US 93 POLSON-SOMERS CORRIDOR STUDY

APPENDIX 4:

Existing and Projected Conditions Report

US 93 POLSON-SOMERS CORRIDOR STUDY

EXISTING & PROJECTED TRANSPORTATION CONDITIONS

Technical Memorandum

June 9, 2025

MONTANA
MDT
DEPARTMENT OF TRANSPORTATION

TABLE OF CONTENTS

Table of Contents 1
Tables 2
Figures 3
Appendices 3
1.0. Introduction 1
1.1. Study Area 1
1.2. Existing Plans and Regulations 3
1.2.1. State of Montana Planning 3
1.2.2. Lake County Planning and Regulations 4
1.2.3. Flathead County Planning and Regulations 5
1.2.4. City of Polson Planning and Regulations 7
1.2.5. Federal Planning 9
1.2.6. Tribal Planning and Regulations 9
1.3. Past, Current, and Planned Projects 10
1.3.1. MDT Projects 10
2.0. Demographics 11
2.1. Population 11
2.1.1. Historic and Recent Population Trends 11
2.1.2. Study Area Population Characteristics 12
2.1.3. Population Projections 13
2.1.4. Residential Mobility 13
2.1.5. Housing Characteristics 14
2.1.6. Personal Travel and Commuting Characteristics 15
2.2. Economic Conditions and Income Characteristics 16
2.2.1. Employment Industries 16
2.2.2. Employment Status and Income Measures 17
3.0. Physical Features and Characteristics 18
3.1. Land Use and Right-of-Way 18
3.2. Roadway Surfacing 20
3.3. Access Points and Turnouts 21
3.4. Posted Speeds 23
3.5. Passing Zones 23
3.6. Maintenance and Operations 26
3.7. Geotechnical Conditions 27
3.8. Hydraulic Conditions and Structures 28
3.9. Utilities 31
3.10. Alternative Transportation Facilities 31
4.0. Geometric Conditions 35
4.1. Design Criteria 35
4.2. Roadway Width 36
4.3. Horizontal Alignment 37

4.4. Vertical Alignment 38
4.5. Sight Distance and Clear Zone 40
5.0. Traffic Conditions 41
5.1. Vehicular Traffic Volumes 41
5.2. Heavy Vehicle Traffic Volumes 42
5.3. Seasonal and Daily Variation 43
5.4. Intersection Operations 44
5.5. Highway Operations 46
6.0. Safety 51
6.1. Data Limitations 51
6.2. Crash Location 51
6.3. Crash Type 53
6.4. Crash Period 53
6.5. Crash Severity 56
6.5.1. Crash Report Narratives 58
6.6. Environmental Factors 59
6.7. Person Details 59
6.7.1. Vulnerable Road Users 59
6.7.2. Driver Condition 60
6.7.3. Contributing Actions 60
6.8. Vehicle Details 61
6.9. Level of Service of Safety 61
6.10. High Injury Network 62
6.11. Citations 67
6.12. Animal Carcasses 69
6.13. US 93 / MT 82 Safety Analysis 71
7.0. Areas of Concern and Consideration 73
7.1. Demographics 73
7.2. Transportation Conditions 73
7.3. Environmental Constraints 76
References 78

Tables

Table 1: Population Change Since 1970 11
Table 2: Race, Age, Sex, and Disability Data 12
Table 3: Population Change 13
Table 4: Residential Mobility 14
Table 5: Housing Occupancy and Tenure Characteristics 14
Table 6: Mode of Transportation to Work 15
Table 7: Employment by Industry 16
Table 8: Employment Status and Income Statistics 17
Table 9: Pavement Condition Indices 20
Table 10: Access Points Along Study Corridor 21

Table 11: Bridge Data 28
Table 12: Major Structures 29
Table 13: Baseline Criteria for Rural Principal Arterials 36
Table 14: Horizontal Alignment Summary 37
Table 15: Vertical Alignment Summary 38
Table 16: Historic Traffic Growth 42
Table 17: Projected Traffic Volume 42
Table 18: Commercial Truck Traffic 43
Table 19: Existing Conditions (2024) Intersection Operations 45
Table 20: Projected Conditions (2045) Intersection Operations 46
Table 21: Existing (2023 AADT) Corridor LOS 48
Table 22: Projected (2045 AADT) Corridor LOS 48
Table 23: HIN - Highest Scoring Segments 62
Table 24: Animal Carcasses Collected 69

Figures

Figure 1: Study Area 2
Figure 2: Population Growth from 2010 to 2035 13
Figure 3: Managed Lands 19
Figure 4: Access Point Density 22
Figure 5: Posted Speed Limits 24
Figure 6: Passing Zones 25
Figure 7: Hydraulic and Structural Features 30
Figure 8: Existing Geometric Conditions 39
Figure 9: Historic Traffic Volumes 41
Figure 10: Daily Traffic Variation (2023) 43
Figure 11: Seasonal Traffic Variation (2023) 44
Figure 12: Existing Conditions (2024) Traffic Operations 49
Figure 13: Projected Conditions (2045) Traffic Operations 50
Figure 14: Crash Density 52
Figure 15: Crash Type 53
Figure 16: Crash Occurrence by Time of Day 54
Figure 17: Crash Occurrence by Month and Day of the Week 55
Figure 18: Crashes per Year 55
Figure 19: Crash Severity 56
Figure 20: Crash Density and Severe Crashes 57
Figure 21: Crash Environmental Factors 59
Figure 22: Driver Contributing Actions 61
Figure 23: Sliding Window Method 62
Figure 24: High Injury Network 63
Figure 25: Location of Citations 68
Figure 26: Seasonal and Yearly Distribution of Carcasses Collected 69
Figure 27: Carcasses Collected 70

Appendices

Appendix A: As Built Geometrics Review
Appendix B: Traffic Data Collection
Appendix C: Existing Conditions Operations Analysis
Appendix D: Projected Conditions Operations Analysis

1.0. INTRODUCTION

The Montana Department of Transportation (MDT) is developing a corridor study of US Highway 93 (US 93) between Polson and Somers, Montana. The purpose of the *US 93 Polson-Somers Corridor Study* is to develop a comprehensive long-range plan for managing the corridor and determining what improvements can be made to address identified needs while considering public and agency input, environmental constraints, access management, and financial feasibility. The study is a collaborative process with MDT, the Federal Highway Administration (FHWA), the Confederated Salish and Kootenai Tribes (CSKT), local jurisdictions, resource agencies, and the public to identify transportation needs and potential solutions.

The *Existing and Projected Transportation Conditions* technical memorandum provides a planning-level overview of transportation conditions within the corridor and identifies potential constraints and considerations that may influence the development of improvement options for the study corridor. The planning-level examination addresses demographic and economic conditions affecting traffic volumes, the physical roadway corridor and associated transportation facilities, geometric characteristics, current and projected traffic conditions, and safety conditions. Findings are based on available data, field observations, geographical information systems (GIS) and aerial photography, and input from agencies and stakeholders.

1.1. Study Area

The study area includes US 93 starting north of Polson at reference point (RP) 63.0 and ending north of Somers at RP 104.2, as illustrated in **Figure 1**. The Polson to Somers corridor traverses through parts of Lake and Flathead Counties, crosses the Flathead Reservation, and follows the western shore of Flathead Lake. The corridor passes through many small and medium-sized communities including Polson, Big Arm, Elmo, Dayton, Rollins, Lakeside, and Somers.

The study area continues to experience consistent growth related to tourism and recreation, as well as commuter and commercial/construction truck traffic. Traffic volumes on the corridor are high and put considerable strain on the existing infrastructure, particularly during the peak season.

The corridor passes through multiple land use types including rural, mountainous, recreational, and developed communities.

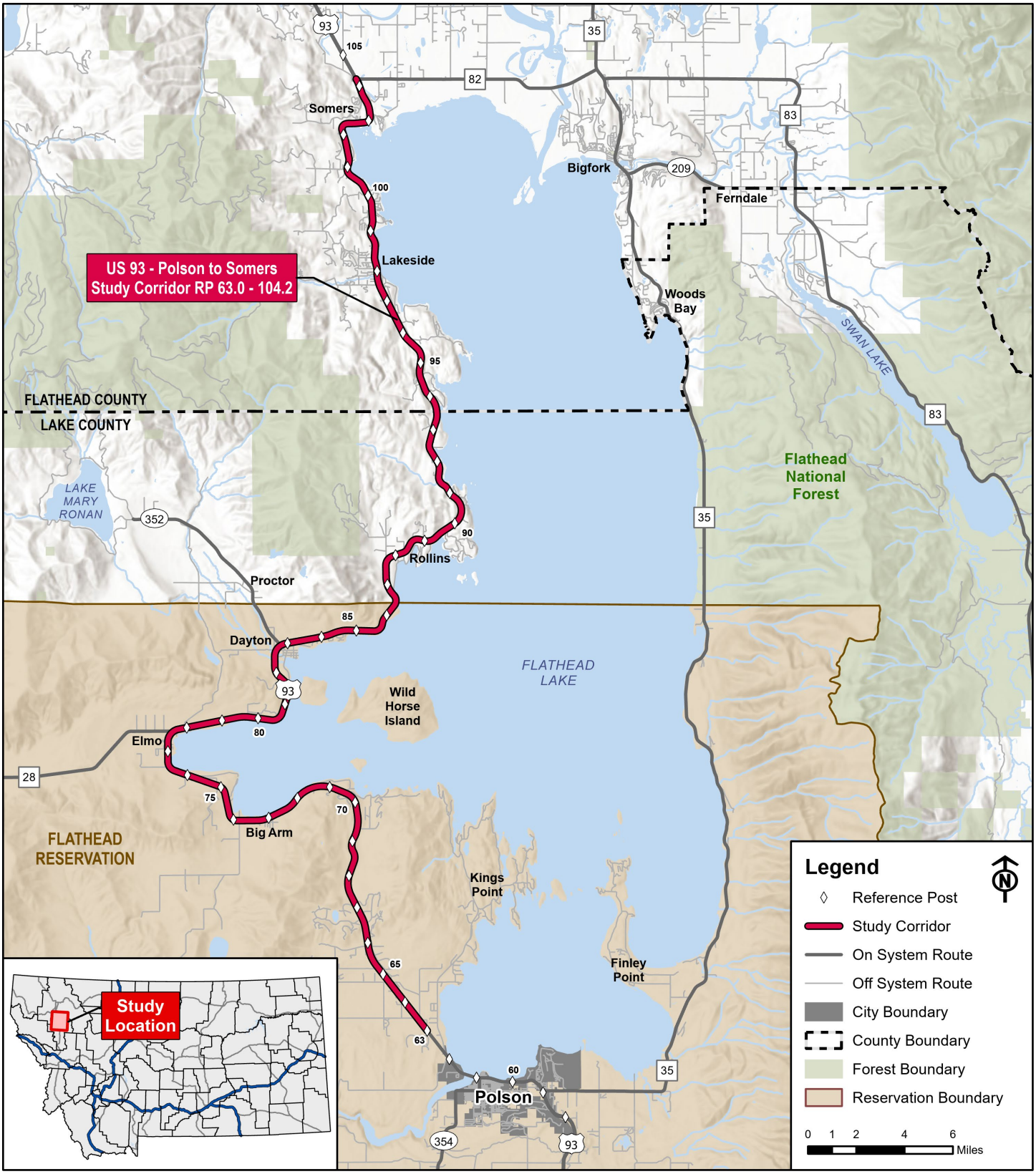


Figure 1: Study Area

1.2. Existing Plans and Regulations

Multiple Federal, State, Tribal, and local plans and regulations relate to transportation and land use within the study area. The following sections provide a summary of relevant planning documents and regulations currently available for the study area.

1.2.1. State of Montana Planning

US 93 Polson Corridor Study (2011) / US 93 Evaro-Polson FEIS (1996)

MDT conducted a corridor study in coordination with the CSKT, City of Polson, Lake County, and FHWA to identify and analyze alternate route options for US 93 extending from RP 56.5 at approximately the Caffery Road/Ford Road intersection to RP 63.0 north of the Rocky Point Road intersection. The potential for an alternative route through Polson was initially brought forward in the 1996 *US 93 Evaro to Polson Final Environmental Impact Statement* (FEIS). In fulfillment of a deferred commitment made in the FEIS to determine an appropriate improvement project, the study identified eleven potential alignments to address the needs for the study area. Two options were recommended for future consideration, including the northern hybrid and southern hybrid alignments. Both would bypass the community of Polson to the south and west starting from the Caffery Road/Ford Road intersection and rejoining US 93 in the vicinity of the Rocky Point Road intersection. These two alignments were found to perform best in terms of system function, traffic operations, safety, impacts, costs, and community preference.

Rollins Speed Study – US 93 (N-5) (2023)

In August of 2022, Lake County submitted a request for a speed study of US 93 on behalf of approximately 65 residents in northern Lake County wanting the statutory 70 mile per hour (mph) speed limit reduced to 50 mph. MDT conducted the study beginning at RP 85 and ending at RP 93. For the study, MDT reviewed crash history, citations, travel speed characteristics, and contextual characteristics. Although prevailing speeds indicated appropriately set speed limits, roadway context indicated speeds are slightly elevated above what should be considered reasonable and prudent in some areas. Based on the elevated crash rates, the study recommended a 5-mph reduction from the statutory 70-mph speed limit to 65-mph from approximately Northaire Lane until RP 93 within the Rollins area.

Lakeside Speed Study – US 93 (N-5) (2024)

MDT conducted a speed study focused on the portion of US 93 from RP 93.0 to 104.2 near Lakeside. It proposed a speed limit of 65 miles per hour (mph) beginning at RP 93 and continuing until RP 97.0 (previously posted at 70 mph), as well as a 30-mph speed limit between Blacktail Road and Old Orchard Road in Lakeside at approximate RP 98.0 (previously posted at 35 mph), followed by a lengthened 45-mph transition zone extending 1,600 feet. The recommended speed limits have been posted in the corridor, and the data collected for this study reflects the new posted speed limits.

Elmo to Dayton Speed Study – US 93 (N-5) (Under Review)

MDT received an August 2023 request for a speed study on US 93 in the Elmo to Dayton area in September 2022. MDT collected data during September 2023 and is currently conducting an analysis for the portion of US 93 from RP 76.96 to RP 85.00.

Adams Street Traffic Study in Lakeside – US 93 (N-5)

MDT received a request to evaluate signal warrants and pedestrian crossing enhancements at the Adams Street intersection in Lakeside. MDT collected traffic and non-motorist data in August 2022.

1.2.2. Lake County Planning and Regulations

Lake County Growth Policy (2018)

The purpose of the Lake County Growth Policy is to represent current conditions in the County, outline a vision for County priorities, and build a framework for future planning. The document notes MDT is responsible for maintenance and improvements of US 93 and references recent improvement and planning efforts conducted for the highway. Under the goal to provide safe and healthy communities for residents and visitors, one of the objectives is to provide a safe and efficient transportation network for all modes of transportation. Implementation actions include coordinating transportation-related improvements with other agencies and working with MDT to provide more pedestrian and bicycle facilities along State highways.

Lake County Zoning Districts

Within and adjacent to the US 93 corridor study area, Lake County administers the following four zoning districts in conformance with the *Lake County Growth Policy*. Generally, the purpose of these zoning districts is to help guide growth and development in the area, to maintain the rural character of the area and allow for development that is consistent and compatible with the existing pattern of growth, to protect and enhance property values and amenities, and to protect and enhance the natural environment, water quality, and wildlife. District locations and uses are described below.

- **Upper West Shore Zoning District and Regulations (2013)**: This district is generally bordered on the north by the County line, to the south by the Sections 31 and 32 boundary line just north of Mellow Cove Lane (RP 85.5 – 93.8), to the east by Flathead Lake, and to the west by the Range 20 and 21 boundary line. Due to the variation in existing land use patterns, the area is divided into sub-districts to allow for variable densities and uses. These sub-districts include Upper Lakeside (RP 89.0 – 93.8 [eastside of US 93], residential), Lower Lakeside (RP 85.5 – 89.0 [eastside], residential, restricted commercial), Upper Highway Side (RP 89.0 to 93.8 [westside of US 93], residential), and Lower Highway Side (RP 85.5 – 89.0 [westside], residential, highway commercial, light industrial). Permitted uses including single family residential with a single guest house per lot, agriculture and forestry, and associated impervious surface areas. Required development densities and prohibited uses vary within the district according to designated subareas.
- **Stone Ridge Estates Zoning District Regulations (2007)**: The purpose of this zoning district is to provide for a combination of moderate density residential development intermixed with resort type properties and adjacent moderate intensity office, retail, and light manufacturing. The District is generally bordered on the north by Tower Road, on the east by the 1994 Polson City County Planning Area Boundary, and to the west and south by the Section 31 boundaries. Permitted/prohibited uses and development densities vary within the district according to designated subareas.
- **Masumola Zoning District and Regulations – Lake County (2000)**: This district is bordered on the south by Baypoint Lane and to the east by Flathead Lake. The northern boundary is about one mile north of Kings Point Road, and the district extends approximately 1.5 miles west of Rocky Point Road. Permitted uses including single family residential, agriculture and forestry, and associated impervious surface areas. Industrial, commercial, and multi-family residential are among multiple prohibited uses. Required development densities vary within the district.
- **Melita Island Road/Labella Lane Zoning District Regulations – Lake County (1986)**: This district encompasses the lakefront area northeast of US 93 directly across from Melita Island,

extending from approximately RP 70 to 71.3. Single-family residential is the sole use allowed within the district, including primary residence, up to one guesthouse, and accessory buildings.

Lake County Lakeshore Protection Regulations (2024)

The *Lake County Lakeshore Protection Regulations* are intended to protect and conserve lakeshores within the County. Construction and maintenance work is allowable only following issuance of a Lakeshore Construction Permit that meets applicable policy criteria outlined in the regulations. The regulations outline the permit application process, review procedure, and design standards to meet permit requirements.

1.2.3. Flathead County Planning and Regulations

Flathead County Growth Policy (2023)

The Flathead County Growth Policy provides guidance for growth in Flathead County. The growth policy has no regulatory authority and is designed as a conceptual foundation for future land use decisions and as a basis for future regulations. The document notes that traffic in Flathead County is anticipated to grow in direct relationship with population growth. Transportation goals include maintaining safe and efficient traffic flow and mobility, developing a quality transportation network to meet the present and future needs of the public, and identifying and supporting alternative modes of transportation.

Flathead County Zoning Regulations (2023)

The purpose of the *Flathead County Zoning Regulations* is to promote the health, safety, and general welfare of the community; to conserve natural resources; to provide adequate accommodations for transportation of people and goods; to provide adequate light and air; to facilitate the provisions for public works requirements such as water, sewer, and environmental needs; to ensure orderly development according to the Growth Policy adopted for all or parts of Flathead County; to regulate and restrict the height, number of stories, and size of buildings and other structures, the percentages of a lot that may be covered by impervious surfaces, the size of yards and other open spaces, the location and use of buildings, structures, and land for trade, industry, residences, and/or other uses; and the protection of the aesthetic resources of Flathead County. Flathead County zoning designations within and adjacent to the study corridor are described below.

- **R-1**: A district to provide estate-type development typically in rural areas away from concentrated urban development that are not served by water or sewer services, or in areas where it is desirable to permit only low-density development (e.g., extreme topography, areas adjacent to floodplains, airport runway). Minimum lot area of one acre. Located south of Lakeside in the Peaceful Bay area, and between Lakeside and Somers in the Fish Hatchery and Spring Creek areas.
- **R-2**: A district to provide for large-tract residential development typically in suburban areas, generally served by either sewer or water lines. Minimum lot area of 20,000 square feet. Located south of Lakeside in the Conrad Point and Peaceful Bay areas, north of Lakeside along Lakeside Boulevard and in the Caroline Point area, and south of Somers along N Juniper Bay Road.
- **R-4**: A district to provide lot areas for urban residential development with all public utilities and all community facilities required and duplexes allowed. Minimum lot area of 6,000 square feet for single-family dwellings, 7,500 square feet for duplexes and all other uses. Located north of Lakeside at the US 93/Caroline Point Road intersection.
- **SAG-10**: A district to provide and preserve agricultural functions and to provide a buffer between urban and unlimited agricultural uses, encouraging separation of such uses in areas

where potential conflict of uses will be minimized, and to provide areas of estate-type residential development. Minimum lot area of 10 acres. Located south of Lakeside in the Conrad Point area, to the south of Conrad Point Road.

- **Scenic Corridor**: An overlay or standing district intended to protect the scenic vistas and provide greater traffic safety along the highway corridors by restricting the number, size and location of signage and regulating cellular towers. Located along US 93 throughout study corridor, approximately 0.25 mile from each side of roadway centerline for a total width of 0.5 mile.
- **Lakeside Zoning District**: The purpose of this district is to further the goals of the Lakeside Neighborhood Plan by providing for the orderly development of Lakeside and specifically by providing for a commercial center, encouraging residential development within existing neighborhoods by establishing height and setback standards that reflect the existing pattern of growth and by protecting existing uses within the community of Lakeside. Uses allowed for property abutting US 93. Minimum lot area (for new lots): Commercial: 10,000 sq. ft. Single-family: 10,000 sq. ft. Multi-family: Additional 5,000 sq. ft. per lot for each additional residential unit over one (duplex – 15,000, triplex – 20,000, etc.).

Lakeside Neighborhood Plan (2010)

The *Lakeside Neighborhood Plan* supplements the *Flathead County Growth Policy* by documenting conditions in the Lakeside community and identifying desired future land uses. The plan addresses the area north of the Lake County line (RP 93.8), south of Spring Creek Road (approximately RP 100.9), west of Flathead Lake, and east of the USFS property boundary, roughly corresponding to the postal ZIP code 59922. According to the 2010 *Neighborhood Plan*, there are seven approved zoning districts within the Lakeside neighborhood area including Conrad Point and Peacefull Bay II (RP 95.9 – 96.5, residential), Cherry Hills (RP 99.3, residential), Lakeside Town Center (RP 97.5 - 98.5, mixed residential and commercial), Caroline Point (RP 99.3, residential), Fish Hatchery (RP 99.7 – 100.9, residential), and Spring Creek (RP 100.5 - 102, residential). Part of the Lakeside community vision is an "interconnected transportation network that provides for safe pedestrian, bicycle, and motorized travel as well as alternatives to Highway 93." The categories of traffic and roads and bike/walk paths received the highest gap between importance and satisfaction in a community survey conducted for the plan, with 89% of respondents indicating a medium to high concern for pedestrian and motorized access on US 93. The plan noted that traffic on US 93 increases dramatically in the summer compared to other seasons, and numerous access points intersect US 93 within the Lakeside community. The plan identified the need for improved pedestrian accommodations at the US 93 intersections with Adams Street, Bierney Creek Road, and Blacktail Road given high pedestrian volumes associated with the Lakeside Elementary School, local lakefront recreational areas, and local services. Additional desired improvements on US 93 included enhanced speed enforcement, left-turn lanes at Spring Creek Road and Deer Creek Road, additional sidewalks/shared use paths, corridor landscaping through the downtown area, and improved roadway lighting. The plan also recommends separating pedestrian infrastructure from US 93 and limiting access on US 93.

Cooper Farms Neighborhood Plan (2008)

The *Cooper Farms Neighborhood Plan* was adopted by Flathead County to supplement its *Growth Policy* by providing guidance for land use and future development in the area northeast of the US 93/MT 82 intersection in the Somers area. Land use types addressed in the plan include public facilities (wetland preserves and parks), residential lands of varying densities, and neighborhood commercial. One of the goals of the plan is to facilitate safe traffic movement from the neighborhood area onto US 93 and MT 82. The plan notes that the Cooper Farms development will install a traffic

signal at School Addition Road when traffic warrants are met under the conditions of a Memorandum of Understanding with MDT. Additionally, the development will coordinate with MDT to construct a bicycle and pedestrian path along MT 82 that will connect with the existing trail at US 93 and extend east to the School Addition Road intersection.

Flathead County Economic Development Strategy (2023)

Montana West Economic Development (MWED) and the Flathead County Economic Development Authority (EDA) prepared a local economic development plan to build economic capacity and guide economic prosperity by identifying strengths, weaknesses, opportunities, and threats (SWOT) in the region. The plan establishes a vision for the community, includes goals and strategies to achieve the vision, and addresses economic resilience to help the region withstand any type of disruption or stress it may experience. The plan notes that the region continues to grow, and traffic volumes have increased dramatically in recent years. The SWOT analysis identifies road conditions as a weakness, specifically in terms of walkability, connectivity of trails, and public transit/mobility. Additionally, population growth and increasing tourism have the potential to outpace the capacity of regional infrastructure. A goal of the plan is to support the maintenance and upgrades to physical infrastructure as needed for sustainable growth, specifically including improvements to the road network to promote smart growth, reduce congestion, advance safety, and improve mobility for people of all ages and abilities. Additionally, the plan supports opportunities and partnership to expand transit and para-transit services. The plan also encourages collaboration between MDT, local jurisdictions, and stakeholders to develop a walkable and safe connected network of trails, sidewalks, and shared-use paths for citizens of all ages and abilities.

