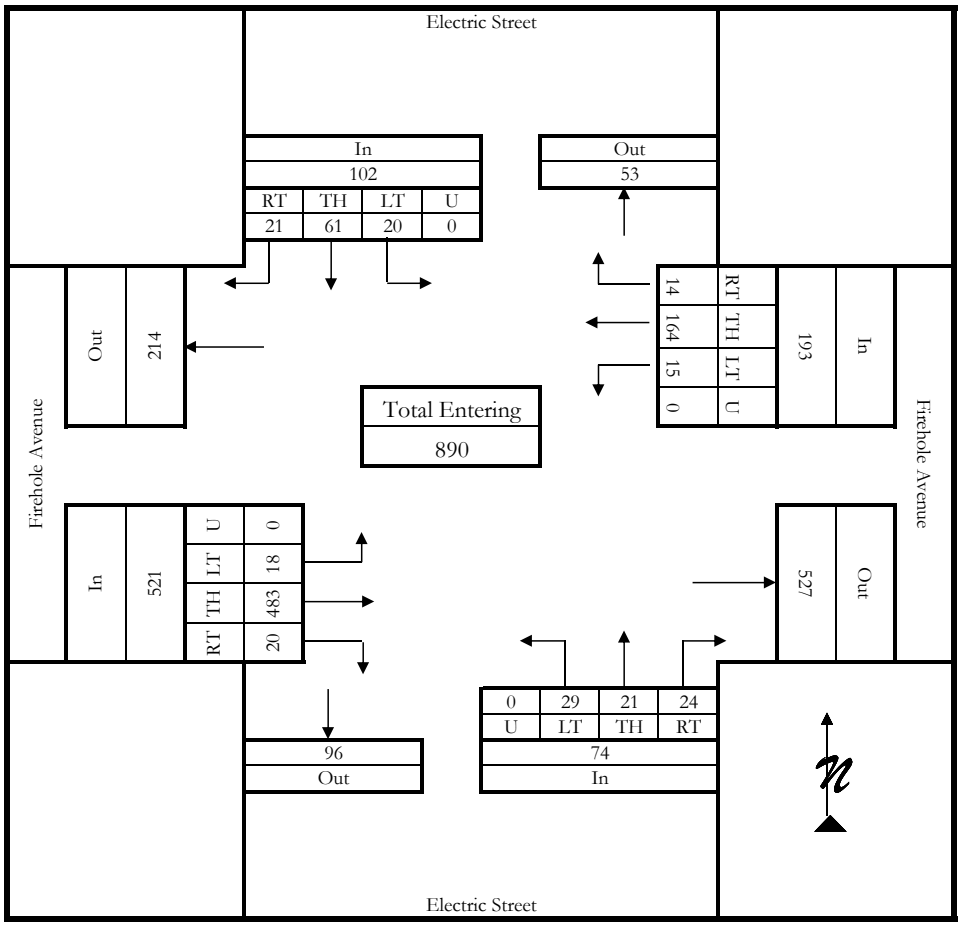
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Firehole Avenue & Electric Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	AM Peak Hour (9:30 - 10:30 AM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Electric Street	East/West Street:	Firehole Avenue

Vehicle Volumes and Adjustments

	Electric Street Southbound					Electric Street Northbound					Firehole Avenue Eastbound					Firehole Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
9:30 AM	7	24	5	0	36	5	4	3	0	12	3	103	3	0	109	2	31	1	0	34	191
9:45 AM	3	15	5	0	23	4	6	11	0	21	5	162	2	0	169	2	46	5	0	53	266
10:00 AM	3	15	6	0	24	9	6	7	0	22	7	101	6	0	114	4	40	5	0	49	209
10:15 AM	8	7	4	0	19	6	5	8	0	19	5	117	7	0	129	6	47	4	0	57	224
Grand Total	21	61	20	0	102	24	21	29	0	74	20	483	18	0	521	14	164	15	0	193	890
Medium Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	
Heavy Truck %	0.0	1.6	0.0	0.0	1.0	0.0	4.8	0.0	0.0	1.4	5.0	5.2	0.0	0.0	5.0	0.0	11.0	0.0	0.0	9.3	
Total Truck %	0.0	1.6	0.0	0.0	1.0	0.0	4.8	0.0	0.0	1.4	5.0	5.4	0.0	0.0	5.2	0.0	11.0	0.0	0.0	9.3	
Total %	2.4	6.9	2.2	0.0	11.5	2.7	2.4	3.3	0.0	8.3	2.2	54.3	2.0	0.0	58.5	1.6	18.4	1.7	0.0	21.7	100.0
PHF	1.00	1.00	1.00			0.88	0.88	0.88			0.77	0.77	0.77			0.91	0.91	0.91			0.84



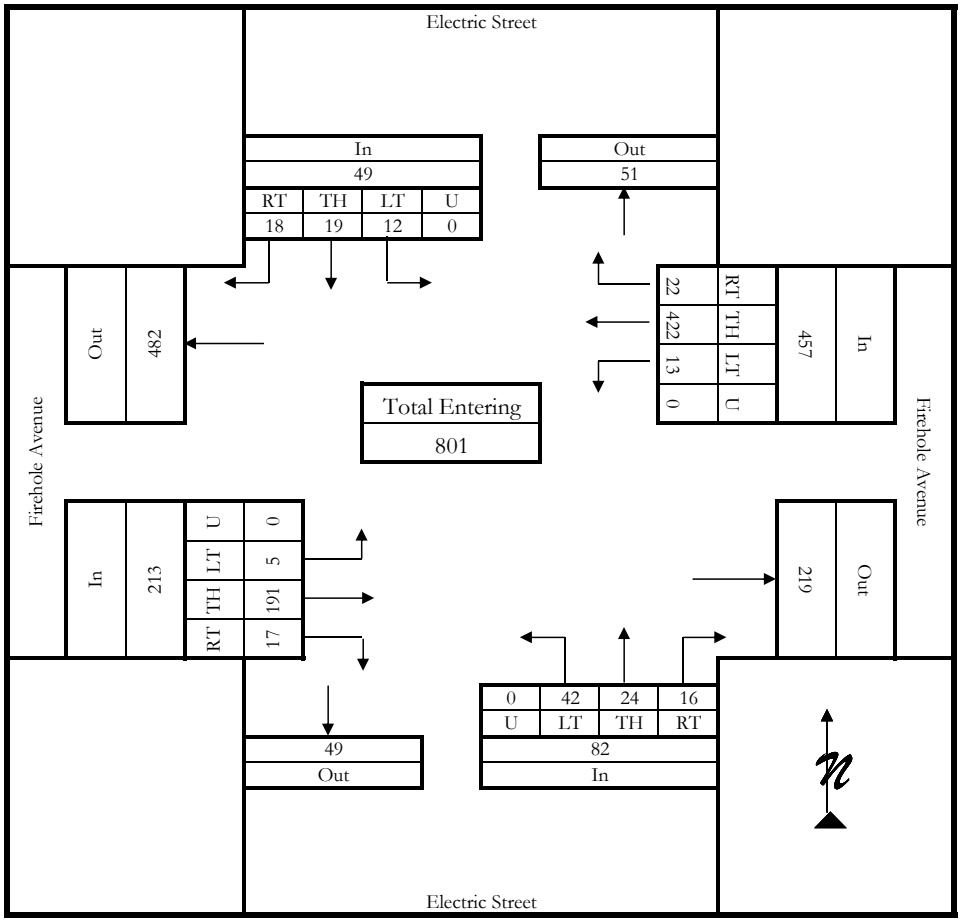
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Firehole Avenue & Electric Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	PM Peak Hour (6:00 - 7:00 PM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Electric Street	East/West Street:	Firehole Avenue

Vehicle Volumes and Adjustments

	Electric Street Southbound					Electric Street Northbound					Firehole Avenue Eastbound					Firehole Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
6:00 PM	5	3	3	0	11	5	13	11	0	29	5	40	1	0	46	5	105	1	0	111	197
6:15 PM	3	5	3	0	11	3	4	8	0	15	5	57	0	0	62	6	106	1	0	113	201
6:30 PM	6	5	4	0	15	4	2	10	0	16	4	46	3	0	53	2	108	6	0	116	200
6:45 PM	4	6	2	0	12	4	5	13	0	22	3	48	1	0	52	9	103	5	0	117	203
Grand Total	18	19	12	0	49	16	24	42	0	82	17	191	5	0	213	22	422	13	0	457	801
Medium Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.5	7.7	0.0	0.9	
Heavy Truck %	0.0	0.0	8.3	0.0	2.0	0.0	0.0	2.4	0.0	1.2	5.9	11.0	0.0	0.0	10.3	4.5	4.3	0.0	0.0	4.2	
Total Truck %	0.0	0.0	8.3	0.0	2.0	0.0	0.0	2.4	0.0	1.2	5.9	11.0	0.0	0.0	10.3	9.1	4.7	7.7	0.0	5.0	
Total %	2.2	2.4	1.5	0.0	6.1	2.0	3.0	5.2	0.0	10.2	2.1	23.8	0.6	0.0	26.6	2.7	52.7	1.6	0.0	57.1	100.0
PHF	1.00	1.00	1.00			0.93	0.93	0.93			1.00	1.00	1.00			0.98	0.98	0.98			0.99



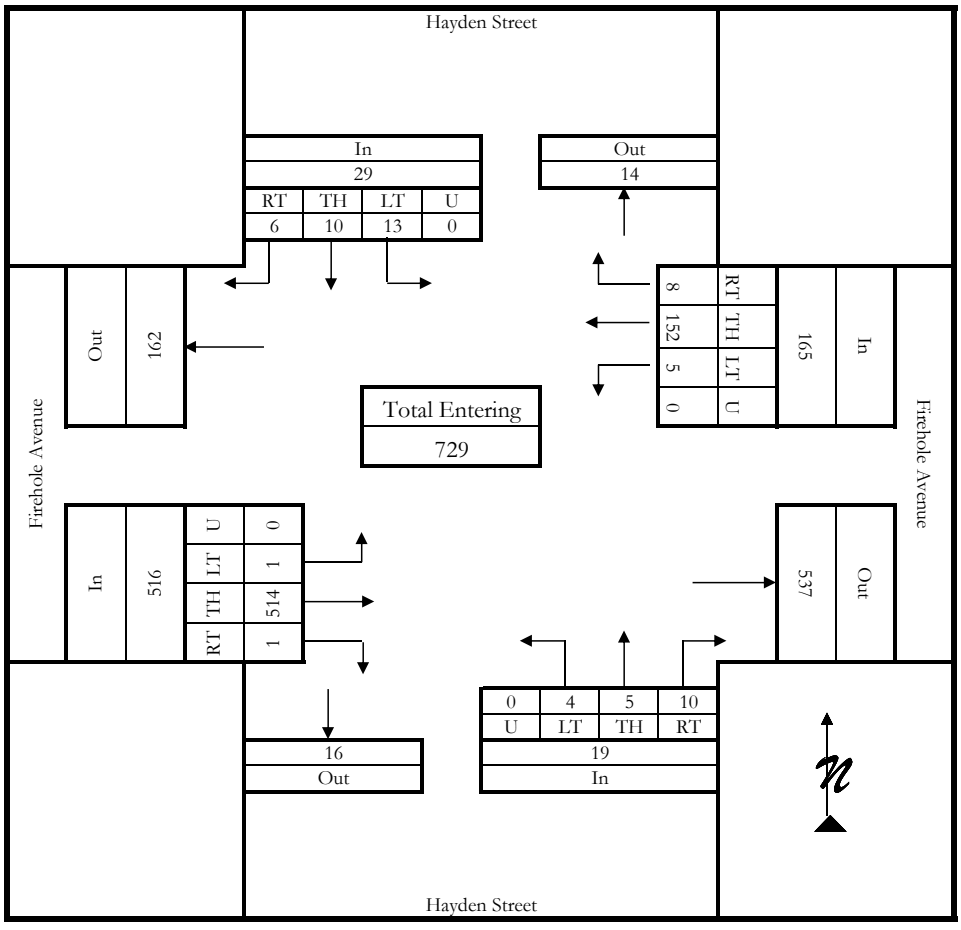
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Firehole Avenue & Hayden Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	AM Peak Hour (9:00 - 10:00 AM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Hayden Street	East/West Street:	Firehole Avenue

Vehicle Volumes and Adjustments

	Hayden Street Southbound					Hayden Street Northbound					Firehole Avenue Eastbound					Firehole Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
9:00 AM	1	5	1	0	7	4	1	1	0	6	1	144	0	0	145	1	27	2	0	30	188
9:15 AM	0	0	7	0	7	1	2	2	0	5	0	105	1	0	106	0	40	1	0	41	159
9:30 AM	2	3	3	0	8	4	1	1	0	6	0	116	0	0	116	5	38	1	0	44	174
9:45 AM	3	2	2	0	7	1	1	0	0	2	0	149	0	0	149	2	47	1	0	50	208
Grand Total	6	10	13	0	29	10	5	4	0	19	1	514	1	0	516	8	152	5	0	165	729
Medium Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.7	0.0	0.0	0.6	
Heavy Truck %	0.0	0.0	7.7	0.0	3.4	0.0	20.0	0.0	0.0	5.3	0.0	3.9	0.0	0.0	3.9	0.0	10.5	40.0	0.0	10.9	
Total Truck %	0.0	0.0	7.7	0.0	3.4	0.0	20.0	0.0	0.0	5.3	0.0	4.5	0.0	0.0	4.5	0.0	11.2	40.0	0.0	11.5	
Total %	0.8	1.4	1.8	0.0	4.0	1.4	0.7	0.5	0.0	2.6	0.1	70.5	0.1	0.0	70.8	1.1	20.9	0.7	0.0	22.6	100.0
PHF	1.00	1.00	1.00			1.00	1.00	1.00			0.87	0.87	0.87			0.83	0.83	0.83			0.88



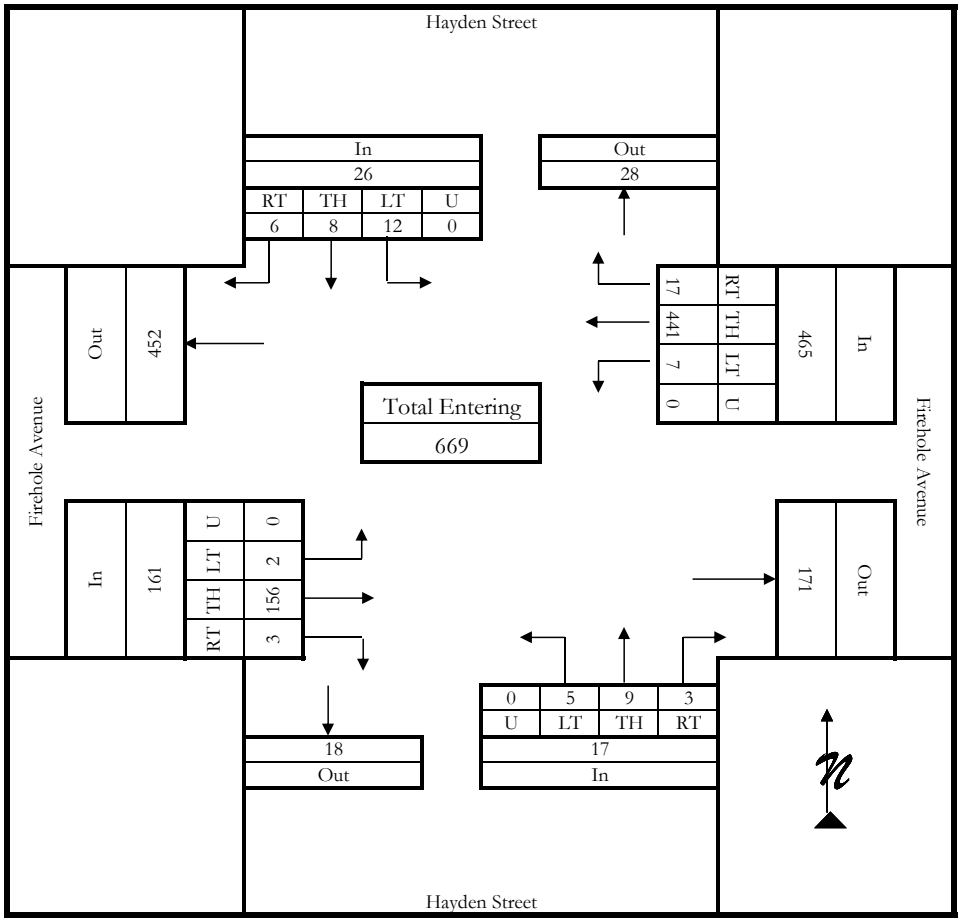
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Firehole Avenue & Hayden Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	PM Peak Hour (6:00 - 7:00 PM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Hayden Street	East/West Street:	Firehole Avenue

Vehicle Volumes and Adjustments

	Hayden Street Southbound					Hayden Street Northbound					Firehole Avenue Eastbound					Firehole Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
6:00 PM	2	3	6	0	11	1	1	1	0	3	0	31	2	0	33	5	123	1	0	129	176
6:15 PM	2	1	3	0	6	1	3	0	0	4	1	48	0	0	49	5	106	3	0	114	173
6:30 PM	0	0	2	0	2	1	2	3	0	6	2	34	0	0	36	3	110	2	0	115	159
6:45 PM	2	4	1	0	7	0	3	1	0	4	0	43	0	0	43	4	102	1	0	107	161
Grand Total	6	8	12	0	26	3	9	5	0	17	3	156	2	0	161	17	441	7	0	465	669
Medium Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.4	
Heavy Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7	0.0	0.0	14.3	0.0	5.7	0.0	0.0	5.4	
Total Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7	0.0	0.0	14.3	0.0	6.1	0.0	0.0	5.8	
Total %	0.9	1.2	1.8	0.0	3.9	0.4	1.3	0.7	0.0	2.5	0.4	23.3	0.3	0.0	24.1	2.5	65.9	1.0	0.0	69.5	100.0
PHF	0.59	0.59	0.59			1.00	1.00	1.00			1.00	1.00	1.00			0.90	0.90	0.90			0.95



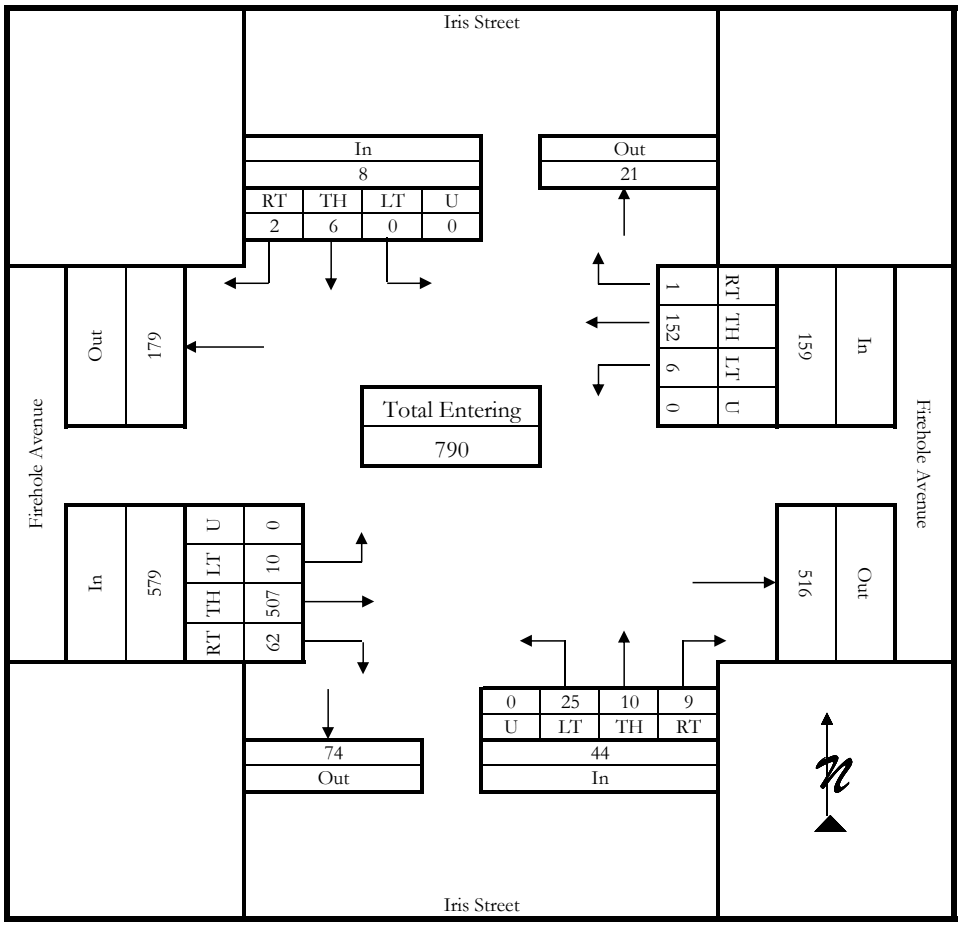
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Firehole Avenue & Iris Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	AM Peak Hour (9:00 - 10:00 AM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Iris Street	East/West Street:	Firehole Avenue

Vehicle Volumes and Adjustments

	Iris Street Southbound					Iris Street Northbound					Firehole Avenue Eastbound					Firehole Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
9:00 AM	0	2	0	0	2	2	3	5	0	10	12	148	3	0	163	0	28	1	0	29	204
9:15 AM	0	2	0	0	2	3	2	6	0	11	21	100	3	0	124	0	40	2	0	42	179
9:30 AM	1	1	0	0	2	1	3	5	0	9	12	107	2	0	121	1	38	1	0	40	172
9:45 AM	1	1	0	0	2	3	2	9	0	14	17	152	2	0	171	0	46	2	0	48	235
Grand Total	2	6	0	0	8	9	10	25	0	44	62	507	10	0	579	1	152	6	0	159	790
Medium Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.6	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	
Heavy Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	2.3	3.2	4.1	0.0	0.0	4.0	0.0	10.5	0.0	0.0	10.1	
Total Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	2.3	6.5	4.7	0.0	0.0	4.8	0.0	10.5	0.0	0.0	10.1	
Total %	0.3	0.8	0.0	0.0	1.0	1.1	1.3	3.2	0.0	5.6	7.8	64.2	1.3	0.0	73.3	0.1	19.2	0.8	0.0	20.1	100.0
PHF	1.00	1.00	1.00			0.79	0.79	0.79			0.85	0.85	0.85			0.83	0.83	0.83			0.84



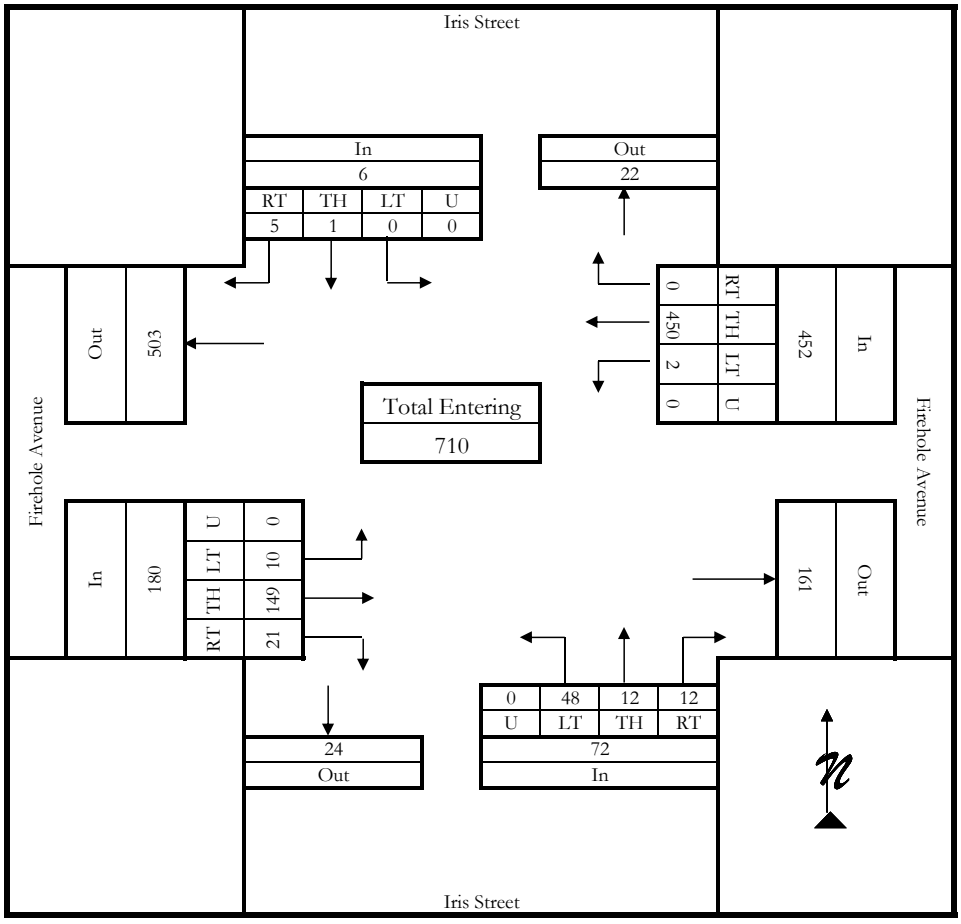
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Firehole Avenue & Iris Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	PM Peak Hour (6:00 - 7:00 PM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Iris Street	East/West Street:	Firehole Avenue

Vehicle Volumes and Adjustments

	Iris Street Southbound					Iris Street Northbound					Firehole Avenue Eastbound					Firehole Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
6:00 PM	2	0	0	0	2	4	3	17	0	24	5	29	2	0	36	0	125	0	0	125	187
6:15 PM	2	1	0	0	3	3	4	10	0	17	7	45	2	0	54	0	109	2	0	111	185
6:30 PM	0	0	0	0	0	3	3	12	0	18	6	34	6	0	46	0	109	0	0	109	173
6:45 PM	1	0	0	0	1	2	2	9	0	13	3	41	0	0	44	0	107	0	0	107	165
Grand Total	5	1	0	0	6	12	12	48	0	72	21	149	10	0	180	0	450	2	0	452	710
Medium Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	
Heavy Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	1.4	4.8	12.8	0.0	0.0	11.1	0.0	5.3	0.0	0.0	5.3	
Total Truck %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	1.4	4.8	12.8	0.0	0.0	11.1	0.0	5.8	0.0	0.0	5.8	
Total %	0.7	0.1	0.0	0.0	0.8	1.7	1.7	6.8	0.0	10.1	3.0	21.0	1.4	0.0	25.4	0.0	63.4	0.3	0.0	63.7	100.0
PHF	0.75	0.75	0.75			0.75	0.75	0.75			1.00	1.00	1.00			0.90	0.90	0.90			0.95



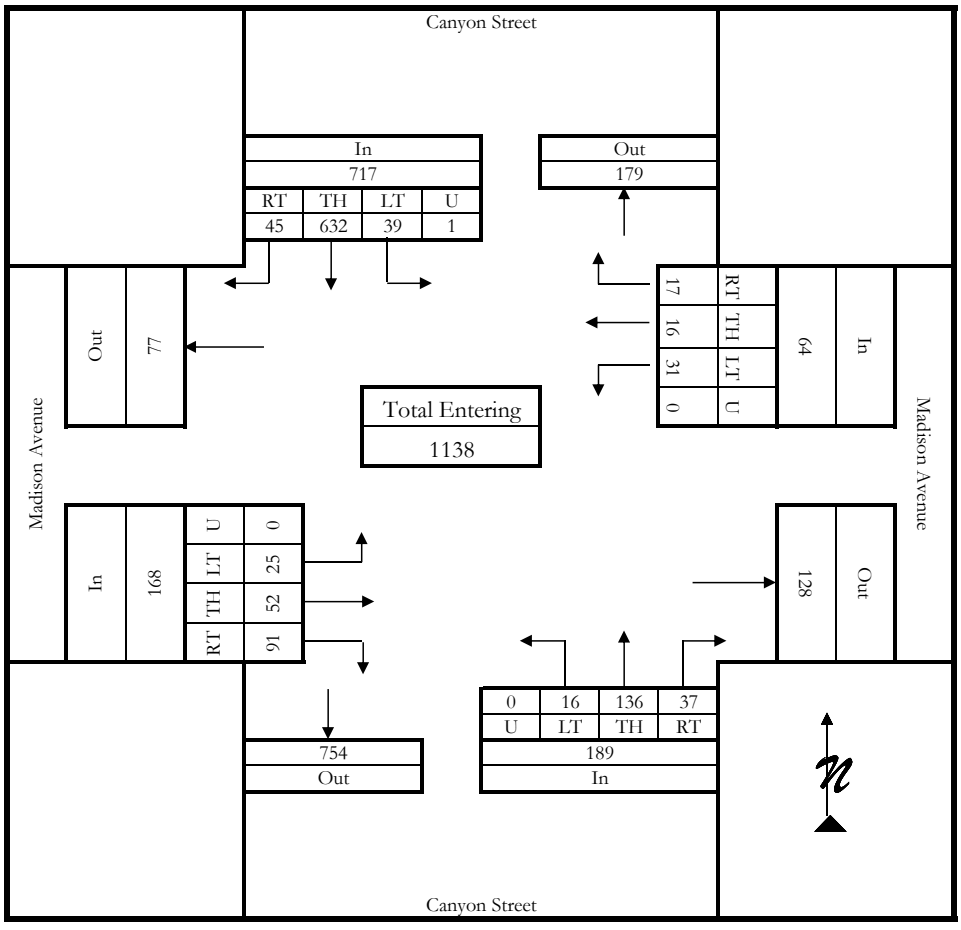
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Madison Avenue & Canyon Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	AM Peak Hour (9:00 - 10:00 AM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Canyon Street	East/West Street:	Madison Avenue

Vehicle Volumes and Adjustments

	Canyon Street Southbound					Canyon Street Northbound					Madison Avenue Eastbound					Madison Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
9:00 AM	5	165	5	1	176	8	30	7	0	45	23	14	6	0	43	5	3	9	0	17	281
9:15 AM	14	162	7	0	183	11	41	0	0	52	21	16	8	0	45	2	6	6	0	14	294
9:30 AM	15	137	12	0	164	9	28	6	0	43	17	13	10	0	40	6	3	5	0	14	261
9:45 AM	11	168	15	0	194	9	37	3	0	49	30	9	1	0	40	4	4	11	0	19	302
Grand Total	45	632	39	1	717	37	136	16	0	189	91	52	25	0	168	17	16	31	0	64	1138
Medium Truck %	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Heavy Truck %	2.2	2.7	2.6	0.0	2.6	0.0	5.1	0.0	0.0	3.7	2.2	1.9	0.0	0.0	1.8	0.0	6.3	0.0	0.0	1.6	
Total Truck %	2.2	3.3	2.6	0.0	3.2	0.0	5.1	0.0	0.0	3.7	2.2	1.9	0.0	0.0	1.8	0.0	6.3	0.0	0.0	1.6	
Total %	4.0	55.5	3.4	0.1	63.0	3.3	12.0	1.4	0.0	16.6	8.0	4.6	2.2	0.0	14.8	1.5	1.4	2.7	0.0	5.6	100.0
PHF	0.92	0.92	0.92			0.96	0.96	0.96			1.00	1.00	1.00			0.84	0.84	0.84			0.94



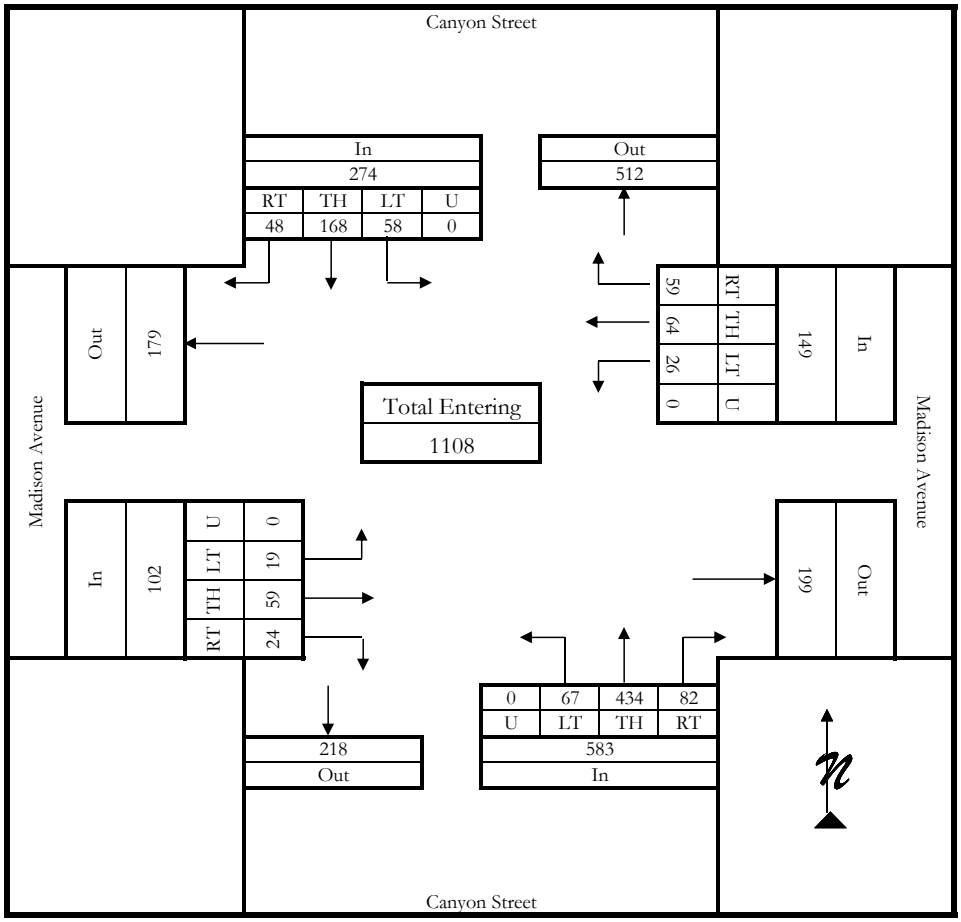
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Madison Avenue & Canyon Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	PM Peak Hour (5:30 - 6:30 PM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Canyon Street	East/West Street:	Madison Avenue

Vehicle Volumes and Adjustments

	Canyon Street Southbound					Canyon Street Northbound					Madison Avenue Eastbound					Madison Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
5:30 PM	9	52	16	0	77	11	103	10	0	124	8	6	6	0	20	15	12	7	0	34	255
5:45 PM	10	39	21	0	70	29	120	14	0	163	4	22	3	0	29	19	9	5	0	33	295
6:00 PM	21	30	7	0	58	16	114	17	0	147	6	16	6	0	28	13	20	3	0	36	269
6:15 PM	8	47	14	0	69	26	97	26	0	149	6	15	4	0	25	12	23	11	0	46	289
Grand Total	48	168	58	0	274	82	434	67	0	583	24	59	19	0	102	59	64	26	0	149	1108
Medium Truck %	0.0	1.2	0.0	0.0	0.7	0.0	0.2	0.0	0.0	0.2	0.0	1.7	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	
Heavy Truck %	0.0	3.6	1.7	0.0	2.6	1.2	3.0	1.5	0.0	2.6	0.0	1.7	0.0	0.0	1.0	1.7	3.1	0.0	0.0	2.0	
Total Truck %	0.0	4.8	1.7	0.0	3.3	1.2	3.2	1.5	0.0	2.7	0.0	3.4	0.0	0.0	2.0	1.7	3.1	0.0	0.0	2.0	
Total %	4.3	15.2	5.2	0.0	24.7	7.4	39.2	6.0	0.0	52.6	2.2	5.3	1.7	0.0	9.2	5.3	5.8	2.3	0.0	13.4	100.0
PHF	0.98	0.98	0.98			0.89	0.89	0.89			0.88	0.88	0.88			1.00	1.00	1.00			0.94



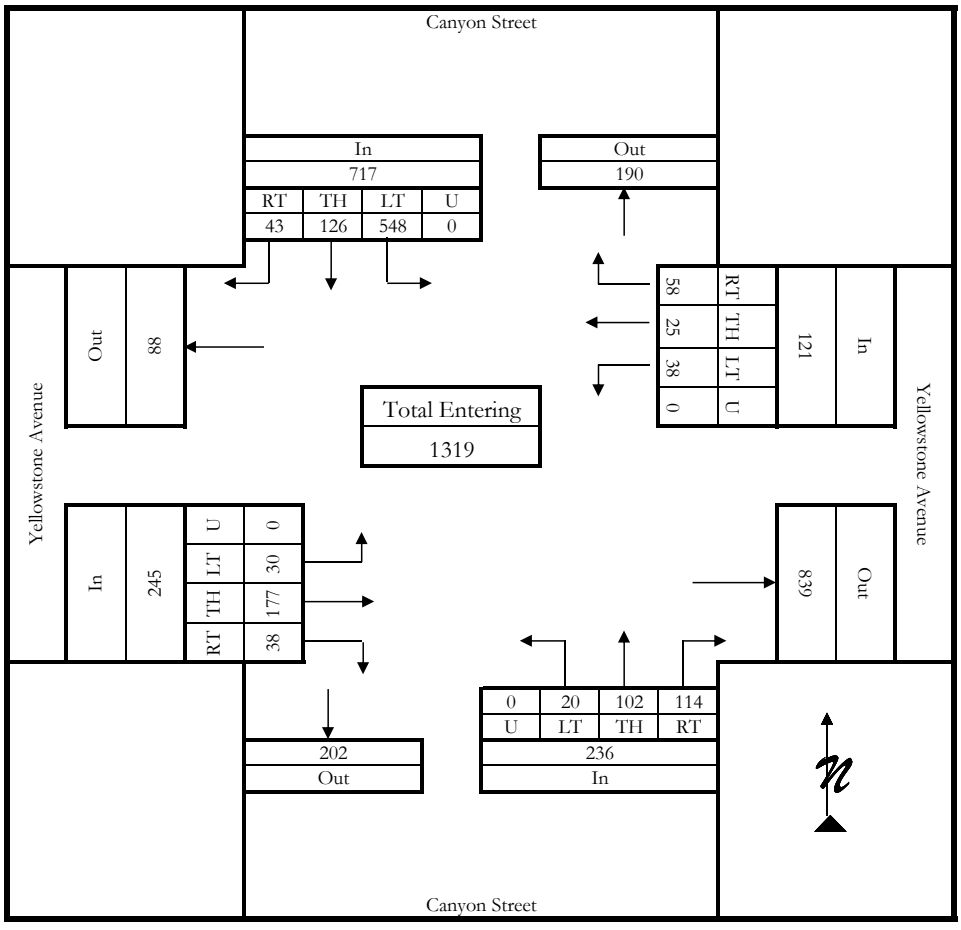
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Yellowstone Avenue & Canyon Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	AM Peak Hour (9:00 - 10:00 AM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Canyon Street	East/West Street:	Yellowstone Avenue

Vehicle Volumes and Adjustments

	Canyon Street Southbound					Canyon Street Northbound					Yellowstone Avenue Eastbound					Yellowstone Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
9:00 AM	11	32	137	0	180	28	23	4	0	55	11	36	6	0	53	18	4	10	0	32	320
9:15 AM	11	31	146	0	188	36	29	2	0	67	9	47	8	0	64	11	6	5	0	22	341
9:30 AM	7	24	132	0	163	24	26	4	0	54	10	33	10	0	53	13	7	14	0	34	304
9:45 AM	14	39	133	0	186	26	24	10	0	60	8	61	6	0	75	16	8	9	0	33	354
Grand Total	43	126	548	0	717	114	102	20	0	236	38	177	30	0	245	58	25	38	0	121	1319
Medium Truck %	0.0	1.6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.8	0.0	4.0	0.0	0.0	0.8	
Heavy Truck %	0.0	0.8	3.3	0.0	2.6	2.6	3.9	0.0	0.0	3.0	0.0	2.8	0.0	0.0	2.0	5.2	4.0	5.3	0.0	5.0	
Total Truck %	0.0	2.4	3.3	0.0	2.9	2.6	3.9	0.0	0.0	3.0	0.0	4.0	0.0	0.0	2.9	5.2	8.0	5.3	0.0	5.8	
Total %	3.3	9.6	41.5	0.0	54.4	8.6	7.7	1.5	0.0	17.9	2.9	13.4	2.3	0.0	18.6	4.4	1.9	2.9	0.0	9.2	100.0
PHF	0.96	0.96	0.96			0.98	0.98	0.98			0.82	0.82	0.82			0.92	0.92	0.92			0.93



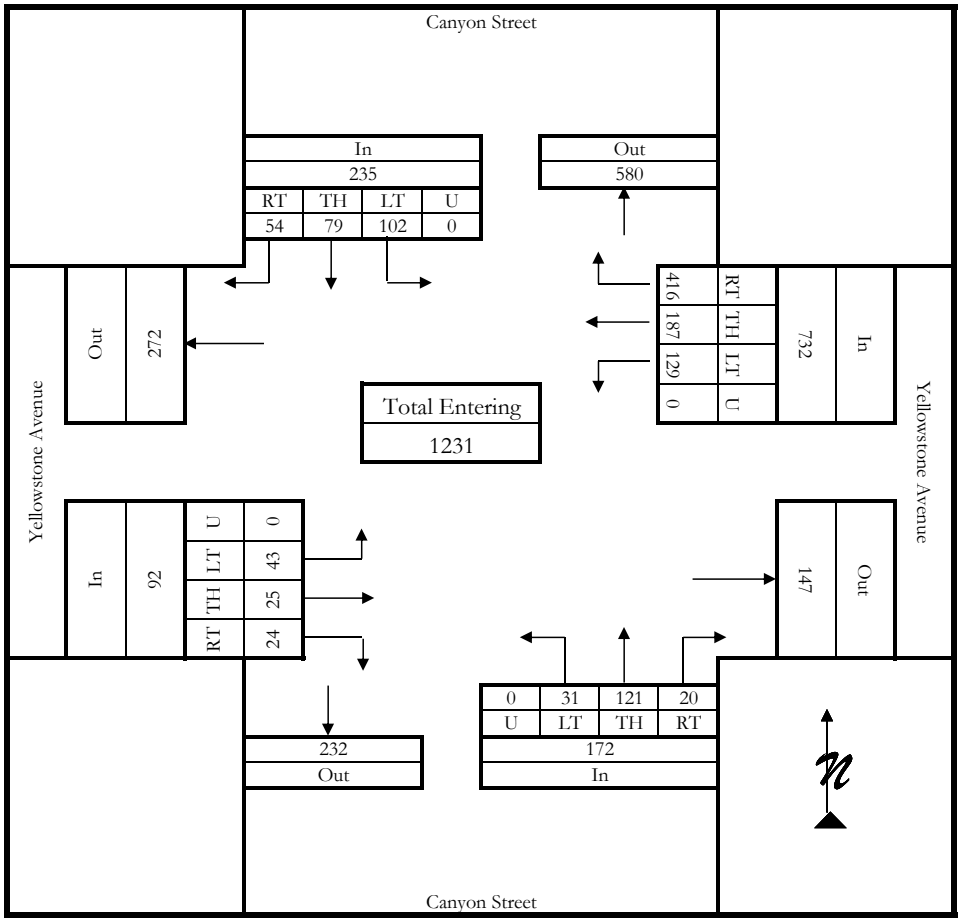
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	Audrey Stoltzfus	Intersection:	Yellowstone Avenue & Canyon Street
Agency/Company:	Sanderson Stewart		
Date Performed:	Tuesday, July 9, 2019	Jurisdiction:	City of West Yellowstone / MDT
Count Time Period:	PM Peak Hour (5:30 - 6:30 PM)		
Project Number:	19045	Project Description:	West Yellowstone Gateway Study
North/South Street:	Canyon Street	East/West Street:	Yellowstone Avenue

Vehicle Volumes and Adjustments

	Canyon Street Southbound					Canyon Street Northbound					Yellowstone Avenue Eastbound					Yellowstone Avenue Westbound					Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
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		1.00	1.00	1.00	1.00		
5:30 PM	15	26	30	0	71	3	22	8	0	33	6	6	17	0	29	99	35	33	0	167	300
5:45 PM	12	12	24	0	48	7	31	5	0	43	8	7	8	0	23	114	52	42	0	208	322
6:00 PM	13	14	18	0	45	6	37	10	0	53	3	8	6	0	17	101	51	29	0	181	296
6:15 PM	14	27	30	0	71	4	31	8	0	43	7	4	12	0	23	102	49	25	0	176	313
Grand Total	54	79	102	0	235	20	121	31	0	172	24	25	43	0	92	416	187	129	0	732	1231
Medium Truck %	0.0	0.0	1.0	0.0	0.4	0.0	0.8	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.7	0.5	1.6	0.0	0.8	
Heavy Truck %	1.9	2.5	2.9	0.0	2.6	0.0	5.0	0.0	0.0	3.5	4.2	0.0	0.0	0.0	1.1	2.4	1.6	1.6	0.0	2.0	
Total Truck %	1.9	2.5	3.9	0.0	3.0	0.0	5.8	0.0	0.0	4.1	4.2	0.0	0.0	0.0	1.1	3.1	2.1	3.1	0.0	2.9	
Total %	4.4	6.4	8.3	0.0	19.1	1.6	9.8	2.5	0.0	14.0	1.9	2.0	3.5	0.0	7.5	33.8	15.2	10.5	0.0	59.5	100.0
PHF	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			0.88	0.88	0.88			0.96



Study Name Firehole & Canyon
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Buses

	Canyon St Southbound				Firehole Ave Westbound				Canyon St Northbound				Firehole Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
9:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
9:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
10:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
5:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
6:15 PM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0

Study Name Firehole & Canyon
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Trucks

	Canyon St Southbound				Firehole Ave Westbound				Canyon St Northbound				Firehole Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	1	5	0	0	0	0	0	0	0	3	0	0	2	0	2	0
8:45 AM	4	5	0	0	0	0	0	0	0	5	1	0	6	0	3	0
9:00 AM	1	1	0	0	0	1	0	0	0	0	2	0	3	0	1	0
9:15 AM	1	3	0	0	0	0	0	0	0	2	0	0	4	0	1	0
9:30 AM	1	1	0	0	0	0	1	0	0	0	1	0	2	0	2	0
9:45 AM	7	4	0	0	0	0	0	0	0	1	0	0	2	0	0	0
10:00 AM	1	5	0	0	0	0	0	0	0	0	0	0	2	0	5	0
10:15 AM	6	2	0	0	0	0	0	0	0	2	2	0	5	0	3	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	3	0
5:15 PM	9	3	0	0	0	0	0	0	0	0	1	0	1	0	4	0
5:30 PM	6	2	0	0	1	0	0	0	0	2	1	0	0	0	5	0
5:45 PM	1	0	1	0	0	1	0	0	0	2	3	0	3	0	2	0
6:00 PM	5	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0
6:15 PM	6	2	0	0	0	1	0	0	0	1	5	0	0	0	5	0
6:30 PM	5	0	0	0	0	1	0	0	0	0	2	0	0	0	4	0
6:45 PM	1	0	0	0	1	0	1	0	1	0	0	0	2	1	8	0

Study Name Firehole & Canyon
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Bicycles on Road

	Canyon St Southbound				Firehole Ave Westbound				Canyon St Northbound				Firehole Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name Firehole & Canyon
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Bicycles on Crosswalk

	Canyon St Southbound			Firehole Ave Westbound			Canyon St Northbound			Firehole Ave Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
8:30 AM	0	0		0	0		0	0		0	0	
8:45 AM	0	0		0	0		0	0		0	0	
9:00 AM	0	0		0	0		0	0		0	0	
9:15 AM	1	0		1	0		0	0		0	0	
9:30 AM	1	0		0	0		0	0		0	0	
9:45 AM	1	0		2	0		0	0		0	0	
10:00 AM	0	0		0	1		0	0		0	0	
10:15 AM	0	0		0	0		0	0		0	0	
5:00 PM	0	0		2	0		0	0		0	1	
5:15 PM	0	0		0	0		0	4		0	4	
5:30 PM	0	0		0	0		0	0		0	0	
5:45 PM	0	7		0	6		0	0		0	0	
6:00 PM	0	0		0	0		0	0		0	4	
6:15 PM	0	0		0	0		0	0		0	0	
6:30 PM	0	0		0	0		0	0		4	2	
6:45 PM	0	0		0	0		0	0		0	0	

Study Name Firehole & Canyon
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Pedestrians

	Canyon St Southbound			Firehole Ave Westbound			Canyon St Northbound			Firehole Ave Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
8:30 AM	0	0		1	1		1	0		0	2	
8:45 AM	1	0		0	1		0	1		0	1	
9:00 AM	0	0		0	1		0	0		2	3	
9:15 AM	0	0		2	1		0	3		0	8	
9:30 AM	0	0		0	0		0	0		2	1	
9:45 AM	2	2		2	2		4	4		1	0	
10:00 AM	10	0		10	2		1	5		5	0	
10:15 AM	4	0		5	0		0	5		2	0	
5:00 PM	5	0		3	4		17	7		3	9	
5:15 PM	2	0		5	1		29	7		18	13	
5:30 PM	3	8		1	5		14	12		4	8	
5:45 PM	8	0		15	5		4	9		0	4	
6:00 PM	0	0		1	4		4	10		9	5	
6:15 PM	0	2		7	2		20	15		17	21	
6:30 PM	2	2		6	3		21	21		13	16	
6:45 PM	4	16		22	14		19	20		7	9	

Study Name Firehole & Dunraven
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Buses

	Dunraven St Southbound				Firehole Ave (US 20) Westbound				Dunraven St Northbound				Firehole Ave (US 20) Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name Firehole & Dunraven
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Trucks

	Dunraven St Southbound				Firehole Ave (US 20) Westbound				Dunraven St Northbound				Firehole Ave (US 20) Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	1	4	0	0
8:45 AM	1	0	0	0	0	4	0	0	0	0	0	0	0	10	0	0
9:00 AM	0	0	0	0	0	4	1	0	0	0	0	0	0	4	0	0
9:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	2	5	0	0
9:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	1	2	0	0
9:45 AM	0	0	0	0	0	6	0	0	0	0	0	0	3	1	0	0
10:00 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	7	0	0
10:15 AM	0	0	0	0	0	7	0	0	0	0	0	0	1	8	0	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0
5:15 PM	0	0	0	0	0	10	0	0	1	0	0	0	1	4	0	0
5:30 PM	1	0	0	0	0	7	0	0	0	0	0	0	0	5	0	0
5:45 PM	0	0	0	0	0	5	0	0	1	0	0	0	0	3	0	0
6:00 PM	0	0	0	0	0	5	0	0	0	0	1	0	0	2	0	0
6:15 PM	1	0	0	0	0	9	1	0	0	0	1	0	0	4	0	0
6:30 PM	0	0	0	0	1	6	0	0	0	0	0	0	0	6	0	0
6:45 PM	1	0	0	0	0	2	1	0	0	0	0	0	0	8	0	0

Study Name Firehole & Dunraven
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Bicycles on Road

	Dunraven St Southbound				Firehole Ave (US 20) Westbound				Dunraven St Northbound				Firehole Ave (US 20) Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
5:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
6:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

Study Name Firehole & Dunraven
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Bicycles on Crosswalk

	Dunraven St Southbound			Firehole Ave (US 20) Westbound			Dunraven St Northbound			Firehole Ave (US 20) Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
8:30 AM	0	0		0	0		0	0		0	0	
8:45 AM	0	0		0	0		0	0		0	0	
9:00 AM	0	0		0	0		0	0		0	0	
9:15 AM	0	0		0	0		0	0		0	0	
9:30 AM	1	0		0	0		0	0		0	0	
9:45 AM	0	0		1	0		0	0		0	0	
10:00 AM	0	0		0	0		0	0		0	0	
10:15 AM	0	0		0	0		0	0		0	0	
5:00 PM	2	0		3	2		0	2		0	0	
5:15 PM	0	0		0	0		0	0		0	0	
5:30 PM	0	0		0	1		0	0		1	0	
5:45 PM	0	0		0	0		0	0		0	0	
6:00 PM	1	0		0	1		0	0		0	0	
6:15 PM	2	0		0	0		0	0		1	0	
6:30 PM	0	1		0	0		0	0		0	0	
6:45 PM	0	0		1	0		0	0		0	0	

Study Name Firehole & Dunraven
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Pedestrians

	Dunraven St Southbound			Firehole Ave (US 20) Westbound			Dunraven St Northbound			Firehole Ave (US 20) Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
8:30 AM	2	0		0	1		1	0		0	0	
8:45 AM	1	0		1	0		2	2		3	4	
9:00 AM	0	0		1	2		0	0		0	0	
9:15 AM	4	0		0	2		0	16		0	0	
9:30 AM	1	0		0	0		0	1		0	0	
9:45 AM	0	0		0	1		0	4		0	0	32
10:00 AM	0	0		0	2		0	2		0	0	
10:15 AM	0	0		1	0		0	0		0	0	
5:00 PM	3	0		2	0		0	2		0	4	
5:15 PM	2	2		6	0		3	0		0	4	
5:30 PM	4	0		0	0		1	0		0	2	
5:45 PM	0	0		3	1		0	4		0	0	
6:00 PM	3	1		0	1		1	0		0	5	
6:15 PM	7	0		9	2		4	2		1	0	
6:30 PM	0	6		0	3		6	4		10	1	
6:45 PM	4	0		0	0		0	8		1	0	79

Study Name Firehole & Electric
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Buses

	Electric St Southbound				Firehole Ave (US 20) Westbound				Electric St Northbound				Firehole Ave (US 20) Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0

Study Name Firehole & Electric
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Trucks

	Electric St Southbound				Firehole Ave (US 20) Westbound				Electric St Northbound				Firehole Ave (US 20) Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	5	0	0
8:45 AM	0	0	1	0	0	5	0	0	0	0	1	0	0	5	0	0
9:00 AM	1	1	0	0	0	5	0	0	0	0	0	0	0	4	0	0
9:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	8	0	0
9:30 AM	0	1	0	0	0	2	0	0	0	0	0	0	1	3	0	0
9:45 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	5	0	0
10:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	6	0	0
10:15 AM	0	0	0	0	0	7	0	0	0	1	0	0	0	11	0	0
5:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	5	0	0
5:15 PM	0	0	0	0	0	11	0	0	0	0	0	0	0	4	0	0
5:30 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	5	0	0
5:45 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	3	0	0
6:00 PM	0	0	0	0	0	3	0	0	0	0	1	0	1	1	0	0
6:15 PM	0	0	0	0	1	7	0	0	0	0	0	0	0	5	0	0
6:30 PM	0	0	1	0	0	6	0	0	0	0	0	0	0	6	0	0
6:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	9	0	0

Study Name Firehole & Electric
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Bicycles on Road

	Electric St Southbound				Firehole Ave (US 20) Westbound				Electric St Northbound				Firehole Ave (US 20) Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
10:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:00 PM	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0

Study Name Firehole & Electric
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Bicycles on Crosswalk

	Electric St Southbound			Firehole Ave (US 20) Westbound			Electric St Northbound			Firehole Ave (US 20) Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
8:30 AM	2	0		0	0		0	0		2	0	
8:45 AM	0	0		0	0		0	0		0	1	
9:00 AM	0	0		0	0		0	0		0	0	
9:15 AM	0	0		0	0		0	0		0	0	
9:30 AM	0	0		0	0		1	0		0	0	
9:45 AM	0	0		0	0		0	1		0	0	
10:00 AM	0	0		0	0		0	0		1	0	
10:15 AM	0	0		0	0		0	0		0	1	
5:00 PM	2	0		0	0		1	1		2	2	
5:15 PM	0	0		0	1		0	0		0	0	
5:30 PM	0	0		0	1		0	0		0	0	
5:45 PM	0	0		0	0		0	0		0	0	
6:00 PM	0	0		0	0		0	0		0	0	
6:15 PM	1	0		0	0		0	0		0	0	
6:30 PM	0	1		0	0		0	0		0	0	
6:45 PM	0	0		0	0		0	0		0	0	

Study Name Firehole & Electric
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Pedestrians

	Electric St Southbound			Firehole Ave (US 20) Westbound			Electric St Northbound			Firehole Ave (US 20) Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
8:30 AM	1	0		0	0		3	0		0	0	
8:45 AM	2	1		0	0		0	1		0	2	
9:00 AM	0	0		0	0		0	0		3	2	
9:15 AM	1	1		0	0		2	17		0	0	
9:30 AM	1	0		0	0		0	1		0	0	
9:45 AM	0	0		1	1		0	4		0	1	
10:00 AM	0	0		0	0		0	0		0	0	
10:15 AM	0	1		0	1		0	0		2	1	
5:00 PM	2	0		1	0		0	2		2	0	
5:15 PM	0	0		0	1		2	0		1	1	
5:30 PM	2	0		0	1		0	0		0	1	
5:45 PM	1	3		0	0		0	4		2	0	
6:00 PM	1	1		0	0		0	0		0	4	
6:15 PM	2	1		0	0		4	0		0	0	
6:30 PM	1	7		1	5		1	0		4	1	
6:45 PM	0	0		0	1		0	1		0	0	

Study Name Firehole & Hayden
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Buses

	Hayden St Southbound				Firehole Ave (US 20) Westbound				Hayden St Northbound				Firehole Ave (US 20) Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name Firehole & Hayden
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Trucks

	Hayden St Southbound				Firehole Ave (US 20) Westbound				Hayden St Northbound				Firehole Ave (US 20) Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	4	0	0
8:45 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	5	0	0
9:00 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	3	0	0
9:15 AM	0	0	1	0	0	1	1	0	0	1	0	0	0	8	0	0
9:30 AM	0	0	0	0	0	2	1	0	0	0	0	0	0	4	0	0
9:45 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	5	0	0
10:00 AM	0	0	0	0	1	1	0	0	1	0	0	0	0	5	0	0
10:15 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	10	0	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0
5:15 PM	0	0	0	0	0	9	0	0	0	0	0	0	0	5	0	0
5:30 PM	0	0	0	0	0	8	0	0	0	0	0	0	0	4	0	0
5:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0
6:00 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	2	0	0
6:15 PM	0	0	0	0	0	10	0	0	0	0	0	0	0	5	0	0
6:30 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	7	0	0
6:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	9	0	0

Study Name Firehole & Hayden
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Bicycles on Road

	Hayden St Southbound				Firehole Ave (US 20) Westbound				Hayden St Northbound				Firehole Ave (US 20) Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name Firehole & Hayden
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Bicycles on Crosswalk

	Hayden St Southbound			Firehole Ave (US 20) Westbound			Hayden St Northbound			Firehole Ave (US 20) Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
8:30 AM	0	0		0	0		0	0		0	0	
8:45 AM	0	0		0	0		0	1		0	0	
9:00 AM	0	0		0	0		0	0		0	0	
9:15 AM	0	0		0	0		0	0		0	0	
9:30 AM	0	0		0	0		0	0		0	0	
9:45 AM	0	0		0	0		0	0		0	0	
10:00 AM	0	0		1	0		0	0		0	0	
10:15 AM	0	0		0	0		0	0		0	0	
5:00 PM	0	0		0	0		0	0		0	0	
5:15 PM	0	0		0	0		0	0		0	0	
5:30 PM	0	0		0	0		0	0		0	1	
5:45 PM	0	0		0	0		0	0		0	0	
6:00 PM	0	0		0	2		0	0		0	0	
6:15 PM	0	0		2	0		0	0		0	0	
6:30 PM	0	0		0	0		0	0		0	0	
6:45 PM	0	0		0	0		0	0		0	0	
	0	0	0	2	2	0	0	0	0	0	0	4

Study Name Firehole & Hayden
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Pedestrians

	Hayden St Southbound			Firehole Ave (US 20) Westbound			Hayden St Northbound			Firehole Ave (US 20) Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
8:30 AM	4	1		0	0		0	0		0	0	
8:45 AM	0	0		0	0		0	0		3	0	
9:00 AM	0	0		0	0		0	0		0	0	
9:15 AM	1	0		0	0		0	19		0	0	
9:30 AM	0	0		0	0		0	1		0	0	
9:45 AM	0	0		1	0		0	0		0	2	
10:00 AM	0	0		0	0		0	0		0	0	
10:15 AM	0	0		0	0		0	0		0	0	
5:00 PM	0	0		0	0		0	0		0	0	
5:15 PM	0	0		0	0		0	0		0	0	
5:30 PM	0	0		0	0		0	1		0	0	
5:45 PM	0	0		0	0		0	0		0	0	
6:00 PM	1	1		0	0		0	0		0	0	
6:15 PM	0	0		0	0		0	0		0	0	
6:30 PM	0	0		0	2		1	0		1	0	
6:45 PM	0	0		1	0		0	1		0	0	