Flathead County Lake and Lakeshore Protection Regulations (2021)

The *Flathead County Lake and Lakeshore Protection Regulations* are intended to protect and conserve lakes and lakeshore areas within the County by requiring permits for approved work types and prohibiting certain types of construction within the lakeshore protection zone. The regulations outline the permit application process, review procedure, and design standards to meet permit requirements.

1.2.4. City of Polson Planning and Regulations

Local Bypass Study and 7th Avenue & Hillcrest Drive Assessment (2023)

The City of Polson conducted an assessment to evaluate the viability and potential effects of a local bypass resulting from a new street connection between Hillcrest Drive and US 93 via Ridgewater Drive in Polson. This connection would provide an alternative to the portion of US 93 through downtown Polson and alleviate congestion in summer months during peak tourism season. The assessment confirmed that the Ridgewater Drive to Hillcrest Drive connection is the most viable route for a local bypass in part because it is largely in place and the owner of the Cougar Ridge Development is committed to its construction to meet the City's conditions of approval for a secondary access to the development. The study produced planning-level typical sections and preliminary roadway layouts that would minimize right-of-way acquisition, provide safety benefits, accommodate pedestrians, address drainage needs, and provide adequate surfacing.

Polson Growth Policy (2016)

The 2016 update to Polson's Growth Policy documents the area's resources and provides guidance for responsible growth and economic development. The document is intended to be used as a resource for making decisions about the physical, social, and economic development of the City of Polson. The document notes that US 93 continues to experience high traffic volumes, and traffic congestion is acute in the summer months corresponding to the tourist season. The policy references

a bypass project that was previously to reroute US 93 along the west side of the City. An Environmental Impact Statement (EIS) was drafted in 1996, and the Polson City Commission voted in favor of the proposed alternative. However, the project has been on hold since that time, and the growth policy indicated about half of the City population favors a bypass, while the other half prefers the highway to directly pass through Polson as it does currently. The bypass concept remains a long-term consideration, but no funding has been identified.

Polson Development Code (2016)

The City/County Zoning District is jointly administered by the City of Polson (within the city limits) and the Lake County Planning Department (outside of the City limits). Currently, each jurisdiction uses a version of the Polson Development Code tailored to that jurisdiction. The district extends from Rocky Point Road southeast through Polson City limits (RP 56.5 - 62.5). Allowable land uses include productive lands, rural residential, low/medium density residential, mixed use residential, transitional, resort, highway commercial, central business, and general commercial/industrial.

Within the Polson City limits, zoning districts include General Commercial Industrial (CIZD) on the west side of US 93, with Resort (RZD) and Low Density Residential (LRZD) on the east side of US 93 southeast of Rocky Point Road, described as follows:

- The **CIZD** is intended to accommodate a wide range of commercial uses that do not rely on direct highway access or downtown location, and industrial development in the City jurisdictional area.
- The **RZD** permits mixed higher-density residential and resort commercial development primarily along the Flathead Lake and Flathead River shoreline.
- The **LRZD** is intended to provide for residential neighborhoods of single-family dwellings that are typically connected to municipal utilities, with a minimum lot size of 7,000 square feet.

Polson Area Transportation Plan (2011)

The Polson Area Transportation Plan provides a multi-modal analysis of the transportation system, including traffic operations, the roadway network, and non-motorized accommodations. To address concerns and challenges, the plan outlines recommendations for improvement projects and programs to meet user needs. The planning area includes a two-mile radius from the center of the incorporated City limits of Polson and overlaps the US 93 study corridor from RP 63.0 to approximately the US 93/Fox Johnson Road intersection at ~RP 65.1. Plan goals include providing a safe, efficient, accessible, and cost-effective transportation system offering choices for moving people and goods, making transit and non-motorized modes of transportation viable travel alternatives, providing an open public involvement process, providing a financially sustainable plan, and identifying and protecting future road corridors.

In 2011, the plan identified Level of Service C at Rocky Point Road just south of the US 93 study corridor, with truck traffic ranging from 4.0-4.3% at the intersection. Rocky Point Road was also identified as one of the top five intersections of concern based on a compositive rating incorporating number of crashes, crash severity, and crash rate. Field observations documented in the plan noted that the hill located on the west side of the intersection causes a sight obstruction for vehicles waiting to turn from the skewed Rocky Point Road intersection onto US 93. Vehicles were also observed running the stop sign from Rocky Point Road onto US 93 and using the shoulder to turn right from US 93 onto Rocky Point Road. The plan recommended a project to stripe a westbound right-turn lane on US 93 at the Rocky Point Road intersection and to conduct a speed study to determine if the speed limit for eastbound traffic on US 93 should be reduced.

City of Polson Extension of Services Plan (2015)

The *Extension of Services Plan* is intended as a guide for the provision of City services to areas of the City not currently served. In order to satisfy Montana State statutes, the plan explains how it will provide services to areas proposed for annexation. The plan establishes an urban growth boundary defining the projected service area in which municipal services may be extended over a period of 5 -10 years, depending upon based on future growth trends, needs, and demand for water, sewer, storm drainage, solid waste disposal, streets, police protection and fire protection.

1.2.5. Federal Planning

Flathead National Forest Land Management Plan (2018)

The forest plan provides an integrated set of management direction addressing the social, economic, and ecological sustainability and multiple uses of the Forest's lands and resources. Plan components address physical and biological elements, human uses and designations, production of natural resources, and the social and economic environment. The plan identifies desired infrastructure conditions, including a transportation system interconnected with Federal, State, Tribal, County, City, and private roads and trails to provide access to lands, infrastructure, and inholdings where appropriate.

Lake County Long Range Plan (2019)

The United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) in coordination with the Lake County Conservation District developed a long-range plan to identify natural resource data, status and trends within Lake County. The plan represents a commitment to local and regional partnerships and outlines strategic approaches to solving complex natural resource issues. The plan is intended to assist in prioritizing projects for NRCS financial incentive programs. Topics evaluated include human populations, agriculture, geology and soils, water resources, air quality, wildlife, land uses, and conservation activities.

1.2.6. Tribal Planning and Regulations

Flathead Reservation Pre-Disaster Mitigation (PDM) Plan (2016)

The PDM Plan profiles significant hazards to the CSKT community and identifies mitigation projects that can reduce those impacts. The purpose of the plan is to promote sound public policy designed to protect residents, critical facilities, infrastructure, private property and the environment from natural and man-made hazards. The plan documents a risk assessment measuring the probability, magnitude/severity, warning time, and duration of potential hazards on a 1-4 scale, with 4 representing the highest risk. The category of highway accidents received a Calculated Priority Risk Index (CPRI) score of 3.2 out of 4, and the hazard of transportation accidents including hazardous materials incidents was identified as second out of five top priorities for the CSKT. The plan notes that the Flathead Reservation is vulnerable to all types of transportation emergencies, with human injury, hazardous materials releases, and property damage representing the primary effects. The plan states that CSKT does not have any ordinances or regulations requiring special considerations to mitigate the effects of transportation accidents.

CSKT Climate Change Strategic Plan (2016)

This plan is intended to improve Tribal community and natural resource resiliency by informing climate change impact planning decisions made by the Tribes. It is designed to initiate collectively beneficial climate change impact mitigation and adaptation solutions. The analysis recognizes that changing weather patterns caused by climate change could create transportation barriers and increase traffic congestion that may affect access to healthcare and other critical services and resources for Tribal

members. The plan identifies a goal of improving the use of the Tribal transportation system to reduce fossil fuel consumption and carbon emissions created by vehicles, with a follow-up action to expand the Tribal bus fleet to accommodate more riders.

CSKT Tribal Transportation Safety Plan (2014)

The CSKT *Tribal Transportation Safety Plan* summarizes vehicular crashes occurring on the Flathead Reservation from 2004 to 2013, with specific focus on crashes resulting in fatalities and injuries. Common crash characteristics and contributing factors included wildlife conflicts, infrastructure issues, and user behavioral factors. To address these transportation safety concerns, the plan identifies strategies to improve transportation safety in Reservation communities. Strategies are prioritized around the 4Es of safety (Education, Enforcement, Emergency response and Engineering).

Aquatic Lands Conservation Ordinance of the CSKT (1986)

The *Aquatic Lands Conservation Ordinance* (ALCO) is intended to prevent the degradation of Reservation waters and aquatic lands by regulating construction or installation of projects upon aquatic lands whenever such project may cause erosion, sedimentation, or other disturbances adversely affecting the quality of Reservation waters and aquatic lands. The ordinance outlines required permit applications, fees, inspection, and enforcement associated with applicable projects.

1.3. Past, Current, and Planned Projects

1.3.1. MDT Projects

Anticipated Future Projects

MDT intends to apply epoxy striping as needed throughout the corridor and conduct periodic reactive maintenance. No additional projects or maintenance activities are planned in the corridor at this time.

Active Projects

SF 209 Missoula North Signs – MDT is developing a safety project to address identified crash trends in Flathead, Lake, Lincoln, and Sanders counties. The improvements include a varying combination of signing, lighting, flashers, curve signing, and delineation. Some work on this project is located within the boundaries of the Flathead Reservation. The project is currently in design, and construction is anticipated in 2025. The estimated cost for construction is to be determined.

Recent Projects

US 93 Rumble Strips (2023) – In 2023, MDT completed a project on US 93 between the Wye intersection and Big Arm. Rumble strips were added to portions of the roadway along the highway, including north of Polson from Wilderness Valley Road toward Melita Island Road.

2.0. DEMOGRAPHICS

This section provides an overview of socioeconomic characteristics of the study area. Demographic and socioeconomic information was reviewed to help determine recent trends in population, age distribution, employment, economic status, and commuting for area residents. Historic and recent trends in area demographics help define existing conditions and aid in forecasting techniques, as there is a direct correlation between motor vehicle travel and socioeconomic indicators. Socioeconomic data sources often lag considerably behind the actual years of interest. This analysis presents the most recent data available and indicates recent and potential changes in the area.

2.1. Population

A review of demographics within the study area is appropriate to gain an understanding of historical trends in population and characteristics of the population relevant to transportation planning. Understanding population composition is necessary, as the data may influence the types of improvements identified. For example, an aging population may indicate a need for specific types of transportation improvements such as transit services and/or non-motorized infrastructure improvements.

2.1.1. Historic and Recent Population Trends

Flathead and Lake Counties have emerged as two of Montana's fastest-growing regions. Between 1970 and 2020, these counties collectively added over 81,000 residents, reflecting a 150 percent increase in population. Combined County growth ranged from about 13% to more than 30 percent each decade from 1970 through 2020. The City of Kalispell, located northeast of the US 93 corridor, experienced significant growth during this period, with its population more than doubling from 10,526 in 1970 to 24,558 residents by 2020. The population of Polson also doubled from 2,464 in 1970 to 5,148 in 2020. In comparison, the US and Montana saw population growth rates of approximately 52 and 42 percent, respectively, over the same period. **Table 1** provides historical and current population estimates for Flathead and Lake Counties, the Cities of Kalispell and Polson, the State of Montana, and the US.

Between 1970 and 2020, Flathead and Lake Counties saw compound annual growth rates of approximately 2.0 percent and 1.6 percent, respectively. In contrast, Montana and the nation as a whole grew at compound annual rates of about 1.0 percent annually during the same 50-year period, underscoring the faster growth rates observed in Flathead and Lake Counties.

Table 1: Population Change Since 1970

Area	1970	1980	1990	2000	2010	2020	Compound Annual Growth (1970-2020)
Flathead County	39,460	51,966	59,218	74,471	90,928	104,357	1.96%
Lake County	14,445	19,056	21,041	26,507	28,746	31,134	1.55%
City of Kalispell	10,526	10,648	11,917	14,223	19,927	24,558	1.71%
City of Polson	2,464	2,798	3,291	4,041	4,488	5,148	1.48%
State of Montana	694,409	786,690	799,065	902,195	989,415	1,084,225	0.90%
United States	203.4M	226.5M	248.7M	281.4M	308.7M	331.4M	0.98%

Source: US Census Bureau, Current Estimates Data available from American Fact Finder.

From 2010 to 2020, Flathead and Lake Counties experienced significant population growth, with a collective increase of 13 percent, bringing their combined estimated population to over 135,000 residents. Approximately 50 percent of this population resides in unincorporated areas, while the remaining 50 percent resides in urban centers such as Kalispell and Polson.

2.1.2. Study Area Population Characteristics

NEPA/MEPA directs Federal, State, and local agencies to assess potential social and economic impacts anticipated from proposed actions. Guidelines recommend consideration of impacts to neighborhoods and community cohesion, social groups including minority populations, and local and/or regional economies, as well as growth and development that may be induced by transportation improvements. Demographic and economic information presented in this section is intended to assist in identifying populations that might be affected by improvements in the study area. **Table 2** summarizes recent population and demographic data for the three largest Census Designated Places (CDPs) in the corridor (Lindisfarne, Lakeside, and Somers), Lake and Flathead Counties, and Montana obtained from the 2018 to 2022 American Community Survey (ACS) 5-Year Estimates[1]. A CDP is a concentration of population defined by the United States Census Bureau for statistical purposes only.

The population of Lake County is notably different from the other geographics. Lake County has the highest percentage of individuals identified as American Indian or Alaska Native at 22.1 percent, compared to 1.1 percent for Flathead County and 5.8 percent for the State. Lake County also has the highest percent of individuals classified as other races or two or more races at 11.8 percent and the lowest percent of individuals classified as White (not Hispanic or Latino) at 65.2 percent.

Lindisfarne and Somers CDPs have low populations under the age of 18 at about four percent compared to 21 to 25 percent for the other geographies. Lindisfarne has the highest percentage of people over age 65, at more than 40 percent.

Table 2: Race, Age, Sex, and Disability Data

Population Characteristics		State of Montana	Flathead County	Lake County	Lakeside CDP	Lindisfarne CDP	Somers CDP
Race	White	86.4%	92.0%	65.2%	95.0%	97.2%	99.7%
	African American	0.6%	0.3%	0.3%	0.0%	0.0%	0.0%
	American Indian	5.8%	1.1%	22.1%	0.0%	0.0%	0.3%
	Asian	0.8%	0.8%	0.7%	0.0%	0.0%	0.0%
	Other Race/Combination of Races	6.4%	5.9%	11.8%	5.0%	2.8%	0.0%
	Hispanic or Latino (any race)	4.2%	3.3%	4.5%	2.2%	0.0%	0.2%
Age	Under 18	21.2%	21.7%	22.6%	24.8%	4.2%	4.6%
	18-64	59.4%	57.9%	54.4%	52.1%	55.4%	68.0%
	65 and over	19.4%	20.4%	23.0%	23.2%	40.4%	27.4%
Sex	Male	50.7%	50.1%	49.6%	45.2%	53.7%	54.6%
	Female	49.3%	49.9%	50.4%	54.8%	46.3	45.4
Disability Status*	*% Persons with Disability*	14.1%	11.5%	15.2%	7.4%	23.4%	50.4%
	% Disabled (<18 years)	4.5%	3.8%	6.3%	13.2%	0.0%	0.0%
	% Disabled (≥65 years)	32.9%	27.1%	31.6%	7.6%	38.0%	67.3%
TOTAL POPULATION		1,091,840	105,950	31,509	2,564	495	1,037

Source: US Census Bureau, American Community Survey (ACS) 5-Year Estimates, 2018-2022.
**Disability status provided as a percentage of the noninstitutionalized population.*

2.1.3. Population Projections

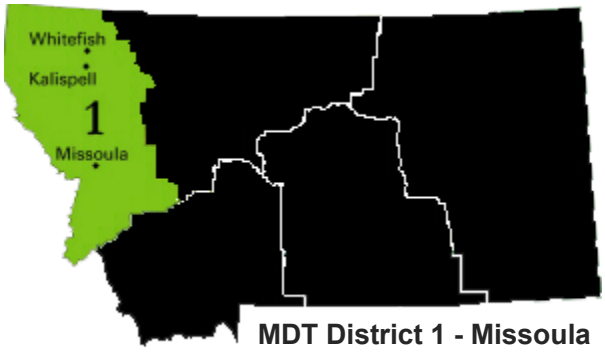
The Flathead County and Lake County populations as well as the Lindisfarne and Somers CDPs grew at a greater rate from 2017 to 2022 than the State, as shown in **Table 3**.

Table 3: Population Change

Parameter	State of Montana	Flathead County	Lake County	Lakeside CDP	Lindisfarne CDP	Somers CDP
2013-2017	1,029,862	96,147	29,518	2,459	165	924
2018-2022	1,091,840	105,950	31,509	2,564	495	1,037
Population Change	6.0%	10.2%	6.7%	4.3%	200.0%	12.2%

Source: US Census Bureau, American Community Survey (ACS) 5-Year Estimates, 2013-2017 and 2018-2022.

Since 2010, population growth in Flathead County has outpaced growth in the MDT Missoula District and Montana, with the trend projected to continue. From 2010 to 2017, Lake County's population growth was lower than growth rates of Flathead County, western Montana, and the State. However, more recent growth since 2017 in Lake County has changed this trend, with future projections showing a growth similar to the State. The population change for these areas since 2010, projected out to 2035, is shown in **Figure 2**.



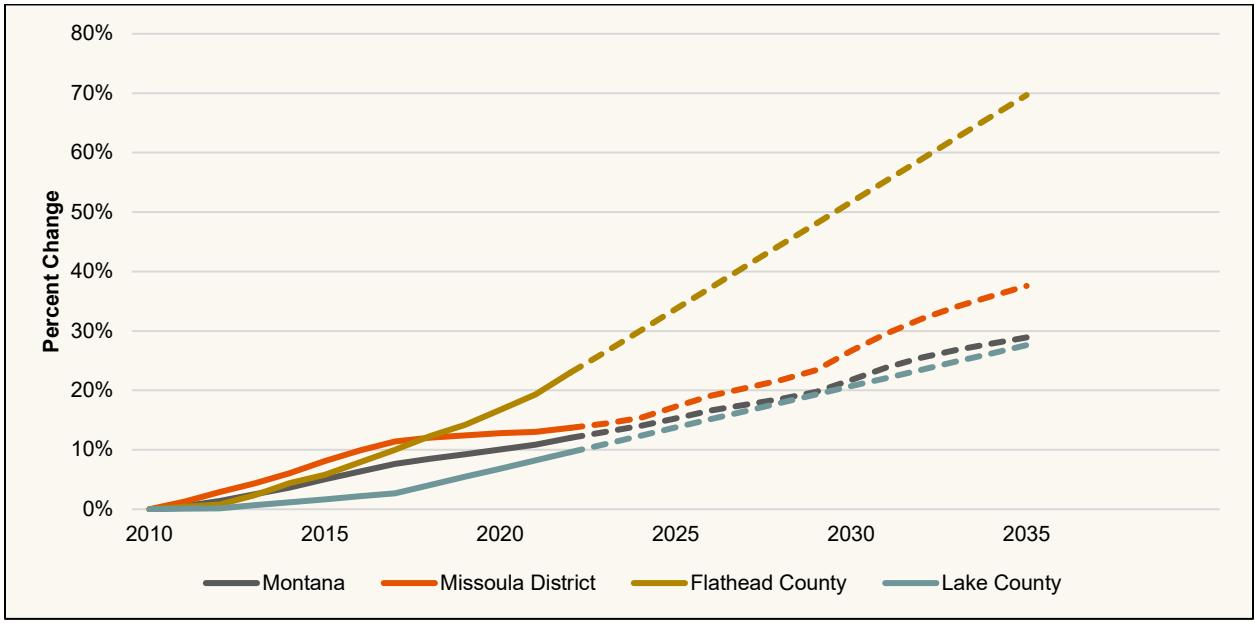


Figure 2: Population Growth from 2010 to 2035

Sources: REMI PI+, U.S. Census ACS 1-Year Estimates, U.S. Census ACS 5-Year Estimates, U.S. Decennial Census

2.1.4. Residential Mobility

The ACS publishes detailed estimates on the US population's geographic mobility each year. Mobility measures key migration patterns including how many people moved to new homes in the past year,

and from where. **Table 4** presents inbound residential mobility patterns for each of the study area geographies for the 2018-2028 period. Outbound data is not available.

Statewide, approximately 14.7% of the population relocated in the past year. Most of these moves occurred within the same county (7.1%), followed by moves from different counties within Montana (3.2%), from other states (4.1%), and a small fraction from abroad (0.3%). Flathead County shows slightly lower mobility than the state overall, with 12.4% of its population having moved, while Lake County recorded a slightly higher rate of 13.6%, driven in part by a higher share of intra-state, inter-county movers (4.1%). In the smaller CDPs, mobility is notably lower. Lakeside CDP had 8.8% of residents move, primarily within the same county. Lindisfarne CDP had a 4% mobility rate, mostly from other states, while Somers CDP recorded the lowest mobility, with only 1% of residents relocating, and nearly all from within Montana. Overall, the majority of movement at all levels is internal.

Table 4: Residential Mobility

Subject	State of Montana	Flathead County	Lake County	Lakeside CDP	Lindisfarne CDP	Somers CDP
Total Population (Over Age 1)	**1,080,579**	**104,999**	**31,265**	**2,517**	**495**	**1,037**
Moved to Area	**158,845**	**13,019**	**4,252**	**221**	**20**	**10**
Within Same County	*7.1%*	*6.6%*	*5.7%*	*6.3%*	*0.0%*	*0.0%*
From Different County within Same State	*3.2%*	*1.7%*	*4.1%*	*1.3%*	*1.6%*	*0.9%*
From Different State	*4.1%*	*3.9%*	*3.8%*	*1.2%*	*2.4%*	*0.1%*
From Abroad	*0.3%*	*0.2%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

Source: US Census Bureau, American Community Survey (ACS) 5-Year Estimates, 2018-2022.

2.1.5. Housing Characteristics

The number of housing units in the largest CDPs within the study area grew at a higher rate (11.5% to 53.8%) compared to Flathead County (4.4%), Lake County (-2.2%), and the State (3.3%) from 2017 to 2022. The share of owner-occupied housing units increased slightly at the County and State levels (by 0.1 to 2.3 percentage points) and in Lakeside (by 1.4 percentage points), but dropped sharply in Lindisfarne and Somers (by -16.0 and -41.2 percentage points, respectively). These declines reflect a significant shift toward rental occupancy, with Lindisfarne's owner-occupancy share dropping from 100% to 84%, and Somers from 90.1% to 48.9%.

Table 5 displays housing characteristics. Analysis suggests that while the number of occupied housing units increased more substantially in Flathead County and the largest CDPs within the corridor (8.5% to 298.2%) compared to the State (5.7%) and Lake County (2.2%), many of these units are rentals.

Table 5: Housing Occupancy and Tenure Characteristics

Subject		State of Montana	Flathead County	Lake County	Lakeside CDP	Lindisfarne CDP	Somers CDP
2018-2022	**Total Housing Units**	517,430	50,252	16,436	1,582	572	723
	Total Occupied Housing Units	443,917	42,154	12,050	1,123	219	468
	Owner Occupied	306,432	31,328	8,669	855	184	229
	Renter Occupied	137,485	10,826	3,381	268	35	239
	Total Vacant	73,513	8.098	4,386	459	353	255
	Share of Owner-Occupied Units	**69%**	**74.3%**	**71.9%**	**76.1%**	**84.0%**	**48.9%**

Subject		State of Montana	Flathead County	Lake County	Lakeside CDP	Lindisfarne CDP	Somers CDP
2013-2017	Total Housing Units	501,099	48,154	16,811	1,419	372	619
	Total Occupied Housing Units	419,975	38,006	11,796	1,035	55	395
	Owner Occupied	284,168	27,350	8,466	773	55	356
	Renter Occupied	135,807	10,656	3,330	262	0	39
	Total Vacant	81,124	10,148	5.015	384	317	224
	Share of Owner-Occupied Units	**67.7%**	**72.0%**	**71.8%**	**74.7%**	**100.0%**	**90.1%**
Change in Total Housing Units		3.3%	4.4%	-2.2%	11.5%	53.8%	16.8%
Change in Occupied Housing Units		5.7%	10.9%	2.2%	8.5%	298.2%	18.5%
Change in Owner Occupation Rate		**1.3%**	**2.3%**	**0.1%**	**1.4%**	**-16.0%**	**-41.2%**

Source: US Census Bureau, American Community Survey (ACS) 5-Year Estimates, 2013-2017 and 2018-2022.

2.1.6. Personal Travel and Commuting Characteristics

The ACS provides estimates of the total share of workers aged 16 years and older who commute or work at home, transportation modes used by commuters, and mean travel times to work for commuters. **Table 6** presents commuting characteristics for workers in Flathead and Lake Counties and in the largest CDPs along the study corridor. Similar statistics for the State of Montana are provided for comparison.