Study Name Firehole & Iris
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Buses

	Iris St Southbound				Firehole Ave (US 20) Westbound				Iris St Northbound				Firehole Ave (US 20) Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name Firehole & Iris
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Trucks

	Iris St Southbound				Firehole Ave (US 20) Westbound				Iris St Northbound				Firehole Ave (US 20) Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	0
8:45 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	5	0	0
9:00 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	4	0	0
9:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	1	8	0	0
9:30 AM	0	0	0	0	0	3	0	0	0	0	1	0	1	4	0	0
9:45 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	5	0	0
10:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	1	6	0	0
10:15 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	8	0	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	4	0	0
5:15 PM	0	0	0	0	0	9	0	0	0	0	0	0	0	5	0	0
5:30 PM	0	0	0	0	0	8	0	0	0	0	2	0	0	4	0	0
5:45 PM	1	0	0	0	0	5	0	0	0	0	0	0	0	3	0	0
6:00 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	1	0	0
6:15 PM	0	0	0	0	0	9	0	0	0	0	0	0	0	5	0	0
6:30 PM	0	0	0	0	0	6	0	0	0	0	1	0	1	6	0	0
6:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	7	0	0

Study Name Firehole & Iris
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Bicycles on Road

	Iris St Southbound				Firehole Ave (US 20) Westbound				Iris St Northbound				Firehole Ave (US 20) Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name Firehole & Iris
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Bicycles on Crosswalk

	Iris St Southbound			Firehole Ave (US 20) Westbound			Iris St Northbound			Firehole Ave (US 20) Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
8:30 AM	0	0		0	0		0	0		0	1	
8:45 AM	0	0		0	0		0	0		0	1	
9:00 AM	0	0		0	0		0	0		0	0	
9:15 AM	0	0		0	0		0	0		0	0	
9:30 AM	0	0		0	0		0	0		0	0	
9:45 AM	0	0		0	0		0	0		0	0	
10:00 AM	0	0		0	0		0	0		0	0	
10:15 AM	0	0		0	0		0	0		0	0	
5:00 PM	0	0		0	0		0	0		0	0	
5:15 PM	0	0		0	0		0	0		0	0	
5:30 PM	0	0		0	0		0	0		0	0	
5:45 PM	0	0		0	0		0	0		0	0	
6:00 PM	0	0		0	0		0	0		0	0	
6:15 PM	0	0		0	0		0	0		0	0	
6:30 PM	0	0		0	0		0	0		0	0	
6:45 PM	0	0		0	0		0	0		0	0	

Study Name Firehole & Iris
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Pedestrians

	Iris St Southbound			Firehole Ave (US 20) Westbound			Iris St Northbound			Firehole Ave (US 20) Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
8:30 AM	0	0		0	0		0	0		0	1	
8:45 AM	0	0		0	0		0	0		0	0	
9:00 AM	0	0		0	0		0	0		0	0	
9:15 AM	0	0		0	0		0	0		0	0	
9:30 AM	0	0		0	0		0	0		0	0	
9:45 AM	0	0		0	0		0	0		0	0	
10:00 AM	0	0		0	0		0	0		0	0	
10:15 AM	0	0		0	0		0	0		0	0	
5:00 PM	0	0		0	0		0	0		0	0	
5:15 PM	0	0		0	0		0	0		0	0	
5:30 PM	0	0		0	0		0	0		0	0	
5:45 PM	0	0		0	0		0	0		0	0	
6:00 PM	0	0		1	1		0	0		0	0	
6:15 PM	0	0		0	0		0	0		0	0	
6:30 PM	0	0		0	1		0	0		0	0	
6:45 PM	0	0		0	1		0	0		0	0	

Study Name Madison & Canyon
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Buses

	Canyon St Southbound				Madison Ave Westbound				Canyon St Northbound				Madison Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
9:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:00 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
6:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0

Study Name Madison & Canyon
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Trucks

	Canyon St Southbound				Madison Ave Westbound				Canyon St Northbound				Madison Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	7	0	0	0	0	0	0	0	1	1	0	0	1	2	0
8:45 AM	1	8	0	0	0	0	0	0	0	7	0	0	0	0	0	0
9:00 AM	0	3	1	0	0	0	0	0	0	1	0	0	0	0	0	0
9:15 AM	1	5	0	0	0	0	0	0	0	3	0	0	1	0	0	0
9:30 AM	0	4	0	0	0	1	0	0	0	1	0	0	1	1	0	0
9:45 AM	0	5	0	0	0	0	0	0	0	2	0	0	0	0	0	0
10:00 AM	1	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0
10:15 AM	0	6	0	0	0	0	0	0	0	3	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	1	1	0	0	0	1	0	0
5:15 PM	0	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0
5:30 PM	0	2	0	0	0	1	0	0	0	3	0	0	0	0	0	0
5:45 PM	0	1	1	0	0	1	0	0	1	4	1	0	0	1	0	0
6:00 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
6:15 PM	0	2	0	0	1	0	0	0	0	5	0	0	0	0	0	0
6:30 PM	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0
6:45 PM	0	2	2	0	0	0	0	0	0	2	0	0	1	0	0	0

Study Name Madison & Canyon
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Bicycles on Road

	Canyon St Southbound				Madison Ave Westbound				Canyon St Northbound				Madison Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0

Study Name Madison & Canyon
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Bicycles on Crosswalk

	Canyon St Southbound			Madison Ave Westbound			Canyon St Northbound			Madison Ave Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
8:30 AM	0	0		0	0		0	0		0	0	
8:45 AM	0	0		0	0		0	0		0	0	
9:00 AM	1	0		0	0		0	2		0	0	
9:15 AM	0	0		0	0		0	0		0	0	
9:30 AM	0	0		0	0		1	0		0	0	
9:45 AM	0	0		0	0		0	0		0	0	
10:00 AM	0	0		0	0		1	0		0	0	
10:15 AM	0	0		1	0		0	0		0	0	
5:00 PM	1	0		2	0		0	0		0	0	
5:15 PM	1	1		0	0		0	0		0	0	
5:30 PM	0	0		0	0		0	0		0	0	
5:45 PM	0	0		0	3		0	0		0	0	
6:00 PM	0	0		1	0		0	0		0	1	
6:15 PM	0	0		0	0		1	0		0	1	
6:30 PM	0	0		0	0		0	0		0	0	
6:45 PM	0	0		0	1		0	0		0	0	

Study Name Madison & Canyon
Start Date 07/09/2019
Start Time 8:30 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Pedestrians

	Canyon St Southbound			Madison Ave Westbound			Canyon St Northbound			Madison Ave Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
8:30 AM	2	3		4	2		2	0		0	6	
8:45 AM	3	0		1	4		1	0		5	1	
9:00 AM	1	1		0	0		4	2		0	0	
9:15 AM	10	4		6	4		0	0		1	1	
9:30 AM	16	11		3	10		0	0		2	5	
9:45 AM	6	1		4	0		0	7		4	4	
10:00 AM	5	4		14	4		3	3		8	3	
10:15 AM	3	9		7	10		0	6		12	8	
5:00 PM	30	26		41	53		15	17		34	41	
5:15 PM	53	30		53	52		10	21		43	50	
5:30 PM	64	28		33	58		8	29		55	42	
5:45 PM	38	15		43	52		12	29		31	31	
6:00 PM	23	39		65	53		12	11		59	31	
6:15 PM	41	29		53	59		20	39		58	62	
6:30 PM	40	32		78	69		20	20		90	60	
6:45 PM	42	28		52	56		27	29		55	48	

Study Name Yellowstone & Canyon
Start Date 07/09/2019
Start Time 7:00 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Buses

	Canyon Street Southbound				Yellowstone Avenue Westbound				Canyon Street Northbound				Yellowstone Avenue Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0
7:15 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0
7:30 AM	0	1	0	0	0	0	0	0	1	1	0	0	0	2	0	0
7:45 AM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	1	0	0	0	0	0	3	1	0	0	0	3	0	0
8:15 AM	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0
8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0
9:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
4:45 PM	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0
5:00 PM	1	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
6:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	1	1	0	0	1	1	1	0	0	1	0	0	0	0	0	0

Study Name Yellowstone & Canyon
Start Date 07/09/2019
Start Time 7:00 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Trucks

	Canyon Street Southbound				Yellowstone Avenue Westbound				Canyon Street Northbound				Yellowstone Avenue Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	2	0	0
7:15 AM	1	0	1	0	1	0	0	0	0	0	0	0	0	4	0	0
7:30 AM	0	0	3	0	1	1	1	0	1	0	0	0	0	2	0	0
7:45 AM	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	2	0	2	0	0	0	1	2	0	0	0	0	0	0
8:15 AM	0	1	3	0	1	0	0	0	0	1	0	0	1	0	1	0
8:30 AM	1	0	5	0	0	2	0	0	2	1	1	0	2	2	2	0
8:45 AM	1	0	8	0	3	0	0	0	2	1	0	0	0	2	0	0
9:00 AM	0	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	7	0	2	0	0	0	2	1	0	0	0	2	0	0
9:30 AM	0	0	5	0	0	1	0	0	0	1	0	0	0	1	0	0
9:45 AM	0	1	4	0	0	0	1	0	1	2	0	0	0	2	0	0
4:00 PM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	5	0	3	0	0	0	0	1	0	0	0	1	0	0
4:30 PM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	1	4	0	4	1	1	0	0	1	0	0	0	0	0	0
5:00 PM	0	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0
5:15 PM	1	0	3	0	1	1	1	0	0	0	0	0	0	0	0	0
5:30 PM	0	2	0	0	1	1	0	0	0	2	0	0	1	0	0	0
5:45 PM	1	0	1	0	5	1	1	0	0	1	0	0	0	0	0	0
6:00 PM	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0
6:15 PM	0	0	2	0	3	0	1	0	0	2	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	1	0	1	3	0	0	1	0	0	0	0	0	0	0

Study Name Yellowstone & Canyon
Start Date 07/09/2019
Start Time 7:00 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Bicycles on Road

	Canyon Street Southbound				Yellowstone Avenue Westbound				Canyon Street Northbound				Yellowstone Avenue Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	28	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
6:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name Yellowstone & Canyon
Start Date 07/09/2019
Start Time 7:00 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Bicycles on Crosswalk

	Canyon Street Southbound			Yellowstone Avenue Westbound			Canyon Street Northbound			Yellowstone Avenue Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
7:00 AM	0	0		0	0		0	0		0	0	
7:15 AM	0	0		0	0		0	0		0	0	
7:30 AM	0	0		0	0		0	0		0	0	
7:45 AM	0	0		0	0		0	0		0	0	
8:00 AM	0	0		0	0		0	0		0	0	
8:15 AM	0	0		0	0		0	0		0	0	
8:30 AM	0	0		0	0		0	0		0	0	
8:45 AM	0	0		0	0		0	0		0	0	
9:00 AM	0	0		0	0		0	0		0	0	
9:15 AM	0	0		0	0		0	0		0	0	
9:30 AM	0	0		0	0		0	0		0	0	
9:45 AM	0	0		0	0		0	0		0	0	
4:00 PM	0	0		0	0		0	0		0	0	
4:15 PM	0	0		0	0		0	0		0	0	
4:30 PM	0	0		0	0		0	0		0	0	
4:45 PM	0	0		1	0		0	0		0	0	
5:00 PM	0	1		1	0		0	0		0	0	
5:15 PM	0	0		0	0		0	0		0	0	
5:30 PM	0	0		0	0		0	0		0	0	
5:45 PM	0	0		0	0		0	0		0	0	
6:00 PM	0	0		0	1		0	0		0	0	
6:15 PM	0	0		0	0		0	0		0	0	
6:30 PM	0	0		0	0		0	0		0	0	
6:45 PM	0	0		0	0		0	0		0	0	

Study Name Yellowstone & Canyon
Start Date 07/09/2019
Start Time 7:00 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Pedestrians

	Canyon Street Southbound			Yellowstone Avenue Westbound			Canyon Street Northbound			Yellowstone Avenue Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
7:00 AM	0	1		0	0		0	0		5	1	
7:15 AM	2	2		0	1		0	0		4	2	
7:30 AM	0	0		0	0		0	0		0	2	
7:45 AM	1	2		2	3		0	0		0	2	
8:00 AM	0	2		1	1		0	0		2	2	
8:15 AM	1	3		1	2		0	8		2	0	
8:30 AM	0	1		4	6		2	0		1	0	
8:45 AM	1	3		2	0		2	3		0	4	
9:00 AM	3	1		2	15		3	1		3	3	
9:15 AM	6	0		8	1		0	3		0	1	
9:30 AM	5	5		2	2		8	4		8	5	
9:45 AM	0	3		0	2		12	5		11	7	
4:00 PM	21	13		14	19		11	15		13	19	
4:15 PM	16	21		17	44		4	6		5	11	
4:30 PM	32	23		19	36		5	3		10	8	
4:45 PM	15	21		26	11		16	26		21	22	
5:00 PM	27	36		19	18		7	7		16	10	
5:15 PM	28	21		10	9		4	17		6	10	
5:30 PM	15	26		16	33		1	5		22	12	
5:45 PM	31	21		15	27		4	7		37	28	
6:00 PM	30	15		45	11		13	17		27	12	
6:15 PM	17	22		18	23		13	14		48	26	
6:30 PM	24	27		15	33		15	10		40	21	
6:45 PM	25	20		34	18		8	7		42	16	

Study Name Yellowstone & Canyon
Start Date 07/09/2019
Start Time 10:00 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Buses

	Canyon Street Southbound				Yellowstone Avenue Westbound				Canyon Street Northbound				Yellowstone Avenue Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
10:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0
10:30 AM	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	1	1	0	0	0	0	0	1	0	0	0	1	0	0	0
7:00 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
7:15 PM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
8:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name Yellowstone & Canyon
Start Date 07/09/2019
Start Time 10:00 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Trucks

	Canyon Street Southbound				Yellowstone Avenue Westbound				Canyon Street Northbound				Yellowstone Avenue Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
10:00 AM	0	1	1	0	0	1	0	0	0	1	0	0	0	0	0	0
10:15 AM	0	0	3	0	1	0	0	0	2	1	0	0	1	1	0	0
10:30 AM	1	3	1	0	3	0	0	0	0	2	0	0	1	2	0	0
10:45 AM	1	0	1	0	1	0	0	0	1	1	0	0	0	2	0	0
11:00 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	3	0	0
11:15 AM	0	1	7	0	0	1	0	0	1	0	0	0	2	2	0	0
7:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	1	0	0	2	3	1	0	0	0	0	0	0	0	0	0
7:30 PM	0	0	1	0	0	2	0	0	0	1	0	0	0	0	1	0
7:45 PM	1	0	0	0	2	0	1	0	0	1	0	0	0	0	0	0
8:00 PM	1	1	2	0	6	2	0	0	1	1	0	0	0	0	1	0
8:15 PM	0	0	0	0	2	3	1	0	0	0	0	0	0	0	0	0

Study Name Yellowstone & Canyon
Start Date 07/09/2019
Start Time 10:00 AM
Site Code
Project West Yellowstone Gateway

Type Road
Classification Bicycles on Road

	Canyon Street Southbound				Yellowstone Avenue Westbound				Canyon Street Northbound				Yellowstone Avenue Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name Yellowstone & Canyon
Start Date 07/09/2019
Start Time 10:00 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Bicycles on Crosswalk

	Canyon Street Southbound			Yellowstone Avenue Westbound			Canyon Street Northbound			Yellowstone Avenue Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
10:00 AM	0	0		0	0		0	0		0	0	
10:15 AM	0	0		0	0		0	0		0	1	
10:30 AM	0	0		0	0		0	0		0	0	
10:45 AM	0	1		0	0		0	0		0	0	
11:00 AM	0	0		0	0		0	0		0	0	
11:15 AM	0	0		0	0		0	0		0	0	
7:00 PM	0	0		0	0		0	0		0	0	
7:15 PM	0	0		0	0		0	0		0	0	
7:30 PM	0	0		0	0		0	0		0	0	
7:45 PM	0	0		0	0		0	0		0	0	
8:00 PM	0	0		0	0		0	0		0	0	
8:15 PM	0	0		0	0		0	0		0	0	

Study Name Yellowstone & Canyon
Start Date 07/09/2019
Start Time 10:00 AM
Site Code
Project West Yellowstone Gateway

Type Crosswalk
Classification Pedestrians

	Canyon Street Southbound			Yellowstone Avenue Westbound			Canyon Street Northbound			Yellowstone Avenue Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combined
10:00 AM	3	7		6	17		1	4		1	5	
10:15 AM	11	11		0	9		4	0		6	0	
10:30 AM	18	5		11	9		2	10		3	2	
10:45 AM	8	15		7	2		7	7		15	7	
11:00 AM	19	14		6	15		10	7		20	1	
11:15 AM	5	16		24	12		5	8		2	9	
7:00 PM	33	42		47	23		24	10		33	14	
7:15 PM	29	38		38	49		7	32		9	50	
7:30 PM	21	65		17	18		13	13		23	50	
7:45 PM	22	48		29	17		14	8		33	33	
8:00 PM	29	22		18	15		2	18		22	36	
8:15 PM	22	24		7	14		6	4		23	35	

FEHR & PEERS

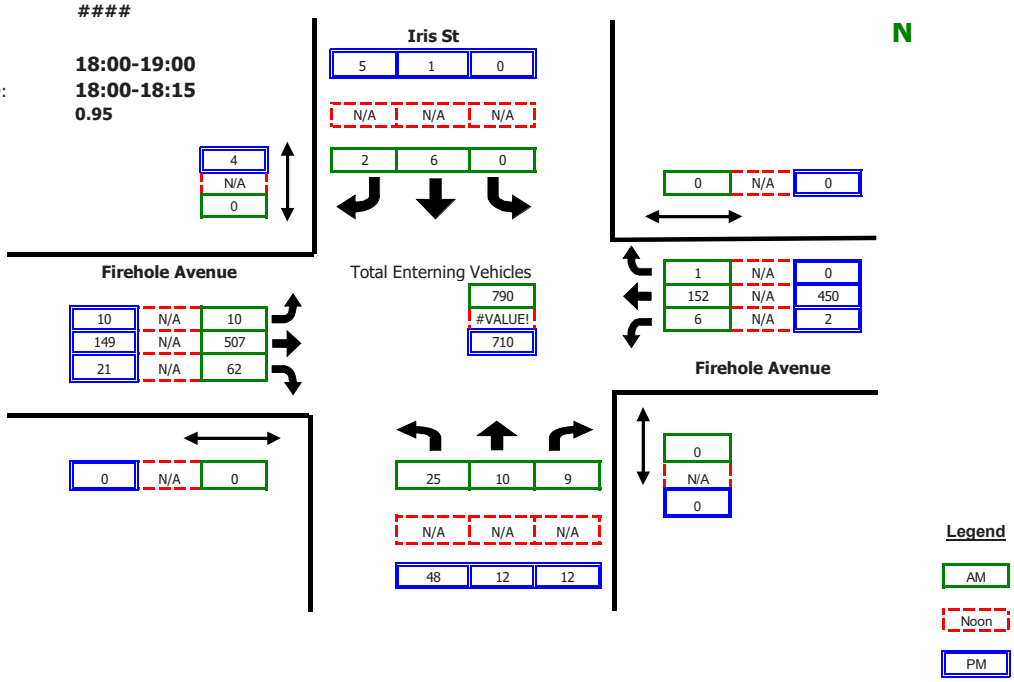
Intersection Turning Movement Summary

Intersection:	**Iris St/Firehole Avenue**	**Date:**	**7-9-19, Tue**
	North/South: Iris St	**Day of Week Adjustment:**	**100.0%**
	East/West: Firehole Avenue	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD: **9:45-10:00**
AM PHF: **0.84**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD: **18:00-18:15**
PM PHF: **0.95**



RAW COUNT SUMMARIES	Iris St Northbound				Iris St Southbound				Firehole Avenue Eastbound				Firehole Avenue Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
8:30-8:45	6	2	7	0	0	1	1	0	3	102	19	1	1	30	0	0	172
8:45-9:00	2	4	1	0	0	4	2	0	2	108	8	0	0	35	0	0	166
9:00-9:15	5	3	2	0	0	2	0	0	3	148	12	0	1	28	0	0	204
9:15-9:30	6	2	3	0	0	2	0	0	3	100	21	0	2	40	0	0	179
9:30-9:45	5	3	1	0	0	1	1	0	2	107	12	0	1	38	1	0	172
9:45-10:00	9	2	3	0	0	1	1	0	2	152	17	0	2	46	0	0	235
10:00-10:15	8	2	3	0	0	1	3	0	5	88	23	0	0	41	0	0	174
10:15-10:30	6	1	5	0	0	1	2	0	5	102	12	0	1	57	0	0	192

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
17:00-17:15	18	2	1	0	1	4	8	0	3	47	5	0	2	82	1	0	174
17:15-17:30	8	3	1	0	0	1	5	0	3	43	4	0	6	91	0	0	165
17:30-17:45	13	4	1	0	0	1	0	0	4	39	5	0	1	66	0	0	134
17:45-18:00	17	2	3	0	0	1	5	0	2	32	4	0	4	86	0	0	156
18:00-18:15	17	3	4	0	0	0	2	2	2	29	5	0	0	125	0	0	187
18:15-18:30	10	4	3	0	0	1	2	0	2	45	7	0	2	109	0	0	185
18:30-18:45	12	3	3	0	0	0	0	1	6	34	6	0	0	109	0	0	173
18:45-19:00	9	2	2	0	0	0	1	1	0	41	3	0	0	107	0	0	165

FEHR PEERS

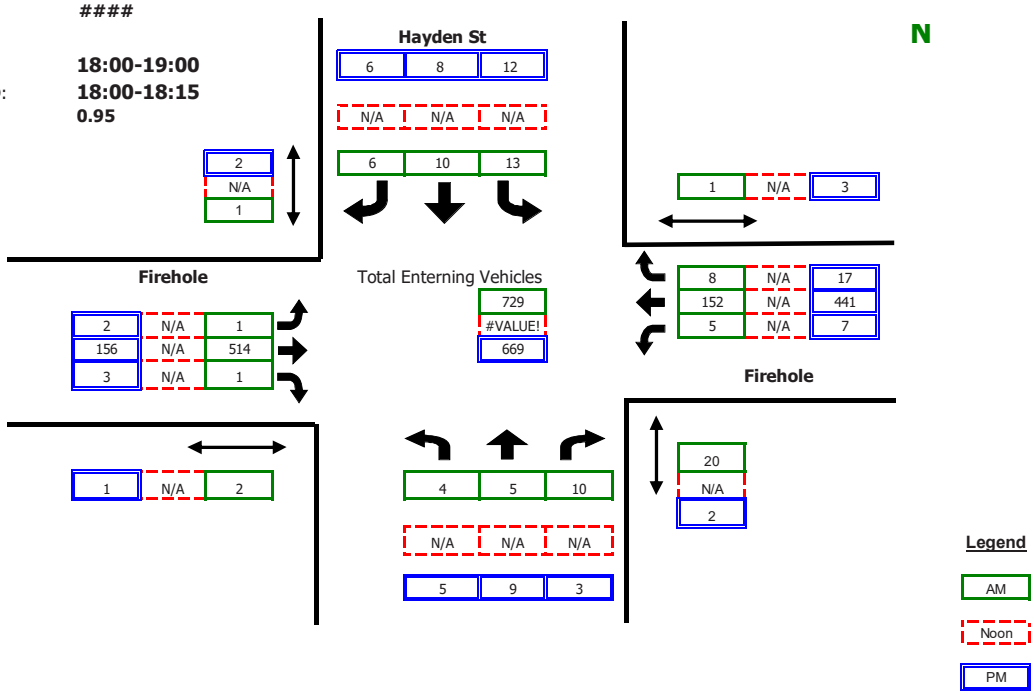
Intersection Turning Movement Summary

Intersection:	**Hayden St/Firehole**	**Date:**	**7-9-19, Tue**
	North/South: Hayden St	**Day of Week Adjustment:**	**100.0%**
	East/West: Firehole	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD: **9:45-10:00**
AM PHF: **0.88**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD: **18:00-18:15**
PM PHF: **0.95**



RAW COUNT SUMMARIES	Hayden St Northbound				Hayden St Southbound				Firehole Eastbound				Firehole Westbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
8:30-8:45	1	2	0	0	1	9	0	5	0	104	1	0	1	27	1	0	147
8:45-9:00	1	0	2	0	3	1	0	0	1	111	2	3	0	33	1	0	155
9:00-9:15	1	1	4	0	1	5	1	0	0	144	1	0	2	27	1	0	188
9:15-9:30	2	2	1	19	7	0	0	1	1	105	0	0	1	40	0	0	159
9:30-9:45	1	1	4	1	3	3	2	0	0	116	0	0	1	38	5	0	174
9:45-10:00	0	1	1	0	2	2	3	0	0	149	0	2	1	47	2	1	208
10:00-10:15	0	0	5	0	1	7	0	0	0	95	0	0	0	38	7	0	153
10:15-10:30	1	2	0	0	3	4	0	0	0	109	0	0	0	58	1	0	178

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
17:00-17:15	0	4	2	0	1	3	0	0	2	51	0	0	0	85	10	0	158
17:15-17:30	0	6	1	0	3	1	2	0	1	43	0	0	3	97	2	0	159
17:30-17:45	0	5	1	1	2	3	2	0	0	38	2	0	1	66	4	0	124
17:45-18:00	1	1	1	0	5	4	1	0	0	35	0	0	2	92	7	0	149
18:00-18:15	1	1	1	0	6	3	2	2	2	31	0	0	1	123	5	0	176
18:15-18:30	0	3	1	0	3	1	2	0	0	48	1	0	3	106	5	0	173
18:30-18:45	3	2	1	1	2	0	0	0	0	34	2	1	2	110	3	2	159
18:45-19:00	1	3	0	1	1	4	2	0	0	43	0	0	1	102	4	1	161

FEHR PEERS

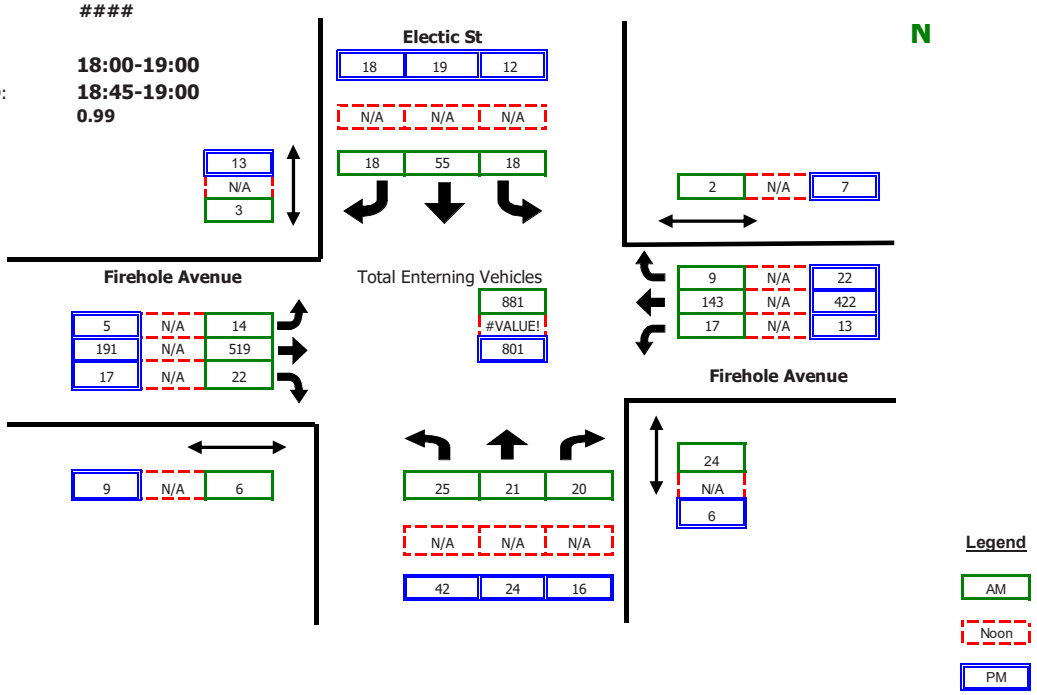
Intersection Turning Movement Summary

Intersection:	**Electic St/Firehole Avenue**	**Date:**	**7-9-19, Tue**
	North/South: Electic St	**Day of Week Adjustment:**	**100.0%**
	East/West: Firehole Avenue	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD: **9:45-10:00**
AM PHF: **0.83**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD: **18:45-19:00**
PM PHF: **0.99**



RAW COUNT SUMMARIES	Electic St Northbound				Electic St Southbound				Firehole Avenue Eastbound				Firehole Avenue Westbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
8:30-8:45	6	2	4	3	3	3	2	1	8	111	4	0	1	28	6	0	178
8:45-9:00	10	1	7	1	2	5	1	3	4	113	2	2	3	29	5	0	182
9:00-9:15	5	9	8	0	2	7	2	0	2	134	6	5	5	25	2	0	207
9:15-9:30	6	2	3	19	6	9	6	2	7	120	8	0	6	41	3	0	217
9:30-9:45	3	4	5	1	5	24	7	1	3	103	3	0	1	31	2	0	191
9:45-10:00	11	6	4	4	5	15	3	0	2	162	5	1	5	46	2	2	266
10:00-10:15	7	6	9	0	6	15	3	0	6	101	7	0	5	40	4	0	209
10:15-10:30	8	5	6	0	4	7	8	1	7	117	5	3	4	47	6	1	224