Table 6: Mode of Transportation to Work

Subject	State of Montana	Flathead County	Lake County	Lakeside CDP	Lindisfarne CDP	Somers CDP
% Workers 16 Years and Older with Access to 1+ Vehicle	**97.8%**	**98.2%**	**98.1%**	**97.2%**	**95.8%**	**100.0%**
Number of Workers 16 Years and Older	526,969	51,262	12,938	1,306	284	458
% Who Commuted to Work	89.4%	86.3%	90.0%	85.9%	94.7%	50.0%
% Who Worked at Home	10.6%	13.7%	10.0%	14.1%	5.3%	50.0%
Drove alone (car, truck, van)	72.7%	74.9%	70.0%	69.1%	90.5%	50.0%
Carpooled	9.6%	6.7%	13.2%	7.1%	4.2%	0.0%
Public Transportation (excluding taxicabs)	0.7%	0.1%	0.2%	2.5%	0.0%	0.0%
Walked to Work	4.2%	2.7%	4.9%	6.4%	0.0%	0.0%
Bicycled to Work	1.1%	0.6%	0.4%	0.0%	0.0%	0.0%
Other means of commuting	1.1%	1.2%	1.3%	0.8%	0.0%	0.0%
Mean Travel Time to Work (minutes)	**18.8**	**19.0**	**21.1**	**24.4**	**26.9**	**22.3**

Source: US Census Bureau, American Community Survey (ACS) 5-Year Estimates, 2018-2022.

According to ACS data for the 2018-2022 period, most commuting workers in the study area had access to a personal vehicle and drive alone to work destinations, with the highest percentage occurring for the Lindisfarne population at 90.5 percent. The highest share of carpooling occurred in Lake County (at 13.2%), while the share of workers who walked to work was highest in Lakeside and Lake County (6.4% and 4.9%, respectively). Workers in Lakeside and Lindisfarne had slightly longer commute times compared to the other locations.

2.2. Economic Conditions and Income Characteristics

2.2.1. Employment Industries

Flathead County and Lake County form a significant region in Montana, with Flathead County one of Montana's most populous counties. The regional economy is diverse, supported by sectors such as services and technology, construction, finance and real estate, manufacturing, wholesale and retail trade, and government, each contributing to the economic landscape. With continued desirability as a place to live and work, the region is positioned favorably for sustained economic expansion.

Kalispell, Montana, has been experiencing notable economic development trends in recent years. Within Flathead County, a significant percentage of residents work in Kalispell given its status as the County's largest community and economic hub. While specific recent statistics vary, a substantial portion of Flathead County's workforce is employed in Kalispell across various sectors such as healthcare, retail, hospitality, construction, and professional services. This employment concentration underscores Kalispell's pivotal role in the local economy, drawing workers from surrounding communities within Flathead County. Within Lake County, Polson serves as an employment center, with the largest sectors including public administration, healthcare, retail trade, and educational services. **Table 7** displays 2022 employment estimates by industry within the State of Montana, Flathead and Lake Counties, and the three largest CDPs along the study corridor.

Table 7: Employment by Industry

Industry	State of Montana	Flathead County	Lake County	Lakeside CDP	Lindisfarne CDP	Somers CDP
Agriculture, forestry, fishing, hunting, and mining	6.3%	4.2%	5.6%	5.6%	0.0%	0.0%
Construction	8.6%	10.8%	7.3%	13.8%	3.2%	7.4%
Manufacturing	4.8%	6.7%	6.4%	14.4%	12.3%	10.5%
Wholesale trade	2.1%	1.3%	1.1%	0.8%	5.3%	0.0%
Retail trade	12.2%	13.8%	11.05%	4.0%	10.2%	7.6%
Transportation, warehousing, and utilities	5.2%	3.4%	3.3%	3.2%	0.0%	0.0%
Information	1.6%	1.8%	2.5%	0.0%	19.7%	0.0%
Finance, insurance, real estate, rental and leasing	5.4%	6.9%	4.6%	16.6%	0.0%	0.0%
Professional, scientific, management, and administrative	9.4%	10.3%	8.5%	7.6%	13.7%	50.0%
Educational services, health care and social assistance	23.0%	21.1%	25.8%	13.2%	5.3%	6.8%
Arts, entertainment, recreation, and accommodation	10.8%	12.0%	11.0%	14.1%	0.0%	15.1%
Other services, except public administration	5.0%	3.8%	4.3%	3.8%	0.0%	2.6%
Public administration	5.7%	3.9%	8.5%	3.0%	30.3%	0.0%

Source: U.S. Census Bureau 2018-2022 ACS 5-Year Estimates.

Tourism and outdoor recreation also play a very important economic role in the region, providing access to the Flathead National Forest, Lolo National Forest, Kootenai National Forest, and Glacier National Park. Nonresident visitors to Flathead County and Lake County spent an average of seven nights in 2022, higher than the State average of five nights.[2] During 2021 and 2022, nonresidents were estimated to have spent $818 million in Flathead County alone, the second highest behind Gallatin County.[3]

Retail trade and the arts, entertainment, recreation, and accommodation sectors employed the 2nd and 3rd largest percentages at the County levels, indicating the significant influence of the tourism and outdoor recreation industries in the region. Other important employment sectors for the largest CDPs within the corridor include manufacturing, information, finance/insurance/real estate/rental and leasing, public administration, and professional/scientific/management/administrative sectors, indicating a diverse local economy.

2.2.2. Employment Status and Income Measures

Table 8 presents ACS data on the employment status and estimated income levels of residents within the State of Montana, Flathead and Lake Counties, and the three largest CDPs within the study corridor for the 2018-2022 period.

A median household income of $136,691 for residents in the Lindisfarne CDP was more than double the statewide value, while median income of $71,006 for residents in the Lakeside CDP was about seven percent higher than the State average. Lower median household incomes were reported in the Somers CDP and Lake County, ranging from about $54,466 to $58,009 or about 18 to 13 percent below the statewide average. Flathead County most closely matched the statewide value at $68,025. The unemployment rate was lowest in the Lakeside and Somers CDPs (at 0 percent) and highest in Lake County (at 6.5 percent) and the Lindisfarne CDP (at 5.3 percent). The unemployment rate in Flathead County was 3.2 percent, below the statewide average value of 3.9 percent. The percent of the population below poverty level was highest in Lake County (19.0 percent), followed by the Lakeside CDP (17.1 percent), the State of Montana (12.4 percent), Lindisfarne CDP (11.9 percent), Flathead County (9.3 percent), and the Somers CDP (5.1 percent).

Table 8: Employment Status and Income Statistics

Characteristics of Population	State of Montana	Flathead County	Lake County	Lakeside CDP	Lindisfarne CDP	Somers CDP
EMPLOYMENT						
Civilian Labor Force (16 Years and Older)	555,742	53,726	14,239	1,316	300	458
Employed %	96.1%	96.8%	93.5%	100.0%	94.7%	100.0%
Unemployed %	3.9%	3.2%	6.5%	0.0%	5.3%	0.0%
INCOME MEASURES						
Median Household Income	$66,341	$68,025	$58,009	$71,006	$136,691	$54,466
Mean Household Income	$90,142	$91,345	$78,186	$92,430	$121,303	$62,425
Per Capita Income	$37,837	$37,984	$31,177	$41,790	$55,082	$32,038
Poverty Rate	12.4%	9.3%	19.0%	17.1%	11.9%	5.1%

Source: U.S. Census Bureau 2018-2022 ACS 5-Year Estimates. Civilian labor force defined as workers 16 years and over not in the Armed Forces. Unemployed percentage calculated based on total civilian labor force.

3.0. PHYSICAL FEATURES AND CHARACTERISTICS

US 93 is a major north-south National Highway System (NHS) route in the western US that is important to the local, State, and Federal transportation system. It begins in Arizona and ends in Montana at the Canadian border where it continues north as a Canadian highway. The Polson to Somers corridor connects the major Montana cities of Missoula and Kalispell, providing a regional travel route.

The roadway follows the western shore of Flathead Lake throughout much of the study area. Flathead Lake—the largest freshwater lake west of the Mississippi River—represents a significant trout fishery and is important both ecologically and economically within the region. Recreation sites along the US 93 corridor offer numerous opportunities for convenient access to the lake and surrounding lands for sailing, power boating, waterskiing, swimming, fishing, picnicking, and camping. This section of US 93 also serves as a popular north-south connection for visitors traveling between Yellowstone National Park and Glacier National Park.

The Polson to Somers corridor is also culturally significant to the CSKT. Areas bordering Flathead Lake and the Polson area have heightened historic and prehistoric values due to the geographic significance of the confluence of Flathead Lake and Flathead River. All recreational activities on Tribal owned lands require the purchase of a Tribal recreation permit.

In addition to providing access to public lands for many recreational visitors and commercial operations, the corridor serves numerous individual residences, rural subdivisions, and commercial enterprises. The use of lands, water sources, and recreation areas accessed by US 93 has historically provided substantial tourism traffic and economic subsistence for the rural communities along the corridor.

3.1. Land Use and Right-of-Way

The land in the study area is primarily owned by private landowners, though some lands are held by CSKT, Flathead County, Lake County, and various State agencies. Four State Parks, including Big Arm (RP 74.5), Wild Horse Island (RP 81.0, island within Flathead Lake only accessible by boat), West Shore (RP 92.7), and Somers Beach (RP 103.1) are located within or adjacent to the corridor. Several lands surrounding the corridor are Reservation trust lands managed by the CSKT, some of which are restricted for Tribal member access only. Conservation easements held by Montana Land Reliance exist near or adjacent to the study corridor northeast of Dayton, approximately between RP 83 and 87. Additional conservation easements, held independently by both Montana Land Reliance and the Nature Conservancy, are located approximately 0.5 mile east of RP 96 on Conrad Point.[4]

Right-of-way widths vary considerably within the corridor. For much of the corridor, widths are approximately 160 feet but are typically narrower beginning near Lakeside and continuing north through Somers. There are also locations where the roadway exists on easements on managed lands. A map of existing managed lands and roadway easement locations is shown in **Figure 3**.

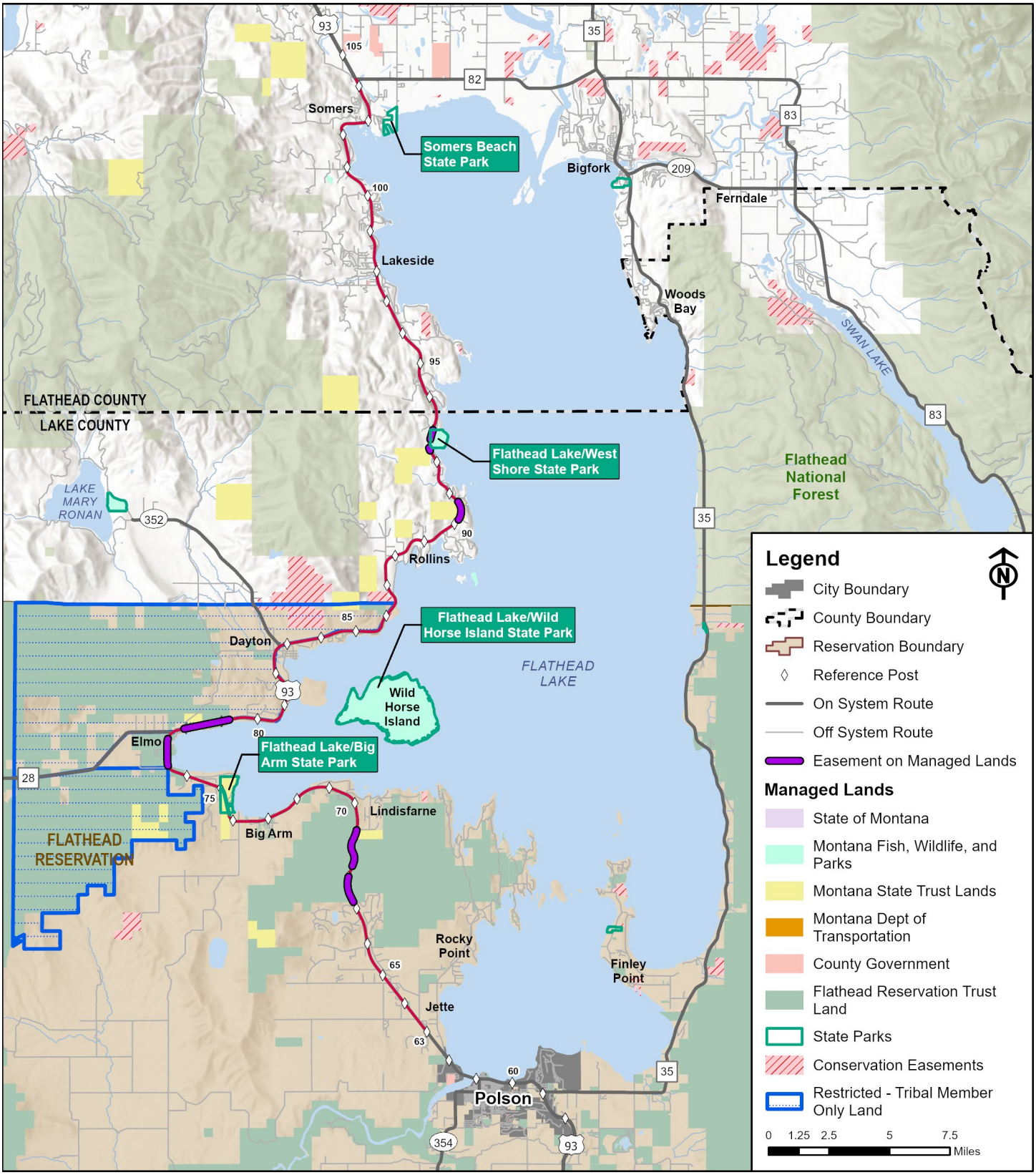


Figure 3: Managed Lands

3.2. Roadway Surfacing

Based on roadway surfacing information provided by MDT, the existing width varies from 24 to 77 feet along the study corridor, with the typical paved width being approximately 32 feet. The typical width included one travel lane in each direction and approximately four-foot-wide shoulders. Occasional turn lanes, a two-way left-turn lane (TWLTL) through the Lakeside and Somers areas, and intermittent passing lanes are also located within the corridor resulting in a wider surface width.

Pavement condition indices are measured and tracked annually in the corridor. MDT's pavement management system (PvMS) is used to analyze the collected data to determine the relative performance of the pavement. Items of primary interest include the presence and degree of cracking and rutting. Several pavement condition indices are monitored through the PvMS. The performance measures and corresponding indices use a numerical value of 100 (assigned to a new pavement with no flaws) through 0 (representing highly degraded pavement).

- **Ride Index (IRI):** Determined by using an internationally applied roughness index in inches per mile and converting to a 0 to 100 scale.
- **Rut Index (RI):** Calculated by converting rut depth to a 0 to 100 scale. Rut measurements are taken approximately every foot and averaged into one-tenth mile reported depths.
- **Alligator Crack Index (ACI):** Measured by combining all load associated cracking and converting the index into a 0 to 100 scale.
- **Miscellaneous Cracking Index (MCI):** Calculated by combining all non-load associate cracking and converting the index into a 0 to 100 scale.
- **Overall Performance Index (OPI):** Determined by combining and placing various weighting factors on the IRI, RI, ACI, and MCI figures and converting the index to a 0 to 100 scale. The OPI is calculated to provide a single index describing the current general health of a particular route or system.

As shown in **Table 9**, the various pavement condition performance measures indicate a range of pavement performance throughout the corridor. The OPI indicates that the pavement is in fair condition from the beginning of the study area to RP 85.0 where it transitions into good condition. The pavement remains in good overall condition until RP 102.0 through the end of the study area where it is considered to be in poor condition.

Table 9: Pavement Condition Indices

Begin RP	End RP	IRI	RI	ACI	MCI	Constructed	Last Surface (Treatment)	Pavement Age	OPI
59.3	67.4	77.4 Fair	46.7 Fair	94.9 Good	90.7 Good	1986	2002 (2014)	21	54.8 Fair
67.4	79.3	80.2 Good	54.2 Fair	98.7 Good	90.1 Good	1996	2018 (2018)	5	60.7 Fair
79.3	85.0	74.0 Fair	48.1 Fair	92.1 Good	75.0 Fair	1990	1990 (2009)	33	49.4 Fair
85.0	92.9	84.8 Good	56.5 Fair	99.2 Good	95.4 Good	1990	2007 (2018)	16	65.6 Good
92.9	102.0	81.8 Good	55.7 Fair	97.3 Good	91.4 Good	1964	2022 (2022)	1	94.9 Good
102.0	103.3	69.8 Fair	44.2 Fair	75.9 Fair	73.6 Fair	1963	2006 (2010)	17	39.6 Poor
103.3	105.9	69.0 Fair	31.0 Poor	63.0 Fair	68.6 Fair	1961	1997 (2009)	26	30.6 Poor

Source: MDT, 2023

3.3. Access Points and Turnouts

Numerous public and private access points occur along the study corridor. Access points were identified through a review of available GIS data, and aerial imagery. Based on this review, 402 access points were identified along the corridor. Of the 402 total access points, 189 were considered public roadways, 158 were private approaches, 25 were farm field approaches, eight were recreation approaches, and 22 were designated turnouts. Accesses were defined based on the most typical use as noted during the field review and based on aerial photography.

The angle of an approach refers to the angle at which the approaching road intersects the major road. Desirably, roadways should intersect at or as close to 90° as practical. Intersection skews greater than 30° from perpendicular are typically undesirable, as the driver's line of sight becomes restricted. Accordingly, the approach angle is recommended to be between 60° and 120°. A total of 64 skewed access points were identified on the corridor, 38 of which are public approaches.

Table 10 provides a summary of access points grouped in incremental segments along the study corridor. The table shows the number and density of approaches for the various roadway segments. The density of approaches per mile is also shown in **Figure 4**.

Table 10: Access Points Along Study Corridor

Segment	Begin RP	End RP	Length (mi)	Access Points					Density (per mi)	Skewed (<60°)
				Public	Private	Farm	Rec	Turnout		
Begin Corridor to Jette Lake Trail	63	67	4	16	16	6	0	1	9.75	7
Jette Lake Trail to Melita Island Rd	67	71	4	6	3	0	0	5	3.50	2
Melita Island Rd to Walking Horse Ln	71	74	3	16	20	2	0	1	13.00	10
Walking Horse Ln to Grants Ln	74	78	4	19	17	5	1	3	11.25	4
Grants Ln to Lake Mary Ronan Rd	78	83	5	11	6	4	1	2	4.80	3
Lake Mary Ronan Rd to Wild Horse Ranch Rd	83	90	7	25	25	7	0	4	8.71	4
Wild Horse Ranch Rd to Political Hill Dr	90	97.5	7.5	30	13	1	0	4	6.40	5
Political Hill Dr to Spring Creek Rd	97.5	101	3.5	48	24	0	2	1	21.43	18
Spring Creek Rd to MT Hwy 82	101	104	3	18	34	0	4	1	19.00	11
TOTAL			41	189	158	25	8	22	9.80	64

Three existing access control plans are in place along the study corridor as shown in **Figure 4** and described below.

- **Elmo – Rollins (RP 78.73 – 84.63)**: This 1981 resolution designates the 5.5-mile-long segment of US 93 a limited access highway.[5]
- **Flathead County Line** – South (RP 84.63 – 92.38): This 1985 resolution designates the 7.7-mile-long segment of US 93 a limited access highway.[6]
- **Somers – Kalispell (RP 102.87 – 108.47):** This 1991 resolution designates the 7.9-mile-long segment of US 93 a limited access highway.[7]

Due to the outdated and incomplete nature of existing access management plans within the corridor, MDT is developing an updated access management plan covering the entire corridor, superseding all previous resolutions, as a supplemental component of the *US 93 Polson-Somers Corridor Study*.

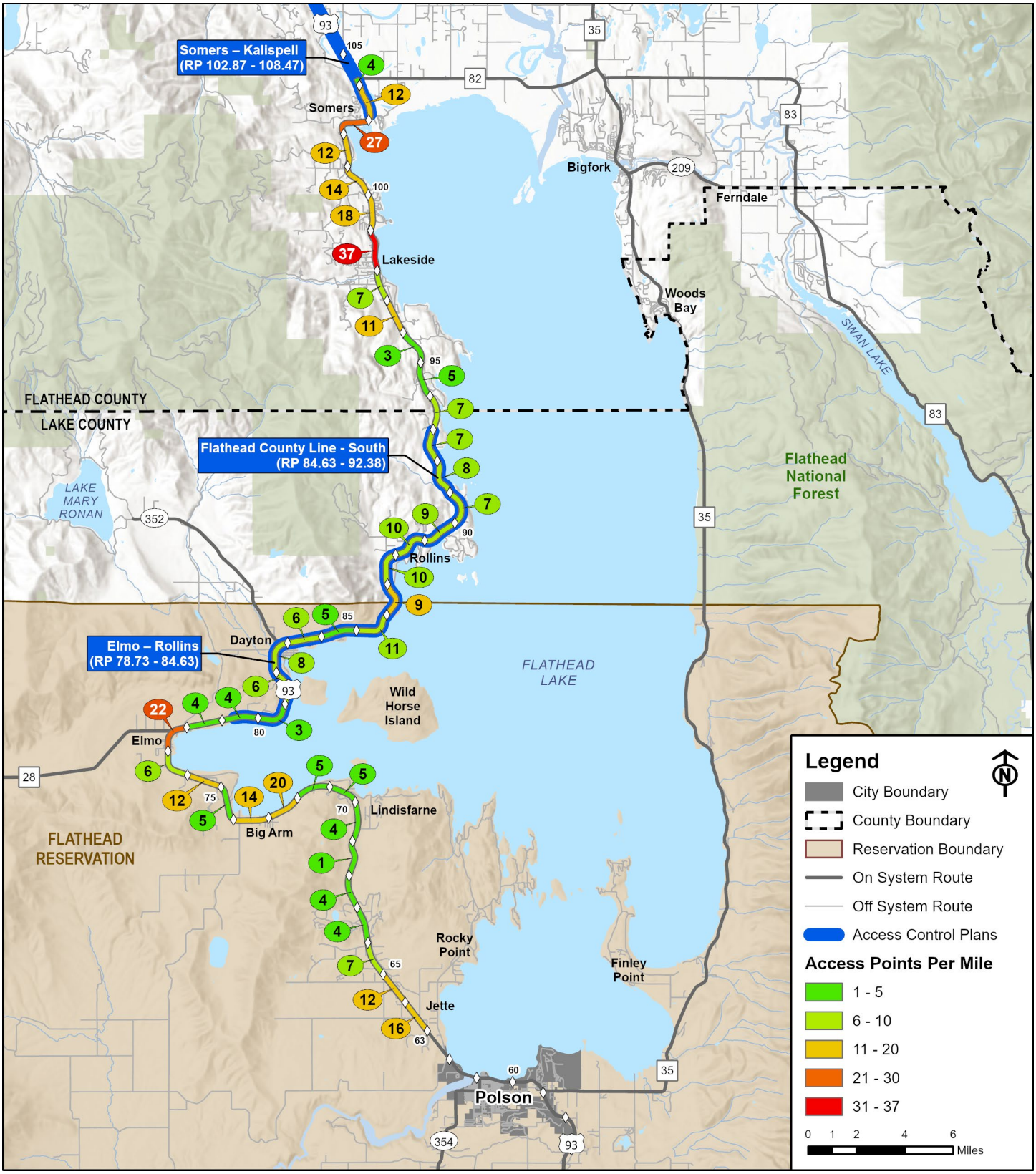


Figure 4: Access Point Density

3.4. Posted Speeds

The study corridor has varying speed limits and intermittent speed zones. Most of the roadway is signed as a standard highway with a 70-mph daytime limit for passenger vehicles and 65-mph limit for heavy trucks and nighttime. Speed zones exist through the main communities along the corridor including Somers (45-mph), Lakeside (30-mph), Elmo (45-mph), and Big Arm (45-mph). In addition, a 65-mph speed zone was recently established through Rollins, between approximately RP 86.3 and 93.0, based on recommendations made in a speed study conducted in 2022.[8] The Lakeside speed study, completed in 2024, also recommended reducing the speed limit from 70 mph to 65 mph between RP 93.0 and 97.0, which has since been implemented. Another speed study was conducted during the summer of 2023, covering RP 77.0 to 85.0 through the communities of Elmo and Dayton. This study is still under MDT review, and no changes have been implemented. The existing posted speed limits are shown in **Figure 5**.

3.5. Passing Zones

Passing opportunities are provided along the corridor in areas where roadway geometrics allow. Passing areas are designated by broken yellow center pavement markings. No passing zones are designated in areas with insufficient passing sight distance or near public approaches. A total of 37 passing zones, 19 northbound and 18 southbound, exist along the corridor. The following information summarizes the guidelines for no-passing zones as described in the MDT *Road Design Manual:*[9]

- For determining a no-passing zone, the distance along a driver's line of sight is measured from a 3.5-foot height of eye to a 3.5-foot height of object.
- For 2-lane rural highways of level terrain on the NHS, the no-passing zone design speed will be 70-mph.
- The minimum passing sight distance required for a 70-mph no-passing zone design speed is 1,200 feet.
- The minimum length for a no-passing zone is 500 feet.
- If the length between successive no-passing zones in the same direction of travel is less than 1,000 feet, then the gap between the no-passing zones should be closed.
- A no-passing zone should be marked in advance of intersections at a minimum distance of 500 feet.

Passing lanes are also present in select locations. Passing lanes are additional travel lanes, typically in segments with steep grades or where terrain may accommodate the extra roadway width. The passing lanes allow the passing of slower moving vehicles without the need for the passing vehicle to utilize the lane with oncoming traffic. **Figure 6** shows the existing passing zones and passing lanes, along with their length, as documented through on-site field review and aerial imagery.

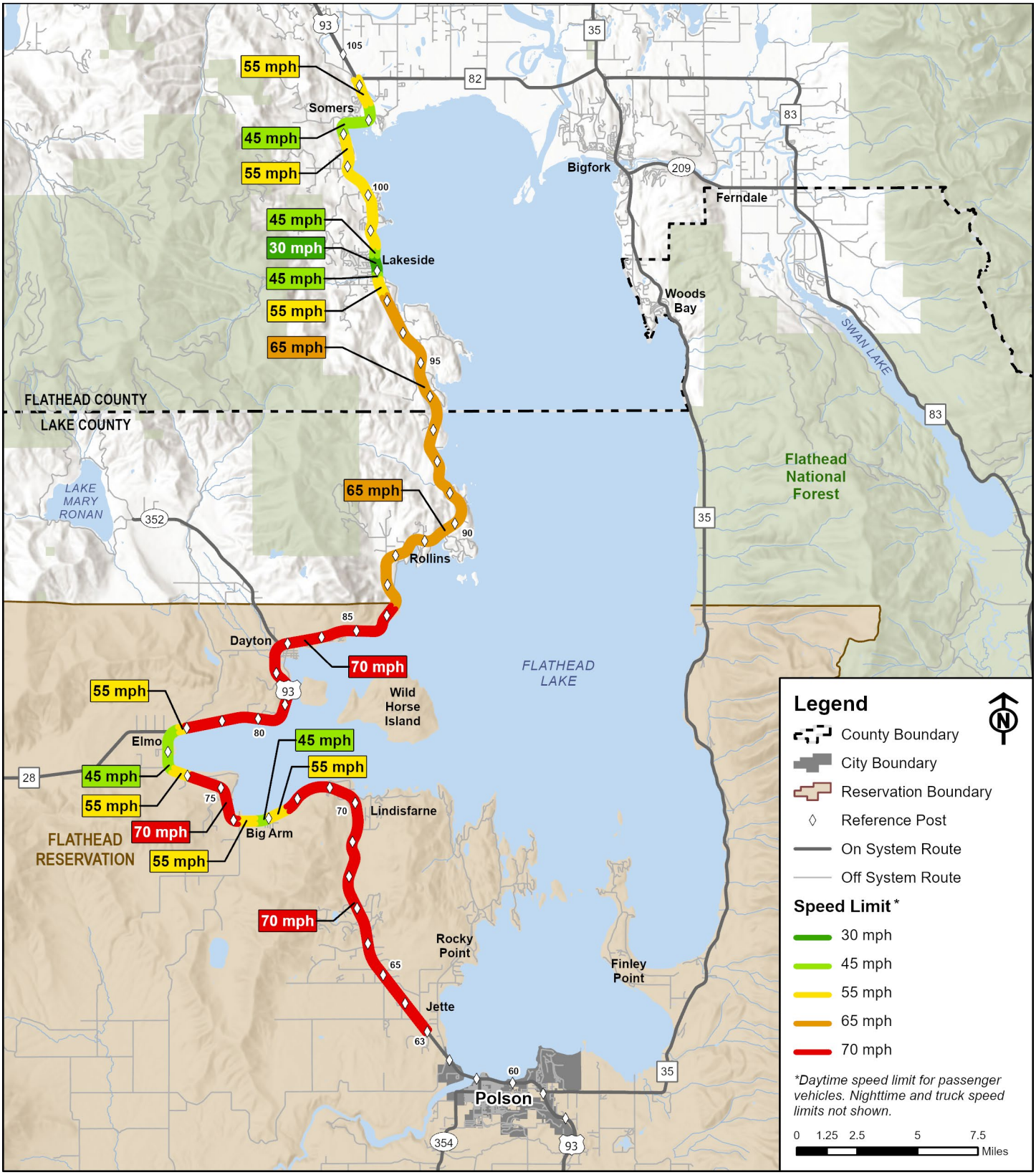


Figure 5: Posted Speed Limits

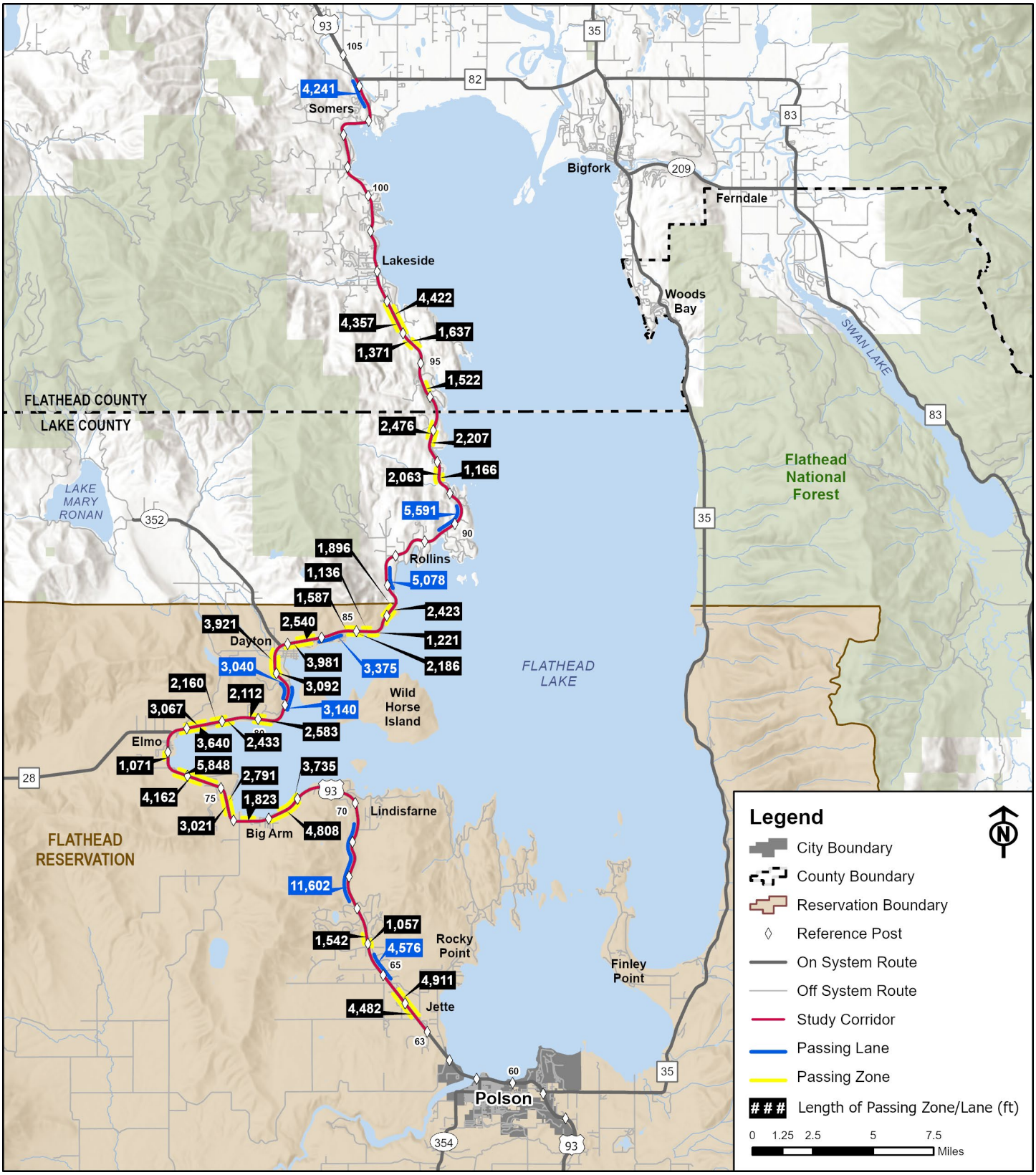


Figure 6: Passing Zones

3.6. Maintenance and Operations

MDT is responsible for maintenance of US 93 throughout the entire study area, including repairs and preventative maintenance of the roadway as well as maintenance of signs and structures within the highway right-of-way. The entire corridor is within the Kalispell Maintenance Division. Between MT 28 and MT 82, the highway falls under the Rollins Maintenance Section. South of MT 28, the corridor is part of the Polson Maintenance Section.

The Rollins Section House is located at Big Lodge Road (RP 87.7). Two sand/salt stockpiles are co-located at the maintenance site, with two additional stockpiles at the MT 28 junction (RP 77.6) and a third in Lakeside off Blacktail Road (RP 97.8). The Polson Section House is located along US 93 just south of the intersection with MT 35.

Winter Operations

Winter snowplowing and sanding are also the responsibility of MDT maintenance personnel. The study corridor is considered a Level I and Level I-A winter maintenance area according to the MDT *Maintenance Operations and Procedures Manual*[10]. A Level I winter maintenance area includes roadways within or adjacent to a 3-mile radius to towns or cities with an average daily traffic (ADT) greater than 5,000 vehicles per day (vpd). The portion of US 93 within a 3-mile radius of Polson qualifies a Level I maintenance area. Level I routes are eligible to receive up to 24 hours-per-day coverage during a winter storm event. A Level I-A winter maintenance area includes all other MDT-maintained roadways with ADTs greater than 3,000 vpd. The ADT on US 93 within the study area ranges from 5,000 to 12,500 vpd, qualifying the remainder of the study corridor as a Level 1-A maintenance route. Level I-A routes are eligible for 19 hours-per-day coverage, typically between 5:00 AM and 12:00 AM, during a winter storm event. Implementation of coverage is at the discretion of MDT's Kalispell Area Maintenance Chief. The primary objective is to keep the roadway open to traffic and provide an intermittent bare pavement surface in the main driving lane as soon as possible. The remaining lanes and shoulders should be cleared as soon as conditions and available manpower and equipment allows. Anti-icing and sand/de-icing operations are typically conducted during the storm.

Heavy Vehicle Operations

A single portable weigh station is listed in Rollins.

Emergency Services

The Flathead County Office of Emergency Services (OES) is the umbrella organization for operations relating to emergency management, incident management, hazardous materials, fire service, and 9-1-1 calls. Similarly, the Lake County Emergency Manager operates the Office of Emergency Management (OEM) in Polson that also serves as the local Emergency Operations Center (EOC) in the event of an emergency requiring a multi-agency response.

The corridor is served by multiple rural fire districts: Polson Rural Fire District (RFD), Chief Cliff Fire Service Area (FSA), Rollins RFD, and Somers RFD.[11] A few segments of the corridor are located outside these districts and are therefore under the jurisdiction of the Flathead County FSA.

US 93 is patrolled by the Lake and Flathead County Sheriff's Offices in conjunction with Montana Highway Patrol, and the Flathead Tribal Police Department.

Medical services for emergency situations are primarily served by Logan Health in Kalispell, a Level III Trauma Hospital, or the Providence St. Joseph Hospital of Polson, which is a designated Community Trauma Hospital. Both locations have on-site helipads for air ambulance transport.

Mutual Aid Agreements

A *Tribal-County Mutual Aid Agreement* exists between Lake County, the CSKT, and Sanders County for provision of emergency services. This agreement states that although each jurisdiction possesses responsibility for emergency and disaster preparedness, and recovery operations in their respective jurisdictions, they will work together in an informed, cooperative, coordinated response to provide the most cost-effective, safest response to emergencies and disasters.

The *Lake County Emergency Services Master Mutual Aid Agreement* allows the rural fire departments to respond within each other's districts.

Under the *Intrastate Mutual Aid System* (MCA 10-3-901) member jurisdictions may request assistance from other member jurisdictions to prevent, mitigate, respond to or recover from an emergency or disaster, or in concert with drills or exercises. Any resource (personnel, assets and equipment) of a member jurisdiction may be made available to another member jurisdiction. All jurisdictions were automatically enrolled in the program when the agreement was codified in 2009 and must formally withdraw from the program if they do not wish to participate.

3.7. Geotechnical Conditions

US 93 traverses hilly, mountainous terrain composed primarily of Precambrian metasedimentary bedrock. The rock is generally hard and competent, however its bedding is very planar and where it is tilted, it is prone to large-scale failure along the bedding planes. As the terrain requires cuts through this rock, potential rockfall as well as large rock mass failures may require cut angles much more shallow than is usually associated with rock cuts.

The soils deposited between bedrock outcrops are predominately silt, sand, gravel, cobble and boulder till with some silty glacial lake deposits. The silty materials are difficult to vegetate, especially if they are present in slopes steeper than 2:1 (horizontal to vertical ratio). The till materials are prone to erosion when steeper than 2:1, which also hinders revegetation.

Multiple major fills are present within the study area, with a concentration of tall fills north of RP 93 near the Flathead-Lake County line. The existing fills are often steep, possibly greater than 2:1. Additionally, multiple major cuts in bedrock and soil occur within the study area, with a concentration of tall cuts north of RP 93 near the Flathead-Lake County line resulting from MDT's 1990 *Slide Correction South of Lakeside* project in which over 4,000 cubic yards of unclassified excavation was included. Bedrock cuts within the corridor are generally steeper than 0.5:1, but there are places where adverse geometry required shallow slopes or where failure after cutting led to shallower slopes. The soil cuts in the corridor are frequently steeper than 2:1 and are poorly vegetated and ravelling. There are several places where boulders are weathering out of the slope, creating a potential rockfall hazard.

Specifically, a rock cut at RP 70 is being monitored by the MDT Geotechnical Section as several large vehicle to room-sized rock blocks are creeping towards the road and will eventually fail. It is likely that mitigation will be required at this location. Historically, there have been large, road-closing failures of rock masses resulting from the cuts in this corridor.

MDT has identified 26 individually rated rock slopes on this corridor that have been cataloged and assessed in MDT's *Rockfall Asset Management Program* (RAMP). For RAMP sites, MDT defines an overall condition index score ranging from 1 to 100, with 1 being the worst and 100 being the best based on ditch effectiveness (or the ability of the roadside ditch to prevent rockfall from entering the adjacent roadway) and rockfall history at the location. Of the 26 sites within the study corridor, 10 are rated 1-Good with condition index ratings from 100 to 84, 10 are rated 2-Fair with condition index

ratings from 80 to 63, and six are rated 3-Fair with condition index ratings from 60 to 43. Additionally, MDT applies a Rockfall Hazard Rating System (RHRS) score, with the 26 sites in the study corridor exhibiting scores ranging from 89 to 405. In general, higher RHRS numbers are meant to indicate higher public risk, however lower-rated slopes have experienced substantial rockfall events in the past. MDT assesses other aspects of the sites relating to geology, slope height, event volume, average vehicle risk, and decision sight distance to augment the overall risk assessment for each site. If projects are advanced from the corridor study in these locations, additional geotechnical evaluation may be needed to determine potential mitigation needs.

3.8. Hydraulic Conditions and Structures

MDT's Bridge Program emphasizes asset management and preservation. This emphasis promotes a "right treatment at the right time" philosophy in prioritizing and selecting projects on MDTs bridge system. MDT has defined bridge program objectives and performance measures to assist with this process. The objectives and measures are intended to identify the right treatments for Montana's bridges, and promote cost-effective bridge preservation, appropriate safety-related work, and economic growth.

A single bridge in the study corridor (RP 82.3) is in fair to good condition and may be a potential candidate for repair and/or preservation.

Bridge conditions are determined using the National Bridge Inventory (NBI) general condition ratings (GCR). The GCRs are used to describe the existing bridge as compared to its as-built condition. The material used, as well as the physical condition of the deck, superstructure, and substructure of the bridge are considered in the rating. GCRs are given a numerical rating ranging from 0 (failed condition) to 9 (excellent condition) as described in the *FHWA Coding Guide*.[12] Bridges are considered structurally deficient if the superstructure or substructure elements are rated less than 5 on the NBI scale.

A single bridge is located within the study corridor. **Table 11** shows the bridge location, physical characteristics, condition ratings, and design loads. As of the most recent inspection in August 2023, the deck and channel were evaluated to be in fair condition, indicating a potential candidate for repair. The superstructure and substructure were both determined to be in good condition, indicating a candidate for continued preservation.

Table 11: Bridge Data

Bridge	Type	Built	Length	Health Index	Sufficiency Rating	Deck Rating	Superstructure Rating	Substructure Rating	Channel Rating	Design Load
ID 05255 RP 82.3 Dayton Creek	Pre-stressed Concrete	1987	71.0ft	96.41	77.6	5 Fair	7 Good	7 Good	5	HS 20

Source: MDT 2024.

Within the study area, a total of 102 drainage features cross underneath US 93. Most are small culverts or conduits ranging in size from four to 42 inches. Of the total, eight are considered major features sized 54 inches or larger, as presented in **Table 12**.

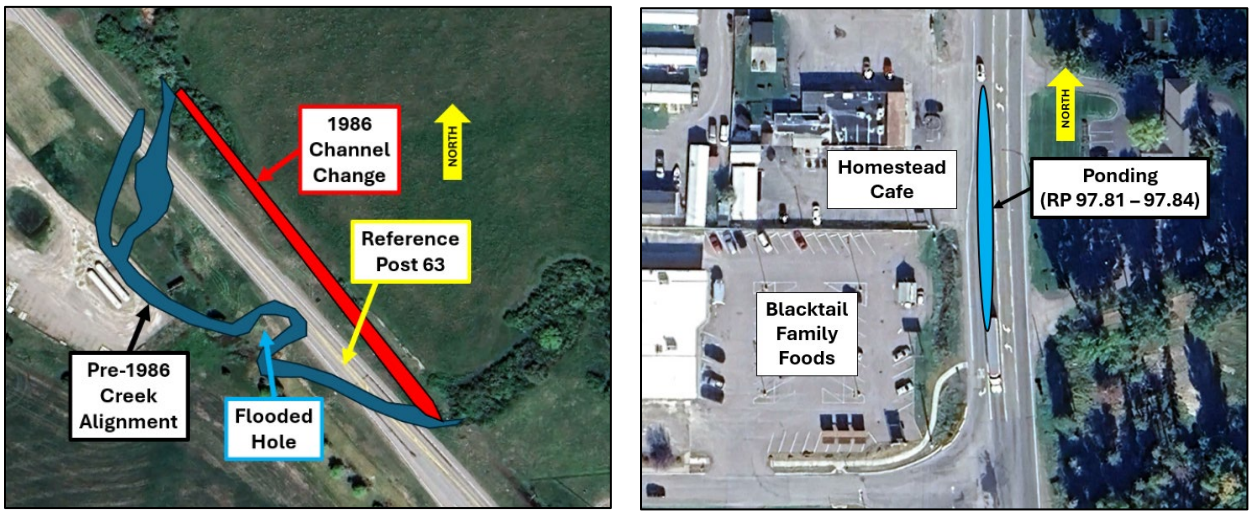
Table 12: Major Structures

RP	Station	Size (inches or feet)	Type / Material	Year Installed	Feature Crossed (if applicable)
64.0	136+00	4 ft x 6 ft	Stock Pass	1955	None
65.0	188+00	4 ft x 6 ft	Stock Pass	1954	None
73.6	641+50	84 in	Stock Pass	1958	None
74.5	688+48	Not identified (Design "B")	Stock Pass	1958	None
76.8	810+05	60 in	RCP	1958	Unnamed intermittent stream
78.8	914+97	91 in x 70 in (Design "B")	Stock Pass	1962	None
82.4	1102+40	96 in	CSP	1987	Proctor Creek
97.8	1789+43	87 in x 63 in	SPPAC	1964	Stoner Creek

Source: MDT 2024. Corrugated Metal Pipe (CMP), Corrugated Steel Pipe (CSP), Reinforced Concrete Pipe (RCP), Structural Plate Pipe (SPP). "B" is designated as a new design in 1958 as-built plans (no dimensions provided). Information does not include section between RP 102.8 to 104.2.

MDT Maintenance personnel have noted two drainage issues of concern in the study corridor. The first occurs near RP 63, where a hole and adjacent ditch line on the southwest side of the highway fill with water during the springtime in wet years and nearly run onto the highway pavement. A highway culvert crossing has not been identified in this location that would alleviate ponding. A review of as-built records from 1986 when the highway was reconstructed along a new alignment reveals that the highway was constructed across the adjacent creek, and a channel change was provided to maintain conveyance along the northeast side of the highway. The hole on the southwest side appears to be a remnant of the disconnected channel of the creek.

The second area of concern is located in front of the Homestead Café in Lakeside from approximately RP 97.81 to 97.84 where ponding occurs along the southbound lane.



MDT Maintenance noted concerns about drainage issues near RP 63 and RP 97.8 in Lakeside.

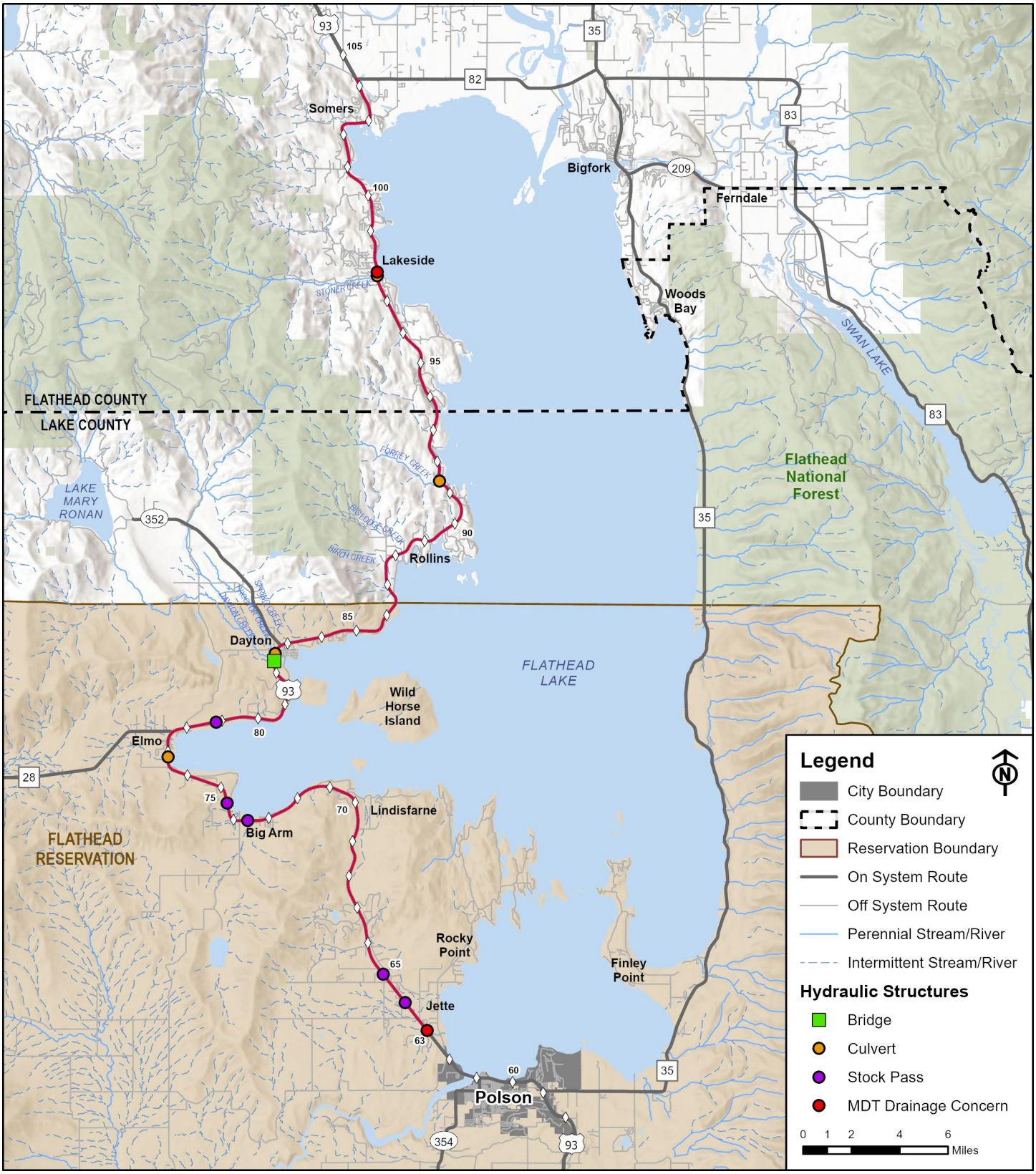


Figure 7: Hydraulic and Structural Features

3.9. Utilities

Multiple utilities are present within the study corridor providing electrical, gas, communications, sewer, and water services. Electrical services are supplied by several public providers including Bonneville Power Administration, Flathead Electric Cooperative, Flathead Irrigation Project, Mission Valley Power, Missoula Electric Cooperative, and Pacific Power and Light Co. Electrical connections are primarily provided through overhead power lines paralleling the highway with occasional crossings over or under the roadway. Gas services in the corridor are provided by Northwestern Energy via underground gas lines. Communications services, including telephone, broadband, internet, and cable, are provided by Access Montana, Blanch Wheeler, Group W Cable, TCI Cablevision of Montana, CenturyLink, Blackfoot Telephone, Montana West LLC, Charter Communications, Interbel Telephone Cooperative, Northwestern Telephone Systems, and Pacific Telecom Inc. Most of these utilities are underground, though a few overhead telephone lines are also present within the study corridor. Underground water and sewer lines primarily serve local water and sewer districts (Big Arm, Lakeside, Somers) but also serve other entities such as West Central Development, Mission Valley Development, Salish & Kootenai Housing Authority, and Montana Fish, Wildlife & Parks.