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
17:00-17:15	7	1	7	2	1	8	8	2	12	56	7	2	2	91	7	1	207
17:15-17:30	6	9	3	2	5	4	7	0	2	50	4	2	2	93	7	1	192
17:30-17:45	3	10	4	0	1	7	2	2	2	44	1	1	1	74	1	1	150
17:45-18:00	4	4	5	4	4	4	6	4	3	42	1	2	5	102	5	0	185
18:00-18:15	11	13	5	0	3	3	5	2	1	40	5	4	1	105	5	0	197
18:15-18:30	8	4	3	4	3	5	3	3	0	57	5	0	1	106	6	0	201
18:30-18:45	10	2	4	1	4	5	6	8	3	46	4	5	6	108	2	6	200
18:45-19:00	13	5	4	1	2	6	4	0	1	48	3	0	5	103	9	1	203

FEHR PEERS

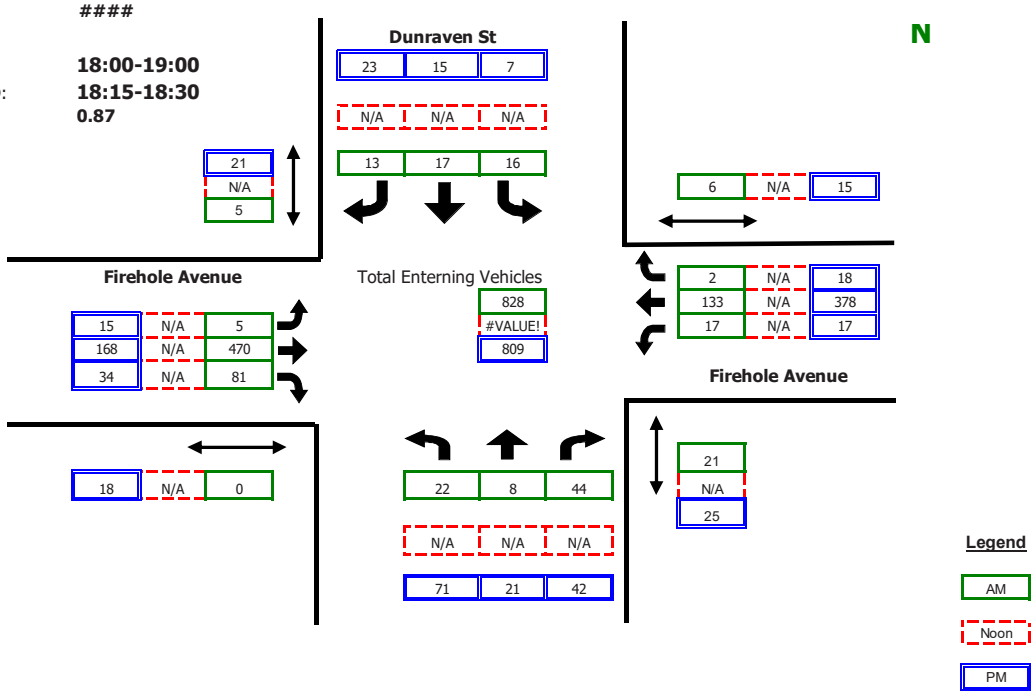
Intersection Turning Movement Summary

Intersection:	**Dunraven St/Firehole Avenue**	**Date:**	**7-9-19, Tue**
	North/South: Dunraven St	**Day of Week Adjustment:**	**100.0%**
	East/West: Firehole Avenue	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD: **9:45-10:00**
AM PHF: **0.90**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD: **18:15-18:30**
PM PHF: **0.87**



RAW COUNT SUMMARIES	Dunraven St Northbound				Dunraven St Southbound				Firehole Avenue Eastbound				Firehole Avenue Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
8:30-8:45	3	5	3	1	1	5	1	2	0	105	12	0	4	33	1	1	173
8:45-9:00	3	3	6	4	2	3	5	1	1	108	18	7	7	24	1	1	181
9:00-9:15	5	2	15	0	4	6	3	0	1	127	19	0	4	28	1	3	215
9:15-9:30	6	1	7	16	3	5	3	4	0	112	21	0	4	33	0	2	195
9:30-9:45	4	3	15	1	4	3	2	1	1	99	17	0	7	33	1	0	189
9:45-10:00	7	2	7	4	5	3	5	0	3	132	24	0	2	39	0	1	229
10:00-10:15	8	13	13	2	3	0	5	0	7	111	14	0	9	33	1	2	217
10:15-10:30	5	4	12	0	2	4	4	0	1	88	32	0	6	51	1	1	210

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
17:00-17:15	16	5	10	2	3	2	2	3	0	58	8	4	5	84	3	2	196
17:15-17:30	13	6	4	3	2	4	2	4	0	44	10	4	4	90	1	6	180
17:30-17:45	10	9	10	1	6	3	4	4	3	42	9	2	7	62	2	0	167
17:45-18:00	12	6	12	4	1	4	5	0	3	41	4	0	7	96	6	4	197
18:00-18:15	17	5	9	1	1	5	4	4	2	30	9	5	7	93	4	1	186
18:15-18:30	16	7	16	6	3	1	10	7	6	56	12	1	6	92	7	11	232
18:30-18:45	18	4	5	10	2	5	2	6	5	39	6	11	2	96	4	3	188
18:45-19:00	20	5	12	8	1	4	7	4	2	43	7	1	2	97	3	0	203

FEHR PEERS

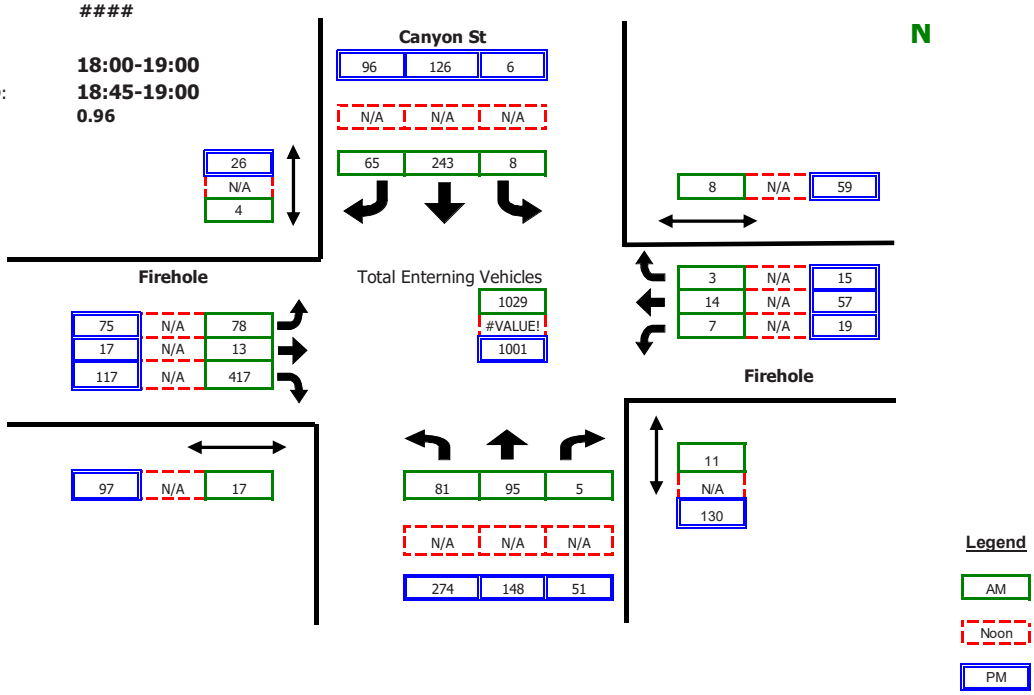
Intersection Turning Movement Summary

Intersection:	**Canyon St/Firehole**	**Date:**	**7-9-19, Tue**
	North/South: Canyon St	**Day of Week Adjustment:**	**100.0%**
	East/West: Firehole	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD: **9:15-9:30**
AM PHF: **0.92**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD: **18:45-19:00**
PM PHF: **0.96**



RAW COUNT SUMMARIES	Canyon St Northbound				Canyon St Southbound				Firehole Eastbound				Firehole Westbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
8:30-8:45	20	27	0	1	1	61	16	0	16	3	84	2	1	2	0	2	231
8:45-9:00	12	28	2	1	0	54	17	1	20	3	96	1	4	4	0	1	240
9:00-9:15	19	23	0	0	2	50	13	0	22	4	104	5	2	4	0	1	243
9:15-9:30	25	31	2	3	2	70	15	0	25	4	99	8	3	2	1	3	279
9:30-9:45	21	19	2	0	2	69	16	0	21	2	91	3	1	2	1	0	247
9:45-10:00	16	22	1	8	2	54	21	4	10	3	123	1	1	6	1	4	260
10:00-10:15	20	32	3	6	3	71	24	10	16	6	90	5	2	3	2	12	272
10:15-10:30	21	27	5	5	0	49	31	4	21	4	85	2	7	5	0	5	255

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
17:00-17:15	56	50	3	24	1	28	13	5	25	2	40	12	5	15	3	7	241
17:15-17:30	45	35	7	36	0	30	37	2	23	3	26	31	2	7	0	6	215
17:30-17:45	52	57	13	26	2	33	15	11	23	4	40	12	3	15	2	6	259
17:45-18:00	76	46	15	13	2	27	23	8	18	5	25	4	5	15	10	20	267
18:00-18:15	74	41	13	14	0	29	25	0	15	0	22	14	7	13	4	5	243
18:15-18:30	62	27	15	35	3	31	26	2	20	6	38	38	8	12	1	9	249
18:30-18:45	72	32	13	42	1	36	25	4	18	2	25	29	2	17	4	9	247
18:45-19:00	66	48	10	39	2	30	20	20	22	9	32	16	2	15	6	36	262

FEHR PEERS

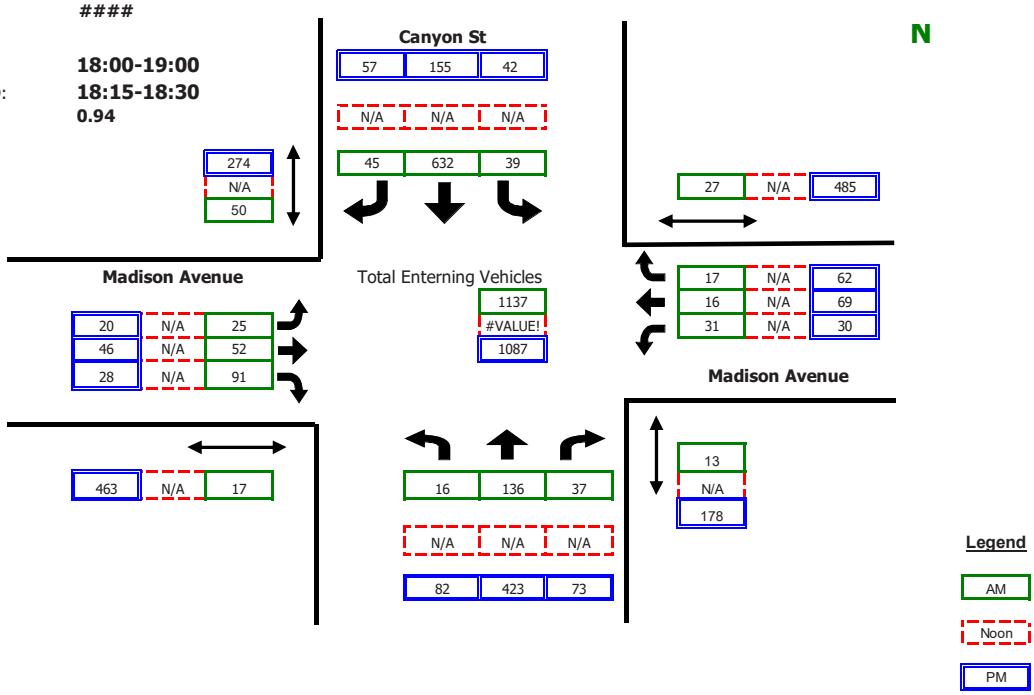
Intersection Turning Movement Summary

Intersection:	**Canyon St/Madison Avenue**	**Date:**	**7-9-19, Tue**
	North/South: Canyon St	**Day of Week Adjustment:**	**100.0%**
	East/West: Madison Avenue	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD: **9:45-10:00**
AM PHF: **0.94**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD: **18:15-18:30**
PM PHF: **0.94**



RAW COUNT SUMMARIES	Canyon St Northbound				Canyon St Southbound				Madison Avenue Eastbound				Madison Avenue Westbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
8:30-8:45	4	28	4	2	7	148	7	5	12	15	19	6	5	6	5	6	260
8:45-9:00	3	35	6	1	2	133	9	3	7	13	20	6	4	5	7	5	244
9:00-9:15	7	30	8	6	5	165	5	2	6	14	23	0	9	3	5	0	280
9:15-9:30	0	41	11	0	7	162	14	14	8	16	21	2	6	6	2	10	294
9:30-9:45	6	28	9	0	12	137	15	27	10	13	17	7	5	3	6	13	261
9:45-10:00	3	37	9	7	15	168	11	7	1	9	30	8	11	4	4	4	302
10:00-10:15	3	36	6	6	7	153	12	9	9	16	16	11	7	6	7	18	278
10:15-10:30	6	46	10	6	5	109	13	12	5	12	20	20	4	4	4	17	238

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
17:00-17:15	9	95	12	32	18	43	10	56	12	20	7	75	6	11	10	94	253
17:15-17:30	11	67	9	31	17	40	7	83	7	8	4	93	2	10	17	105	199
17:30-17:45	10	103	11	37	16	52	9	92	6	6	8	97	7	12	15	91	255
17:45-18:00	14	120	29	41	21	39	10	53	3	22	4	62	5	9	19	95	295
18:00-18:15	17	114	16	23	7	30	21	62	6	16	6	90	3	20	13	118	269
18:15-18:30	26	97	26	59	14	47	8	70	4	15	6	120	11	23	12	112	289
18:30-18:45	21	94	20	40	9	39	14	72	9	4	11	150	4	13	17	147	255
18:45-19:00	18	118	11	56	12	39	14	70	1	11	5	103	12	13	20	108	274

FEHR PEERS

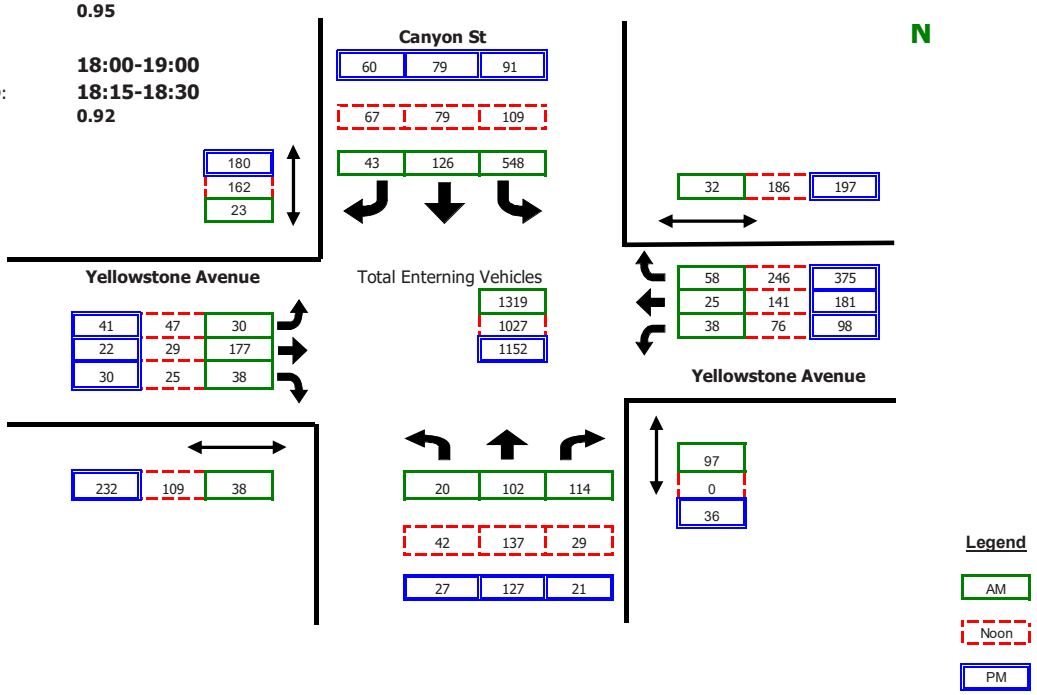
Intersection Turning Movement Summary

Intersection:	**Canyon St/Yellowstone Avenue**	**Date:**	**7-9-19, Tue**
	North/South: Canyon St	**Day of Week Adjustment:**	**100.0%**
	East/West: Yellowstone Avenue	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD: **9:45-10:00**
AM PHF: **0.93**

NOON PEAK HOUR PERIOD: **15:00-14:00**
NOON PEAK 15 MINUTE PERIOD: **15:45-14:00**
NOON PHF: **0.95**

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD: **18:15-18:30**
PM PHF: **0.92**



RAW COUNT SUMMARIES	Canyon St Northbound				Canyon St Southbound				Yellowstone Avenue Eastbound				Yellowstone Avenue Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
8:30-8:45	4	17	37	6	108	37	10	1	9	28	7	1	6	5	5	10	273
8:45-9:00	1	19	40	11	117	23	12	4	6	35	6	4	4	6	11	2	280
9:00-9:15	4	23	28	30	137	32	11	4	6	36	11	6	10	4	18	17	320
9:15-9:30	2	29	36	27	146	31	11	6	8	47	9	1	5	6	11	9	341
9:30-9:45	4	26	24	25	132	24	7	10	10	33	10	13	14	7	13	4	304
9:45-10:00	10	24	26	15	133	39	14	3	6	61	8	18	9	8	16	2	354
10:00-10:15	4	25	24	5	114	39	17	10	7	26	8	6	7	8	13	23	292
10:15-10:30	11	27	33	4	109	22	17	22	15	21	11	6	6	6	8	9	286

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	13	38	7	0	31	21	14	34	16	5	4	32	16	35	45	33	245
15:15-15:30	7	25	5	0	34	18	18	37	9	5	5	16	27	30	68	61	251
15:30-15:45	13	40	9	0	18	13	14	55	14	12	13	18	18	33	65	55	262
15:45-14:00	9	34	8	0	26	27	21	36	8	7	3	43	15	43	68	37	269

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
17:00-17:15	9	30	6	0	13	28	8	63	10	7	5	26	23	38	60	37	237
17:15-17:30	6	26	6	8	25	11	7	49	16	7	5	16	18	30	43	19	200
17:30-17:45	8	22	3	2	30	26	15	41	17	6	6	34	33	35	99	49	300
17:45-18:00	5	31	7	5	24	12	12	52	8	7	8	65	42	52	114	42	322
18:00-18:15	10	37	6	4	18	14	13	45	6	8	3	39	29	51	101	56	296
18:15-18:30	8	31	4	3	30	27	14	39	12	4	7	74	25	49	102	41	313
18:30-18:45	2	23	3	12	23	16	15	51	15	6	13	61	19	39	86	48	260
18:45-19:00	7	36	8	17	20	22	18	45	8	4	7	58	25	42	86	52	283

FEHR PEERS

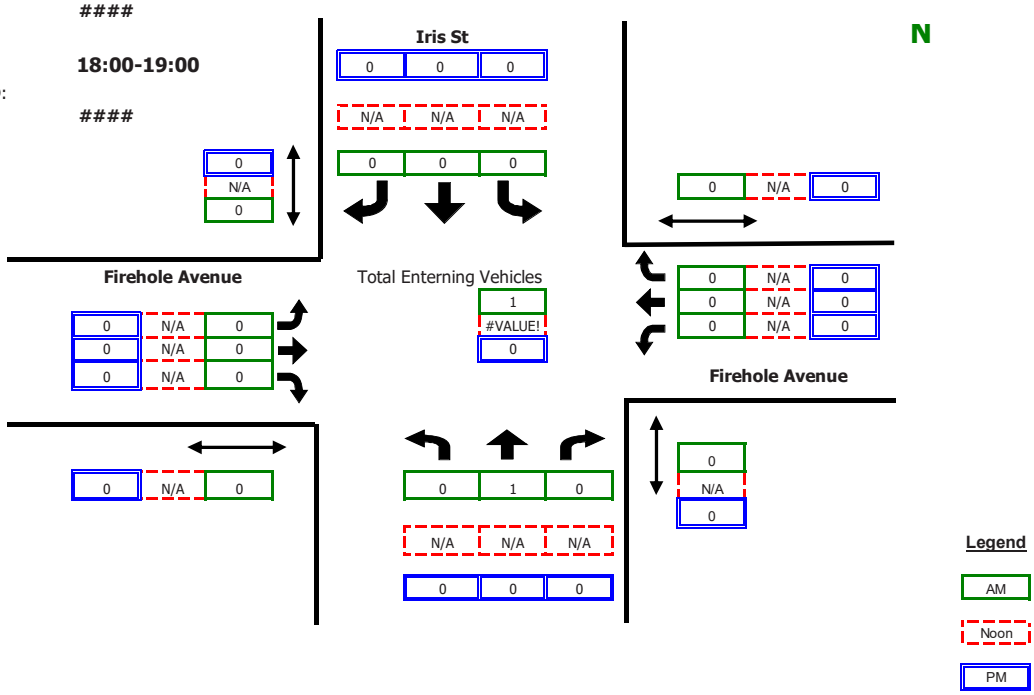
Intersection Turning Movement Summary

Intersection:	**Iris St/Firehole Avenue**	**Date:**	**7-9-19, Tue**
	North/South: Iris St	**Day of Week Adjustment:**	**100.0%**
	East/West: Firehole Avenue	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD: **9:00-9:15**
AM PHF: **0.25**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD:
PM PHF: **####**



RAW COUNT SUMMARIES	Iris St Northbound Left	Thru	Right	Peds	Iris St Southbound Left	Thru	Right	Peds	Firehole Avenue Eastbound Left	Thru	Right	Peds	Firehole Avenue Westbound Left	Thru	Right	Peds	
AM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
8:30-8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45-9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00-9:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9:15-9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30-9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45-10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00-10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15-10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NOON PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM PERIOD COUNTS																	
Period	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**TOTAL**
17:00-17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15-17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30-17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45-18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00-18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15-18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30-18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45-19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

FEHR PEERS

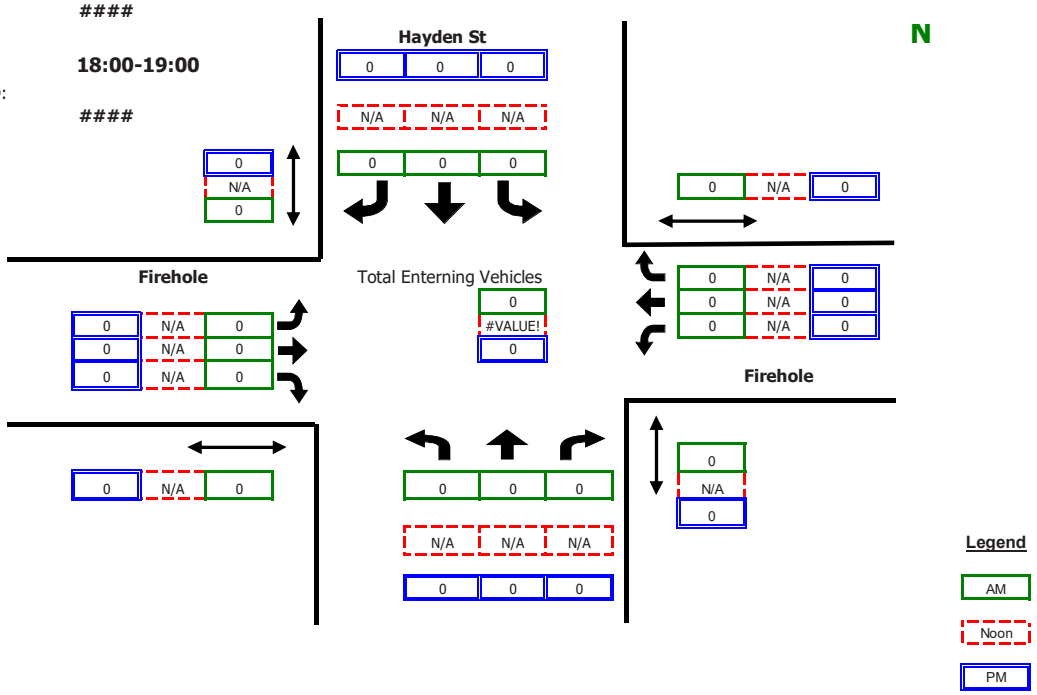
Intersection Turning Movement Summary

Intersection:	**Hayden St/Firehole**	**Date:**	**7-9-19, Tue**
	North/South: Hayden St	**Day of Week Adjustment:**	**100.0%**
	East/West: Firehole	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD:
AM PHF: ####

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: ####

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD:
PM PHF: ####



RAW COUNT SUMMARIES	Hayden St Northbound				Hayden St Southbound				Firehole Eastbound				Firehole Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
8:30-8:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45-9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00-9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15-9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30-9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45-10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00-10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15-10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
17:00-17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15-17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30-17:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17:45-18:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
18:00-18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15-18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30-18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45-19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

FEHR PEERS

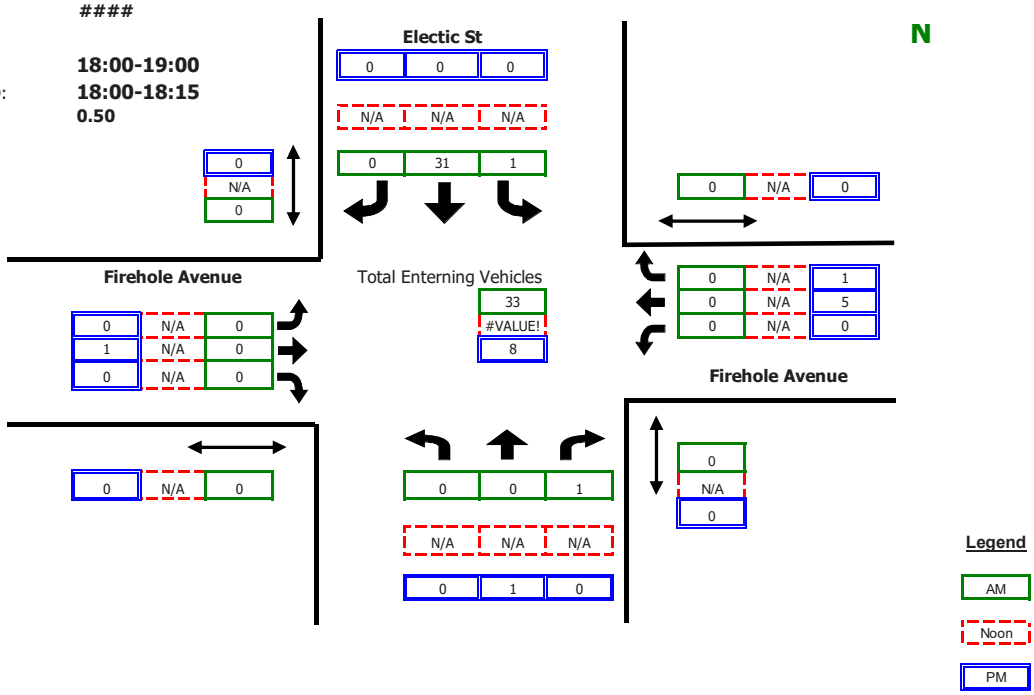
Intersection Turning Movement Summary

Intersection:	**Electic St/Firehole Avenue**	**Date:**	**7-9-19, Tue**
	North/South: Electic St	**Day of Week Adjustment:**	**100.0%**
	East/West: Firehole Avenue	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD: **9:30-9:45**
AM PHF: **0.39**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD: **18:00-18:15**
PM PHF: **0.50**



RAW COUNT SUMMARIES	Electic St Northbound				Electic St Southbound				Firehole Avenue Eastbound				Firehole Avenue Westbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
8:30-8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45-9:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
9:00-9:15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9:15-9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30-9:45	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	21
9:45-10:00	0	0	0	0	1	10	0	0	0	0	0	0	0	0	0	0	11
10:00-10:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10:15-10:30	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
17:00-17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15-17:30	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
17:30-17:45	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	3
17:45-18:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
18:00-18:15	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	4
18:15-18:30	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
18:30-18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45-19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1

FEHR PEERS

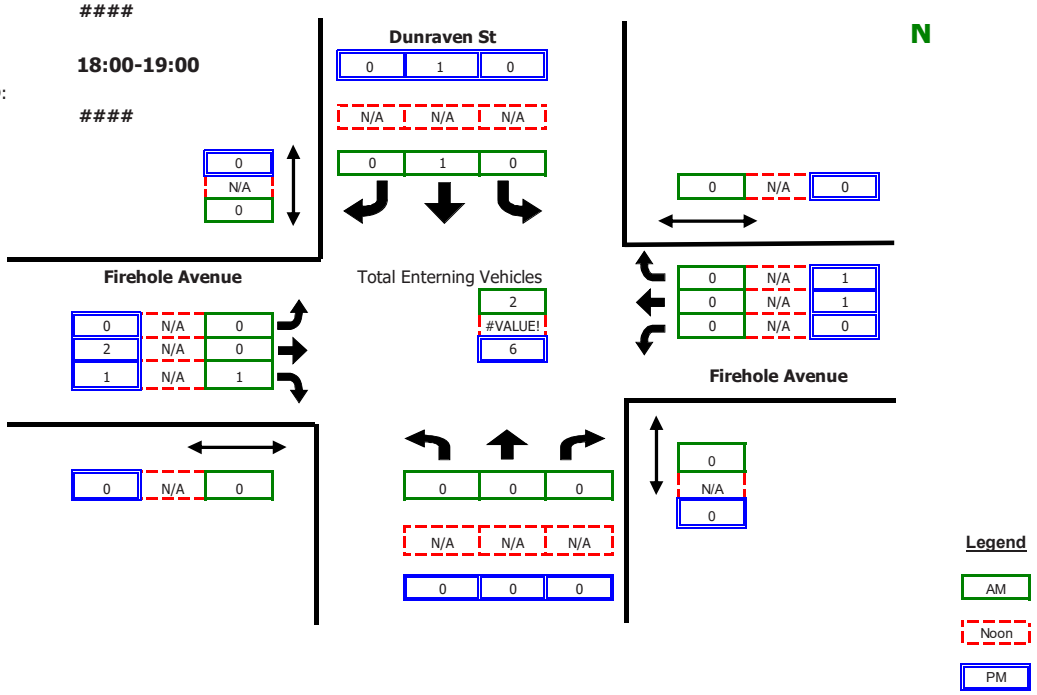
Intersection Turning Movement Summary

Intersection:	**Dunraven St/Firehole Avenue**	**Date:**	**7-9-19, Tue**
	North/South: Dunraven St	**Day of Week Adjustment:**	**100.0%**
	East/West: Firehole Avenue	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD:
AM PHF: ####

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: ####

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD:
PM PHF: ####



RAW COUNT SUMMARIES	Dunraven St Northbound				Dunraven St Southbound				Firehole Avenue Eastbound				Firehole Avenue Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
8:30-8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45-9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00-9:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
9:15-9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30-9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45-10:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
10:00-10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15-10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
17:00-17:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
17:15-17:30	0	0	0	0	0	2	0	0	0	1	1	0	0	0	0	0	4
17:30-17:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
17:45-18:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
18:00-18:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2
18:15-18:30	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
18:30-18:45	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
18:45-19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1

FEHR PEERS

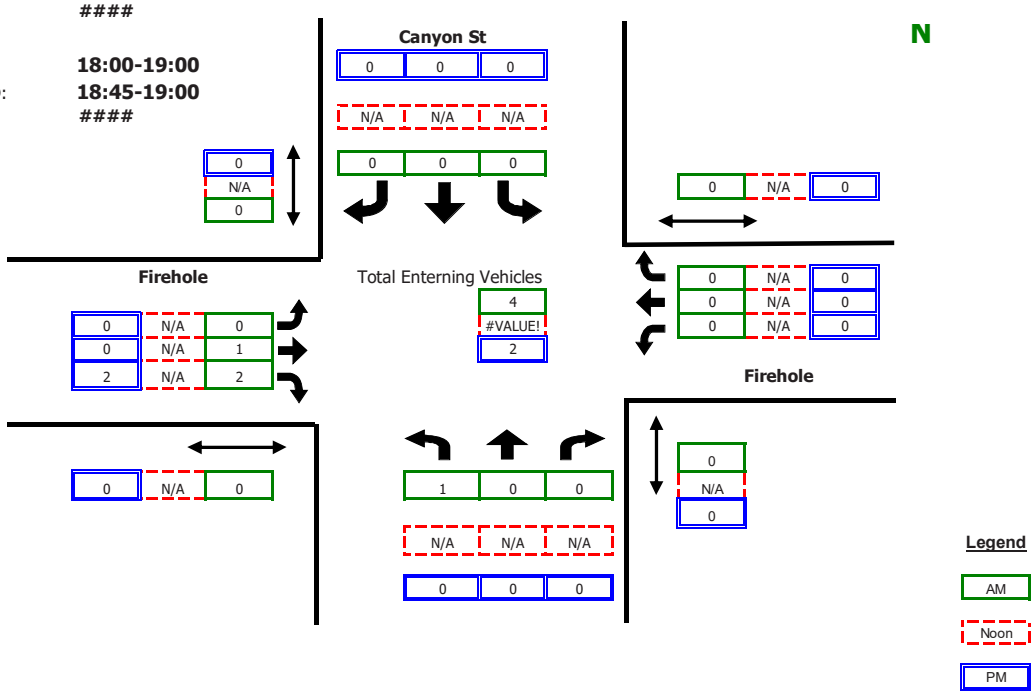
Intersection Turning Movement Summary

Intersection:	**Canyon St/Firehole**	**Date:**	**7-9-19, Tue**
	North/South: Canyon St	**Day of Week Adjustment:**	**100.0%**
	East/West: Firehole	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD:
AM PHF: **####**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD: **18:45-19:00**
PM PHF: **####**



RAW COUNT SUMMARIES	Canyon St Northbound				Canyon St Southbound				Firehole Eastbound				Firehole Westbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
8:30-8:45	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8:45-9:00	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
9:00-9:15	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
9:15-9:30	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
9:30-9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45-10:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10:00-10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15-10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
17:00-17:15	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
17:15-17:30	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
17:30-17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45-18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00-18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15-18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30-18:45	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
18:45-19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

FEHR PEERS

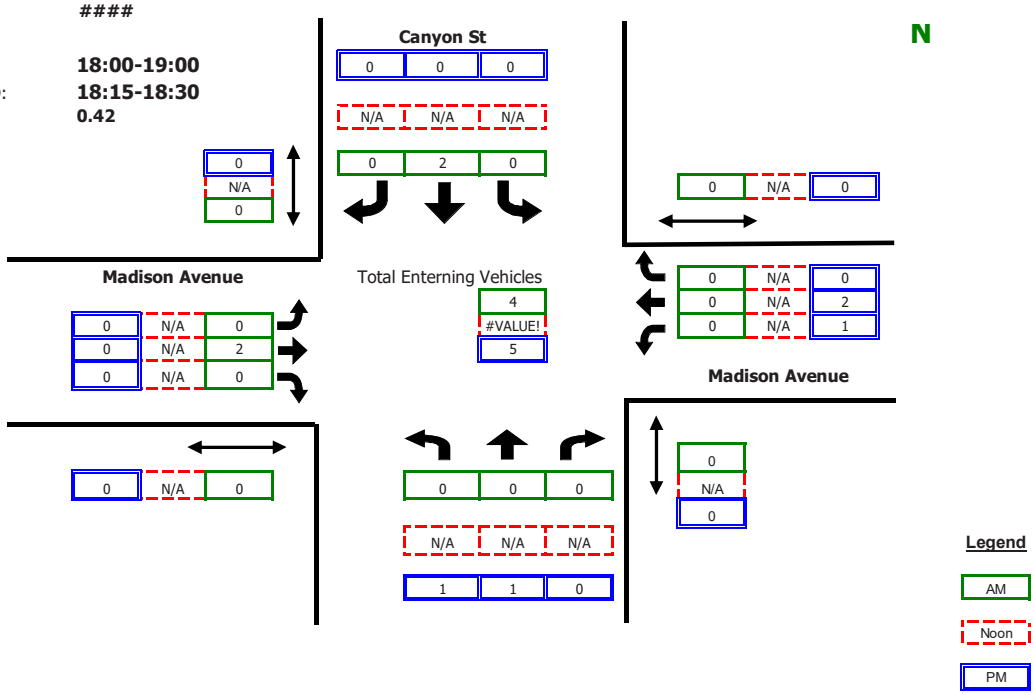
Intersection Turning Movement Summary

Intersection:	**Canyon St/Madison Avenue**	**Date:**	**7-9-19, Tue**
	North/South: Canyon St	**Day of Week Adjustment:**	**100.0%**
	East/West: Madison Avenue	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD:
AM PHF: **####**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD: **18:15-18:30**
PM PHF: **0.42**



RAW COUNT SUMMARIES	Canyon St Northbound				Canyon St Southbound				Madison Avenue Eastbound				Madison Avenue Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
8:30-8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45-9:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
9:00-9:15	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
9:15-9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30-9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45-10:00	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
10:00-10:15	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
10:15-10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
17:00-17:15	0	1	0	0	0	0	0	0	0	1	0	0	1	1	0	0	4
17:15-17:30	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
17:30-17:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
17:45-18:00	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
18:00-18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
18:15-18:30	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3
18:30-18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45-19:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

FEHR PEERS

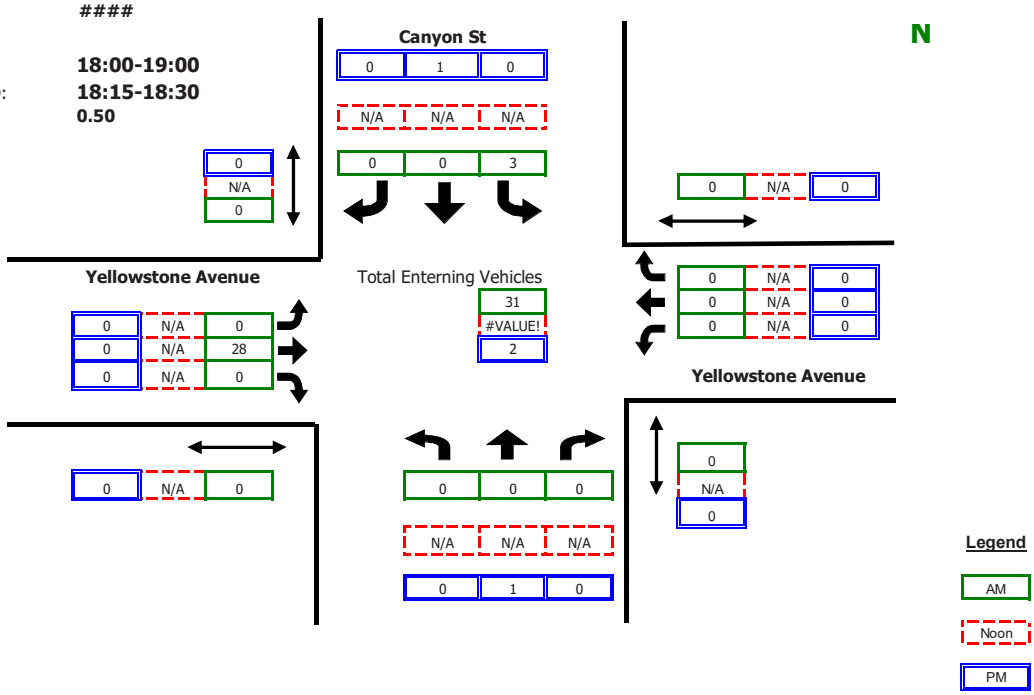
Intersection Turning Movement Summary

Intersection:	**Canyon St/Yellowstone Avenue**	**Date:**	**7-9-19, Tue**
	North/South: Canyon St	**Day of Week Adjustment:**	**100.0%**
	East/West: Yellowstone Avenue	**Month of Year Adjustment:**	**100.0%**
Jurisdiction:	**West Yellowstone**	**Adjustment Station #:**	
Project Title:	**West Yellowstone**	**Growth Rate:**	**0.0%**
Project No:	**UT19-2151**	**Number of Years:**	**0**
Weather:			

AM PEAK HOUR PERIOD: **9:00-10:00**
AM PEAK 15 MINUTE PERIOD: **9:45-10:00**
AM PHF: **0.28**

NOON PEAK HOUR PERIOD:
NOON PEAK 15 MINUTE PERIOD:
NOON PHF: **####**

PM PEAK HOUR PERIOD: **18:00-19:00**
PM PEAK 15 MINUTE PERIOD: **18:15-18:30**
PM PHF: **0.50**



RAW COUNT SUMMARIES	Canyon St Northbound				Canyon St Southbound				Yellowstone Avenue Eastbound				Yellowstone Avenue Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
8:30-8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45-9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00-9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15-9:30	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
9:30-9:45	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
9:45-10:00	0	0	0	0	0	0	0	0	0	28	0	0	0	0	0	0	28
10:00-10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15-10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
17:00-17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15-17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30-17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45-18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00-18:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
18:15-18:30	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
18:30-18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45-19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

COST ESTIMATES

The following are the Signal and ADA improvement cost estimates from Sanderson Stewart.

Montana Department of Transportation

BID PRICES
July 2018

Preliminary Estimate

Project Number: 19045
Project Name: West Yellowstone Gate
UPN Number:
Project Length: Intersections
Design Stage: Design Concept

Prepared By: SANDERSON STEWART
Date: 11/8/2019
County:
District:
Type of Work: SIGNAL & ADA IMPROVEMENTS

Item Number	Quantity	Description	Unit	Average Bid Prices	
				Unit Price	Amount
				Dollars	Dollars
1	1	TRAFFIC CONTROL DURING CONSTRUCTION	LS	$25,000.00	$25,000.00
2	132	CRUSHED AGGREGATE COURSE	CUYD	$24.71	$3,262.00
3	140.3	PLANT MIX SURF GR S-3/4 IN	TON	$31.27	$4,387.00
4	38	SIDEWALK-CONCRETE 4 IN	SQYD	$76.26	$2,898.00
5	1.8	DETEC WARNING DEVICES-TYPE 1	SQYD	$385.16	$693.00
6	65	CURB AND GUTTER-CONC	LNFT	$30.53	$1,984.00
7	141	EXCAVATION-UNCLASSIFIED	CUYD	$5.99	$845.00
8	65	REMOVE CURB	LNFT	$12.99	$844.00
9	360	CONDUIT-PLASTIC 2 1/2 IN	LNFT	$8.29	$2,984.00
10	40	CONDUIT-PLASTIC 3 IN	LNFT	$10.75	$430.00
11	4	PULL BOX-COMPOSITE TYPE 2	EACH	$642.19	$2,569.00
12	1	PULL BOX-COMPOSITE TYPE 3	EACH	$843.02	$843.00
13	7	FOUNDATION-CONCRETE	CUYD	$1,223.99	$8,568.00
14	250	CABLE-COPPER 2AWG14-600V	LNFT	$1.00	$250.00
15	200	CABLE-COPPER 5AWG14-600V	LNFT	$1.40	$280.00
16	435	CABLE-COPPER 7AWG14-600V	LNFT	$1.41	$613.00
17	550	CABLE-COPPER 12AWG14-600V	LNFT	$3.28	$1,804.00
18	285	CONDUCTOR-COPPER AWG6-600V	LNFT	$0.99	$282.00
19	1100	CONDUCTOR-COPPER AWG8-600V	LNFT	$0.94	$1,034.00
20	550	CONDUCTOR-COPPER AWG10-600V	LNFT	$0.70	$385.00
21	1	CONTROLLER-CAB PEDESTAL TYPE P	EACH	$1,194.50	$1,195.00
22	4	HIGH EFFICACY LUMINAIRE LED	EACH	$653.26	$2,613.00
23	1	SERV ASSEMB-60 AMP	EACH	$1,953.04	$1,953.00
24	9	SIG-TRAF 3 COL-1 WAY 12-12-12	EACH	$934.51	$8,411.00
25	2	SIG-PEDESTRIAN TYPE 2	EACH	$885.49	$1,771.00
26	1	CONTLR/TRAF-ACTUAT TYPE 8-A	EACH	$1,154.30	$1,154.00
27	4	SIG POLES (25' & 30' Mast ARM) W 40' LUM EXT	EACH	$10,184.79	$40,739.00
28	4	DETECTOR-RADAR/PRESENCE	EACH	$7,814.19	$31,257.00
29	1	REMOVE AND RESET EXIST POLES	LS	$8,000.00	$8,000.00
30	1	REMOVE AND SALVAGE MISC ELECTRICAL	LS	$3,861.56	$3,862.00
31	2	PUSH BUTTON-PEDESTRIAN-TACTILE	EACH	$991.96	$1,984.00
34	60	SIGNS-ALUM REFL SHEET IV	SQFT	$24.00	$1,440.00
35	2	REMOVE SIGN	EACH	$49.10	$98.00

Montana Department of Transportation

BID PRICES
July 2018

Preliminary Estimate

Project Numbe 19045 | Prepared By: SANDERSON STEWART
Project Name: West Yellowstone Gate | Date: 11/8/2019
UPN Number: | County:
Project Length: Intersections | District:
Design Stage: Design Concept | Type of Work SIGNAL & ADA IMPROVEMENTS

Item Number	Quantity	Description	Unit	Average Bid Prices	
				Unit Price	Amount
				Dollars	Dollars
36	16	POLES-TREATED WOOD 4 IN	LNFT	$10.52	$168.00
37	4.2	WORDS AND SYMBOLS-WHITE EPOXY	GAL	$356.11	$1,496.00
38	70	REMOVE PAVEMENT MARKINGS	LNFT	$0.43	$30.00
39	3.7	STRIPING-WHITE EPOXY	GAL	$63.46	$235.00
40	2.3	STRIPING-YELLOW EPOXY	GAL	$56.98	$131.00
Subtotal					$166,126.00
	10%	Mobilization			$16,612.60
	20%	Contingency			$33,225.20
Total Hwy 20		**Construction Total**			$215,963.80
1	1	TRAFFIC CONTROL DURING CONSTRUCTION	LS		$10,000.00
2	18.5	SIDEWALK-CONCRETE 4 IN	SQYD	$76.26	$1,411.00
3	0.9	DETEC WARNING DEVICES-TYPE 1	SQYD	$385.16	$347.00
4	30	CURB AND GUTTER-CONC	LNFT	$30.53	$916.00
5	11	EXCAVATION-UNCLASSIFIED	CUYD	$5.99	$66.00
6	30	REMOVE CURB	LNFT	$12.99	$390.00
7	1	FOUNDATION-CONCRETE	CUYD	$1,223.99	$1,224.00
8	2	SIG STANDARD TYPE 1-200	EACH	$1,006.71	$2,013.00
9	1	RECTANGULAR RAPID FLASHING BEACON	EACH	$10,182.00	$10,182.00
10	3.5	STRIPING-WHITE EPOXY	GAL	$63.46	$222.00
Subtotal					$26,771.00
	10%	Mobilization			$2,677.10
	20%	Contingency			$5,354.20
Total Dunraven		**Construction Total**			$34,802.30
1	1	TRAFFIC CONTROL DURING CONSTRUCTION	LS		$10,000.00
2	31.2	SIDEWALK-CONCRETE 4 IN	SQYD	$76.26	$2,379.00
3	1.8	DETEC WARNING DEVICES-TYPE 1	SQYD	$385.16	$693.00
4	65	CURB AND GUTTER-CONC	LNFT	$30.53	$1,984.00
5	17.5	EXCAVATION-UNCLASSIFIED	CUYD	$5.99	$105.00
6	65	REMOVE CURB	LNFT	$12.99	$844.00
7	1	FOUNDATION-CONCRETE	CUYD	$1,223.99	$1,224.00
8	2	SIG STANDARD TYPE 1-200	EACH	$1,006.71	$2,013.00
9	1	RECTANGULAR RAPID FLASHING BEACON	EACH	$10,182.00	$10,182.00
10	2.6	STRIPING-WHITE EPOXY	GAL	$63.46	$165.00

Montana Department of Transportation

BID PRICES
July 2018

Preliminary Estimate

Project Number: 19045
Project Name: West Yellowstone Gate
UPN Number:
Project Length: Intersections
Design Stage: Design Concept

Prepared By: SANDERSON STEWART
Date: 11/8/2019
County:
District:
Type of Work: SIGNAL & ADA IMPROVEMENTS

Item Number	Quantity	Description	Unit	Average Bid Prices	
				Unit Price	Amount
				Dollars	Dollars
Subtotal					$29,589.00
	10%	Mobilization			$2,958.90
	20%	Contingency			$5,917.80
Total Electric		**Construction Total**			$38,465.70
1	1	TRAFFIC CONTROL DURING CONSTRUCTION	LS		$10,000.00
2	38	SIDEWALK-CONCRETE 4 IN	SQYD	$76.26	$2,898.00
3	1.8	DETEC WARNING DEVICES-TYPE 1	SQYD	$385.16	$693.00
4	65	CURB AND GUTTER-CONC	LNFT	$30.53	$1,984.00
5	18.2	EXCAVATION-UNCLASSIFIED	CUYD	$5.99	$109.00
6	65	REMOVE CURB	LNFT	$12.99	$844.00
7	1	FOUNDATION-CONCRETE	CUYD	$1,223.99	$1,224.00
8	2	SIG STANDARD TYPE 1-200	EACH	$1,006.71	$2,013.00
9	1	RECTANGULAR RAPID FLASHING BEACON	EACH	$10,182.00	$10,182.00
10	0.9	STRIPING-WHITE EPOXY	GAL	$63.46	$57.00
Subtotal					$30,004.00
	10%	Mobilization			$3,000.40
	20%	Contingency			$6,000.80
Total Hayden		**Construction Total**			$39,005.20
		Construction Total			$328,237.00
	0%	Construction Engineering			$0.00
		Total			$328,237.00

User: Norris Leone
File Name: P:\19045_West_Yellowstone_Gateway_Study\TRA

SIGNAGE INVENTORY

Sign Inventory

Sign Description	MUTCD name	Installation Date	Photo #s	Location
SPEED LIMIT 45	R2-1		102213, 102225, 102232	west side of 191 entering West Yellowstone
? VISITOR INFORMATION ^	D9-10 M6-3		102414, 102426, 102433	west side of 191 entering West Yellowstone
SPEED LIMIT 35	R2-1		102622, 102633, 102641	west side of 191 entering West Yellowstone
NO PARKING BETWEEN SIGNS NO CAMPING	R7-8		102744, 102754, 102803	west side of 191 in pullout at beginning of West Yellowstone
\P\ No Parking			102848, 102855, 102900	west side of 191 in pullout at beginning of West Yellowstone
\P\ No Parking			102943, 102952, 102957	west side of 191 in pullout at beginning of West Yellowstone
\P\ No Parking			103040, 103048, 103053	west side of 191 in pullout at beginning of West Yellowstone
West Yellowstone Montana Destination Adventure			103101, 103115, 103119	west side of 191/Canyon St north of D Pkwy
STOP NO THRU TRUCKS	R1-1 R5-2A		104149, 104201, 104218	SW corner of Gibbon & Canyon
SPEED LIMIT 25	R2-1	2019	104226, 104238, 104244, 104253	west side of Canyon south of Gibbon
Montana superhost visitor friendly extreme caution snowmobiles operating on streets			104307, 104318, 104332	west side of Canyon south of Gibbon
JCT 20	M2-1 M1-4		104351, 104401, 104409	west side of Canyon south of Gibbon
^ YELLOWSTONE NAT'L PARK IDAHO FALLS ->	D1-2	2015	104534, 104548, 104555, 104606	west side of Canyon south of Gibbon (halfway bet. Gibbon and Firehole
NO PARKING ANY TIME	R7-1		104617, 104626, 104634	west side of Canyon south of Gibbon (halfway bet. Gibbon and Firehole
191 287 ^ ^ 20 ^->	M1-4 M1-4 M6-3 M6-3 M1-4 M6-6	2002	104753, 104805, 104811, 104820, 104823, 104839	west side of Canyon just north of Firehole
West Yellowstone Montana, welcome visitors, West Yellowstone MT, population 1,232, elevation 6,660, established 1903, destination adventure, mountain man rendezvous, Aug. 2 - Aug. 11 west edge of town free!			104853, 104908, 104919	NW corner of Canyon & Firehole
SOUTH SOUTH 191 287 EAST . 20 .	M3-3 M3-3 M1-4 M1-4 M3-2 M1-4	2015	105138, 105149, 105206, 105216, 105223	west side of Canyon south of Firehole
MOTEL PARKING ONLY			105246	west side of Canyon south of Firehole
free off street parking --> slow children at play 5 m.p.h.			105258, 105314, 105326	NW corner of Canyon & Alley B
MOTEL PARKING ONLY			105334	NW corner of Canyon & Alley B
STOP	R1-1		105351, 105401, 105415	SW corner of Canyon & Alley B
parking --> welcome to West Yellowstone map			105421, 105429, 105437	SW corner of Canyon & Alley B
CANYON ST	D3-1	2015	110330, 110346, 110356	NW corner of Canyon & Madison, on signal mast arm
MADISON AVE	D3-1	2015	110420, 110432, 110440, 110455	SW corner of Canyon & Madison, on signal mast arm
CANYON ST	D3-1	2015	110609, 110619, 110625, 110634	SE corner of Canyon & Madison, on signal mast arm
MADISON AVE	D3-1	2015	110732, 110750, 110755, 110802	NE corner of Canyon & Madison, on signal mast arm
Yellowstone Nat'l Park, left ONLY thru/right	D15-1 R3-6	2015	111033, 111056, 111103, 111115, 111126	west side of Canyon, halfway between Madison & Yellowstone
STOP	R1-1		111144, 111152, 111200	SW corner of Canyon & Alley A
parking --> welcome to West Yellowstone map			111209, 111216, 111221	SW corner of Canyon & Alley A
YELLOWSTONE AVE	D3-1	2015	111439, 111452, 111458, 111509	SW corner of Canyon & Yellowstone, on signal mast arm
VISITOR INFORMATION (Yellowstone National Park, Gallatin-Custer National Forest)			111605, 111620, 111633	SE corner of Canyon & Yellowstone
CANYON ST	D3-1	2015	111654, 111710, 111720, 111728	SE corner of Canyon & Yellowstone, on signal mast arm
YELLOWSTONE AVE	D3-1	2015	111755, 111812, 111824, 111835	NE corner of Canyon & Yellowstone, on signal mast arm
CANYON ST	D3-1	2015	111857, 111911, 111921, 111931	NW corner of Canyon & Yellowstone, on signal mast arm
LIBRARY ---> 20 191 287 <-^ <-^ <-^	I-8P, I-5B M1-4 M1-4 M1-4 M6-6 M6-6 M6-6		112046, 112103, 112115, 112120	SW corner of Canyon & Yellowstone
YELLOWSTONE HISTORIC MUSEUM			112129, 112142, 112151	SW corner of Canyon & Yellowstone
<-- YELLOWSTONE NAT'L PARK	D1-1		112203, 112219, 112228	SW corner of Canyon & Yellowstone
STOP	R1-1		112324, 112333, 112343	west side of Canyon south of Yellowstone
FRONTIER TRAIL map			112716, 112721, 112728, 112741	west side of Canyon south of Yellowstone
NO PARKING ANY TIME <--->	R7-1		112805, 112814, 112821	west side of Canyon south of Yellowstone, by McDonald's drive
NO PARKING ANY TIME <--->	R7-1		112932, 112945, 112954	west side of Canyon, one block north of Grizzly
STOP	R1-1		113013, 113020, 113026	SW corner of Canyon & Kelly Inn access
NO PARKING ANY TIME <--->	R7-1		113036, 113048, 113057	SW corner of Canyon & Kelly Inn access
POST OFFICE --> NO PARKING ANY TIME <--->	D20-1A, M6-1 R7-1		113306, 113315, 113325	NW corner of Canyon & Grizzly

Sign Description	MUTCD name	Installation Date	Photo #s	Location
STOP CANYON ST GRIZZLY AVE	R1-1 D3-1 D3-1		113354, 113409, 113419, 113427	SW corner of Canyon & Grizzly
GRIZZLY & WOLF DISCOVERY CENTER			113502, 113518	SE corner of Canyon & Grizzly
STOP	R1-1		113536, 113544, 113550	NE corner of Canyon & Grizzly
NO PARKING ANY TIME <--->	R7-1		113604, 113614, 113621	east side of Canyon just north of Grizzly
NO PARKING ANY TIME <--->	R7-1		113659, 113708, 113714	north side of Grizzly just west of Canyon
NO PARKING ANY TIME <--->	R7-1		114003, 114014, 114021	east side of Canyon one block north of Grizzly
STOP	R1-1		114120, 114128, 114132	NE corner of Canyon & Kelly Inn/IMAX access
NO PARKING ANY TIME <--->	R7-1		114144, 114150, 114158	east side of Canyon one block north of Grizzly
NO PARKING ANY TIME <--->	R7-1		114301, 114307, 114313	east side of Canyon south of park visitor information access
IMAX THEATRE, RV PARK, NEXT LEFT			114317, 114332	east side of Canyon south of park visitor information access
FRONTIER TRAIL			114343, 114348, 114353	east side of Canyon south of park visitor information access
STOP	R1-1		114406, 114415, 114422	east side of Canyon south of park visitor information access
STOP	R1-1		114440, 114448, 114456	east side of Canyon just north of park visitor information access
NO PARKING ANY TIME <--->	R7-1		114504, 114511, 114518	east side of Canyon south of Yellowstone
STOP	R1-1		114852, 114901, 114907	south side of Yellowstone east of Canyon, exiting visitor info
West Yellowstone Montana Destination Adventure			114930, 114940, 114944	south side of Yellowstone between Canyon and Boundary
angled down left/right arrows, 2 lanes	W12-1		115051, 115057, 115101	south side of Yellowstone just west of Boundary
CANYON ST 500 FT KELLY INN, KOA, GRIZZLY RV PARK, CLUBHOUSE INN			115109, 115121, 115130	south side of Yellowstone just west of Boundary
town map			115137, 115144	south of slip lane between Yellowstone & Jeep Trail
UNION PACIFIC SYSTEM THE OVERLAND ROUTE			115204, 115212	SW corner of Yellowstone & Jeep Trail/Boundary
LISTEN TO YELLOWSTONE PARK RADIO 1610 AM			115219, 115227, 115232	SW corner of Yellowstone & Jeep Trail/Boundary
STOP	R1-1	2000	115238, 115245, 115251, 115255	SW corner of Yellowstone & Jeep Trail/Boundary
DEAD END ROAD	W14-1		115310, 115316, 115322	SE corner of Yellowstone & Jeep Trail/Boundary
STOP	R1-1		115328, 115337, 115343	SE corner of Yellowstone & Jeep Trail/Boundary
portable changeable message sign			115454, 115456, 115507	south side of Yellowstone east of Boundary in pullout
COMMERCIAL HAULING AND TRUCKING PROHIBITED THRU PARK		2002	115530, 115538, 115545, 115552	south side of Yellowstone east of pullout
SPEED LIMIT 25	R2-1		115722, 115728, 115732	south side of Yellowstone, 300 ft east of Boundary
DO NOT BLOCK INTERSECTION Employees Deliveries -->	R10-7		115827, 115837, 115843	south side of Yellowstone west of Echo Canyon Rd
ECHO CANYON RD	D3-1		115901, 115906, 115911	SW corner of Yellowstone & Echo Canyon Rd
YELLOWSTONE GENERAL STORES WAREHOUSE -->			115921, 115928, 115933	SE corner of Yellowstone & Echo Canyon Rd
STOP	R1-1		115936, 115943, 115953	SE corner of Yellowstone & Echo Canyon Rd
Prepaid Lane CLOSED			120856, 120904, 120909	in between Yellowstone EB lanes, east of Echo Canyon Rd
SPEED LIMIT 25	R2-1		121204, 121212, 121217	north side of Yellowstone east of Echo Canyon Rd
DO NOT BLOCK INTERSECTION	R10-7		121336, 121346, 121351	north side of Yellowstone just east of Echo Canyon Rd
BOUNDARY AVE -->, AL'S WESTWARD HO MOTEL -->, DUDE MOTOR INN -->, ROUNDUP MOTEL -->, SUPERMARKET 1 BLOCK-LEFT -->, POST OFFICE ^	D20-1A, M6-3		121510, 121522, 121530	NE corner of Yellowstone & Boundary
left/right only STOP YELLOWSTONE BOUNDARY	R3-5 R1-1 D3-1 D3-1		121558, 121608, 121631	NW corner of Yellowstone & Boundary
SPEED LIMIT 25	R2-1		121641, 121651, 121657	NW corner of Yellowstone & Boundary
WELCOME TO MONTANA ENTERING WEST YELLOWSTONE	N6-4B		121709, 121723	NW corner of Yellowstone & Boundary
No Pets $300 Fine City Ordinance 6.04.170			121728, 121733	NW corner of Yellowstone & Boundary
YELLOWSTONE NATIONAL PARK BOUNDARY LINE HUNTING PROHIBITED			121800, 121806	east side of Boundary just north of Yellowstone
? VISITOR INFORMATION <---	D9-10 M6-1		122031, 122040, 122046	north side of Yellowstone halfway between Boundary & Canyon
left/thru Bozeman right only	R3-6 D15-1	2015	122100, 122121, 122131, 122136, 122150	north side of Yellowstone halfway between Boundary & Canyon
Yellowstone Grizzly RV Park <--- Brandin Iron Inn --->			122159	north side of Yellowstone halfway between Boundary & Canyon
191 I-> 287 20 I-> I-> RIGHT LANE MUST TURN RIGHT	M1-4 M6-6 M1-4 M1-4 M6-6 M6-6 R3-7		122232, 122248, 122259	north side of Yellowstone east of Canyon
STOP YELLOWSTONE AVE DUNRAVEN ST	R1-1 D3-1 D3-1		122606, 122616, 122628	NW corner of Yellowstone & Dunraven