Utility providers must obtain appropriate occupancy and/or encroachment permits prior to utility installation within MDT right-of-way. MDT's online Utilities Permitting Administration System (UPAS) facilitates the permitting process and maintains a repository of utility information including applicant name, utility location and size, utility service type, permit type, and approval date. If projects are advanced following this corridor study, coordination with utility owners may be required to address potential impacts to utility infrastructure and associated mitigation.

3.10. Alternative Transportation Facilities

Freight Facilities

MDT traffic counts from 2023 indicate approximately 585 trucks travel the US 93 corridor between Somers and MT 28 daily, and approximately 250 trucks travel the corridor south of MT 28. This constitutes between three and six percent of the traffic along the study corridor.

Freight and heavy vehicle traffic operating on US 93 consists mainly of commercial truck traffic, construction vehicles, and smaller delivery trucks. US 93 is one of two north-south routes through the Flathead Lake region. The other route, MT 35, follows the eastern shore of Flathead Lake. Although MT 35 is narrower and has a lower speed limit than US 93, truckers sometimes prefer using MT 35 between the North Flathead Valley and Missoula because it is flatter, quicker, and burns less fuel.

In the late 2000s, residents on Flathead Lake urged MDT to restrict truck traffic on MT 35 in response to safety and environmental risk concerns following multiple fuel spills and high-profile crashes along the corridor. Although MDT declined to place full truck restrictions on MT 35, MDT did, however, impose restrictions that require truck loads over 10.5 feet in width (typically mobile homes, large boats and industrial equipment) to use US 93.

Transit Facilities

Several transit services are available within the study area. Many of the services provide connection between Missoula and Kalispell with scheduled stops or on-demand service to smaller communities within the study area. Available services are summarized below.

- The Lake County Council on Aging's (COA) **Lake Community Transit** program provides on-demand rides to medical appointments, shopping, and social activities. Vans are available for

trips to Missoula, Kalispell, and towns within Lake County. Vans operate on weekdays from 8:00 AM to 4:00 PM.

- The Sanders COA's **Sanders County Transportation** also offers service along US 93, providing transportation services to the elderly, disabled, and general public. The program provides demand response transit within the County and to residents that require transportation locally and out-of-county to Missoula, Kalispell, Polson, and Sandpoint, ID. Out of town appointments may only be scheduled between 10:00 AM and 2:00 PM. Trips to Polson occur on every third Friday of the month, and trips to Kalispell occur on the second and fourth Fridays of the month.
- **Flathead Transit** is operated jointly by MDT and CSKT and operates seven days a week with service from Missoula to Whitefish. The buses travel along US 93 and make one stop within the study corridor in Lakeside. The buses operate on a fixed schedule and operate between 10:00 AM and 7:30 PM.
- **CSKT Transit** provides public transportation to the Flathead Reservation with services to nearby areas including Kalispell and Missoula. The transit service operates from 6 AM to 5:30 PM, Monday to Thursday, and Friday from 8 AM to 4:30 PM. Riders may schedule on-demand rides before 3 PM a day in advance of when the ride is needed. However, there are also fixed routes with bus stops in Polson, Big Arm, and Elmo within the study area.

The study area also experiences considerable seasonal use by local, regional, and national tour bus and charter bus operators between April and October. Western Pleasure Tours, Mountain Shuttle, and Rocky Mountain Transportation charter transportation services for seasonal visitors through the Flathead Lake region.

Pedestrian and Bicycle Facilities

Based on information from Strava Metro's Heat Map[13], the US 93 corridor experiences moderate to high use by both bicyclists and pedestrians. The study corridor is heavily used by bicyclists while the surrounding area sees moderate usage. Substantial pedestrian activity occurs in the corridor vicinity near Flathead Lake State Park (West Shore and Big Arm units). The highway corridor itself is not heavily used by pedestrians, except in the vicinity of Elmo, Lakeside, and Somers.

Pedestrians triggering the overhead beacon at the Cemetery Road crosswalk in Elmo.

Two pedestrian crossings are located on US 93 within Elmo at Skookum Drive and Cemetery Road. Both crossings are signed, striped, and connected to pedestrian facilities on either end. The Cemetery Road crosswalk has an overhead flashing beacon which can be triggered by pedestrians to alert drivers of their presence. Additionally, there is a recreational trail that has developed over time from continuous use connecting to the Tribal fishing access site in Elmo.

In Lakeside, pedestrian facilities include approximately 800 feet of sidewalk on the east side of US 93 from Adams Street to Bills Road, approximately 200 feet of sidewalk on the west side of US 93 south

of Bierney Creek Road, a crosswalk with a rectangular rapid flashing beacon (RRFB) at the US 93 intersection of Adams Street, and a crosswalk with pavement markings and signage at the US 93 intersection of Bierney Creek Road. However, sidewalks are discontinuous within the community, curb ramps in compliance with the Americans with Disabilities Act (ADA) are not consistently provided on opposite sides of the crosswalks, and pedestrians were observed crossing US 93 in undesignated locations.

Pedestrians were observed crossing US 93 in Lakeside at undesignated locations.

Somers pedestrian facilities include two crosswalks with RRFBs in the vicinity of the Somers Boat Launch. A shared use path extends between the two crosswalks and continues into the Kalispell area.

Somers pedestrian crossings.

The US 93 study corridor is not coincident with any nationally recognized bicycling routes. However, two paved shared use paths are located within the corridor. The first is adjacent to the east side of US 93 in the vicinity of Big Arm between Skipping Rock Lane (RP 73.7) and Big Arm State Park Road (RP 74.4). The 0.68-mile-long path is eight feet wide, in good condition, and maintained by Lake County.

The Great Northern Historical Trail is an approximately 22-mile-long paved path following abandoned rail lines from the Great Northern Railroad. The trail extends from Somers to Kalispell. Within the study area, the path is 2.21 miles long, beginning at RP 102.1 and continuing north through the US 93/MT 82 intersection at RP 104.3. The path is 10 feet wide and is located directly adjacent to US 93 through the majority of this section of highway, but veers east near Somers Road where the historic rail line met the former Somers Tie Plant. The path is in fair condition and is maintained by Flathead County. The Rails to Trails of Northwest Montana organization plans to extend the trail to Lakeside, though no plans have been formally approved.

Multiple trails extend into the open spaces and recreation areas surrounding the study corridor. Several unofficial, user-created paths have developed alongside the highway as a result of sustained use by pedestrians and four-wheelers.

The City of Polson developed a long-range transportation plan in 2011 which envisioned improving US 93 for bicycle use. The plan recommended wide roadway shoulders along US 93 from the Flathead River Bridge to Rocky Point Road (RP 61.3 to 92.2). The plan noted that if rumble strips are necessary along the highway, they should be located as close to the white fog line as possible and should be installed as intermittent strips to enhance comfort for bicyclists.

Aviation Facilities

Multiple airports serve the study area. The Polson Airport is located in Polson about one mile south of the study corridor. The general aviation airport is governed by the Lake County Airports Board which oversees the Polson, Ronan, and St. Ignatius airports.

The Lakeside Airport is a privately owned airport located about 0.5-mile west of US 93 at approximately RP 96.5.

The Kalispell City Airport is one of the oldest and busiest general aviation airports in Montana and is located about seven miles north of the study corridor along US 93. Rental cars and taxi services are available at the airport for arriving visitors.

The Glacier Park International Airport (GPIA) is the largest airport in the region and provides both year-round general aviation and commercial air services. The airport is located about 17 miles north of Somers on US 2. Six major airlines, Alaska, Allegiant, American, Delta, Sun Country, and United, provide daily and weekly service to hubs in Seattle, Salt Lake City, Minneapolis, Denver and Las Vegas. Direct seasonal flights are also available to New York, Los Angeles, Dallas, Chicago, Houston, San Francisco, Minneapolis/St. Paul, Oakland, Phoenix, San Diego, and Portland. GPIA offers several ground transportation options including rental cars, shuttles, taxis, limousines, and ride share services.

4.0. GEOMETRIC CONDITIONS

The study corridor was generally constructed on its current alignment in the late 1950s and throughout the 1960s. Several improvement projects have taken place since then. Those projects consist of a variety of work including realignment, resurfacing, widening, the addition of turn lanes, and other safety improvements.

Existing roadway geometrics were evaluated and compared to current MDT baseline criteria. The analysis was conducted using MDT as-built drawings, GIS data, and supplemental field observations. Available as-built drawings for the base construction were used to establish preliminary horizontal and vertical alignments. Newer as-built drawings for spot improvement projects were used to supplement the original plans to account for changes in roadway alignment. In general, alignment data was provided for the entire study corridor except for RP 63.0 to RP 64.5. This segment does not have any horizontal curvature but does have varying vertical grades. The following sections summarize the existing geometric conditions of the highway.

4.1. Design Criteria

The MDT *Baseline Criteria Practitioner's Guide*[14] specifies quantitative design criteria to be used as uniform baseline design dimensions or values. Baseline criteria are intended to be used as a starting point. For any projects advanced from this corridor study, the MDT project team and engineer of record will consider the context of the facility and scope of the project to determine final criteria.

The criteria for the study corridor are based on the current MDT baseline design criteria for rural principal arterials as presented in **Table 13**.

For this classification, the design speed may vary depending on terrain conditions. According to the definitions in the *Road Design Manual,* the corridor is mostly considered rolling terrain, with areas of mountainous terrain where the highway closely follows the lake, and level terrain on the south end. For the topography and roadway classification of the corridor, the design speed ranges from 50 mph for mountainous terrain, 60 mph for rolling terrain, and 70 mph for level terrain. Posted speeds may differ from design speed. The *Baseline Criteria Practitioner's Guide* provides critical design criteria depending on design speed and roadway classification.

The corridor travels through areas of varying terrain, including level (top), rolling (middle), and mountainous locations (bottom).

Design speed and terrain type will ultimately be determined as necessary during the project development process for any improvement options forwarded from this corridor study.

Table 13: Baseline Criteria for Rural Principal Arterials

Design Element			Design Criteria		
Design Control	**Design Speed (minimum)**	Level	70 mph		
		Rolling	60 mph		
		Mountainous	50 mph		
Roadway Elements	**Travel Lane Width**		12 ft		
	Shoulder Width*		Varies with AADT		
	Cross Slope	Travel Lane	2%		
		Shoulder	2%		
Roadside Elements	**Ditch**	Inslope	6:1 (width 10 ft)		
		Width	10 ft minimum		
		Slope	20:1 towards backslope		
	Backslope Cut Depth at Slope Stake	0-5 ft	5:1		
		5-10 ft	Level/Rolling: 4:1 Mountainous: 3:1		
		10-15 ft	Level/Rolling: 3:1 Mountainous: 2:1		
		15-20 ft	Level/Rolling: 2:1 Mountainous: 1.5:1		
		>20 ft	1.5:1		
	Fill Slopes	Fill Height 0-10 ft	6:1		
		Fill Height 10-20 ft	4:1		
		Fill Height 20-30 ft	3:1		
		Fill Height >30 ft	2:1		
	Median Width		See Road Design Manual Section 5.3		
	Clear Zone		See Road Design Manual Section 9.2		
Alignment Elements	**DESIGN SPEED**		**70 mph**	**60 mph**	**50 mph**
	Stopping Sight Distance – See RDM Section 2.8		730 ft	570 ft	425 ft
	Passing Sight Distance – See RDM Section 2.8		1,200 ft	1,000 ft	800 ft
	Horizontal Alignment	Minimum Radius (e=8%)	1,810 ft	1,200 ft	760 ft
		Spiral Curve Section	See Chapter 3, Section 3.2 of the RDM		
		Superelevation Rate	e_{max} = 8.0%		
	Vertical Alignment	Maximum Grade Level	3%		
		Maximum Grade Rolling	4%		
		Maximum Grade Mountainous	7%		
	Minimum Vertical Clearance		17 ft		

Source: MDT Baseline Criteria Practitioner's Guide, March 2021, https://ftp.mdt.mt.gov/other/webdata/external/cadd/RDM/STANDARDS/BASELINE-CRITERIA-PRACTITIONERS-GUIDE.pdf.
**As determined from MDT's Route Segment Plan: www.mdt.mt.gov/other/webdata/external/cadd/RDM/SAMPLE-PLANS/ROUTE-SEGMENT-PLAN.PDF*

4.2. Roadway Width

The study corridor typically consists of one travel lane in each direction with shoulder widths varying from approximately two feet to six feet. Outside of the typical corridor section, there are spot locations with turn lanes, passing lanes, and center TWLTL.

The MDT *Baseline Criteria Practitioner's Guide* recommends a minimum travel lane width of 12 feet on rural principal arterial routes. The MDT *NHS Route Segment Plan*[15] defines a minimum total roadway width of 40 feet for the corridor. While the corridor satisfies the 12-foot travel lane width, there are locations along the corridor with shoulder widths less than six feet, which do not satisfy the 40-foot

minimum recommended roadway width. In general, two-foot shoulders exist at the southern end of the corridor (~RP 63-66) and through the Lakeside area (~RP 95 to 102). Wider, six-foot shoulders are present in the segment through Dayton and Rollins (~RP 79 to 93). The remainder of the corridor generally has four-foot shoulders with some variation in constrained areas or where turn lanes/improvement projects have been completed.

4.3. Horizontal Alignment

Elements comprising horizontal alignment include curvature, superelevation (i.e., the bank on the road), and sight distance. These horizontal alignment elements influence traffic operation and safety and relate directly to the design speed of the corridor. MDT's geometric design criteria for horizontal curves are defined in terms of curve radius, which varies based on design speed. For a 70-mph design speed, the minimum recommended radius is 1,810 feet with a minimum stopping sight distance (SSD) of 730 feet. For a 50-mph design speed, the minimum recommended radius is 760 feet with a minimum SSD of 425 feet.

Appendix A provides a list of horizontal curves along the study corridor through the review of available as-builts. A determination of whether the curve meets baseline criteria was decided based on the elements discussed previously. The controlling design criteria for the horizontal curves are radius and SSD. For a horizontal curve, SSD is evaluated based on the ability to see through the inside of the corner. Minimum sight obstruction distances were calculated based on the MDT design criteria. The minimum sight obstruction distance is measured from the center of the inside travel lane and defines the area that should be clear of obstructions to allow for the recommended SSD.

Table 14 summarizes the horizontal curves and the design speed that each of the curves meets. There are 61 existing horizontal curves along the study corridor. Approximately 36 percent of the curves (22 curves) do not meet the baseline criteria for horizontal curvature based on a 70-mph design speed for level terrain. Of those curves, 13 meet the baseline criteria for rolling terrain (60-mph design speed) and nine meet the baseline criteria for mountainous terrain (50-mph design speed). No horizontal curves were identified as not meeting baseline criteria for principal arterial route. **Figure 8** shows the locations of the curves with design speeds less than 70 mph.

Table 14: Horizontal Alignment Summary

Design Speed Met (mph)		Number of Curves	Percent of Curves
Level	80	25	41.0%
	75	2	3.3%
	70	12	19.7%
	Total >= 70	**39**	**63.9%**
Rolling	65	4	6.6%
	60	9	14.8%
	Total >= 60	**52**	**85.2%**
Mountainous	55	8	13.1%
	50	1	1.6%
	Total >= 50	**61**	**100.0%**
Do Not Meet Baseline Criteria	**Total < 50**	**0**	**0.0%**

Note: Information does not include section between RP 63.0 and 64.5. Data based on available as-builts.

4.4. Vertical Alignment

Vertical alignment is a measure of the elevation change of a roadway. The length and steepness of grades directly affect the operational characteristics of the roadway. The controlling design limits for vertical curves are SSD, vertical curvature (K-value), and maximum grade. Vertical curves can be placed into two categories: crest and sag. A crest curve is created at the top of a hill or when the grade decreases. Conversely, a sag curve occurs at the bottom of a hill or when the grade increases.

Appendix A lists the location and controlling design features for the vertical curves along the study corridor. According to the MDT *Baseline Criteria Practitioner's Guide*, the maximum allowable grades for a 70-mph design speed is 3.0 percent for level terrain, 4.0 percent for rolling terrain, and 7.0 percent for mountainous terrain.

Minimum lengths of crest or sag curves are commonly defined by the K-value, which represents the horizontal distance needed for a vertical curve to produce a one percent change in gradient. Minimum K-values relate lengths of vertical curves to required sight distance on crest curves and to headlight beam distance on sag vertical curves. Minimum K-values are provided in the MDT *Road Design Manual*[16] and vary based on design speed, and roadway grade. For a 70-mph design speed with level grade, minimum K-values of 247 and 181 are recommended for crest and sag vertical curves, respectively. For a 60-mph design speed and six percent maximum downgrade, (rolling terrain), minimum K-values of 189 and 155 are recommended for crest and sag vertical curves, respectively.

Table 15 summarizes the vertical curves on the study corridor and the design speed that each of the curves meets. Within the study area, there are 111 vertical curves. Nearly 50 percent of the vertical curves (55) do not meet baseline criteria for a 70-mph design speed for level terrain. Of those curves, 42 meet baseline criteria for a rolling terrain (60-mph design speed), and 10 curves meet baseline criteria for mountainous terrain (50-mph design speed). Three curves do not meet baseline criteria for rural principal arterial route. **Figure 8** shows the locations of the curves with design speeds lower than 70 mph.

Table 15: Vertical Alignment Summary

Design Speed Met (mph)		Number of Curves	Percent of Curves
Level	80	36	32.4%
	75	8	7.2%
	70	12	10.8%
	Total >= 70	56	50.5%
Rolling	65	28	25.2%
	60	14	12.6%
	Total >= 60	98	88.3%
Mountainous	55	7	6.3%
	50	3	2.7%
	Total >= 50	108	97.3%
Do Not Meet Baseline Criteria	Total < 50	3	2.7%

Note: Information does not include section between RP 63.0 and 64.5. Data based on available as-builts.

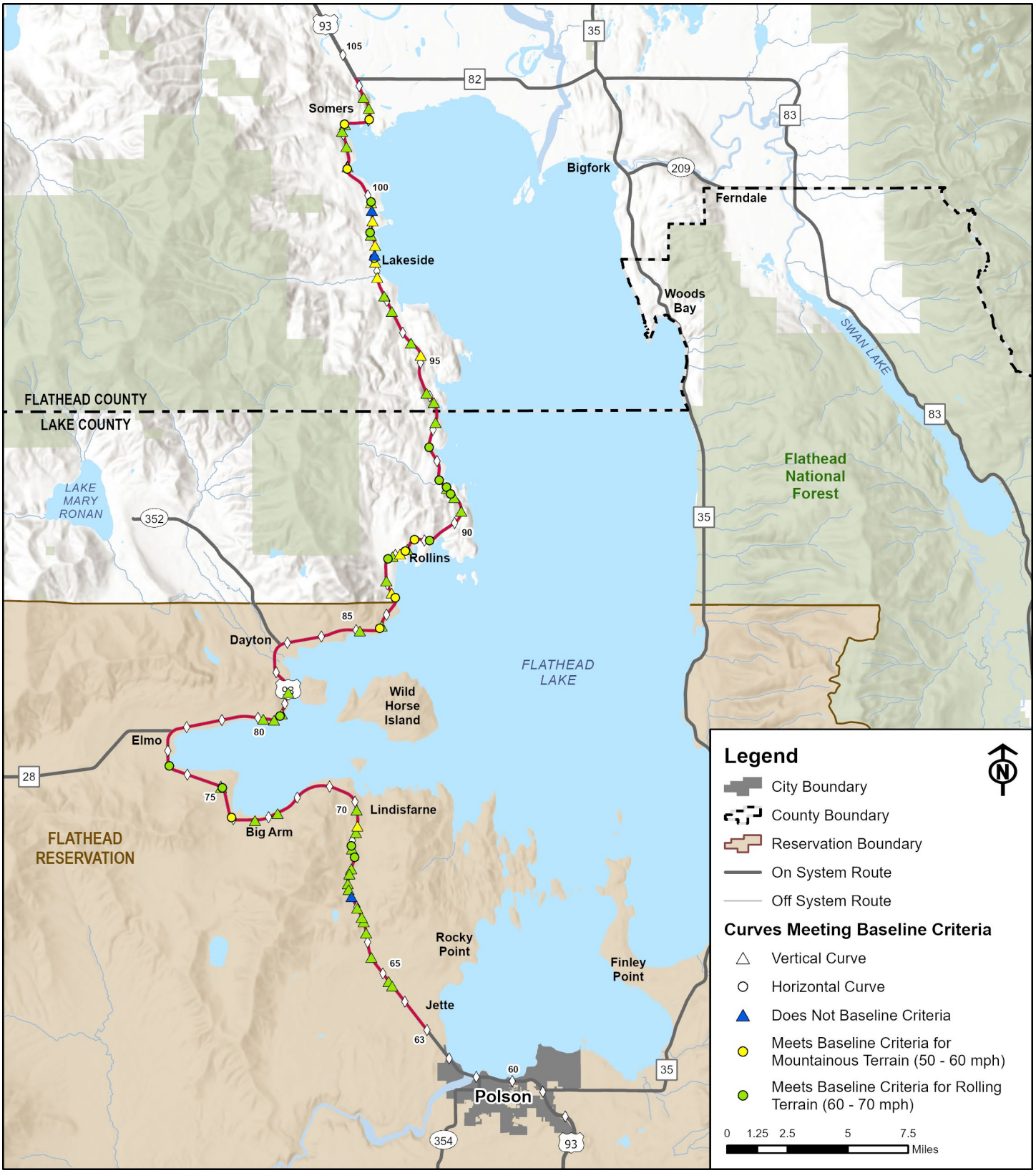


Figure 8: Existing Geometric Conditions

4.5. Sight Distance and Clear Zone

Sight distance is the length of roadway visible to a driver and is influenced by the geometry of the road (horizontal or vertical curves) and obstacles alongside the road. Sight distance is commonly defined in three ways: passing sight distance, stopping sight distance, and intersection sight distance. In general, the driver of a vehicle should have an unobstructed view and enough distance to perceive, react, and safely stop for or avoid approaching vehicles and other hazards.

The roadside clear zone, starting at the edge of the traveled way, is the total roadside border area available for safe use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a non-recoverable slope, and/or a recovery area. The desired clear zone width for the US 93 corridor ranges from 22 to 46 feet depending on traffic volumes, speeds, and roadside geometry. Clear zones are evaluated individually based on the roadside cross section. It is generally desirable to attain adequate clear zones by removing or shielding obstacles if costs are reasonable.

Portions of the corridor are narrow with limited room for road expansion. The proximity of rock outcroppings, Flathead Lake, and steep side slopes in certain locations may limit sight distances and restrict the ability to provide recommended clear zone widths as outlined by MDT baseline criteria. In some locations, guardrails have been installed along the roadside to shield drivers from obstacles and in areas with steep side slopes.

In certain locations within the study area, it may be impractical to protect or remove certain obstacles within the clear zone. As improvement options develop, roadside clear zones should be designated, to a practical extent, to meet current MDT baseline criteria. This may include slope flattening, clearing trees along the roadside, and/or widening shoulders.

5.0. TRAFFIC CONDITIONS

An evaluation of traffic operations for the study corridor was completed using available data provided by MDT in addition to supplemental field-collected data. Turning-movement counts were conducted at five intersections within the study area over two 24-hour periods, a weekday and a weekend. Mainline traffic volume data for existing and historic conditions were available at multiple locations within the study area. Visual observations were made for driver behavior, vehicle queuing, and general traffic characteristics. The following sections provide details about the existing and projected traffic characteristics for the study corridor. Detailed data are available in the appendix.

5.1. Vehicular Traffic Volumes

Traffic volumes along the study corridor are typically collected annually as part of MDT's traffic data collection program. A total of eight data collection sites are located along the study corridor. Of those eight sites, one is an Automatic Traffic Recorder (ATR) site and one is Weigh in Motion (WIM) site. The ATR and WIM sites are permanent and collect volume and classification data continuously. The data collected at the other six short-term count sites is typically completed annually and is used to determine an annual average daily traffic (AADT) volume.

Figure 9 plots the AADTs for the count sites along the study corridor over the past 20 years. As shown in the figure, traffic volumes are generally highest on the northern end of the corridor, with steadily decreasing volumes to the south. Existing volumes along the study corridor range from a low of just over 4,000 vpd south of MT 28 in Elmo, to a high of nearly 13,000 south of MT 82 in Somers. When averaged together, traffic volumes have increased at an annual rate of 2.1 percent per year since 2004. More detailed data on growth rates is shown in **Table 16**.

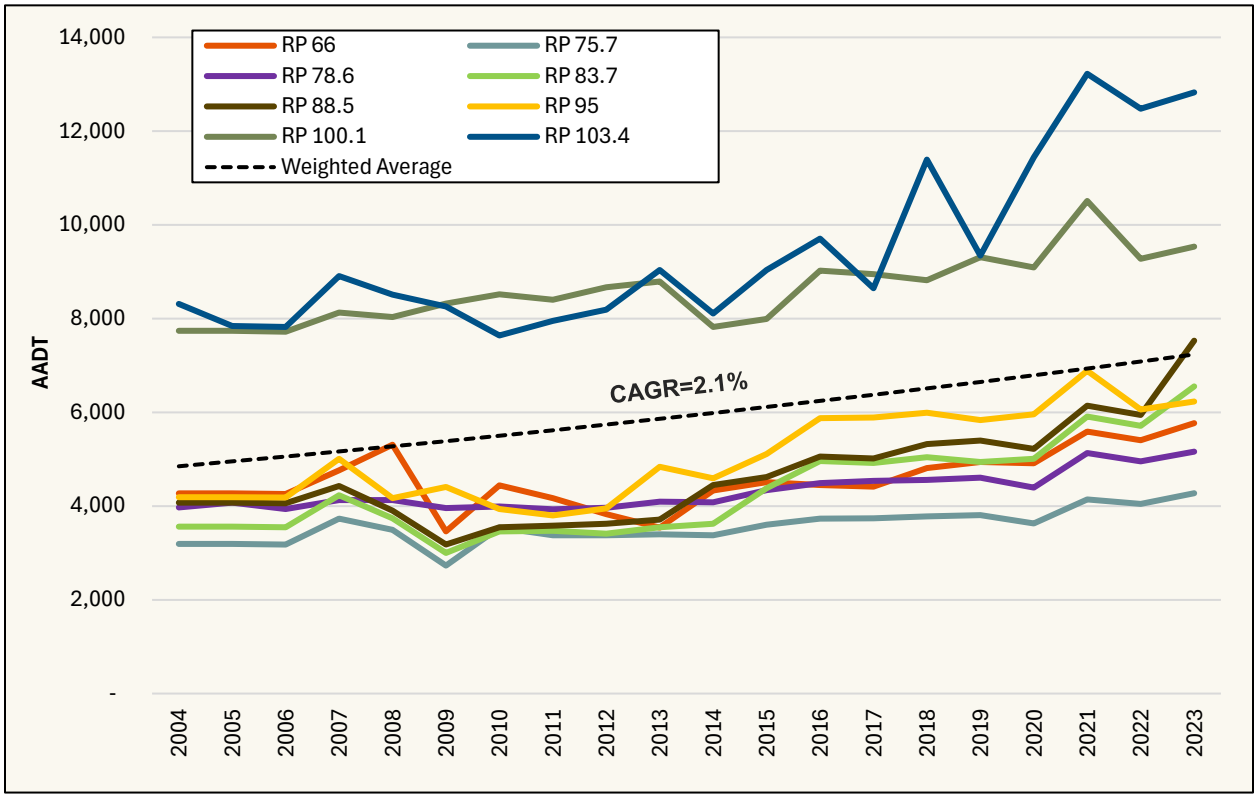


Figure 9: Historic Traffic Volumes

Table 16: Historic Traffic Growth

Site ID	Location	RP	2004 AADT	2023 AADT	Annual Growth			
					20-Year	15-Year	10-Year	5-Year
24-2-002	5 mi NW of S-354 in Polson	66.0	4,270	5,769	1.3%	3.1%	3.3%	4.1%
A-074	1.8 Mi. S of MT 28	75.7	3,190	4,274	1.4%	2.1%	2.1%	3.4%
W-133	0.5 Mi. E of MT 28	78.6	3,970	5,161	1.3%	2.0%	2.2%	3.5%
24-2-005	1 mi E of S-352 in Dayton	83.7	3,560	6,553	3.2%	5.3%	5.0%	7.2%
24-2-006	1 mi NE of Rollins	88.5	4,070	7,529	3.0%	5.4%	4.7%	8.3%
15-7-002	3 mi S of Lakeside	95.0	4,190	6,232	2.7%	4.0%	2.9%	1.5%
15-7-014	0.75 mi N of Lakeside	100.1	7,740	9,533	1.2%	1.2%	2.3%	0.7%
15-7-003	0.3 mi SE of MT 82	103.4	8,310	12,827	2.5%	3.9%	5.3%	7.5%
Weighted Average US 93 Corridor Growth					2.1%	3.4%	3.7%	4.8%

South of Lakeside, traffic volumes have been increasing in a generally steady manner between 2004 and 2023. Starting in about 2018, the growth has been more erratic north of Lakeside, especially at the furthest north count site. When all count sites are averaged, the 20-year compound annual growth rate (CAGR) is calculated at 2.1 percent. Shorter timeframe growth rates are higher with the 5-year CAGR being 4.8 percent.

Factoring in the various historic growth rates for the study corridor, it was determined that a growth rate of 2.1 percent would be appropriate to evaluate future year conditions. This growth rate is the weighted average of the study corridor over the past 20 years and was applied to existing traffic volumes to evaluate project year (2045) conditions. Projected AADT for the study corridor are tabulated in **Table 17**.

Table 17: Projected Traffic Volume

Site ID	Location	RP	2023 AADT	2045 AADT*
24-2-002	5 mi NW of S-354 in Polson	66.0	5,769	9,115
A-074	1.8 Mi. S of MT 28	75.7	4,274	6,753
W-133	0.5 Mi. E of MT 28	78.6	5,161	8,154
24-2-005	1 mi E of S-352 in Dayton	83.7	6,553	10,354
24-2-006	1 mi NE of Rollins	88.5	7,529	11,896
15-7-002	3 mi S of Lakeside	95.0	6,232	9,847
15-7-014	0.75 mi N of Lakeside	100.1	9,533	15,062
15-7-003	0.3 mi SE of MT 82	103.4	12,827	20,267

**Projected based on a compound annual growth rate of 2.1 percent.*

5.2. Heavy Vehicle Traffic Volumes

An evaluation of the heavy vehicle traffic along the study corridor was conducted using information available from the MDT count sites along US 93. Two of the count sites are continuous sites with one of the sites being a weigh-in-motion site. These two sites represent the most reliable data for yearly average heavy vehicle traffic.

The percentage of heavy vehicles within the traffic stream varies from 4.5 to 12.2 percent of traffic. Generally, the total number of heavy vehicles in the traffic stream remains the same but the total

volume of the stream increases. This results in a decreasing percentage of heavy vehicles. **Table 18** shows the volume and percentage of heavy vehicles as reported in 2023 by MDT.

Table 18: Commercial Truck Traffic

Site ID	Location	RP	2023 AADT	Heavy Vehicle Count	Heavy Vehicle Percentage
24-2-002	5 mi NW of S-354 in Polson	66.0	5,769	261	4.5%
A-074	1.8 Mi. S of MT 28	75.7	4,274	291	6.8%
W-133	0.5 Mi. E of MT 28	78.6	5,161	632	12.2%
24-2-005	1 mi E of S-352 in Dayton	83.7	6,553	632	9.6%
24-2-006	1 mi NE of Rollins	88.5	7,529	632	8.4%
15-7-002	3 mi S of Lakeside	95.0	6,232	632	10.1%
15-7-014	0.75 mi N of Lakeside	100.1	9,533	632	6.6%
15-7-003	0.3 mi SE of MT 82	103.4	12,827	632	4.9%

5.3. Seasonal and Daily Variation

The two permanent MDT traffic count sites continuously count data allowing for information on daily and seasonal variations. Analysis of the continuous count data can provide insight into how traffic conditions change throughout the year or week. The following sections discuss the seasonal and daily variations in traffic along the corridor.

Daily Variation

The corridor is shown to experience moderate fluctuations in traffic volumes throughout the week. In 2023, traffic volumes were highest during the weekends (Friday through Sunday), as expected in an area with high tourism and recreation. Weekend traffic was found to be about 1.1 times greater than the weekday (Monday through Thursday) traffic. **Figure 10** shows the daily variation in traffic at the two continuous count sites on the study corridor.

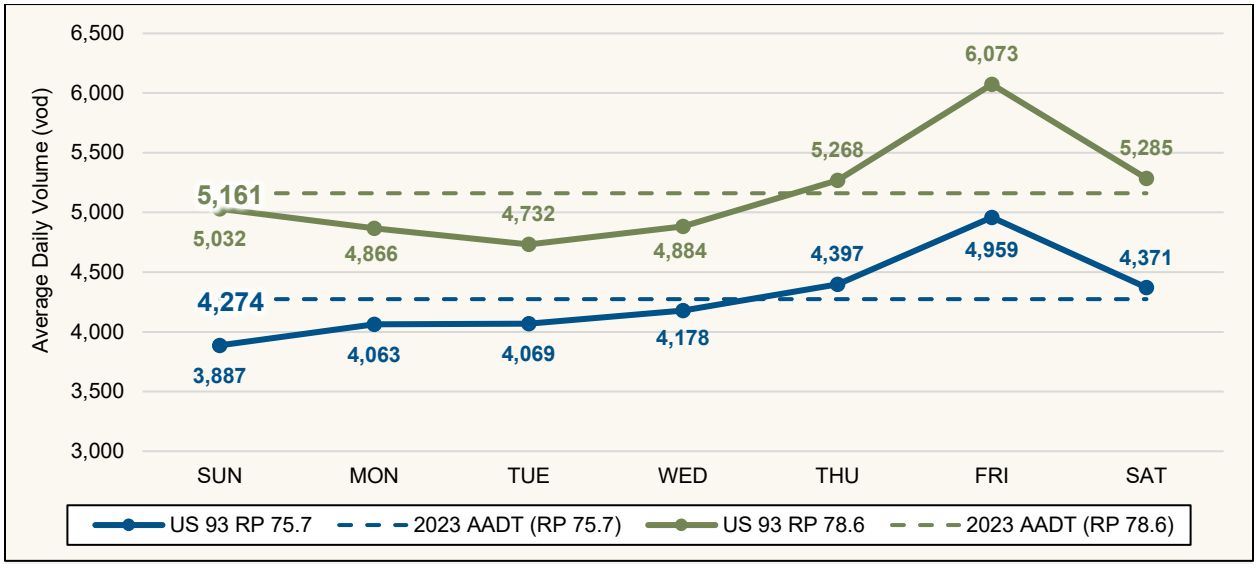


Figure 10: Daily Traffic Variation (2023)

Seasonal Variation

Seasonally, traffic varied relative to summertime weather, with the highest traffic volumes being recorded during July and August. Traffic volumes along this corridor are heavily dependent on Flathead Lake and other recreation usage, therefore, the seasonal trend is as expected. Traffic volumes during the peak period in July exceed the yearly average by about 1.4 times at both count sites. The seasonal variation is presented graphically in **Figure 11**.

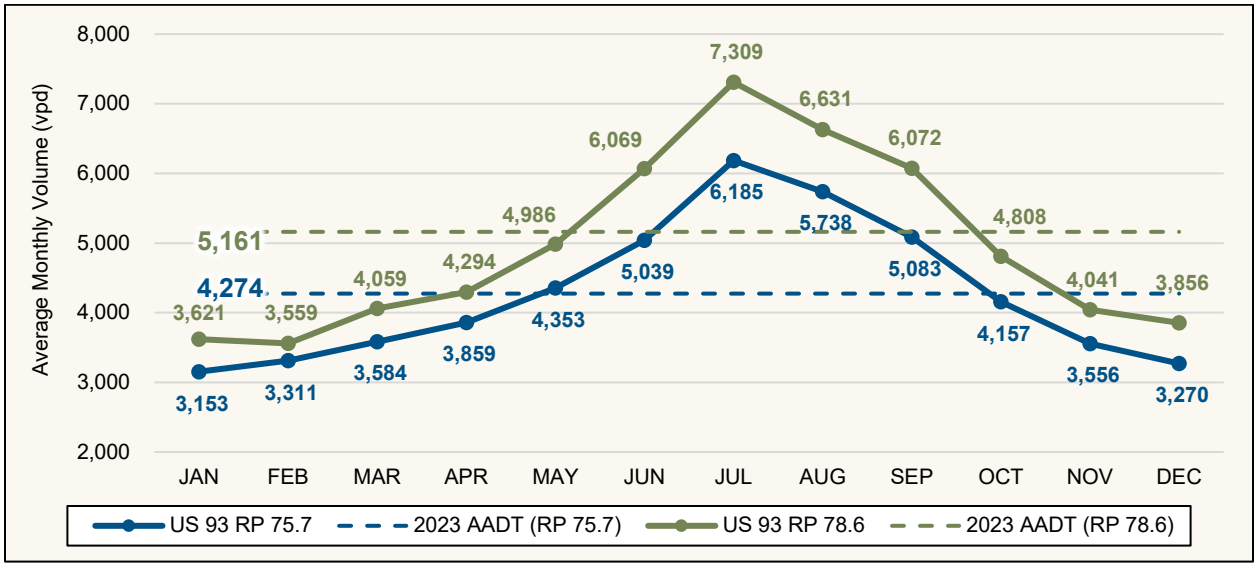


Figure 11: Seasonal Traffic Variation (2023)

5.4. Intersection Operations

To supplement the existing AADT counts along the study corridor, intersection turning movement counts (TMCs) were performed at six intersections along the corridor. Vehicle turning movement data was collected at each intersection for a 24-hour period on a Thursday and a Saturday to better characterize both the weekday and weekend traffic flows. Data collection for five of the six sites occurred on June 20th and 22nd, 2024. Due to equipment complications, one site had to be collected on July 11th and 13th, 2024. The data was used to evaluate intersection operations and peak hour conditions for both weekdays and weekends.

The operational conditions of the intersections are characterized by the level of service (LOS). LOS is based on an alphabetic scale which represents the full range of operating conditions. This scale is defined based on the vehicle delay experienced at the intersection. The scale ranges from A, which indicates little, if any, vehicle delay, to F, which indicates significant delay and traffic congestion.

An analysis was performed on each of the six intersections for the four peak periods, AM and PM on weekdays and weekends. Five of six of the intersections are stop controlled in the minor direction, i.e., not on US 93. For these intersections, the LOS is determined based off the worst performing movement, typically a left-turn movement. For the signalized intersection, the LOS is based on the intersection average delay. The results of the 2024 traffic volume analysis are presented in **Table 19** and presented graphically in **Figure 12**. Further detailed operational analysis results are located in **Appendix C**.

Table 19: Existing Conditions (2024) Intersection Operations

ID	Intersection	Northbound		Southbound		Eastbound		Westbound		Intersection Total		
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Worst Mvmt	Delay	LOS
2024 Weekday AM Peak Hour												
1	Rocky Point Rd	0.0	A	0.0	A	-	-	21.0	C	WB LT	21.1	C
2	Hwy 28	0.6	A	0.0	A	12.7	B	-	-	EB LT	13.5	B
3	Lake Mary Ronan Rd	0.5	A	0.3	A	12.2	B	13.0	B	WB LT	14.8	B
4	Rimrock Rd/Rollins Lakeshore Dr*	0.0	A	0.1	A	13.5	B	10.8	B	EB LT	13.5	B
5	Adams St	0.2	A	0.6	A	19.7	C	18.0	C	EB LT	27.5	D
6	Hwy 82/Forest Hill Rd	23.6	C	18.2	B	33.2	C	33.1	C	-	24.6	C
2024 Weekday PM Peak Hour												
1	Rocky Point Rd	0.0	A	0.0	A	-	-	23.4	C	WB LT	23.4	C
2	Hwy 28	0.6	A	0.0	A	13.9	B	-	-	EB LT	14.5	B
3	Lake Mary Ronan Rd	0.5	A	0.2	A	14.8	B	14.8	B	EB LT	17.9	C
4	Rimrock Rd/Rollins Lakeshore Dr*	0.0	A	0.2	A	15.0	B	11.7	B	EB LT	15.0	B
5	Adams St	0.3	A	0.2	A	19.5	C	21.2	C	EB LT	37.9	E
6	Hwy 82/Forest Hill Rd	33.2	C	24.9	C	37.2	D	38.4	C	-	28.5	C
2024 Weekend AM Peak Hour												
1	Rocky Point Rd	0.0	A	0.1	A	-	-	20.5	C	WB LT	20.5	C
2	Hwy 28	0.6	A	0.0	A	12.8	B	-	-	EB LT	13.4	B
3	Lake Mary Ronan Rd	1.3	A	0.5	A	14.7	B	14.3	B	EB LT	16.3	C
4	Rimrock Rd/Rollins Lakeshore Dr*	0.0	A	1.0	A	15.1	C	11.1	B	WB LT	15.1	C
5	Adams St	0.2	A	0.5	A	27.1	D	28.1	D	EB LT	53.0	F
6	Hwy 82/Forest Hill Rd	19.2	B	15.0	B	37.2	D	35.4	D	-	22.5	C
2024 Weekend PM Peak Hour												
1	Rocky Point Rd	0.0	A	0.3	A	-	-	22.3	C	WB LT	22.5	C
2	Hwy 28	0.9	A	0.0	A	13.7	B	-	-	EB LT	14.3	B
3	Lake Mary Ronan Rd	0.9	A	0.3	A	14.6	B	16.2	C	WB LT	16.7	C
4	Rimrock Rd/Rollins Lakeshore Dr*	0.1	A	0.0	A	10.3	B	13.0	B	WB LT	15.3	C
5	Adams St	0.2	A	0.3	A	22.7	C	27.3	D	EB LT	49.9	E
6	Hwy 82/Forest Hill Rd	24.0	C	24.7	C	35.5	D	32.6	C	-	26.8	C

**The Rimrock Rd/Rollins Lakeshore Dr intersection was rotated to keep northbound/southbound in line with US 93*

It can be seen that with the exception of the intersection of US 93 and Adams St, all of the intersections currently operate at a LOS of C or better. Adams St is located in Lakeside and provides access to a popular city park and to parking for various businesses. The intersection currently operates at a LOS between D and E during the weekday and weekend peak hours. The intersection experiences high volumes of pedestrian traffic and is a noted congested area during recreational periods.

Table 20 and **Figure 13** present the analysis results for the future 2045 traffic volumes. All of the 2024 traffic volumes were increased using the annual growth rate of 2.1 percent discussed previously. Signal timing for the US 93 and Highway 82 intersection was estimated and optimized with the new volumes, with the exiting phasing and cycle length remaining in place.

Table 20: Projected Conditions (2045) Intersection Operations

ID	Intersection	Northbound		Southbound		Eastbound		Westbound		Intersection Total		
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Worst Mvmt	Delay	LOS
2045 Weekday AM Peak Hour												
1	Rocky Point Rd	0.0	A	0.1	A	-	-	131.0	F	WB LT	131.2	F
2	Hwy 28	0.7	A	0.0	A	18.7	C	-	-	EB LT	20.3	C
3	Lake Mary Ronan Rd	0.5	A	0.3	A	17.5	C	18.3	C	WB LT	23.1	C
4	Rimrock Rd/Rollins Lakeshore Dr*	0.0	A	0.1	A	19.0	C	13.0	B	EB LT	19.3	C
5	Adams St	0.2	A	0.6	A	55.1	F	49.1	E	EB LT	83.3	F
6	Hwy 82/Forest Hill Rd	60.8	E	33.7	C	39.9	D	41.8	D	-	43.7	D
2045 Weekday PM Peak Hour												
1	Rocky Point Rd	0.0	A	0.0	A	-	-	203.0	F	WB LT	203.6	F
2	Hwy 28	0.7	A	0.0	A	25.0	D	-	-	EB LT	26.2	D
3	Lake Mary Ronan Rd	0.5	A	0.2	A	29.4	D	24.6	C	EB LT	37.7	D
4	Rimrock Rd/Rollins Lakeshore Dr*	0.0	A	0.2	A	23.5	C	15.5	C	EB LT	23.5	C
5	Adams St	0.3	A	0.3	A	68.5	F	95.0	F	WB LT	153.5	F
6	Hwy 82/Forest Hill Rd	183.6	F	97.1	F	45.2	D	54.6	D	-	106.4	F
2045 Weekend AM Peak Hour												
1	Rocky Point Rd	0.0	A	0.1	A	-	-	110.0	F	WB LT	110.1	F
2	Hwy 28	0.6	A	0.0	A	19.6	C	-	-	EB LT	20.8	C
3	Lake Mary Ronan Rd	1.3	A	0.5	A	27.5	D	22.4	C	EB LT	31.6	D
4	Rimrock Rd/Rollins Lakeshore Dr*	0.0	A	1.1	A	22.3	C	14.7	B	WB LT	23.6	C
5	Adams St	0.2	A	0.7	A	211.2	F	281.6	F	WB LT	372.0	F
6	Hwy 82/Forest Hill Rd	50.8	D	29.4	C	42.8	D	32.7	C	-	36.8	D
2045 Weekend PM Peak Hour												
1	Rocky Point Rd	0.0	A	0.4	A	-	-	154.4	F	WB LT	154.9	F
2	Hwy 28	1.0	A	0.0	A	24.3	C	-	-	EB LT	25.5	D
3	Lake Mary Ronan Rd	1.0	A	0.3	A	26.8	D	28.5	D	EB LT	32.5	D
4	Rimrock Rd/Rollins Lakeshore Dr*	0.1	A	0.0	A	11.9	B	20.8	C	WB LT	26.2	D
5	Adams St	0.2	A	0.3	A	97.2	F	237.8	F	WB LT	325.3	F
6	Hwy 82/Forest Hill Rd	112.1	F	51.0	D	46.9	D	43.8	D	-	66.2	E

**The Rimrock Rd/Rollins Lakeshore Dr intersection was rotated to keep northbound/southbound in line with US 93*

Applying the CAGR of 2.1 percent to all the TMCs resulted in most of the intersections showing a LOS below C during the peak hours. During the weekday AM peak period, half of the intersections are operating at a LOS of C with the other half operating at a LOS of D or worse. During the weekday PM peak period, the operations further deteriorate with only one intersection operating with a LOS of C. For the weekend peak periods, the situation is worse still. During the weekend AM peak period two intersections are operating at a LOS of C with the remaining four operating at a LOS of D or worse. During the weekend PM peak, all intersections were determined to be operating at a LOS of D or worse. Further detailed operational analysis results are located in **Appendix D**.

5.5. Highway Operations

Corridor segment LOS was determined utilizing the *Highway Capacity Software 2024* (HCS). HCS follows the *Highway Capacity Manual (HCM) 7th Edition*[17] methodology. The HCM methodology has been updated for the seventh edition of the HCM which calculates following density (following vehicles per mile per lane) as the performance metric for two-lane facilities. This method takes passing zones and lanes into account, as well as speed limit, directional and opposing traffic volumes, heavy truck

percentages, roadway geometry (both vertical and horizontal), lane and shoulder widths, and access point density.