Sign Description	MUTCD name	Installation Date	Photo #s	Location
POST OFFICE <--	D20-1A, M6-1		122907, 122920, 122929	NE corner of Yellowstone & Electric
POST OFFICE ^ STOP YELLOWSTONE AVE ELECTRIC ST	D20-1A, M6-3 R1-1 D3-1 D3-1		122955, 123005, 123020	NW corner of Yellowstone & Electric
\P\ NO PARKING			123156, 123202, 123207	N side of Yellowstone between Electric & Faithful
STOP	R1-1		123321, 123327, 123332	NW corner of Yellowstone & Faithful
NO PARKING ANY TIME -->	R7-1		123459	N side of Yellowstone between Faithful & Geyser
STOP YELLOWSTONE AVE GEYSER ST	R1-1 D3-1 D3-1		123613, 123621, 123631	NW corner of Yellowstone & Geyser
SPEED LIMIT 25	R2-1		123725, 123733, 123739	north side of Yellowstone west of Geyser
STOP YELLOWSTONE AVE HAYDEN ST	R1-1 D3-1 D3-1		123845, 123853, 123900, 123905	NW corner of Yellowstone & Hayden
STOP 20 I->	R1-1 M1-4 M6-6		124016, 124024, 124032	NE corner of Yellowstone & Iris
TWO TOP LOOP		2005	124159, 124210, 124222, 124230	past dead end of Yellowstone - west of Iris
ENTERING MOTOR VEHICLE RESTRICTION AREA, STAY ON DESIGNATED ROUTES			124340, 124347	west side of Iris south of Obsidian
STOP OBSIDIAN AVE	R1-1 D3-1		124449, 124458, 124509	NE corner or Iris & Obsidian
NO SNOWMOBILES			124526, 124534, 124541	east side of Iris between Yellowstone & Obsidian
STOP YELLOWSTONE AVE IRIS ST	R1-1 D3-1 D3-1		124630, 124641, 124651	SE corner of Yellowstone & Iris
FRONTIER TRAIL			124658, 124705, 124710	SE corner of Yellowstone & Iris
CAMPING IN CAMPGROUNDS ONLY			124718, 124729, 124738	SE corner of Yellowstone & Iris
25 MPH NO PARKING 2:00 AM TO 7:00 AM <-->	R2-1 R7-2		130110, 130115, 130122, 130127	south side of Yellowstone east of Iris
NO PARKING 2:00 AM TO 7:00 AM <-->	R7-2		130222, 130233, 130238	south side of Yellowstone at intersection with Hayden
STOP	R1-1		130404, 130411, 130418	SE corner of Yellowstone & Geyser
POVAH COMMUNITY CENTER & SENIOR CENTER			130435, 130443	SW corner of Yellowstone & Geyser
STOP	R1-1		130609, 130617, 130624	SE corner of Yellowstone & Faithful
NO PARKING 2:00 AM TO 7:00 AM <-->	R7-2		130728, 130734, 130739	south side of Yellowstone between Faithful & Electric
NO PARKING 2:00 AM TO 7:00 AM <-->	R7-2		130751, 130758, 130804	south side of Yellowstone between Faithful & Electric
BUILDING INSPECTOR & PUBLIC WORKS OFFICE NO PARKING BETWEEN SIGNS <--	R7-8		130820, 130829, 130839, 130846	south side of Yellowstone between Faithful & Electric
BUILDING INSPECTOR & PUBLIC WORKS OFFICE NO PARKING BETWEEN SIGNS -->	R7-8		130901, 130911, 130918, 130924	south side of Yellowstone between Faithful & Electric
NO PARKING BETWEEN SIGNS <-- NO PARKING ANY TIME <--> (ground)	R7-8 R7-1		131033, 131040, 131045, 131049	south side of Yellowstone west of Electric
LIBRARY <--	I-8P, I-5B	2019	131106, 131113, 131118, 131124	south side of Yellowstone just west of Electric
^ post office sign NO PARKING ANY TIME <-->	M6-3, D20-1 R7-1		131140, 131148, 131154, 131200	SW corner of Yellowstone & Electric
STOP	R1-1		131231, 131239, 131246	SE corner of Yellowstone & Electric
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST	R7-2		131440, 131447, 131454	south side of Yellowstone east of Electric
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST	R7-2		131545, 131554, 131559	south side of Yellostone between Electric & Dunraven
WEST YELLOWSTONE HISTORIC WALKING TOUR plaque			131607	south side of Yellostone between Electric & Dunraven
handicapped parking, FINE $100.00			131613, 131619, 131626	south side of Yellostone between Electric & Dunraven
HANDICAPPED PARKING, FINE $100.00			131637, 131642, 131648	south side of Yellostone between Electric & Dunraven
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST	R7-2		131756, 131803, 131809	south side of Yellowstone west of Dunraven
LIBRARY <---	I-8P, I-5B		131832, 131838, 131844	south side of Yellowstone at intersection with Dunraven
HANDICAPPED PARKING			131905, 131911, 131916	north side of Yellowstone just west of Dunraven
LIBRARY --->	I-8P, I-5B		132055, 132101, 132106	south side of Yellowstone at intersection with Dunraven
POLICE DEPARTMENT PUBLIC SAFETY PARKING ONLY			132127, 132136, 132143, 132149	south side of Yellowstone just east of Dunraven
WEST YELLOWSTONE POLICE DEPARTMENT EMERGENCY & AUTHORIZED PARKING ONLY			132207, 132213, 132220	south side of Yellowstone east of Dunraven
Please clean up after your dog			132414, 132419	south side of Yellowstone between Dunraven & Canyon
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST	R7-2		132433, 132441, 132446	south side of Yellowstone between Dunraven & Canyon
YELLOWSTONE HISTORIC CENTER MUSEUM sandwich board			132500, 132504, 132509	south side of Yellowstone west of Canyon
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST	R7-2		132526, 132533, 132540	south side of Yellowstone west of Canyon
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST NO CAMPING ANYTIME	R7-2		132847, 132854, 132859	NE corner of Yellowstone & Bounday

Sign Description	MUTCD name	Installation Date	Photo #s	Location
YELLOWSTONE NATIONAL PARK BOUNDARY LINE HUNTING PROHIBITED no dogs FRONTIER TRAIL			132913, 132919	east side of Boundary between Yellowstone & Alley A
DAY USE AREA NO CAMPING			132937, 132943, 132949	east side of Boundary across from Alley A
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST NO CAMPING ANYTIME	R7-2		132958, 133002, 133008, 133012	east side of Boundary across from Alley A
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST NO CAMPING ANYTIME	R7-2		133101, 133107, 133112	east side of Boundary between Alley A & Madison
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST NO CAMPING ANYTIME	R7-2		133146, 133153, 133156	east side of Boundary just south of Madison
RIVERSIDE TRAIL			133204, 133207, 133212, 133216	east side of Boundary across from Madison
YELLOWSTONE NATIONAL PARK BOUNDARY LINE HUNTING PROHIBITED no dogs			133221, 133228	east side of Boundary across from Madison
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST NO CAMPING ANYTIME	R7-2		133320, 133326, 133333	east side of Boundary north of Madison
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST NO CAMPING ANYTIME	R7-2		133401, 133408, 133413	east side of Boundary north of Madison
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST NO CAMPING ANYTIME	R7-2		133450, 133456, 133502	east side of Boundary north of Alley B
191 <-I 287 20 <-I <-I	M1-4 M6-6 M1-4 M1-4 M6-6 M6-6		133520, 133531, 133539	east side of Boundary south of Firehole
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST NO CAMPING ANYTIME	R7-2		133627, 133634, 133639	east side of Boundary across from Firehole
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST NO CAMPING ANYTIME	R7-2		133708, 133716, 133722	east side of Boundary north of Firehole
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST NO CAMPING ANYTIME	R7-2		133754, 133801, 133806	east side of Boundary north of Firehole
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST NO CAMPING ANYTIME	R7-2		133844, 133851, 133856	east side of Boundary north of Alley C
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST NO CAMPING ANYTIME	R7-2		133931, 133938, 133943	east side of Boundary just south of Gibbon
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST	R7-2		134018, 134026, 134032	east side of Boundary north of Gibbon
NO PARKING 2:00 AM TO 8:00 AM NOVEMBER 1ST TO APRIL 1ST	R7-2		134102, 134112, 134118	east side of Boundary at D Pkwy
STOP	R1-1		134154, 134200, 134205	SW corner of Boundary & D Pkwy
STOP	R1-1		134257, 134305, 134311	SW corner of Boundary & Gibbon
STOP	R1-1		134436, 134442, 134447	SW corner of Boundary & Alley C
STOP BOUNDARY ST FIREHOLE AVE	R1-1 D3-1 D3-1		134551, 134600, 134607, 134610	SW corner of Boundary & Firehole
STOP	R1-1		134746, 134756, 134802, 134805	SW corner of Boundary & Alley B
STOP	R1-1		134857, 137903, 134909	SW corner of Boundary & Madison
SLOW CHILDREN AT PLAY 5 M.P.H.			134959, 135005, 135010	NW corner of Boundary & Alley A
STOP	R1-1		135020, 135027, 135033	SW corner of Boundary & Alley A
STOP	R1-1		135443, 135448, 135455	NE corner of Canyon & Alley B
parking --> welcome to West Yellowstone map			135502, 135508	NE corner of Canyon & Alley B
GUEST PARKING ONLY, NOTICE PERMIT PARKING ONLY			135529, 135536, 135540	east side of Canyon south of Firehole
GUEST PARKING ONLY, NOTICE PERMIT PARKING ONLY			135545, 135551, 135555	east side of Canyon south of Firehole
^ Bozeman <-- Idaho Falls	D1-2	2015	135602, 135614, 135625, 135633	east side of Canyon south of Firehole
20 . <-- . 191 287 ^ ^	M1-4 M6-1 M1-4 M1-4 M6-3 M6-3	2002	135644, 135655, 135705, 135714, 135718, 135726	east side of Canyon just south of Firehole
PARALLEL PARKING			135822, 135830, 135834	SE corner of Canyon & Alley B
NORTH NORTH 191 287	M3-1 M3-1 M1-4 M1-4	2002	140140, 140146, 140154, 140202	east side of Canyon just north of Firehole
PRIVATE PROPERTY NO TRESPASSING			140337, 140341, 140345	SE corner of Canyon & Gibbon

Sign Description	MUTCD name	Installation Date	Photo #s	Location
STOP CANYON ST GIBBON AVE	R1-1 D3-1 D3-1		140404, 140411, 140420, 140422	NE corner of Canyon & Gibbon
SPEED LIMIT 35 NO TRUCK PARKING BETWEEN SIGNS	R2-1 R7-8C		140429, 140436, 140442, 140453, 140503	NE corner of Canyon & Gibbon
STOP	R1-1		140732, 140739, 140751	NW corner of Gibbon & Dunraven
STOP 4-WAY	R1-1 R1-3		140856, 140904, 140910	NE corner of Gibbon & Electric
STOP 4-WAY	R1-1 R1-3		140930, 140940, 140949	NW corner of Gibbon & Electric
STOP 4-WAY	R1-1 R1-3		141007, 141015, 141022	SW corner of Gibbon & Electric
STOP 4-WAY GIBBON ELECTRIC ST	R1-1 R1-3 D3-1 D3-1		141044, 141052, 141100, 141102	SE corner of Gibbon & Electric
STOP	R1-1		141223, 141230, 141237	NW corner of Gibbon & Faithful
school crossing SCHOOL SPEED LIMIT 15	S1-1 S4-3 R2-1		141246, 141255, 141304	north side of Gibbon just west of Faithful
STOP 4-WAY	R1-1 R1-3		141352, 141359, 141405	NE corner of Gibbon & Geyser
NO PARKING NOV 1 TO APR 15			141412, 141421, 141430	NE corner of Gibbon & Geyser
STOP 4-WAY	R1-1 R1-3		141443, 141450, 141457	NW corner of Gibbon & Geyser
STOP 4-WAY	R1-1 R1-3		141512, 141520, 141526	SW corner of Gibbon & Geyser
STOP 4-WAY GIBBON GEYSER ST	R1-1 R1-3 D3-1 D3-1		141545, 141552, 141610, 141612	SE corner of Gibbon & Geyser
END SCHOOL ZONE	S5-2		141722, 141729, 141734	north side of Gibbon between Geyser & Hayden
STOP	R1-1		141827, 141834, 141842	NW corner of Gibbon & Hayden
STOP IRIS ST GIBBON AVE	R1-1 D3-1 D3-1		142016, 142023, 142032, 142034	NE corner of Gibbon & Iris
NO SNOWMOBILES			142102, 142110, 142114	NE corner of US 20 & Iris
STOP US HWY 20 IRIS ST	R1-1 D3-1 D3-1		142135, 142143, 142152, 142155	SE corner of US 20 & Iris
STOP	R1-1	2012	142227, 142233, 142240, 142245	NW corner of US 20 & Iris
MONTANA MEDAL OF HONOR HIGHWAY		2019	142252, 142301, 142306, 142317	NW corner of US 20 & Iris
STOP	R1-1		142426, 142432, 142440	NE corner of Iris & Alley D
STOP	R1-1		142501, 142508, 142516	SW corner of Iris & Alley D
SPEED LIMIT 25	R2-1		142651, 142658, 142703	west side of Iris across from Alley C
STOP	R1-1		142831, 142837, 142843	west side of Iris between Alley B & Madison
SPEED LIMIT 25	R2-1		142949, 142956, 143000	west side of Iris across from Alley A
SPEED LIMIT 25	R2-1		143052, 143058, 143104	east side of Iris north of Yellowstone
STOP	R1-1		143143, 143149, 143156	NE corner of Iris & Alley A
STOP IRIS ST MADISON AVE	R1-1 D3-1 D3-1		143244, 143251, 143259, 143304	NE corner of Iris & Madison
STOP	R1-1		143349, 143355, 143406	NE corner of Iris & Alley B
STOP IRIS ST FIREHOLE AVE	R1-1 D3-1 D3-1		143450, 143459, 143508, 143510	NE corner of Iris & Firehole
STOP	R1-1		143559, 143607, 143612	NE corner of Iris & Alley C
STOP GIBBON AVE N HAYDEN	R1-1 D3-1 D3-1		143733, 143740, 143748, 143750	SE corner of Gibbon & Hayden
school crossing SCHOOL SPEED LIMIT 15	S1-1 S4-3 R2-1		143822, 143829, 143835	south side of Gibbon between Hayden & Geyser
END SCHOOL ZONE	S5-2		143947, 143954, 143959	SW corner of Gibbon & Faithful
STOP GIBBON AVE FAITHFUL ST	R1-1 D3-1 D3-1		144016, 144026, 144035	SE corner of Gibbon & Faithful
STOP GIBBON AVE DUNRAVEN ST	R1-1 D3-1 D3-1		144221, 144231, 144243	SE corner of Gibbon & Dunraven
ROAD WORK AHEAD	W20-1		144303, 144309, 144315	SW corner of Gibbon & Dunraven
PRIVATE PROPERTY NO TRESPASSING			144440, 144445, 144449	south side of Gibbon between Canyon & Boundary
STOP	R1-1		144801, 144808, 144816	NE corner of Dunraven & Alley D
STOP	R1-1		144830, 144838, 144846	NW corner of Dunraven & Alley D
STOP	R1-1		144926, 144932, 144940	SW corner of Dunraven & Alley D
HANDICAPPED PARKING			145032, 145038	west side of Dunraven just south of Gibbon

Sign Description	MUTCD name	Installation Date	Photo #s	Location
HANDICAPPED PARKING			145045, 145049	west side of Dunraven just south of Gibbon
STOP	R1-1		145151, 145158, 145208	NW corner of Firehole & Dunraven
STOP US Hwy 20 Dunraven	R1-1 D3-1 D3-1		151011, 151019, 151029	SE corner of Firehole & Dunraven
SLOW CHILDREN AT PLAY 5 M.P.H.			151328, 151336, 151340	NW corner of Dunraven & Alley B
STOP	R1-1		151353, 151401, 151408	SW corner of Dunraven & Alley B
STOP	R1-1		151534, 151541, 151547	NW corner of Dunraven & Madison
STOP	R1-1		151704, 151711, 151721	SW corner of Dunraven & Alley A
STOP	R1-1		151855, 151903, 151911, 151913	NE corner of Dunraven & Alley A
parking --> welcome to West Yellowstone map			151919, 151926	NE corner of Dunraven & Alley A
SLOW CHILDREN AT PLAY 5 M.P.H.			151937, 151943, 151949	SE corner of Dunraven & Alley A
STOP MADISON AVE	R1-1 D3-1		152046, 152056, 152103	SE corner of Dunraven & Madison
STOP	R1-1		152322, 152327, 152335	NE corner of Dunraven & Alley B
SLOW CHILDREN AT PLAY 5 M.P.H.			152342, 152347, 152350	NE corner of Dunraven & Alley B
left/thru, right ONLY ? ---> <- Bozeman, Yellowstone Nat'l Park ->	R3-8 D9-10 M6-1 D1-2	2015 2015	152815, 152821, 152837, 152845, 152851, 152856, 152907	south side of Firehole halfway between Dunraven & Canyon
NO PARKING ANY TIME <--->	R7-1		152919, 152927, 152938	south side of Firehole halfway between Dunraven & Canyon
191 287 <--> 20 -->	M1-4 M1-4 M6-4 M1-4 M6-1	 2015 	153032, 153044, 153054, 153100, 153109	south side of Firehole west of Canyon
FIREHOLE AVE	D3-1		153758, 153809, 153817, 153825	NE corner of Firehole & Canyon
left/thru right ONLY CANYON ST	R3-6 R3-5 D3-1	 2015 2015	153855, 153908, 153915, 153918, 153937	SE corner of Firehole & Canyon
FIREHOLE AVE	D3-1	2015	154035, 154047, 154055, 154108	SW corner of Firehole & Canyon
CANYON ST	D3-1	2015	154224, 154237, 154244, 154254	NW corner of Firehole & Canyon
RESERVED PARKING			154424, 154428	north side of Firehole just east of Canyon
RESERVED PARKING			154433, 154438	north side of Firehole just east of Canyon
RESERVED PARKING			154442, 154447	north side of Firehole just east of Canyon
WEST 20	M3-4 M1-4	2002	154617, 154624, 154628, 154635	north side of Firehole just west of Canyon
NO SNOWMOBILES			154641, 154648, 154654	north side of Firehole just west of Canyon
NO PARKING ANY TIME <--->	R7-1		154741, 154747, 154752	north side of Firehole west of Canyon
SPEED LIMIT 25	R2-1		154802, 154810, 154816	north side of Firehole halfway between Dunraven & Canyon
DAY VISITORS ONLY NO OVERNIGHT PARKING AND CAMPING			154855, 154901, 154907	north side of Firehole halfway between Dunraven & Canyon
NO PARKING ANY TIME <---> DAY VISITORS ONLY NO OVERNIGHT PARKING AND CAMPING	R7-1		154939, 154945, 154950	north side of Firehole east of Dunraven
NO PARKING ANY TIME <--->	R7-1		155036, 155042, 155048	north side of Firehole west of Dunraven
NO SNOWMOBILES NO PARKING ANY TIME <--->	R7-1		155308, 155313, 155318	north side of Firehole halfway between Dunraven & Electric
POST OFFICE <---	D20-1A M6-1		155436, 155444, 155451	NE corner of Firehole & Electric
STOP	R1-1		155508, 155515, 155521	NW corner of Firehole & Electric
NO SNOWMOBILES			155621, 155629, 155641	north side of Firehole west of Electric
NO PARKING ANY TIME <--->	R7-1		155735, 155743, 155749	north side of Hwy 20 east of Faithful
STOP	R1-1		155834, 155840, 155850	NW corner of Hwy 20 & Faithful
NO SNOWMOBILES			155859, 155906, 155913	NW corner of Hwy 20 & Faithful
NO PARKING ANY TIME <--->	R7-1		155944, 155950, 155958	north side of Hwy 20 west of Faithful
SPEED LIMIT 25	R2-1	2016	160032, 160040, 160044, 160052	north side of Hwy 20 halfway between Faithful & Geyser
SPEED LIMIT 25 YOUR SPEED (display of speed)	R2-1		160058	north side of Hwy 20 halfway between Faithful & Geyser
NO PARKING ANY TIME <---> NO SNOWMOBILES	R7-1		160144, 160152, 160158, 160205	north side of Hwy 20 just east of Geyser
school crossing arrow left/down	S1-1 W16-7P		160218, 160227, 160236	NE corner of Hwy 20 & Geyser
STOP US Hwy 20 GEYSER ST	R1-1 D3-1 D3-1		160351, 160359, 160408	NW corner of Hwy 20 & Geyser
NO SNOWMOBILES NO PARKING ANY TIME <--->	R7-1		160419, 160425, 160431, 160437	north side of Hwy 20 just west of Geyser
STOP US HWY 20 HAYDEN ST	R1-1 D3-1 D3-1		160545, 160553, 160602, 160607	NW corner of Hwy 20 & Hayden
NO SNOWMOBILES			160614, 160620, 160627	NW corner of Hwy 20 & Hayden

Sign Description	MUTCD name	Installation Date	Photo #s	Location
NO SNOWMOBILES			161500, 161506, 161522, 161524	north side of Hwy 20 halfway between Hayden & Iris
NO PARKING ANY TIME <--->	R7-1		161607, 161614, 161620	north side of Hwy 20 east of Iris
SPEED LIMIT 35	R2-1	2014	161711, 161719, 161725, 161732	north side of Hwy 20 just east of Iris
MEDAL OF HONOR RECIPIENTS (names listed)		2019	161819, 161830, 161836, 161843	NW corner of Hwy 20 & Iris
NO Overnight Camping or Parking			161917, 161925, 161930	north side of Hwy 20 just west of Iris
WATCH FOR WILDLIFE (ON ROADWAY) NEXT 40 MILES changeable message			161955, 161956, 161959, 162012, 162015	north side of Hwy 20 west of Iris
Adopt A Highway Litter Control Next 2 Miles	D14-3	2012	162114, 162123, 162137, 162143	north side of Hwy 20 west of Iris
WEST 20	M3-4 M1-4	2019	162240, 162246, 162249, 162255	north side of Hwy 20 approx 625 ft west of Iris
SPEED LIMIT 45	R2-1		162353, 162401, 162410	north side of Hwy 20 approx 775 ft west of Iris
ASHTON 63 ENNIS 73	D2-2		163359, 163409, 163418	north side of Hwy 20 approx 980 ft west of Iris
NO PASSING ZONE	W14-3		163512, 163520, 163528	north side of Hwy 20 approx 1175 ft west of Iris
SPEED LIMIT 35	R2-1		163636, 163643, 163651	south side of Hwy 20 approx 775 ft west of Iris
West Yellowstone Montana Destination Adventure			163748, 163755, 163805	south side of Hwy 20 west of Iris
Montana Superhost VISITOR FRIENDLY POST OFFICE ^	D20-1A M6-3		163854, 163902, 163911	south side of Hwy 20 just west of Iris
SPEED LIMIT 25	R2-1	2016	164018, 164024, 164038, 164045	south side of Hwy 20 just east of Iris
NO TRUCK PARKING			164903, 164913, 164920	south side of Hwy 20 just west of Hayden
school crossing AHEAD	S1-1 W16-9P	2019 2019	165024, 165036, 165046, 165054	SE corner of Hwy 20 & Hayden
STOP US Hwy 20 Hayden	R1-1 D3-1 D3-1		165103, 165111, 165126, 165128	SE corner of Hwy 20 & Hayden
NO SNOWMOBILES			165202, 165208, 165215	south side of Hwy 20 east of Hayden
POST OFFICE ^	D20-1A M6-3		165328, 165336, 165344	SW corner of Hwy 20 & Geyser
STOP	R1-1		165430, 165438, 165444	SE corner of Hwy 20 & Geyser
school crossing arrow left/down	S1-1 W16-7P		165451, 165459, 165507	SE corner of Hwy 20 & Geyser
NO SNOWMOBILES			165514, 165521, 165528	south side of Hwy 20 just east of Geyser
SPEED LIMIT 25	R2-1		165601, 165610, 165618	south side of Hwy 20 east of Geyser
STOP US Hwy 20 FAITHFUL ST	R1-1 D3-1 D3-1		165726, 165736, 165753, 165755, 165806	SE corner of Hwy 20 & Faithful
NO SNOWMOBILES			165813, 165820, 165828	SE corner of Hwy 20 & Faithful
STOP US Hwy 20 FIREHOLE AVE	R1-1 D3-1 D3-1		165940, 165945, 165953	SE corner of Hwy 20 & Firehole
medical symbol ---->> POST OFFICE --->	D9-13 D9-3P D20-1A M6-1		170044, 170051, 170058	SW corner of Firehole & Electric
STOP US Hwy 20 ELECTRIC ST	R1-1 D3-1 D3-1		170149, 170156, 170201, 170210	SE corner of Firehole & Electric
NO SNOWMOBILES			170901, 170910, 170916	south side of Firehole east of Electric
JCT 287 LIBRARY --->	M2-1 M1-4 I-8P I-5B		171054, 171103, 171111	south side of Firehole west of Dunraven
STOP	R1-1		172358, 172405, 172412	NW corner of Madison & Electric
SPEED LIMIT 25	R2-1		172422, 172429, 172437	NW corner of Madison & Electric
GUEST CHECK-IN 15 MINUTE PARKING ONLY OFFICE --> OFFICE <---			172506, 172514, 172519, 172526	north side of Madison just west of Electric
STOP	R1-1		172624, 172631, 172642	NW corner of Madison & Faithful
STOP	R1-1		172741, 172747, 172754	NW corner of Madison & Geyser
PIONEER BLVD	D3-1		172913, 172919, 172925	north side of Madison halfway between Geyser & Hayden
TURTLEBACK RD	D3-1		172957, 173004, 173012	north side of Madison halfway between Geyser & Hayden
STOP	R1-1		173102, 173108, 173113	NW corner of Madison & Hayden
\P\ no parking	R8-3		173249, 173256, 173300	south side of Madison just east of Iris
STOP Madison HAYDEN ST	R1-1 D3-1 D3-1		173402, 173410, 173419, 173424	SE corner of Madison & Hayden
handicapped symbol PARKING			173533, 173541	south side of Madison just east of Hayden
STOP Madison Geyser	R1-1 D3-1 D3-1		173633, 173640, 173646, 173650	SE corner of Madison & Geyser
STOP	R1-1		173743, 173750, 173755	SE corner of Madison & Faithful
STOP MADISON AVE ELECTRIC ST	R1-1 D3-1 D3-1		173926, 173933, 173941	SE corner of Madison & Electric

Sign Description	MUTCD name	Installation Date	Photo #s	Location
STOP	R1-1		181449, 181456, 181502	NE corner of Canyon & Alley D
\P\ No Parking			181536, 181542, 181547	east side of Hwy 191 north of Alley D
BEWARE ANIMALS ON RDWY (12 BISON HIT IN 2018) changeable message sign			181611, 181613, 181625	east side of Hwy 191 approx 280 ft north of Alley D
NO PARKING ANY TIME	R7-1		181636, 181644, 181649	east side of Hwy 191 approx 280 ft north of Alley D
Adopt A Highway Litter Control Next 2 Miles W. YELLOWSTONE ELEMENTARY	D14-3 N7-1P		181730, 181738, 181747	east side of Hwy 191 approx 425 ft north of Alley D
SPEED LIMIT 45	R2-1		181838, 181846, 181853	SE corner of Hwy 191 & S Lodgepole Dr
STOP	R1-1	2015	181928, 181934, 181937, 181942	NE corner of Hwy 191 & S Lodgepole Dr
FIRE DANGER LOW TODAY! PLEASE BE CAREFUL			182020, 182028, 182033	east side of Hwy 191 approx 200 ft north of S Lodgepole Dr
ALL WATERCRAFT MUST BE INSPECTED BEFORE ENTERING ANY MONTANA WATERWAY			182044, 182054, 182102	east side of Hwy 191 approx 275 ft north of S Lodgepole Dr
DO NOT ENTER AREA CLOSED AUTHORIZED PERSONNEL ONLY	R5-1		182148, 182156, 182201	SE corner of Hwy 191 & N Forest Service Loop
STOP N FOREST SERVICE LP	R1-1 D3-1		182211, 182218, 182225	NE corner of Hwy 191 & N Forest Service Loop


WEST
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EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Contractor's Application for Payment No. Final Payment