For the corridor analysis, the highway was broken into nine sections based on logical changes in driving context and location of MDT traffic count sites. Each of the nine sections were further broken into segments based on the speed limit and the passing type (no passing, passing zone, or passing lane). This was completed for both north and southbound directions. For this analysis, the following assumptions were made:

- All grades were assumed to be 5.0 percent (rolling terrain) with an exception in Lakeside (section 7) where the grade was set to 2.0 percent (level terrain).
- All travel lanes were assumed to be 12.0 feet wide.
- The shoulders were estimated from *Google Street View* as either 2.0, 4.0, or 6.0 foot wide.
- Traffic volumes were determined based on MDT 2023 AADT's and design hour volume (DHV).
- Directional volumes were assumed to be 60-40 percent splits in the analysis direction.
- Heavy vehicle percentages were taken from MDT's 2023 AADT data.
- The volumes and heavy vehicle percentages in Lakeside (Section 7) were assumed to be the average of the sections to the south and north of Lakeside.
- Access points were counted from aerial images. Residential driveways and minor accesses that are unlikely to generate more than 20 vehicles per day were omitted as per the guidance from the HCM.
- Only horizontal curves that do not meet 70-mph baseline criteria were included as those with higher design speeds did not affect the operational results.

The results of the existing conditions analysis are presented in **Table 21** and **Figure 12**. For a rural principal arterial on the NHS-Non-Interstate system, MDT targets a LOS of B for level/rolling terrain and LOS of C for mountainous terrain[18].

As discussed previously, traffic volumes generally increase at the north end of the corridor. With the increase in traffic and the decrease in passing opportunities, the following density increases, resulting in a lower LOS. The corridor was found to be operating at a LOS of C or better from Lakeside to the southern end of the study corridor. North of Lakeside, however, the LOS dropped to a D north of Lakeside and an E in the northbound direction between Somers and Highway 82.

Projected operations were calculated for the year 2045. The results of the projected corridor LOS analysis are tabulated in **Table 22** and shown in **Figure 13**. Generally, the LOS for each section degraded a full letter grade from existing conditions, except for Section 9 northbound, which maintained a LOS of E. The following density increased by almost double for every section.

The corridor analysis does not account for intersection delay that may be present at some of the intersections along the corridor, such as the congested area in Lakeside. Since no interrupted intersections (stop, signal, or roundabout controlled) are present on the corridor, this analysis is still considered valid. If any intersection control were to change, the sections would need to be further broken to place the intersection at a section end point.

Table 21: Existing (2023 AADT) Corridor LOS

	Section	Begin RP	End RP	Length (mi)	AADT	DHV%	VHD (veh-h/p)	Following Density (follower/mi/ln)	LOS
Northbound									
1	Begin Project to Big Arm	63.0	73.9	10.9	5,769	11	1.85	**3.5**	B
2	Big Arm to Elmo (Hwy 28)	73.9	77.6	3.7	4,274	13	0.30	**3.0**	B
3	Elmo (Hwy 28) to Dayton (Lake Mary Ronan Rd)	77.6	82.7	5.1	5,161	13	0.54	**3.0**	B
4	Dayton (Lake Mary Ronan Rd) to 65 mph Zone	82.7	86.4	3.7	6,553	10	0.32	**2.3**	B
5	65 mph Zone	86.4	93.0	6.6	7,529	11	2.09	**4.9**	C
6	65 mph Zone to S. of Lakeside	93.0	97.2	4.2	6,232	11	0.62	**3.7**	B
7	S. of Lakeside to N. of Lakeside	97.2	98.6	1.4	9,383*	11	0.26	**9.2**	C
8	N. of Lakeside to S. of Somers	98.6	101.9	3.3	9,533	11	1.48	**11.7**	D
9	S. of Somers to N. of Somers (Hwy 82)	101.9	104.2	2.3	12,827	11	0.88	**16.0**	E
Southbound									
1	Begin Project to Big Arm	63.0	73.9	10.9	5,769	11	1.18	**2.8**	B
2	Big Arm to Elmo (Hwy 28)	73.9	77.6	3.7	4,274	13	0.32	**3.2**	B
3	Elmo (Hwy 28) to Dayton (Lake Mary Ronan Rd)	77.6	82.9	5.3	5,191	13	0.62	**3.0**	B
4	Dayton (Lake Mary Ronan Rd) to 65 mph Zone	82.9	86.3	3.4	6,553	10	0.42	**3.3**	B
5	65 mph Zone	86.3	93.0	6.7	7,529	11	1.97	**4.9**	C
6	65 mph Zone to S. of Lakeside	93.0	97.1	4.1	6,232	11	0.87	**4.2**	C
7	S. of Lakeside to N. of Lakeside	97.1	98.5	1.4	9,383*	11	0.27	**9.2**	C
8	N. of Lakeside to S. of Somers	98.5	101.9	3.4	9,533	11	1.48	**11.7**	D
9	S. of Somers to N. of Somers (Hwy 82)	101.9	104.2	2.3	12,827	11	0.72	**10.9**	D

** AADT was estimated based on adjacent segments.*

Table 22: Projected (2045 AADT) Corridor LOS

	Section	Begin RP	End RP	Length (miles)	AADT	DHV%	VHD (veh-h/p)	Following Density (follower/mi/ln)	LOS
Northbound									
1	Begin Project to Big Arm	63.0	73.9	10.9	9,115	11	3.91	**7.0**	C
2	Big Arm to Elmo (Hwy 28)	73.9	77.6	3.7	6,753	13	0.72	**6.8**	C
3	Elmo (Hwy 28) to Dayton (Lake Mary Ronan Rd)	77.6	82.7	5.1	8,154	13	1.37	**6.3**	C
4	Dayton (Lake Mary Ronan Rd) to 65 mph Zone	82.7	86.4	3.7	10,354	10	0.83	**4.9**	C
5	65 mph Zone	86.4	93.0	6.6	11,895	11	4.39	**9.8**	D
6	65 mph Zone to S. of Lakeside	93.0	97.2	4.2	9,847	11	1.51	**7.7**	C
7	S. of Lakeside to N. of Lakeside	97.2	98.6	1.4	14,825*	11	0.54	**17.4**	E
8	N. of Lakeside to S. of Somers	98.6	101.9	3.3	15,062	11	2.88	**21.0**	E
9	S. of Somers to N. of Somers (Hwy 82)	101.9	104.2	2.3	20,267	11	1.81	**28.8**	E
Southbound									
1	Begin Project to Big Arm	63.0	73.9	10.9	3.91	11	2.82	**5.7**	C
2	Big Arm to Elmo (Hwy 28)	73.9	77.6	3.7	6,753	13	0.71	**5.4**	C
3	Elmo (Hwy 28) to Dayton (Lake Mary Ronan Rd)	77.6	82.9	5.3	8,154	13	1.63	**6.3**	C
4	Dayton (Lake Mary Ronan Rd) to 65 mph Zone	82.9	86.3	3.4	10,354	10	1.04	**6.9**	C
5	65 mph Zone	86.3	93.0	6.7	11,895	11	1.97	**4.9**	C
6	65 mph Zone to S. of Lakeside	93.0	97.1	4.1	9,847	11	1.96	**8.5**	D
7	S. of Lakeside to N. of Lakeside	97.1	98.5	1.4	14,825*	11	0.55	**17.5**	E
8	N. of Lakeside to S. of Somers	98.5	101.9	3.4	15,062	11	2.88	**21.0**	E
9	S. of Somers to N. of Somers (Hwy 82)	101.9	104.2	2.3	20,267	11	1.69	**20.7**	E

** AADT was estimated based on adjacent segments.*

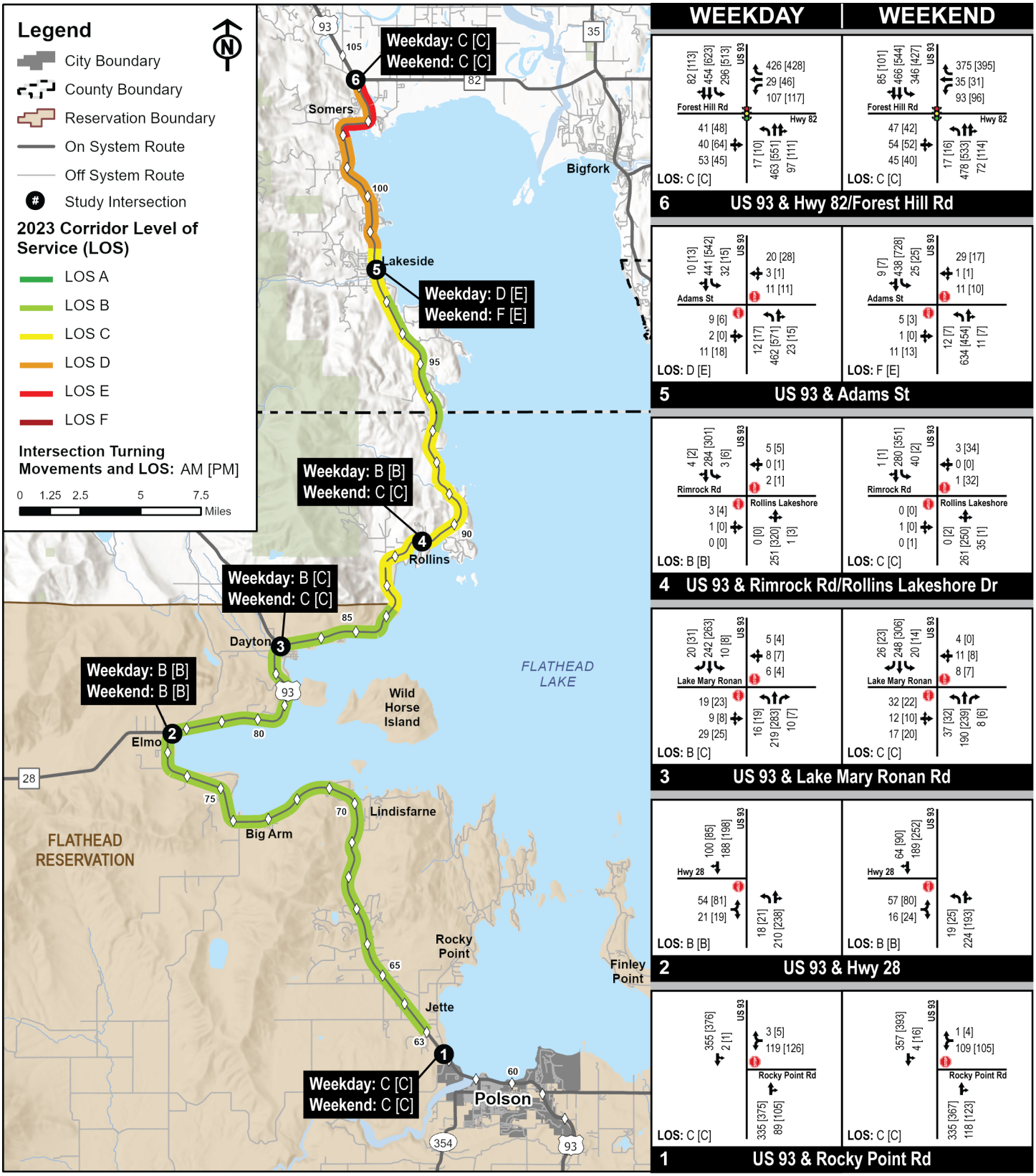


Figure 12: Existing Conditions (2024) Traffic Operations

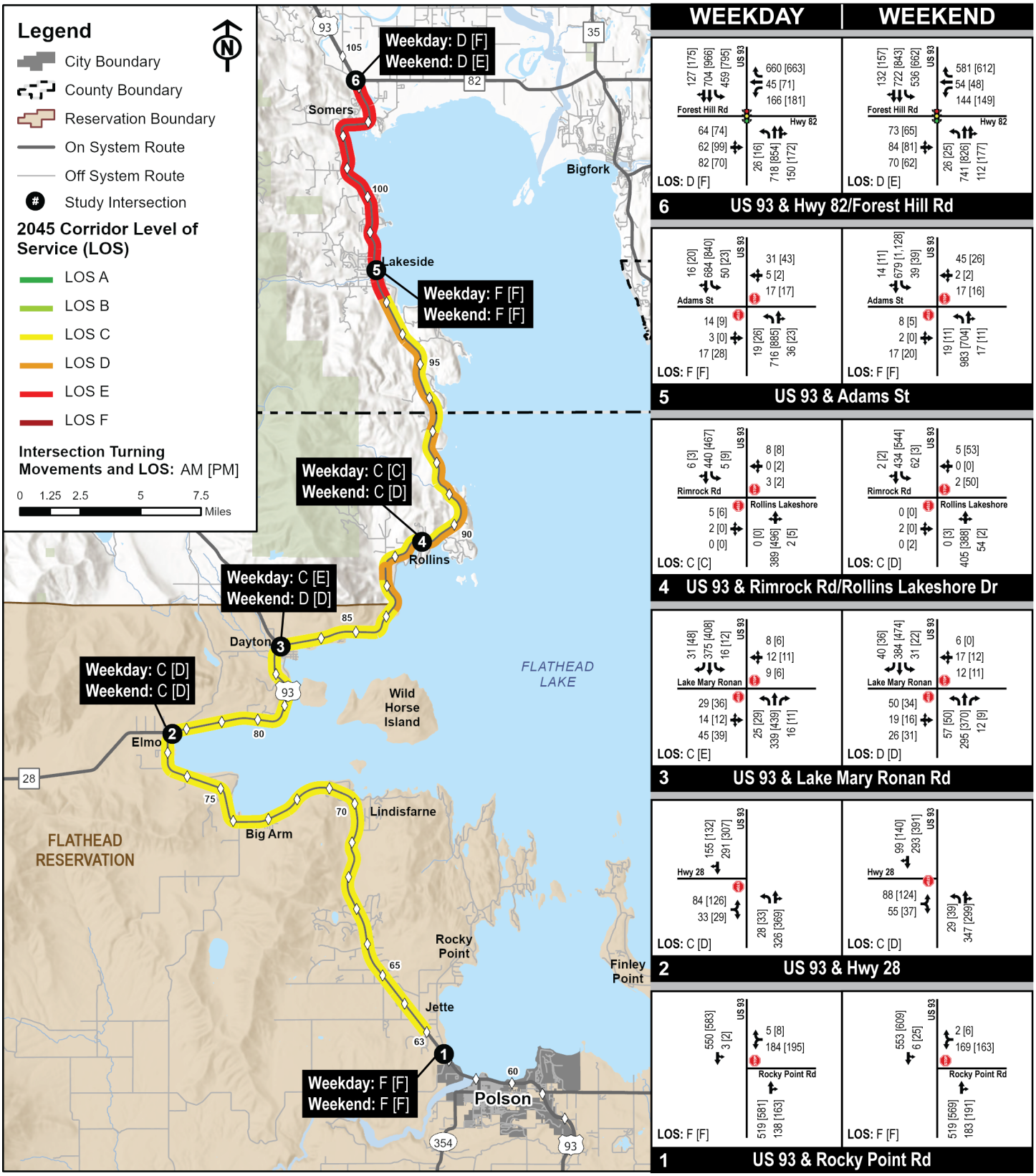


Figure 13: Projected Conditions (2045) Traffic Operations

6.0. SAFETY

Crash data for the corridor was provided by the MDT Traffic and Safety Bureau for the five-year period between January 1, 2018, and December 31, 2022, and is summarized in **Sections 6.2** through **6.12**.[i] This information includes data from crash reports submitted to the Montana Highway Patrol from their patrol officers and from local City/County/Tribal law enforcement. The crash reports are a summation of information from the scene of the crash provided by the responding officer. Some of the information contained in the crash reports may be subjective. Any crash records from other law enforcement agencies that were not reported to or by the Montana Highway Patrol were not contained in the database and are not included in this analysis.

Additionally, a separate crash analysis was conducted for the US 93/MT 82 intersection due to the distinct nature of safety concerns occurring at this high-volume, signalized location. This analysis is summarized in **Section 6.13** and includes all crashes, carcasses, and citations occurring within a 1,000-foot buffer of the intersection from January 1, 2018, through December 31, 2022.

6.1. Data Limitations

Although the crash data can help identify trends in behavioral and circumstantial contributors to crashes along the study corridor, there are some limitations to the data. A primary limitation is unreported and unknown data. Many crash records include various fields left blank. Occasionally, a report will have “unknown” listed rather than a blank field. Without this information, it may be difficult to capture the complete picture of what happened in crashes. Similarly, many crashes, especially those where individuals and vehicles are unharmed, do not get reported to the police. Underreporting can limit the ability to properly and effectively manage road safety, since the analyses in this report are based only on reported crash data. Another limitation may be inconsistencies with reporting. Although protocol has been established and training for filling out crash reports is provided to law enforcement, there may still be inconsistencies or errors in the reporting.

Oftentimes available crash data does not provide the full story. A clear picture of the crash may be unattainable without reading the full crash reports by the investigating officer, which contain narratives of the crash occurrence, statements from individuals involved and witnesses, crash diagrams, citations, and officer opinions on collision cause. For this study, crash reports were reviewed for severe crashes involving fatalities and suspected serious injuries. For all other crashes, the analysis contained in the following sections is limited to data contained in the crash records. The records are evaluated as reported; there have been no efforts to correct mistakes or fill in blanks.

6.2. Crash Location

The crash locations were plotted using latitude and longitude assigned to each record. According to the records, a total of 814 crashes were reported along the study corridor during the five-year analysis period. The crash records were reviewed to identify trends, contributing factors, and characteristics as discussed in the following sections. The density of crashes along the corridor is shown in **Figure 14.**

[i] *Pursuant to 23 U.S.C. § 407, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of Title 23, U.S.C., or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data. This publication is not intended to waive any of the State of Montana’s rights or privileges under 23 U.S.C. § 407.*

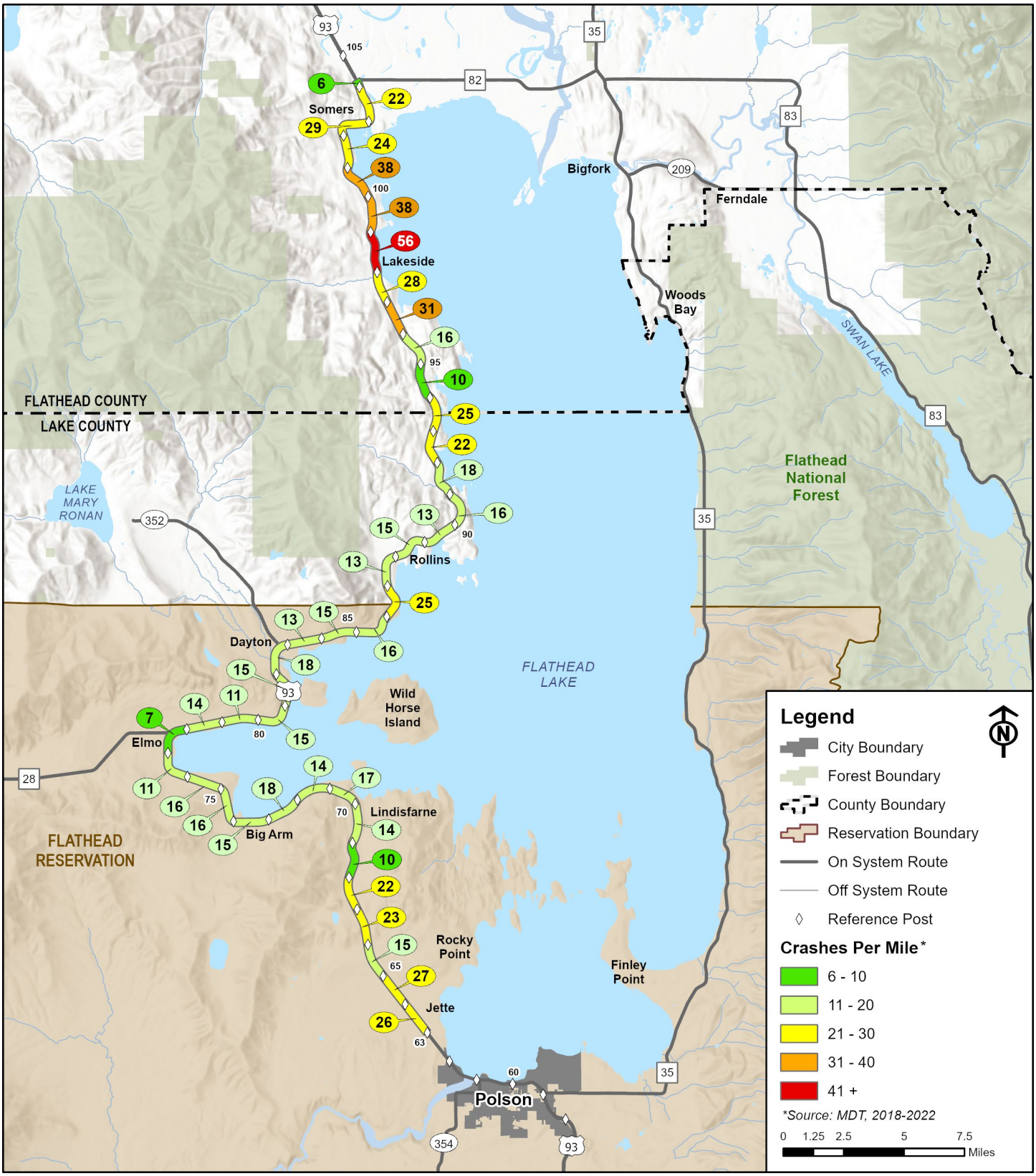


Figure 14: Crash Density

6.3. Crash Type

Crash types were grouped into two categories: single and multiple vehicle crashes. Single vehicle crashes are those that involve only one vehicle. Single vehicle crashes accounted for 76 percent (617) of all reported crashes. Of the single vehicle crashes, wild animal crashes were the most common type, followed by fixed object and rollover crashes.

Multiple vehicle crashes involve two or more vehicles. Multiple vehicle crashes accounted for 24 percent (197) of all crashes. The most common multiple vehicle crash types were rear-end crashes followed by right angle and sideswipe crashes. **Figure 15** presents the distribution of crash types along the study corridor.

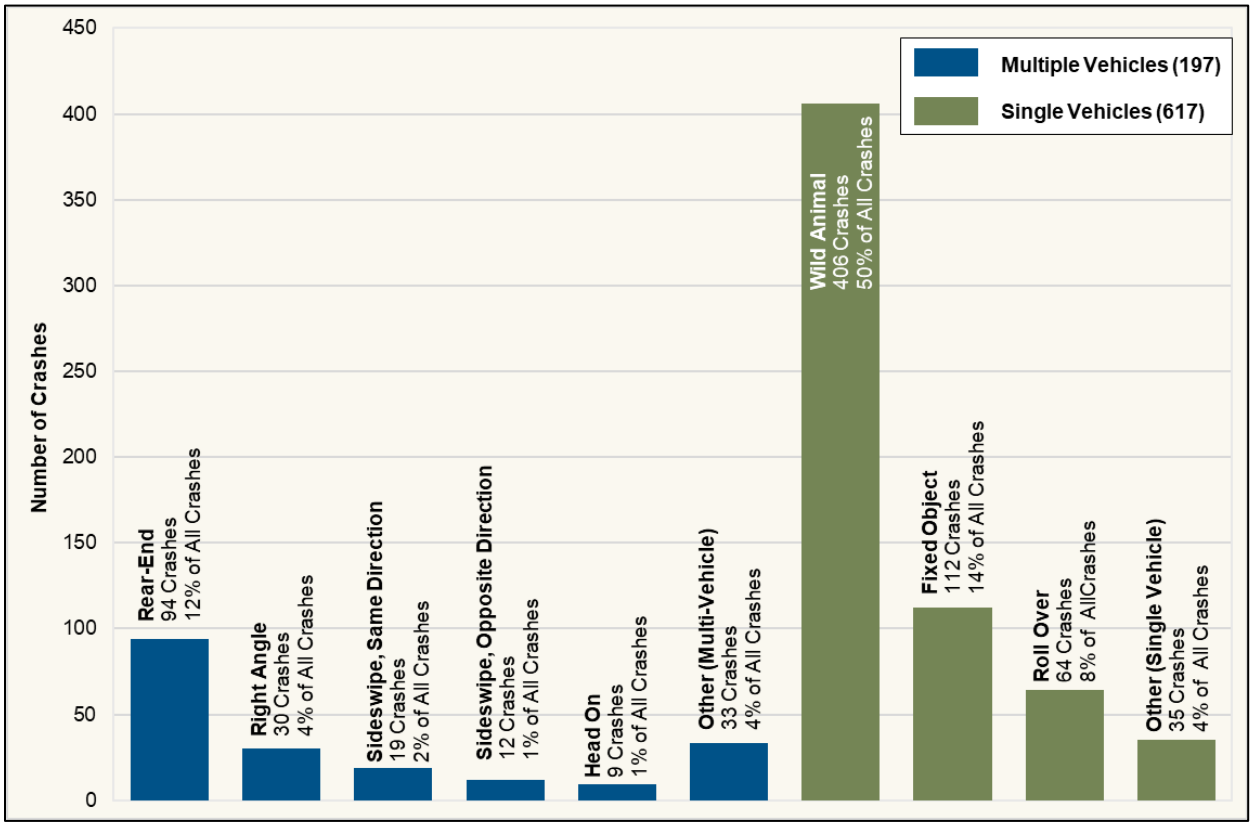


Figure 15: Crash Type

Crash types tend to be associated with their relation to a junction (i.e. intersection or driveway). For example, multiple vehicle crashes are more common in locations near junctions. As such, analysis of relation to junction information can help to identify systemic issues within the study area. Of the 814 total reported crashes, 89 percent (721) of crashes were non-junction related. The remaining 11 percent (93) of crashes were, in some way, related to a junction (intersection, driveway, or other access point).