To (Owner): **Town of West Yellowstone**	Application Period: **Nov 18-Dec 19**	Application Date: **31 December 2019**
Project: **Water System Improvements 2018**	From (Contractor): **Montana Underground Construction, Inc.**	Via (Engineer): **The Dyer Group, LLC**
Owner's Contract No.:	Contract: **Water System Improvements 2018**	
	Contractor's Project No.:	Engineer's Project No.:

Application For Payment

Change Order Summary

Approved Change Orders

Number	Additions	Deductions
1	$30,549.69	$4,032.91
2	$15,157.79	
TOTALS	$45,707.48	$4,032.91
NET CHANGE BY CHANGE ORDERS	**$41,674.57**	

1. ORIGINAL CONTRACT PRICE	$	$409,830.00
2. Net change by Change Orders	$	$41,674.57
3. Current Contract Price (Line 1 ± 2)	$	$451,504.57
4. TOTAL COMPLETED AND STORED TO DATE (Column F total on Progress Estimates)	$	$451,504.57
5. RETAINAGE:		
a. X _____ Work Completed	$	
b. X _____ Stored Material	$	
c. Total Retainage (Line 5.a + Line 5.b)	$	
6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c)	$	$451,504.57
7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)	$	$217,191.85
8. AMOUNT DUE THIS APPLICATION	$	$234,312.72
9. BALANCE TO FINISH, PLUS RETAINAGE (Column G total on Progress Estimates + Line 5.c above)	$	

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:
(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;
(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and
(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor Signature

By:	Date:

Payment of: $ **$234,312.72**
(Line 8 or other - attach explanation of the other amount)

is recommended by: MR Dyer — **31 Dec 2019**
(Engineer) (Date)

Payment of: $ **$234,312.72**
(Line 8 or other - attach explanation of the other amount)

is approved by: _____ _____
(Owner) (Date)

Approved by: **N/A** _____
Funding Agency (if applicable) (Date)

Payments
State: $2,343.13
Contractor: $231,969.59

Progress Estimate - Unit Price Work

Contractor's Application

For (Contract):	Water System Improvements 2018							Application Number:	Final Payment		
Application Period:	Nov 18-Dec 19							Application Date:	31 December 2019		
A					B	C	D	E	F		
Item		Contract Information				Estimated Quantity Installed	Value of Work Installed to Date	Materials Presently Stored (not in C)	Total Completed and Stored to Date (D + E)	% of Bid (F / B)	Balance to Finish (B - F)
Bid Item No.	Description	Item Quantity	Units	Unit Price	Total Bid Value of Item ($)						
1	6" DI Waterline	40	LF	$325.00	$13,000.00	40	$13,000.00		$13,000.00	100.0%	
2	10" DI Waterline	160	LF	$84.00	$13,440.00	160	$13,440.00		$13,440.00	100.0%	
3	12" DI Waterline	1450	LF	$53.00	$76,850.00	1450	$76,850.00		$76,850.00	100.0%	
4	10" Gate Valve	1	EA	$6,225.00	$6,225.00	1	$6,225.00		$6,225.00	100.0%	
5	12" Gate Valve	4	EA	$4,000.00	$16,000.00	4	$16,000.00		$16,000.00	100.0%	
6	Fire Hydrant	4	EA	$4,965.00	$19,860.00	4	$19,860.00		$19,860.00	100.0%	
7	Connection to Existing Main	1	LS	$4,575.00	$4,575.00	1	$4,575.00		$4,575.00	100.0%	
8	Gravel Road Repair	50	LF	$50.00	$2,500.00	50	$2,500.00		$2,500.00	100.0%	
9	Asphalt Street Repair	115	LF	$76.00	$8,740.00	115	$8,740.00		$8,740.00	100.0%	
10	Well Pump	1	LS	$62,635.00	$62,635.00	1	$58,602.09		$58,602.09	93.6%	
11	Standby Power Generator	1	LS	$40,660.00	$40,660.00	1	$40,660.00		$40,660.00	100.0%	
12	Chlorination System	1	LS	$18,300.00	$18,300.00	1	$18,752.27		$18,752.27	102.5%	
13	Site Work	1	LS	$12,240.00	$12,240.00	1	$13,217.21		$13,217.21	108.0%	
14	Well House Construction	1	LS	$55,830.00	$55,830.00	1	$60,222.42		$60,222.42	107.9%	
15	Well House Mechanical	1	LS	$16,295.00	$16,295.00	1	$18,747.62		$18,747.62	115.1%	
16	Well House Electrical	1	LS	$26,720.00	$26,720.00	1	$26,720.00		$26,720.00	100.0%	
17	Control and Alarm System	1	LS	$5,960.00	$5,960.00	1	$5,960.00		$5,960.00	100.0%	
18	Miscellaneous Work	10000	UNIT	$1.00	$10,000.00					474.3%	
	Materials Increase	8129.84	UNIT	$1.00		8,129.84	$8,129.84		$8,129.84		
	Watermain Lowering	17940.9	UNIT	$1.00		17,940.87	$17,940.87		$17,940.87		
	Remobilization (2019)	4635	UNIT	$1.00		4,635.00	$4,635.00		$4,635.00		
	Electrical and Building Permits	1569.46	UNIT	$1.00		1,569.46	$1,569.46		$1,569.46		
	Subcontractor Remobilization	13231.5	UNIT	$1.00		13,231.54	$13,231.54		$13,231.54		
	Interest	1926.25	UNIT	$1.00		1,926.25	$1,926.25		$1,926.25		
	Totals				**$409,830.00**		**$451,504.57**		**$451,504.57**	**110.2%**	

EJCDC

Change Order No. 1

Date of Issuance:	**25 November 2019**	Effective Date:	**4 April 2018**
Owner:	**Town of West Yellowstone, Montana**	Owner's Contract No.:	
Contractor:	**Montana Underground Construction, Inc.**	Contractor's Project No.:	
Engineer:	**The Dyer Group, LLC**	Engineer's Project No.:	
Project:	**Water System Improvements 2018**	Contract Name:	**Water System Improvements**

The Contract is modified as follows upon execution of this Change Order:

Description: **See attached narrative.**

Attachments: **None.**

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ **409,830.00**	Original Contract Times: Substantial Completion: **60 Days** Ready for Final Payment: **70 Days** days or dates
[Increase] [Decrease] from previously approved Change Orders No. **N/A** to No. **N/A**: $	[Increase] [Decrease] from previously approved Change Orders No. **N/A** to No. **N/A**: Substantial Completion: Ready for Final Payment: days
Contract Price prior to this Change Order: $ **409,830.00**	Contract Times prior to this Change Order: Substantial Completion: **60 Days** Ready for Final Payment: **70 Days** days or dates
Increase of this Change Order: $ **26,516.78**	**Increase** of this Change Order: Substantial Completion: **8 days** Ready for Final Payment: **8 days** days or dates
Contract Price incorporating this Change Order: $ **436,346.78**	Contract Times with all approved Change Orders: Substantial Completion: **68 Days** Ready for Final Payment: **78 Days** days or dates

RECOMMENDED: **The Dyer Group LLC**	ACCEPTED: **Town of W Yellowstone**	ACCEPTED: **Montana Underground Constr.**
By: WRDyer	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: **Winston Dyer, PE – Prj Mngr**	Title **Dan Sabolsky – Town Mngr**	Title **Mike Hartnett – President**
Date: **25 November 2019**	Date	Date 11-25-2019

Approved by Funding Agency (if applicable)

By: **N/A** Date:

Title:

Town of West Yellowstone, Montana
Water System Improvements 2018
Change Order No. 1
Narrative

Description

1. Delay the start of project construction until DEQ approval is received both for the new water supply well construction and water quality, and subsequently also for the plans and specifications for this improvement project. Continue with using ductile iron piping and incur additional costs for the materials arising from the delay in being able to start the project.

   Add the increased costs for materials in Item No. 18 – "Miscellaneous Work" of Bid Schedule as follows:

New waterworks piping and fittings materials cost		$ 113,481.53
Less original waterworks piping and fittings materials cost		-105,927.36
Increased generator cost		575.67
	Net Increase	$ 8,129.84

   Notice to Proceed will be October 8, 2018. No change in contract performance time.

2. Use the following clarifications to the Specifications in furnishing materials and conducting the work:

   Reference – Well Pump Specification: in the "Materials" section, use ASTM A53 schedule 40 black steel column pipe for the well column piping; with NSF-61 approved lubricants, sealants, and tape where such may be needed.

   Reference – Well Pump Specification: in the "Materials" section describing the well depth gauge, furnish a Duro Ca-566 direct reading water level monitoring gauge with ¼" polyethylene tubing of sufficient length to extend down to the pump level in the well for the well water level monitoring system.

   In the "Workmanship" section, add the following concerning the well water level monitoring system, "Attach polyethylene tubing to the gauge and run it down into the well through an access port in the discharge head. Seal the access port upon completion of the tubing installation. Fasten the air tube to the exterior of the well column with plastic ties or stainless steel bands at 6 foot intervals. Mount the gauge to the pump discharge head in a manner to allow convenient access and use."

   Reference – Well House Mechanical Specification: in the "Materials" section change reference to the 4" oil-filled 0-100 psi pressure gauge to 0-200 psi pressure gauge.

   Reference – Well House Mechanical and Electrical Specifications: furnish one of the intake louvers as a spring open, power close unit so that when power is lost the louver will open and allow air into the building for the brief period of generator start up and load transfer. Assure that the louver will open under normal operation of the generator 36" x 36" louver.

Reference – Drawing Sheet 9: install the propane storage tank in accordance with the building code, a minimum of 10 feet from the back of the new well house building.

Reference – Drawing Sheet 10: in reference to the roof hatch detail, extend the "chimney" portion of the roof hatch a minimum of 12" above the roof on the upslope side. Install the locking hasps in such a fashion as to create positive pressure of the roof hatch on the weather stripping seal being installed around the top surface of the roof hatch "chimney" section so as to assure pressure of the hatch on the seal to eliminate any potential leakage.

No change in Contract price or time.

3. In the "Materials" section of the "Well House Mechanical" specification, change the air/vacuum valve in the well discharge piping from a Flowmatic Miniair air/vacuum valve to a Crispin DL20 deep well air/vacuum valve.

   Add the net increase of cost to Item No. 15 – "Well House Mechanical" of the Bid Schedule as follows:

Crispin DL20 air/vacuum valve		$ 936.94
Less credit for Flowmatic Miniair valve		-468.66
	Net Increase	$ 467.68

   No change in contract time.

4. Make the following adjustments to the chlorination system. As shown on Drawing Sheet 13, delete reference to installing the chlorination discharge tubing up the interior wall, across the ceiling, and down to and connecting with the new injector valve assembly on the well discharge piping. Furnish and install ¾" PVC underground conduit down through the floor, under the floor over to the pump discharge piping location, and then up through the floor to provide a conduit for containing the chlorination discharge tubing.

   As shown on Drawing Sheet 9, install the chlorinator and containment tank vents to exit the building near the east end of the north wall. Move the 18" x 18" motorized intake louver further west down the wall to a point even with the well pump motor in order to maximize the distance between the chlorine venting and the building ventilation intake.

   In the "Workmanship" section of the "Chlorination System" specification, add the following concerning the double containment sodium hypochlorite storage tank, "secure the tank to the wall with a 1/2" stainless steel chain for seismic resistance. Anchor the restraint system to the wall with stainless steel hardware. Also furnish a 'Danger-Sodium Hypochlorite' 10" x 7" warning sign and affix it to the wall by the sodium hypochlorite storage tank; ANSI DANGER Sodium Hypochlorite Sign with symbol ADE-26932; compliancesigns.com, or approved equal."

   Add the cost to Item No. 12 – "Chlorination System" of the Bid Schedule as follows:

Additional materials		$ 68.11
Additional labor		384.16
	Total	$ 452.27

   Add 1 day contract time.

5. Make the following additions to the "Workmanship" section of the "Well House Mechanical" specification: concerning valve tagging: "furnish 2.5" x 4" white vinyl marking tags with stainless steel beaded chain for marking all pump discharge components including well pump, air/vac valve, check valve, flowmeter, chlorine injection, and sample ports; Pipemarker WT003, or approved equal. Coordinate with the operator for installing tags with desired identification so that future maintenance and replacement needs for the components can be monitored and tracked."

   Concerning a carbon monoxide detector: "furnish and install a carbon monoxide detector interior to the well house; First Alert Onelink, or approved equal."

   Add the cost to Item No. 15 – "Well House Mechanical" of the Bid Schedule as follows:

Materials for detector and tags	$ 140.02
Equipment (work truck)	76.99
Labor for installation work	138.65
Total	$ 355.66

   No change in contract time.

6. Make the following changes to the "Materials" section of the "Well House Mechanical" specification: delete reference to the 10" McCrometer strap on saddle flowmeter and substitute an 8" Seametrics iMag 4700 electromagnetic flowmeter in its place. Provide spool pieces and flanged fittings as necessary to accommodate the flanged flowmeter.

   Furnish the flow meter with a 4:20 mA output and furnish and install a 4:20 mA 12 VDC splitter to divide the output signal into two powered signals, which will be powered off the DC voltage available in the Mission Communications unit being furnished under the Control and Alarm System Specification.

   Then in reference to Sheet 9 of the Drawings, delete all reference to 10" discharge piping out to the tee for the waste hydrant and replace with 8" discharge piping. Provide an 8" x 10" reducer to connect to the remaining 10" piping. Increase the distance from the center of the well pump to the point where the discharge piping goes back through the floor from 5 ft. to 6.5 ft. to allow appropriate room for flow straightening prior to and after the flanged meter installation.

   Add the net cost to Item No. 15 – "Well House Mechanical" of the Bid Schedule as follows:

Seametrics flowmeter	$ 3,215.92
Less credit for McCrometer propeller meter	-2,333.64
8" discharge piping and fittings	5,245.40
Less credit for 10" discharge piping and fittings	-5,031.82
Labor for additional installation work	533.42
Net Increase	$ 1,629.28

   Add 1 day contract time.

7. The "Well Pump" specification indicated the anticipated yield from the well but noted it would have to be verified upon completion of the well and that adjustment of the well pump parameters may be required prior to ordering and installing the well pump and equipment.

Unfortunately the new well will only produce 430 GPM instead of the 1000 GPM anticipated – so in the "Well Pump" specification and on Sheet 8 of the Drawings, delete reference to the previous well pump and operating conditions. The new operating conditions are 430 GPM, at 270 feet TDH, 81% minimum efficiency, and 40 hp.

Use a 7 stage 9LC American Marsh Pump at 1800 RPM, with corresponding 40 hp motor driver meeting the previous specifications for the new well pump. Also reduce the size of the VFD and harmonic filter from 75 hp to 40 hp.

Reduce the cost to Item No. 10 – "Well Pump" of the Bid Schedule as follows:

Credit for materials		$ -4,480.65
Administration of changes		447.74
	Net Decrease	$ -4,032.91

No change in contract time.

8. Lower the 12" transmission pipeline elevation at station 25+50 to avoid conflict with a storm sewer pipeline. Use 45° bend fittings to carry the pipeline down under the storm drain to achieve required vertical clearance, thrust block the fittings as per the Standard Specifications, and place rigid insulation between the waterline and storm drain pipes.

   Widen the asphalt street repair area proportionately as required to accommodate the deeper trench depth in the water main lowering area.

   Cover the additional cost in Item No. 18 - "Miscellaneous Work" as follows:

Materials		$ 5,471.52
Labor		2,513.62
Equipment		1,741.22
Asphalt Street Repair		8,214.51
	Total	$17,940.87

   Of this total additional cost, use the present contract amount of $10,000 in the "Miscellaneous Work" contract item and then increase the amount of the "Miscellaneous Work" Item by $7,940.87 for the balance of the cost.

   Add 3 days contract time.

9. Provide appropriate cover and heat for constructing the masonry block building in cold temperatures.

   Increase the cost of Item No. 14 – "Well House Construction" as follows:

Materials		$ 592.13
Labor		810.71
Equipment		177.68
Masonry Subcontractor		2,811.90
	Total	$ 4,392.42

   Add 2 days contract time.

10. Change the location of the drainage sump for the building drain system from the west side of the well lot to the southeast corner of the property as directed by the Engineer. Add 55 feet to the length of drain piping and trenching.

    Add the cost for the lengthening of the drain line to Item No. 13 – "Site Work" as follows:

55 LF @ $17.77/LF =	$ 977.21
Total	$ 977.21

    Add 1 day to the contract time.

11. Cease work on the project from November 1, 2018 to May 28, 2019.

    Add the cost of remobilization in Item No. 18 – "Miscellaneous Work" as follows:

Remobilization	$ 4,635.00
Total	$ 4,635.00

    Contract time is not charged between these dates.

12. Obtain the electrical and building permits and be reimbursed for the cost as noted in the Special Provisions.

    Add the cost of these items to Item No. 18 – "Miscellaneous Work" as follows:

Electrical Permit	$ 538.95
Building Permit	1,030.51
Total	$ 1,569.46

    No change in contract time.

13. Cease operations on the project on July 10, 2019 until utility power can be installed to the building.

    Changes to contract cost and time will be considered in a subsequent change order.

Justification

1. The contract Special Provisions anticipated the completion of the new well by May and indicated that if completion of the well were to delay the start of the well house and pipeline construction, then contract time would be extended accordingly. They also indicated that the start of construction would be pending DEQ approval of the plans and specifications.

   DEQ approval of the completed well, its water quality, and the plans and specifications for this well house and transmission line project was not received until early August 2018. The contractor then had to get the project back into the work schedule and obtain the materials to conduct the work, which resulted in a start of construction on October 8, 2018.

   The delay in being able to order materials was five months from the time of original supplier quotes to the contractor on the project, and therefore resulted in an increase in the cost of materials. Changing from ductile iron piping to PVC piping was considered to help minimize the cost increase, but the Town ultimately determined to stay with the ductile iron piping and

incur the material cost increase.

2. DEQ recommended these clarifications after review of the project plans and specifications.

3. DEQ preferred a valve with greater instant vacuum relief capacity to eliminate potential pipeline surging in the case of a sudden, unexpected system shutdown.

4. Adjustments were requested by DEQ to enhance safety in working with chlorine.

5. DEQ regulations require labeling all valves and components in the discharge piping. DEQ recommended the carbon monoxide detector for operator safety in case of an exhaust leak.

6. DEQ recommended using an electromagnetic flow meter due to the relatively short length of pump discharge piping. With the new well only producing 430 gpm instead of the anticipated 1,000 gpm, the pump discharge head is 8" instead of 10" and the discharge piping can be reduced to 8" in size.

7. The production rate of the new well was anticipated to be 1,000 gpm, based on flow a prediction from pumping the test well that was constructed in 2017. When the new well was constructed a few feet away from the test well and then pump-tested upon completion in June 2018, the maximum well capacity of the new well was determined to be 430 gpm.

   This was not determined until after this project had been bid, so it is necessary to change the specifications for the well pump and motor to match the actual available operating conditions.

8. There was a storm drain pipeline at this location that was in conflict with achieving adequate separation for the new waterline, and thus there was not sufficient clearance under the storm drain to install the new water line and meet separation requirements without constructing a water main lowering.

   Lowering the trench bottom in this area required a wider trench to safely accommodate the installation, and thus additional asphalt street repair for the wider area was required.

9. Cold overnight temperatures during the time of masonry block construction required covering and heating to preserve and protect the quality of the masonry construction.

10. DEQ requested the drainage sump area be moved as far away from the well as possible on the well lot.

11. Winter conditions can negatively impact the quality of the final product so a winter shutdown is necessary.

12. The Special Provisions indicate the Contractor is to obtain the electrical and building permits from the State and will be reimbursed for the cost.

13. As of July 10, 2019 the Contractor had completed all possible construction items on the project, needing only start up and training on the installed equipment to complete the contract. EPA regulations would not allow the use of the installed standby generator to provide temporary power for startup and testing in the absence of having permanent power to the building, and thus startup and training operations cannot proceed until the utility power is installed.

– End of Change Order No. 1 –

Change Order Documentation

1. Materials Increase

Core & Main – Waterworks Quotes

Original Bid

Item No. 1

54	6 TJ CL50 PR350 DI PIPE C/L	FT	11.08	598.32
				598.32

Item No. 2

162	10 TJ CL50 DI PIPE C/L	FT	20.07	3251.34
8	#4 AWG WIRE JUMPERS 18 IN	EA	3.6	28.8
16	CA25PLUSXF19 CADWELD PLUS	EA	3.22	51.52
8	NORTHTOW CP-R-HCAPS ROYSTON HA N	EA	4.7	37.6
1	12X12 MJ TEES (I) CP DI C153	EA	268.22	268.22
1	12X10 MJ REDUCER (I) DI C153	EA	101.07	101.07
1	12 MJ PLUG (I) CP DI C153	EA	84.78	84.78
1	12 MJ REGULAR GASKET F/DI	EA	9.59	9.59
1	10 MJ BEND (I) CP DI C153	EA	143.22	143.22
8	3/4X4 COR-TEN T-HEAD BOLT	EA	1.72	13.76
4	12 ONE-LOCK DI RESTR CORRSAFE SLDEP	EA	88.82	355.28
3	10 ONE-LOCK DI RESTR CORRSAFE SLDEP	EA	66.12	198.36
				4543.54

Item No. 3

1458	12 TJ CL50 DI PIPE C/L	FT	24.69	35998.02
80	#4 AWG WIRE JUMPERS 18IN	EA	3.6	288
160	CA25PLUSXF19 CADWELD PLUS	EA	3.22	515.2
160	NORTHTOW CP-R-HCAPS ROYSTON HA N	EA	4.7	752
1	CADW PLUSCU CADWELD PLUS CONTR C	EA	188.03	188.03
1	CADWELD #8 CAHBA-1G WELDER	EA	64.28	64.28
2	3X1000' DET TAPE WATER BLUE	RL	36.03	72.06
340	27"X340' POLYWRAP-BLACK FOR 10-12"	FT	0.43	146.2
2	12 MJ 22-1/2 BEND(I)CP DI C153	EA	139.38	278.76
4	12X6 MJ TEE (I) CP DI C153	EA	181.53	726.12
12	12 ONE-LOK DI RESTR CORRSAFE SLDEP1	EA	88.82	1065.84
4	6 ONE-LOK DI REST CORRSAFE SLDEP6E E	EA	34.05	136.2
				40230.71

Item No. 4

1	10 AVK #65 01MJ GV 0/L L/ACC 65 -25C	EA	1166.88	1166.88
1	26X36 SCREWED VALVE BOX KIT	EA	110	110
1	18 #59 SC VLV BOX EXT IMPORT	EA	25	25
2	10 ONE-LOK DI RESTR CORRSAFE SLDEP1	EA	66.12	132.24
				1434.12

Item No. 5

4	12 AVK #65 DI MJ GV 0/L L/ACC 65-300-	EA	1476.45	5905.8
4	26X36 SCREWED VALVE BOX KIT	EA	110	440
4	18 #59 SC VLV BOX EXT IM PORT	EA	25	100
8	12 ONE-LOK DI RESTR CORRSAFE SLDEP1	EA	88.82	710.56
				7156.36

Item No. 6

4	AVK 7 '0" MODERN WATEROUS MJ	EA	1840.92	7363.68
4	5FT HYDRAFINDER FLAG/HYO MARKR	EA	19.34	77.36
4	43657 MINI FLAG	EA	6.62	26.48
4	6 AVK #65 DI MJ GV 0/L L/ACC 65 -1 50-	EA	470.34	1881.36
4	26X36 SCREWED VALVE BOX KIT	EA	110	440
4	18 #59 SC VLV BOX EXT IMPORT	EA	25	100
12	6 ONE-LOK DI REST CORRSAFE SLDEP6E E	EA	34.05	408.6
				10297.48

Item No. 7

1	16X12 MJ TEE (I) CP DI C153	EA	485.66	485.66
1	16 MJ L/P SLEEVE(I) CP DI C153	EA	281.15	281.15
4	16 ONE-LOK DI RESTR SLDEP16(I) W/ACC	EA	169.07	676.28
1	12 ONE-LOK DI RESTR CORRSAFE SLDEP1	EA	88.82	88.82
				1531.91

Item No. 8

1	C60NW 15'X300' NON-WOVEN GEOTE X1	RL	305.89	305.89
				305.89

Updated Costs

Item No. 1

54	6 TJ CL50 PR350 DI PIPE C/L	FT	11.92	643.68
				643.68

Item No. 2

162	10 TJ CL50 DI PIPE C/L	FT	22.07	3575.34
8	#4 AWG WIRE JUMPERS 18 IN	EA		0
16	CA25PLUSXF19 CADWELD PLUS	EA		0
8	NORTHTOW CP-R-HCAPS ROYSTON HA N	EA		0
1	12X12 MJ TEES (I) CP DI C153	EA	273.98	273.98
1	12X10 MJ REDUCER (I) DI C153	EA	103.24	103.24
1	12 MJ PLUG (I) CP DI C153	EA	86.61	86.61
1	12 MJ REGULAR GASKET F/DI	EA	9.59	9.59
1	10 MJ BEND (I) CP DI C153	EA	146.3	146.3
8	3/4X4 COR-TEN T-HEAD BOLT	EA	1.72	13.76
4	12 ONE-LOCK DI RESTR CORRSAFE SLDEP	EA	90.73	362.92
3	10 ONE-LOCK DI RESTR CORRSAFE SLDEP	EA	67.54	202.62
24	BRONZE WEDGES FOR DI PIPE	ea	0.75	18
				4792.36

Item No. 3

1458	12 TJ CL50 DI PIPE C/L	FT	27.71	40401.18
28	#4 AWG WIRE JUMPERS 18IN	EA	3.6	100.8
56	CA25PLUSXF19 CADWELD PLUS	EA	3.22	180.32
56	NORTHTOW CP-R-HCAPS ROYSTON HA N	EA	4.7	263.2
1	CADW PLUSCU CADWELD PLUS CONTR C	EA	188.03	188.03
1	CADWELD #8 CAHBA-1G WELDER	EA	64.28	64.28
2	3X1000' DET TAPE WATER BLUE	RL	36.03	72.06
340	27"X340' POLYWRAP-BLACK FOR 10-12"	FT	0.43	146.2
2	12 MJ 22-1/2 BEND(I)CP DI C153	EA	147.13	294.26
3	12X6 MJ TEE (I) CP DI C153	EA	191.62	574.86
10	12 ONE-LOK DI RESTR CORRSAFE SLDEP1	EA	90.73	907.3
5	6 ONE-LOK DI REST CORRSAFE SLDEP6E E	EA	34.78	173.9
2	10 ONE-LOK DI RESTR CORRSAFE SLDEP1	EA	67.54	135.08
240	BRONZE WEDGES FOR DI PIPE	EA	0.75	180
1	10X6 MJ TEE (I) CP DI C153	EA	198.24	198.24
				43879.71

Item No. 4

1	10 AVK #65 01MJ GV 0/L L/ACC 65 -25C	EA	1166.88	1166.88
1	26X36 SCREWED VALVE BOX KIT	EA	110	110
1	18 #59 SC VLV BOX EXT IMPORT	EA	25	25
2	10 ONE-LOK DI RESTR CORRSAFE SLDEP1	EA	67.54	135.08
				1436.96

Item No. 5

4	12 AVK #65 DI MJ GV 0/L L/ACC 65-300-	EA	1476.45	5905.8
4	26X36 SCREWED VALVE BOX KIT	EA	110	440
4	18 #59 SC VLV BOX EXT IM PORT	EA	25	100
8	12 ONE-LOK DI RESTR CORRSAFE SLDEP1	EA	90.73	725.84
				7171.64

Item No. 6

4	AVK 7 '0" MODERN WATEROUS MJ	EA	2230	8920
4	5FT HYDRAFINDER FLAG/HYO MARKR	EA	19.34	77.36
4	43657 MINI FLAG	EA	6.62	26.48
4	6 AVK #65 DI MJ GV 0/L L/ACC 65 -1 50-	EA	470.34	1881.36
4	26X36 SCREWED VALVE BOX KIT	EA	110	440
4	18 #59 SC VLV BOX EXT IMPORT	EA	25	100
12	6 ONE-LOK DI REST CORRSAFE SLDEP6E E	EA	34.78	417.36
				11862.56

Item No. 7

1	16X12 MJ TEE (I) CP DI C153	EA	496.1	496.1
1	16 MJ L/P SLEEVE(I) CP DI C153	EA	287.2	287.2
4	16 ONE-LOK DI RESTR SLDEP16(I) W/ACC	EA	172.7	690.8
1	12 ONE-LOK DI RESTR CORRSAFE SLDEP1	EA	90.73	90.73
				1564.83

Item No. 8

1	C60NW 15'X300' NON-WOVEN GEOTE X	RL	305.89	305.89
				305.89

Changed
Added
Removed
Price increased

Item No. 9				
1	C60NW 15'X300' NON-WOVEN GEOTE X1	RL	305.89	305.89
				305.89
Item No. 12				
1	CHLORINATION SYSTEM TWO PUMPS, S	EA	15560.5	15560.5
				15560.5
Item No. 15				
1	10 FLG 90 BEND(I) C/L DI CHO	EA	223.96	223.96
1	10 FLGXPE DI PfPE 10'0" C/L	EA	738	738
40	3/4 ZINC ALL THREADED ROD	FT	1.54	61.6
8	3/4 ZINC PLATED FLAT WASHER	EA	0.18	1.44
8	3/4" HEX NUT- ZINC	EA	0.2	1.6
4	RM DUCTILE LUG	EA	3.02	12.08
2	10 FLGXPE DI PIPE 2'0" C/L	EA	242	484
2	10 SIGMA ZF2-10C ZIP FLG F/ DI	EA	113.93	227.86
1	10 S92 STANDON SADDLE SUPPORT	EA	109.38	109.38
1	2X12 STD GALV NIPPLE (I	EA	13.1	13.1
1	10" DEZURIK FLAPPER, RUBBER, CRF	EA	2157.78	2157.78
2	3/4 HOSE BIBB SAMPLING TAP SMOOTH	EA	5.43	10.86
2	202NS-111007I RM 10X3/4IP NYL DBL/ST	EA	132.87	265.74
1	306-1110 RM 10X1IP SAD 10.70-11.10 OI	EA	123.44	123.44
1	202NS-1110 RM 10X2IP NYL SAD 10.00-1	EA	143.2	143.2
1	STRAP ON FLOW METER 10" M0300 MC	EA	2137	2137
1	OEZURIK AW 2" AIR/VAC VALVE	EA	433.34	433.34
1	B2969N 2 MIPTXMIPT BALL CORP AWW/	EA	221.05	221.05
3	IOXI/8 FLG FF RR GASKET	EA	4.12	12.36
5	10-12" 150# FLG BOLT&NUT KIT	EA	17.08	85.4
				7463.19

89427.91
× 1.1845
$105,927.36

Item No. 9				
1	C60NW 15'X300' NON-WOVEN GEOTE X	RL	305.89	305.89
				305.89
Item No. 12				
1	CHLORINATION SYSTEM TWO PUMPS, S	EA	15560.5	15560.5
				15560.5
Item No. 15				
1	10 FLG 90 BEND(I) C/L DI CHO	EA	236.4	236.4
1	10 FLGXPE DI PfPE 10'0" C/L	EA	738	738
40	3/4 ZINC ALL THREADED ROD	FT	1.54	61.6
8	3/4 ZINC PLATED FLAT WASHER	EA	0.18	1.44
8	3/4" HEX NUT- ZINC	EA	0.2	1.6
4	RM DUCTILE LUG	EA	3.02	12.08
2	10 FLGXPE DI PIPE 2'0" C/L	EA	324.43	648.86
2	10 SIGMA ZF2-10C ZIP FLG F/ DI	EA	113.93	227.86
1	10 S92 STANDON SADDLE SUPPORT	EA	109.38	109.38
1	2-1/2 GAUGE 0-200 PSI LIQUID	EA	20.98	20.98
1	2X12 STD GALV NIPPLE (I	EA	13.1	13.1
1	10" DEZURIK FLAPPER, RUBBER, CRF	EA	2284.71	2284.71
2	3/4 HOSE BIBB SAMPLING TAP SMOOTH	EA	5.43	10.86
3	202NS-111007I RM 10X3/4IP NYL DBL/ST	EA	132.87	398.61
1	3/4X1/4 BRASS BUSHING RL IT NO LEAD	EA	2.48	2.48
1	306-1110 RM 10X1IP SAD 10.70-11.10 OI	EA	123.44	123.44
1	202N5-1110 RM 10X2IP NYL 5AD 10.00-1	EA	143.2	143.2
1	STRAP ON FLOW METER 10" M0300 MC	EA	2137	2137
1	OEZURIK AW 2" AIR/VAC VALVE	EA	791	791
1	B2969N 2 MIPTXMIPT BALL CORP AWW/	EA	221.05	221.05
3	IOXI/8 FLG FF RR GASKET	EA	4.12	12.36
5	10-12" 150# FLG BOLT&NUT KIT	EA	17.08	85.4
				8281.41

95805.43 × 1.1845
= $113,481.53
6377.52

Δ = 113,481.53 − 105,927.36 = $+7,554.17

Increased generator cost (360.00 + 126.00) × 1.1845 = 575.67
Total 8,129.84

3. Air/Vacuum Valve

1 Air Vacuum Valve — New Valve

Materials

Air Vacuum Valve	ea	1	$ 791.00	$ 791.00	
	LS			$ -	
				$ 791.00	

$ 791.00 $ ~~909.65~~

Labor Costs

Supt	$ 45.00			$ 45.00	$ -	$ -	$ -	
Ditch labor	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -	
Bankman	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -	
Operator	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -	
Operator	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -	
Truck Driver	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -	
							$ -	

(
× 1.1845 = $936.34

$ -

Subcontractor

	LS	$ -	$ -	
	LS	$ -	$ -	
			$ -	

2 Air Vacuum Valve — original Valve

Materials

Air Vacuum Valve	ea	1	$ (433.34)	$ (433.34)	
	LS			$ -	
				$ (433.34)	

$ (433.34)

Labor Costs

Supt	$ 45.00			$ 45.00	$ -	$ -	$ -	
Ditch labor	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -	
Bankman	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -	
Operator	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -	
Operator	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -	
Truck Driver	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -	
							$ -	

× 1.0815
468.66

$ -

Subcontractor

	LS	$ -	$ -	
	LS	$ -	$ -	
			$ -	

Δ = 936.34 − 468.66 = $467.68

4. Chlorination System

3 Relocation of Chlorination Vent

Materials 1 ls

1" PVC		lf	10	$ 2.25	$ 22.50
Misc. Hangers		ls	1	$ 35.00	$ 35.00
		LS			$ -
					$ 57.50

Labor Costs

Supt		$ 45.00			$ 45.00	$ -	$ -	$ -
Ditch labo	3	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 115.83	$ 46.33	$ 162.16
Bankman	3	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 115.83	$ 46.33	$ 162.16
Operator		$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
Operator		$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
Truck Driver		$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
								$ 324.32

$ 57.50 $ ~~66.13~~

x1.1845

68.11

$ 324.32 x1.1845 = 384.16

Equipment - Un-operated

1 ton -Dies	Work Truck	3	$ 65.00	$ 195.00	X disallowed
				$ 195.00	

Total 68.11 + 384.16 = $452.27

5. CO Detector and Tags

6 Carbon Monoxide Detector

Materials 40 LF

Carbon Detector		ea	1	$ 118.21	$ 118.21
		ea			$ -
					$ 118.21

Labor Costs

Supt	1	$ 45.00			$ 45.00	$ 45.00	$ 18.00	$ 63.00
Ditch labo	1	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 38.61	$ 15.44	$ 54.05
Bankman		$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
Operator		$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
Operator		$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
Truck Driver		$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
								$ 117.05

$ 118.21 $ ~~135.94~~

x1.1845

140.02

$ 117.05 x1.1845 = 138.65

Equipment - Un-operated

1 ton -Dies	Work Truck	1	$ 65.00	$ 65.00	
				$ 65.00	x1.15 = 76.99

Subcontractor

		LS		$ -	$ -
		LS		$ -	$ -
					$ -

Total 140.02 + 138.65 + 76.99 = $355.66

6. Flow Meter and Discharge Piping

3 8" Mag Meter

new meter & piping

Materials 1 EA

	Meter	ea	1	$ 2,715.00	$ 2,715.00	x1.1845 = $3215.92 new meter
	8" Spool Piece 3'	ea	2	$ 249.19	$ 498.38	
	8" Flange Gasket	ea	7	$ 2.95	$ 20.65	
	8" flange bolt pack	ea	4	$ 6.60	$ 26.40	
	8" 90° Flange bend	ea	1	$ 164.29	$ 164.29	
	8" MJ x 90° bend	ea	1	$ 124.49	$ 124.49	
	8" mega lug	ea	3	$ 38.64	$ 115.92	4428.37 x 1.1845 = $5245.40 new piping
	8" Flange Plug Valve	ea	1	$ 1,650.00	$ 1,650.00	
	0-200 guage	ea	1	$ 39.69	$ 39.69	
	8" Speed Flange	ea	2	$ 52.10	$ 104.20	
	8" X 10" Reducer	ea	1	$ 102.66	$ 102.66	
	10" mega lug	ea	1	$ 96.72	$ 96.72	
Walters	Concrete	cy	0.5	$ 211.20	$ 105.60	
	8" DI Pipe	lf	18	$ 26.18	$ 471.24	
	8" Flange PExFL 10' Sp	ea	1	$ 600.30	$ 600.30	
	8" Saddle	ea	3	$ 102.61	$ 307.83	
		LF			$ -	
		LS			$ -	
					$ 7,143.37	

Labor Costs

MH	Supt	2	$ 45.00			$ 45.00	$ 90.00	$ 36.00	$ 126.00	
CW	Ditch labo	2	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 77.22	$ 30.89	$ 108.11	
PH	Bankman	2	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 77.22	$ 30.89	$ 108.11	
CS	Operator	2	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ 91.80	$ 36.72	$ 128.52	X
CS	Operator	2	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ 91.80	$ 36.72	$ 128.52	X
BR	Laborer	2	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 77.22	$ 30.89	$ 108.11	
									$ ~~707.36~~	

450.33 x 1.1845 = $533.42

Equipment - Un-operated

1 ton -Die	Work Truck	2	$ 65.00	$ 130.00	X
	Excavator 330	2	$ 120.00	$ 240.00	X
				$ 370.00	

disallowed

Subcontractor

	LS		$ -	$ -
	LS		$ -	$ -
				$ -

2 10 Flow Meter

Original Meter & Piping

Materials 1 EA

Meter	ea	1	$ (2,157.78)	$ (2,157.78)
10" Spool Piece 2'	ea	2	$ (242.00)	$ (484.00)
10" Flange Gasket	ea	7	$ (4.12)	$ (28.84)
10" flange bolt pack	ea	4	$ (17.08)	$ (68.32)
10" 90° Flange bend	ea	1	$ (143.22)	$ (143.22)
10" MJ x 90° bend	ea	1	$ (223.96)	$ (223.96)
10" mega lug	ea	3	$ (38.64)	$ (115.92)
10" Flange Plug Valve	ea	1	$ (2,157.78)	$ (2,157.78)
0-200 guage	ea	0	$ 39.69	$ -
10" Speed Flange	ea	2	$ (113.93)	$ (227.86)
10" saddle	ea	3	$ (132.87)	$ (398.61)
10" mega lug	ea	1	$ (66.12)	$ (66.12)
10" Flange PExFL 10' S	ea	1	$ (738.00)	$ (738.00) $ (4,652.63)
	LS			$ -
				$ (6,810.41)

x 1.0815 = $ - 2,333.64 orig meter

4652.63 x 1.0815 = $ - 5,031.82 orig piping

Labor Costs

MH	Supt		$ 45.00			$ 45.00	$ -	$ -	$ -
CW	Ditch labor		$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
PH	Bankman		$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
CS	Operator		$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
CS	Operator		$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
BR	Laborer		$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
									$ -

Subcontractor

		LS	1	$ -	$ -
		LS		$ -	$ -
					$ -

Net = + 3215.92 + 5245.40 + 533.42 - 2333.64 - 5031.82

= $ + 1,629.28

7. Well Pump and Motor

Item	Description	Unit	Classificati	Hours	Rate	Zone	Fringe	Rate - S.T.	Sub-total	O-H
17	75 hore power pump, VFD, filter									

Materials 1 EA

See below		1		$ -
				$ -
				$ -

Labor Costs

project ma	6	$ 45.00			$ 45.00	$ 270.00	$ 108.00	$ 378.00
								$ 378.00

x 1.1845 = $ + 447.74

Equipment - Un-operated

				$ -
				$ -
				$ -

Subcontractor

Material change in co	LS		1	$ (4,143.00)	$ (4,143.00)
	LS			$ -	$ -
					$ (4,143.00)

x 1.0815

$ - 4,480.65

Net = - 4480.65 + 447.74 = $ - 4,032.91

O'KEEFE DRILLING

75HP Quote

P.O. Box 3810 - Butte, MT 59702
Office: (406) 494.3310 Fax: (406) 494.3301
Email: cuzned@okeefedrilling.com

QUOTE

Project: West Yellowstone Pump

Date: 16-Mar-18
No.: 18-10

Task		Unit Cost		Number of Units	Total Cost
Mobilization/Demobilization					
3 Men	$	250.00	Per Hour	5	$ 1,250.00
Per Diem:					
Motel	3 $	135.00	Per Person Per Day	1	$ 405.00
Food	3 $	40.00	Per Person Per Day	2	$ 240.00
Description:					
75 HP Turbin Pump	$	33,804.00	Each	1	$ 33,804.00
VFD Abb with Harmonic Balancer	$	15,225.00	Each	1	$ 15,225.00
Misc. Fittings and Parts	$	500.00	Lump Sum	1	$ 500.00
2					
Equipment Rental:					
Crane	$	175.00	Per Hour	10	$ 1,750.00
Labor:					
3 Men	$	250.00	Per Hour	10	$ 2,500.00
		Total Project Expenses			**$ 55,674.00**

40 HP Quote

O'KEEFE DRILLING

P.O. Box 3810 - Butte, MT 59702
Office: (406) 494.3310 Fax: (406) 494.3301
Email: cuzned@okeefedrilling.com

QUOTE

Client: MT Underground Construction, Inc.
5690 Glass Drive
Helena, MT 59602

Date: 01-Nov-18
No.: 18-10 Revised

Attn: Kelly

Project: West Yellowstone Pump

Task		Unit Cost		Number of Units	Total Cost
Mobilization/Demobilization					
3 Men	$	250.00	Per Hour	5	$ 1,250.00
Per Diem:					
Motel	3 $	135.00	Per Person Per Day	1	$ 405.00
Food	3 $	40.00	Per Person Per Day	2	$ 240.00
Description:					
40 HP Turbin Pump	$	33,804.00	Each	1	$ 33,804.00
VFD Abb with Harmonic Balancer	$	11,082.50	Each	1	$ 11,082.50
Misc. Fittings and Parts	$	500.00	Lump Sum	1	$ 500.00
Equipment Rental:					
Crane	$	175.00	Per Hour	10	$ 1,750.00
Labor:					
3 Men	$	250.00	Per Hour	10	$ 2,500.00
		Total Project Expenses			**$ 51,531.50**

O'KEEFE DRILLING

2000 Four Mile Rd
P.O. Box 3810 - Butte, MT 59702
Office: (406) 494-3310 Fax: (406) 494-3301
Email: info@okeefedrilling.com

8/7/19

Mike Hartnett
Montana Underground
Helena Montana

Re: City of West Yellowstone

Dear Mike,
This is the response to the letter you received from Winston Dyer concerning the charges for the pump that was installed for the city of West Yellowstone.
We were notified that there was going to be a change in the pump size and GPM rating for the pump that was going to be used on this project.
I talked to and sent an email to Kelly Holshue who was your project manager at the time, I was getting the submittals for the new pump. I was also anticipating a price decrease in the pump system.
I was sent a quote from our supplier and was surprised to see that there was actually a price increase not a decrease for the 40 Hp System.
I called my suppler and asked for an explanation, he pointed out the following:
The pump column pipe and shafts were the same amount and size as what was quoted for the 75 Hp. system.
The pump end was a smaller diameter but had more staging resulting in a price increase for that part.
The original 75 Hp. pump did not include an epoxy coating on the pump end that is required for municipal applications. We would have had that done on the 75 Hp. pump end, but we would not have increased the cost to the customer.
The discharge head is the same as what was originally quoted.
There was a decrease in the cost in the VFD and the harmonic filter and that difference should show on the invoicing already submitted and paid by your company.

The other point I would like to make was that when I was originally quoted the cost on the 75 Hp. system, I was taken aback on how much less they were than any of the other quotes I received from other vendors. I asked them to verify the pricing to make sure it was correct. They assured me that it was.
So, I submitted the bid with the numbers I was given. When the change order came in and it showed the price increase, that was when I was told that there in fact was a mistake on their quote. The price

they quoted for the motor was almost half of what it should have been. They would have honored the price that I was quoted but they WERE NOT going to do that for the 40 Hp.
That is why you and the city of West Yellowstone will not see a price decrease. There was an increase in the cost, but we decided to keep the price the same.

After looking at the prices that I was quoted from other companies, I feel that the City received a deal on this pump system.

If there are any other questions concerning this matter, please let me know.

Thanks

Ed Cosens

8. Water Main Lowering

1 | 12" Waterline loop Under 48" Storm Sewer

Materials 1 EA

45 Degree Bend X 12"	ea	4	$ 220.07	$ 880.28	
12" DIP	LF	8	$ 53.00	$ 424.00	price per plan
Concrete Thrust Restr	CY	1	$ 1,010.40	$ 1,010.40	
Rebar	EA	8	$ 25.00	$ 200.00	
Insulation 4' X 8" Shee	ea	4	$ 35.00	$ 140.00	
Polly Wrap	ea	4	$ 20.00	$ 80.00	
12" Mega Lug	ea	8	$ 101.58	$ 812.64	
16" Mega Lug	ea	4	$ 142.74	$ 570.94	
Cadwelds	ea	8	$ 12.00	$ 96.00	
Bedding Gravel	cy			$ -	
Additional Lodging	ea	3	$ 135.00	$ 405.00	
				$ -	
	LS			$ -	
				$ 4,619.26	x1.1845 = 5,471.52

Labor Costs

	Supt	6	$ 45.00			$ 45.00	$ 270.00	$ 108.00	$ 378.00
CS	Ditch labor	6	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 231.66	$ 92.66	$ 324.32
CW	Bankman	6	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 231.66	$ 92.66	$ 324.32
PH	Operator	6	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ 275.40	$ 110.16	$ 385.56
JH	Operator	6	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ 275.40	$ 110.16	$ 385.56
BR	Laborer	6	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 231.66	$ 92.66	$ 324.32

$ 2,122.09 x1.1845 = 2,513.62

Equipment - Un-operated

1 ton -Dies	Work Truck	6	$ 65.00	$ 390.00	
	Excavator 245	3	$ 110.00	$ 330.00	
	Excavator 330	5	$ 120.00	$ 600.00	
	jumping jack compact	3	$ 25.00	$ 75.00	
	Misc Boxes	1	$ 75.00	$ 75.00	
				$ 1,470.00	x1.1845 = 1,741.22

10 | Additional Asphalt for main lowering

Materials

Additional SQ/FT	sq/ft	730	$ 9.50	$ 6,935.00	bid unit price $9.50/ft =
	LS		$ 20.00	$ -	
	LS			$ -	
				$ 6,935.00	x1.1845 = 8,214.51

Labor Costs

Supt		$ 45.00			$ 45.00	$ -	$ -	$ -
Ditch labor		$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
Bankman		$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
Operator		$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
Operator		$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
Truck Driver		$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
								$ -

9. Masonry Block Heat & Cover

1 | Cold weather heat and cover of CMU block

Materials

Misc. Lumber	LS	1	$ 400.00	$ 400.00	
Additional Concrete C	ls	1	$ 99.90	$ 99.90	
	LS			$ -	
				$ 499.90	x1.1845 = 592.13

Labor Costs

Supt	4	$ 45.00			$ 45.00	$ 180.00	$ 72.00	$ 252.00
Ditch labor	4	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 154.44	$ 61.78	$ 216.22
Bankman	4	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 154.44	$ 61.78	$ 216.22
Operator		$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
Operator		$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
Truck Driver		$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
								$ 684.43

Equipment - Un-operated

1 ton -Dies	Work Truck		$ 65.00	$ -	
	Concrete Blankets	6	$ 25.00	$ 150.00	
				$ 150.00	x1.1845 = 177.68

x1.1845 = 810.71

Subcontractor

Bailey Masonry	LS	1	$ 2,600.00	$ 2,600.00	
	LS		$ -	$ -	
				$ 2,600.00	x1.0815 = 2,811.90

10. Drain Extension/Relocation

11 Additional Sump Drain Backed 75'

Materials	55 LF				
4" Schedule 40		lf	55	$ 2.50	$ 137.50
		ea			$ -
					$ 137.50

Labor Costs

Supt		$ 45.00			$ 45.00	$ -	$ -	$ -
Ditch labo	3	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 115.83	$ 46.33	$ 162.16
Bankman	3	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 115.83	$ 46.33	$ 162.16
Operator	3	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ 137.70	$ 55.08	$ 192.78
Operator	1.5	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ 68.85	$ 27.54	$ 96.39
Truck Driver		$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
								$ 613.49

Equipment - Un-operated

1 ton -Die	Work Truck	1.5	$ 65.00	$ 97.50	
	Excavator 245	3	$ 110.00	$ 330.00	
				$ 427.50	

($3/LF mtrls + $12/LF installation) x 55 LF x 1.1045 = $977.21

11. Remobilization 2019

12 Additional Mobilization in 2019

Materials

Mobilization	ls	1	$ 3,500.00	$ 3,500.00
Additional Mobilizatio	LS	1	$ 1,000.00	$ 1,000.00
	LS			$ -
				$ 4,500.00

x 1.03 = 4,635.00

Labor Costs

Supt	$ 45.00			$ 45.00	$ -	$ -	$ -
Ditch labor	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
Bankman	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
Operator	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
Operator	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
Truck Driver	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
							$ -

12. Permits

Electrical $455 x 1.1045 = $538.95

Bldg $870 x " = $1,030.52

Miscellaneous

a)

15 Change Air Vent Diameter and Weld to

Materials

	ls			$ -
				$ -

Labor Costs

Supt	$ 45.00			$ 45.00	$ -	$ -	$ -
Ditch labor	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
Bankman	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
Operator	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
Operator	$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
Truck Driver	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
							$ -

Subcontractor

O'keefe	2" Air Vent	LS	1	$ 1,632.00	$ 1,632.00
		LS		$ -	$ -
					$ 1,632.00

x already in plans

b) Insurance markup not included, project already covered (i.e. in overhead).

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Change Order No. 2

Date of Issuance:	**23 December 2019**	Effective Date:	**10 July 2019**
Owner:	**Town of West Yellowstone, Montana**	Owner's Contract No.:	
Contractor:	**Montana Underground Construction, Inc.**	Contractor's Project No.:	
Engineer:	**The Dyer Group, LLC**	Engineer's Project No.:	
Project:	**Water System Improvements 2018**	Contract Name:	**Water System Improvements**

The Contract is modified as follows upon execution of this Change Order:

Description: **See attached narrative.**

Attachments: **None.**

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ **409,830.00**	Original Contract Times: Substantial Completion: **60 Days** Ready for Final Payment: **70 Days** days or dates
[Increase] [Decrease] from previously approved Change Orders No. **1** to No. **1**: $ **26,516.78**	[Increase] [Decrease] from previously approved Change Orders No. **1** to No. **1**: Substantial Completion: **8 days** Ready for Final Payment: **8 days** days
Contract Price prior to this Change Order: $ **436,346.78**	Contract Times prior to this Change Order: Substantial Completion: **68 Days** Ready for Final Payment: **78 Days** days or dates
Increase of this Change Order: $ **15,157.79**	**Increase** of this Change Order: Substantial Completion: **6 days** Ready for Final Payment: **6 days** days or dates
Contract Price incorporating this Change Order: $ **451,504.57**	Contract Times with all approved Change Orders: Substantial Completion: **74 Days** Ready for Final Payment: **84 Days** days or dates

RECOMMENDED: **The Dyer Group LLC**	ACCEPTED: **Town of W Yellowstone**	ACCEPTED: **Montana Underground Constr.**
By: WRDyer	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: **Winston Dyer, PE – Prj Mngr**	Title **Dan Sabolsky – Town Mngr**	Title **Mike Hartnett – President**
Date: **23 December 2019**	Date	Date

Approved by Funding Agency (if applicable)

By: **N/A** Date:

Title:

EJCDC

Town of West Yellowstone, Montana
Water System Improvements 2018
Change Order No. 2
Narrative

Description

1. Remobilize the pump, electrical, and chlorination subcontractors to perform startup and testing of the corresponding equipment items. Furnish a portable standby power generator for startup of the well pump in the absence of utility power.

   Add the cost for this work to Item No. 18 – "Miscellaneous Work" of Bid Schedule as follows:

Subcontractor remobilization costs	$ 10,719.61
Generator rental and fuel	322.39
Contractor remobilization labor	1,247.86
Contractor remobilization equipment	941.68
Total	$ 13,231.54

   Add 6 days contract time.

2. Accrue interest on the unpaid balance of second pay request. Add the amount to Item No. 18 – "Miscellaneous Work" of Bid Schedule as follows:

$137,320.65 balance x (8% ÷ 365 daily interest) x 64 days	$ 1,926.25
Total	$ 1,926.25

   No change in contract time.

Justification

1. The contractor completed all work on the project by July 10, 2019 other than the startup and testing work – which could not be performed because utility power was not available at the building at that time. Where the subcontractors could not complete their work when finishing up in July, it required additional mobilization to the worksite to do so.

   The pump subcontractor came back in August with a portable generator to commission the well pump and then again in October after utility power was installed to the building to work with the other trades, the electrician came back in October and November after utility power was available, and the chlorination subcontractor came back in early November. The contractor likewise remobilized to be there with the subcontractors.

2. A pay request was submitted in October and became due in November. After adjustment of the principal amount on a contested item, interest has been computed on the unpaid balance as per the contract.

– End of Change Order No. 2 –

Change Order No. 2 Documentation

1. Subcontractor Remobilization

1 Remobilization of Sub-Contractors to perform startup

Subcontractor

8/8/2019	O'Keefe Drilling	LS	1	$ 2,060.00	$ 2,060.00	Pump Installer
10/4-11/5/2019	Frontier Electric	LS	1	$ 6,563.00	$ 6,563.00	Electrician
10/25/2019	Able Wright	LS	1	$ 1,288.80	$ 1,288.80	Chlorination
					$ 9,911.80	x 1.0815 = 10,719.61

Materials 1 LS

8/8/2019	Generator Rental	day	1	$ 250.00	$ 250.00	Provided By O'Keefe Drilling
	Misc. Fuel	gallons	20	$ 3.15	$ 63.00	
					$ 313.00	x 1.03 = 322.39

Labor Costs

MH	Supt	9	$ 45.00			$ 45.00	$ 405.00	$ 162.00	$ 567.00
CW	Ditch labor	9	$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ 347.49	$ 139.00	$ 486.49
PH	Bankman		$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
CS	Operator		$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
CS	Operator		$ 28.20	$ 5.50	$ 12.20	$ 45.90	$ -	$ -	$ -
BR	Laborer		$ 24.54	$ 4.85	$ 9.22	$ 38.61	$ -	$ -	$ -
								$ 1,053.49	x 1.1845 = 1,247.86

Equipment - Un-operated

11/2 ton -Dies	Work Truck	9	$ 65.00	$ 585.00	
1 ton ton dies	Pickup	6	$ 35.00	$ 210.00	
				$ 795.00	x 1.1845 = 941.68

2. Interest on Unpaid Balance

Principal $168,638.15 - ($62,635 ÷ 2) = $137,320.65
Request #2 well pump

Interest $137,320.65 x (8%/365 days) x 64 days = $1,926.25
Nov 4 - Jan 7

3. Increased Insurance/Bonding

4 Increased Insurance/Bonding Costs

Materials

8% Premium increase	ls	1	$ 231.17	$ 231.17	2018-2019	
Final Change Order	ls	4.50%	$ 40,611.13	$ 1,827.50	Bonding / Insurance and GRT	- included in multiplier
				$ 2,058.67		- insurance disallowed (= overhead)

4. Construction Delay

5 Construction Delay

Materials

Construction Delay	day	77	$ 250.00	$ 19,250.00	See Change Order #2 discussion
Standby backhoe	month	1	$ 3,900.00	$ 3,900.00	
				$ -	
	LF			$ -	
	LS			$ -	
				$ 23,150.00	- disallowed, covered by remobilization

O'KEEFE DRILLING

P.O. Box 3810 - Butte, MT 59702
Office: (406) 494.3310 Fax: (406) 494.3301
Email: cuzned@okeefedrilling.com

Client: MT Underground Construction, Inc.
5690 Glass Drive
Helena, MT 59602

Invoice: *19-71.80*
Date: 30-Aug-2019
mike@montanaunderground.com

Attn: Mike
Project: West Yellowstone Project
Dates: Aug 8th, 2019

Task		Unit Cost		Number of Units		Total Cost
Mobilization/Demobilization						
2 Men	$	205.00	Per Hour	5	$	1,025.00
Per Diem:						
Motel	3 $	135.00	Per Person Per Day		$	-
Food	3 $	40.00	Per Person Per Day		$	-
Description:						
40 HP Turbin Pump	$	33,804.00	Each		$	-
VFD Abb with Harmonic Balancer	$	11,082.50	Each		$	-
Misc. Fittings and Parts	$	500.00	Lump Sum		$	-
Equipment Rental:						
Crane	$	175.00	Per Hour		$	-
Generator Rental	$	250.00	Per Hour	1	$	250.00
Labor:						
2 Men	$	230.00	Per Hour	4.5	$	1,035.00
		Total Project Expenses			**$**	**2,310.00**

Frontier Electric, Inc.

51 Lost Trail
Clancy, MT 59634

(406) 438-1789

Invoice

Date	Invoice #
12/18/2019	785

Bill To
Montana Underground Construction 5690 Glass Drive Helena, MT 59602

P.O. No.	Terms	Project
	Due on receipt	

Item	Quantity	Description	Rate	Amount
		Remobilization Costs 10/31 - 11/01/19; 11/05 - 11/06/2019		
Labor - Electrical		Labor Hours - 12 hours/4 hours/2 hours /12 hours	2,240.00	2,240.00
Trip Charge		Travel Time - 12 hours / 12 hours	1,920.00	1,920.00
Housing		Lodging	750.00	750.00
Mobilization		Trucks	1,653.00	1,653.00
			Total	$6,563.00

Able Wright, Inc.

P. O. Box 849, Plains, MT 59859
(406)250-8389

... Invoice ...

Montana Underground Construction, Inc.
ATTN: Mike Hartnett
5690 Glass Drive
Helena, MT 59602

December 16, 2019

PROJECT: West Yellowstone Well – Water Chlorination System
Re-Mobilization Expense

Invoice No. 18372-4
Terms: Net 30 Days

Our extra Re-Mobilization Expenses on the project were as follows were as follows...

Travel - July 8 & 9, 2019:	As per our original bid proposal Reviewed project, delivered chemicals, etc. Met with Contractor & Electrician on-site	
Travel – August 8, 2019:	Left Fort Benton jobsite to travel to West Yellowstone Received call from Contractor cancelling start-up Return travel from Helena...	
	4 Hrs @ $90/Hr =	$360.00
	264 Mi @ $0.55 =	$145.20
Travel – Nov 4 & 5, 2019:	Project Start-up finally completed on 11/5/2019...	
	6 Hrs @ $90/Hr =	$540.00
	352 Mi @ $0.55 =	$193.60
	Hotel Room	$50.00
	Total Cost	$1,288.80

Total Amount Due = $1,288.80

Please Pay from Invoice – No Statement Will Be Sent.
Remit Payment to: Able Wright, Inc. PO Box 849, Plains, MT 59859

"Specialists in Disinfection and Chemical Feed"