6.4. Crash Period

Each crash record includes the date and time when the crash occurred. This information can be used to determine seasonal and other time dependent trends. Time of day data was analyzed to determine if any specific trends were present. The data were plotted based on the hour the crash occurred and whether the crash occurred on a weekday or weekend. For weekday crashes (73 percent of all

crashes), two peaks are apparent. One peak occurs between the morning commuting hours of 6:00 and 8:00 AM, which accounted for 21 percent of weekday crashes. The other peak is more prolonged and generally occurs from about 2:00 to 8:00 PM in proximity to evening commuting hours, accounting for 42 percent of crashes. For the weekend crashes (27 percent of all crashes), peak periods were less defined in the absence of commute patterns as the crashes were more distributed throughout the day. **Figure 16** presents the distribution of crashes with respect to the time of day that the crashes occurred.

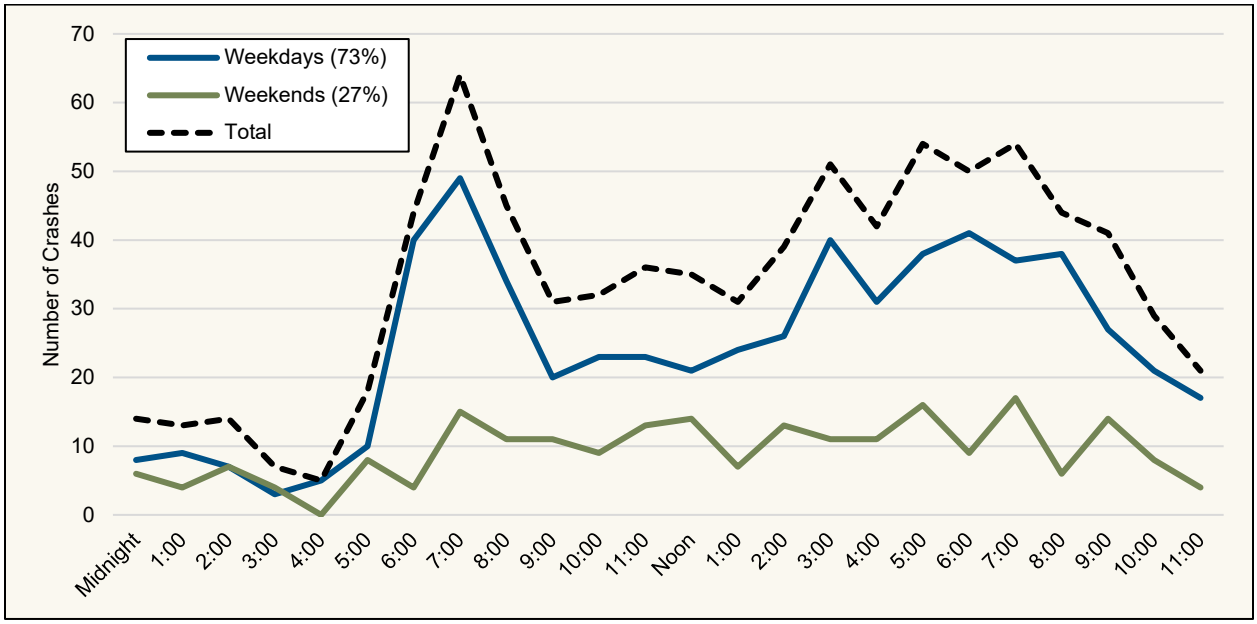
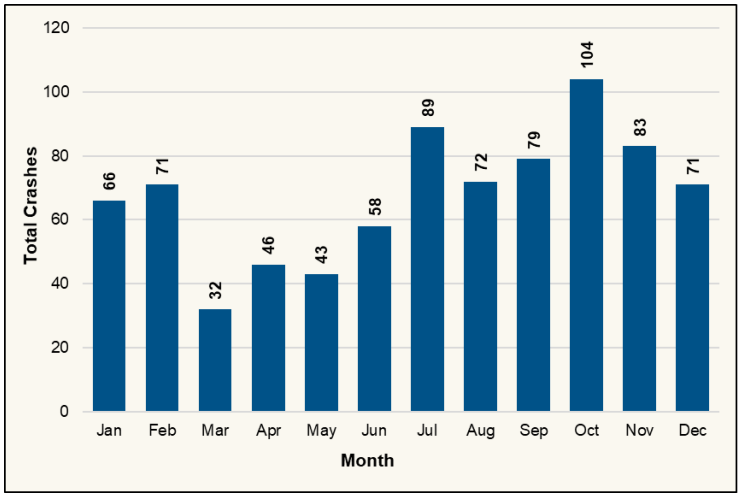


Figure 16: Crash Occurrence by Time of Day

The frequency of crashes occurring during each month and on a given day were plotted in **Figure 17**. In general, the crashes were fairly evenly distributed throughout the week, with the greatest number of crashes occurring on Fridays (17 percent) and the fewest crashes occurring on Thursdays (12 percent). In general, the highest number of crashes were observed during the winter months (November to February), when almost 50 percent of crashes occurred, while crashes were the lowest during the spring months (March to May). The greatest number of crashes, however, occurred in October (13 percent) and July (11 percent).



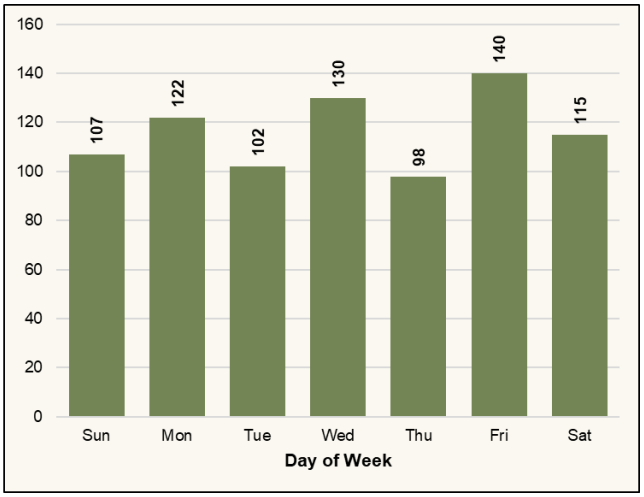


Figure 17: Crash Occurrence by Month and Day of the Week

Figure 18 shows the frequency of crashes occurring per year. As shown in the figure, the number of crashes per year has remained relatively constant, with a peak in 2021 accounting for 30 percent of the crashes over the analysis period. During the same period, the number of severe crashes resulting in a fatality or suspected serious injury followed the same trend, peaking in 2021 with eight severe crashes.

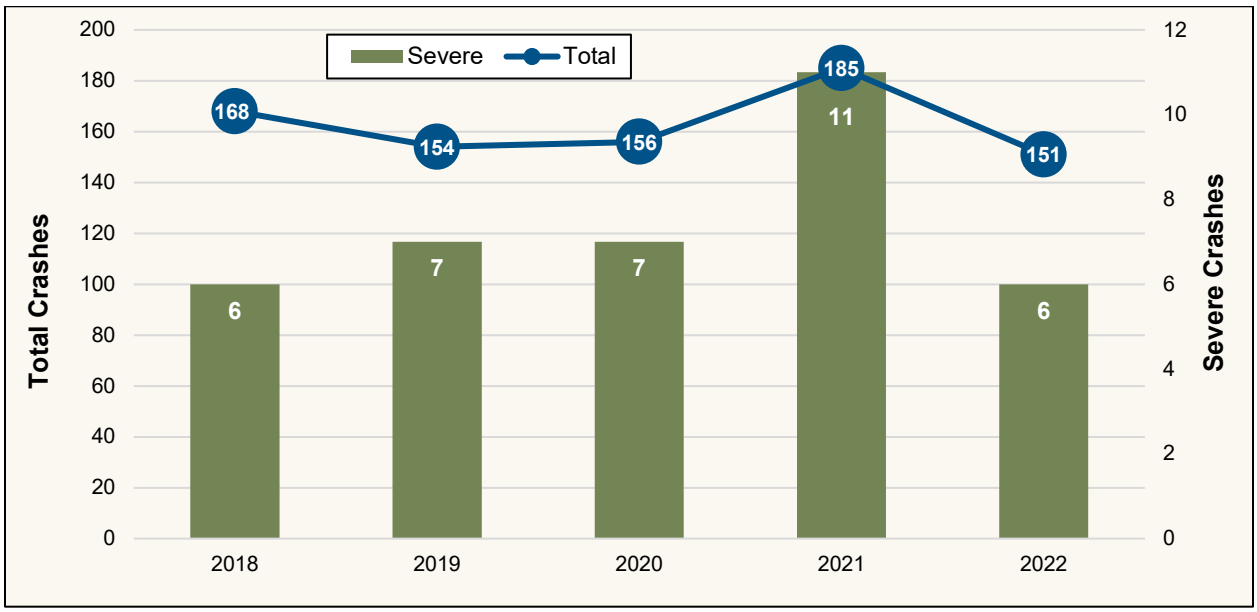


Figure 18: Crashes per Year

6.5. Crash Severity

Crashes can be categorized by the severity of injuries reported. The most severe injury defines the severity of the crash. For example, if a crash results in a fatality and a minor injury, the crash would be defined as a fatal crash. Crash severity includes, from least severe to most, property damage only (PDO), possible injury, suspected minor injury, suspected serious injury, and fatal injury. Severe crashes include those resulting in a fatality or suspected serious injury.

The distribution of reported crash severity is presented in **Figure 19**. There were nine fatal crashes (1.1 percent) and a total of nine fatalities. There were 28 suspected serious injury crashes (3.4 percent) and a total of 33 suspected serious injuries. The locations of severe crashes are shown in **Figure 20**.

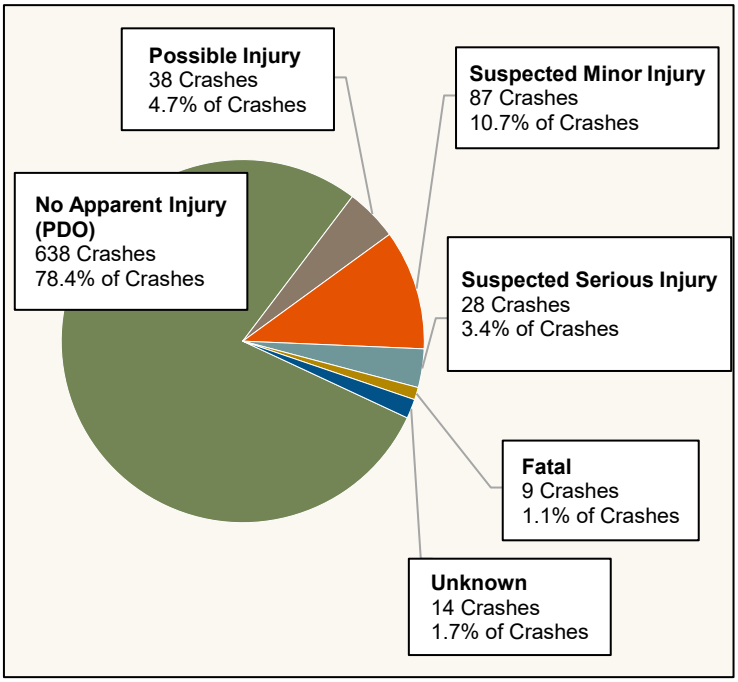


Figure 19: Crash Severity

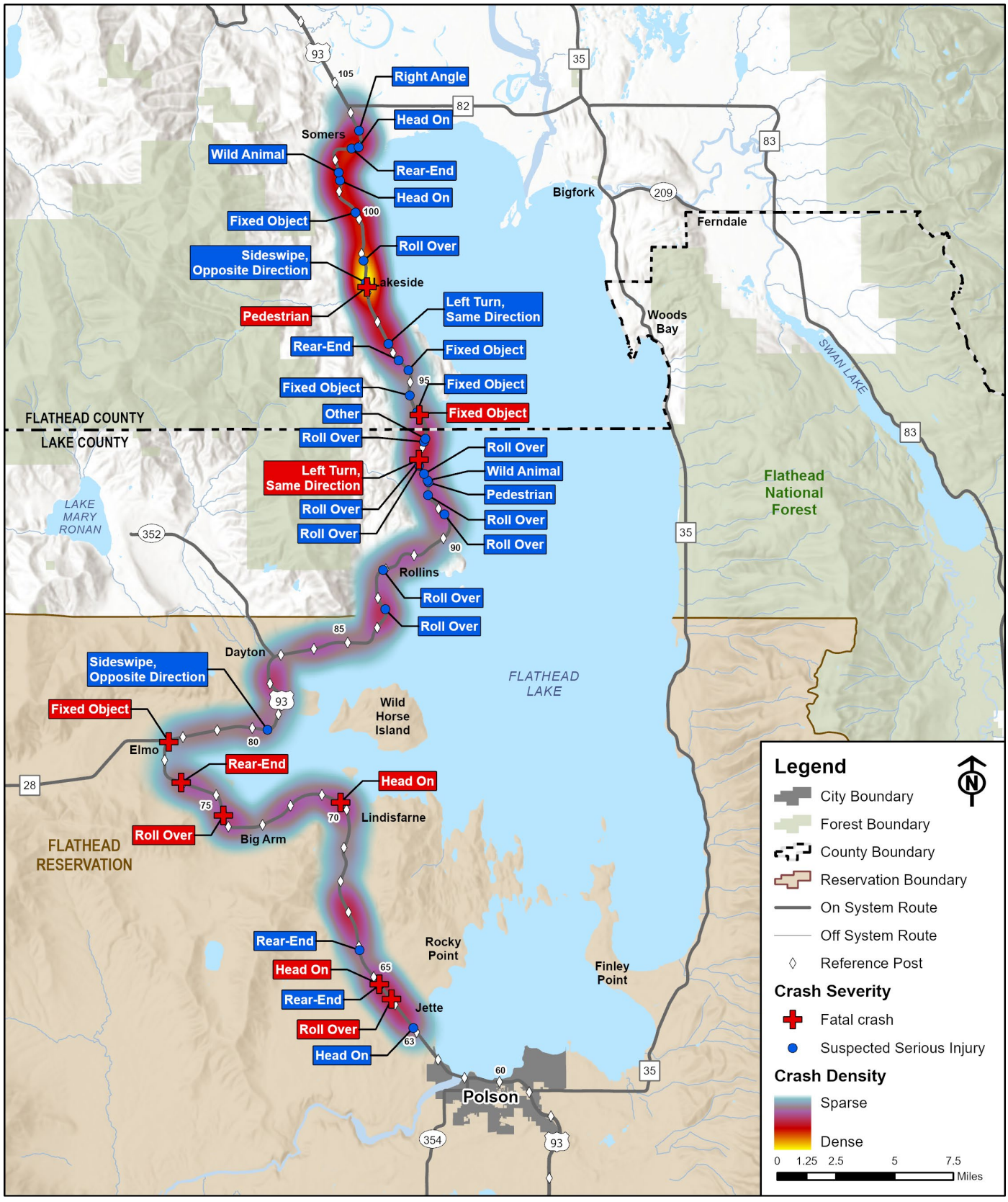


Figure 20: Crash Density and Severe Crashes

6.5.1. Crash Report Narratives

While analyzing and reporting the crash data, it was determined that additional information was needed to understand the circumstances surrounding fatal and suspected serious injury crashes to identify trends and commonalities. Accordingly, the crash narratives, including descriptions from individuals involved, responding officers, and dashboard cameras, were reviewed for both fatal and severe crashes. Based on these narratives, several trends were noted. These trends appeared to contribute to crashes and may help identify strategies to address safety along the corridor. The trends are summarized in the following paragraphs based on whether they led to a fatal injury, a suspected serious injury, or were applicable to both types of severe crashes. Furthermore, the updated information is still only as accurate as the details provided in the crash narratives, and some relevant circumstances may not have been recorded.

Key actions and circumstances leading to fatal crashes were identified. Over half of the reviewed fatal crashes involved either impaired drivers or, in one instance, an impaired pedestrian. Most impaired drivers, as well as the impaired pedestrian, crossed into a lane of oncoming traffic, leading to head-on collisions. Other impaired drivers drove the vehicle off the road without hitting other vehicles or pedestrians. In one of these instances, winter weather was considered a contributing factor. A few incidents involved a vehicle turning onto a driveway or intersecting roadway when they were hit by another vehicle that was traveling behind them in the same lane of travel. One of these crashes resulted in the front vehicle getting pushed into oncoming traffic, while in another, the back vehicle, a motorcycle pulling a trailer, flipped and ejected the driver. The only other motorcycle crash leading to a fatality involved a single driver who lost control for unknown reasons. Some of the crashes occurred as a result of winter weather conditions. In some cases, officers cited poor tire condition as a contributing factor in these crashes. Of the fatalities that included a vehicle, half involved unrestrained occupants or a motorcyclist without a helmet. Each fatal crash resulted in one fatality, with some also resulting in suspected serious injuries.

Patterns were also observed in the actions and contributing circumstances that resulted in suspected serious crashes. The most common crash type was head-on collisions caused by one vehicle swerving into a lane with oncoming traffic as well as vehicles intentionally crossing the center line to improperly pass other vehicles. Several crashes involved impaired drivers, most of whom drove off the road without striking other vehicles or pedestrians. A few non-impaired drivers also left the road without impacting other vehicles, mostly due to winter weather affecting road conditions. Some single-vehicle crashes were caused by animals unexpectedly running across the road at night in unlit areas. The remaining suspected serious injuries were a result of rear-end crashes caused by a vehicle either yielding to a pedestrian at a crosswalk or slowing down to turn off the highway. Over one-third of occupants who sustained suspected serious injuries were unrestrained, and in all suspected serious injury motorcycle crashes, the injured driver was not wearing a helmet.

Certain factors were linked to both fatal and suspected serious injuries, with some of these factors also being interrelated. Impaired driving appeared to be the largest contributing factor in fatal or suspected serious injury crashes. Two-thirds of impaired drivers were unrestrained at the time of the crash. Impaired drivers were also twice as likely to be involved in a single-vehicle crash, without impacting another vehicle or pedestrian. While animals were a factor in some of the suspected serious injury crashes occurring in unlit areas, they did not result in fatal injuries. Finally, 86% of drivers involved in a fatal or suspected serious injury crash had Montana licenses and cars registered in the state.

6.6. Environmental Factors

Crash data were reviewed to determine if any trends exist in relation to environmental factors such as weather, roadway surface, and lighting conditions. The weather condition was reported as clear or cloudy in 85 percent of all crashes and 86 percent of severe crashes. Adverse weather conditions, including snow and rain, were reported in approximately 12 percent of crashes. **Figure 21** presents the distribution of crashes based on weather conditions. The "other" category includes fog, smog, or smoke; sleet/hail/freezing rain/drizzle; blowing snow; and unknown.

The reported road surface condition for crashes within the study area is also presented in **Figure 21**. Approximately 72 percent of all crashes were reported as having occurred on dry roads, while 26 percent of crashes were reported as having occurred on wet, snowy, or icy/frost-covered roads. Severe crashes occurred primarily on dry roads (65 percent) with the other crashes occurring on wet (14 percent), snowy (5 percent), or icy/frost-covered roads (16 percent).

About 55 percent of all crashes were reported as having occurred under daylight conditions. An additional 37 percent of crashes were reported as occurring at dark, about 96 percent of those occurred where street lighting was not present. Similarly, severe crashes occurred during daylight hours approximately 65 percent of the time, and at dark without street lighting approximately 32 percent of the time. The distribution of crashes occurring under the different lighting conditions is presented in **Figure 21**. The "other" category includes dusk, dawn, and unknown.

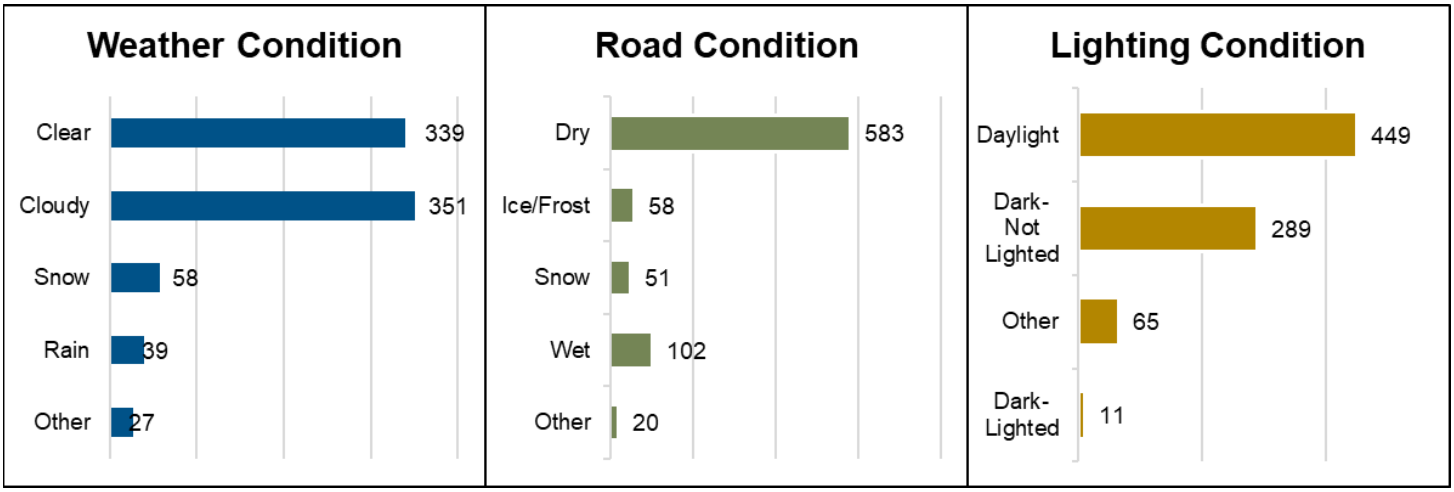


Figure 21: Crash Environmental Factors

6.7. Person Details

A total of 1,638 people were involved in the 814 crashes in the study corridor over the analysis period. Approximately 61 percent of the people involved in crashes were drivers and 36 percent were passengers. About 62 percent of drivers involved in crashes were male and 38 percent were female. With respect to age, about 17 percent of drivers were over the age of 65 and about 10 percent of drivers were under the age of 21. Of the drivers involved in severe crashes, 21 percent were over the age of 65 and nine percent were under the age of 21.

6.7.1. Vulnerable Road Users

Of the 814 crashes that occurred during the 5-year analysis period, less than one percent involved vulnerable road users. There was a total of three pedestrian-related crashes and no bicycle-related crashes that occurred involving a total of four non-motorists. One of the non-motorists was involved in

a rear-end crash and was uninjured. All the other non-motorists were male pedestrians between the ages of 40 and 60. One pedestrian suffered fatal injuries, one suffered suspected serious injuries, and one was reported as having suspected minor injuries.

6.7.2. Driver Condition

Driver conditions at the time of the crash can point to driver behavior issues that may need to be addressed. The crash records indicate whether each crash involved fatigued, distracted, and/or impaired drivers. These behaviors are determined and reported based upon the reporting officer's assessment or driver admission. The crash records indicate that one driver was fatigued at the time of the crash and two drivers were distracted at the time of the crash. Both drivers were allegedly distracted by external distractions, or something outside of the vehicle.

Impaired driving is defined as operating a vehicle while under the influence of drugs or alcohol. In Montana, driving under the influence is when the driver's blood alcohol concentration is 0.08 or higher. Impairment of marijuana in Montana is defined as exceeding a five nanogram (ng)/ml threshold for tetrahydrocannabinol (THC) in blood for anyone operating a motor vehicle. Within the study area, approximately six percent of crashes (52 crashes) were determined to have involved an impaired driver. Approximately 32 percent of severe crashes (12 crashes) involved an impaired driver. Overall, of the 1,006 drivers involved in all crashes, 100 (10 percent) were suspected and/or determined to be under the influence of drugs or alcohol at the time of the crash.

6.7.3. Contributing Actions

Up to four contributing actions can be reported for each driver involved in a crash. These are actions that occurred which led to the occurrence of a crash. When the driver had no contributing action, all fields are left blank or "no contributing action" is listed in one or more fields. When calculating the top contributing actions by drivers, the sum of the occurrences of each contributing action in all four fields was divided by the total number of reported driver records. Since a driver can have up to four contributing actions, the percentages do not add up to 100 percent. **Figure 22** shows the top contributing factors in crashes within the analysis period.

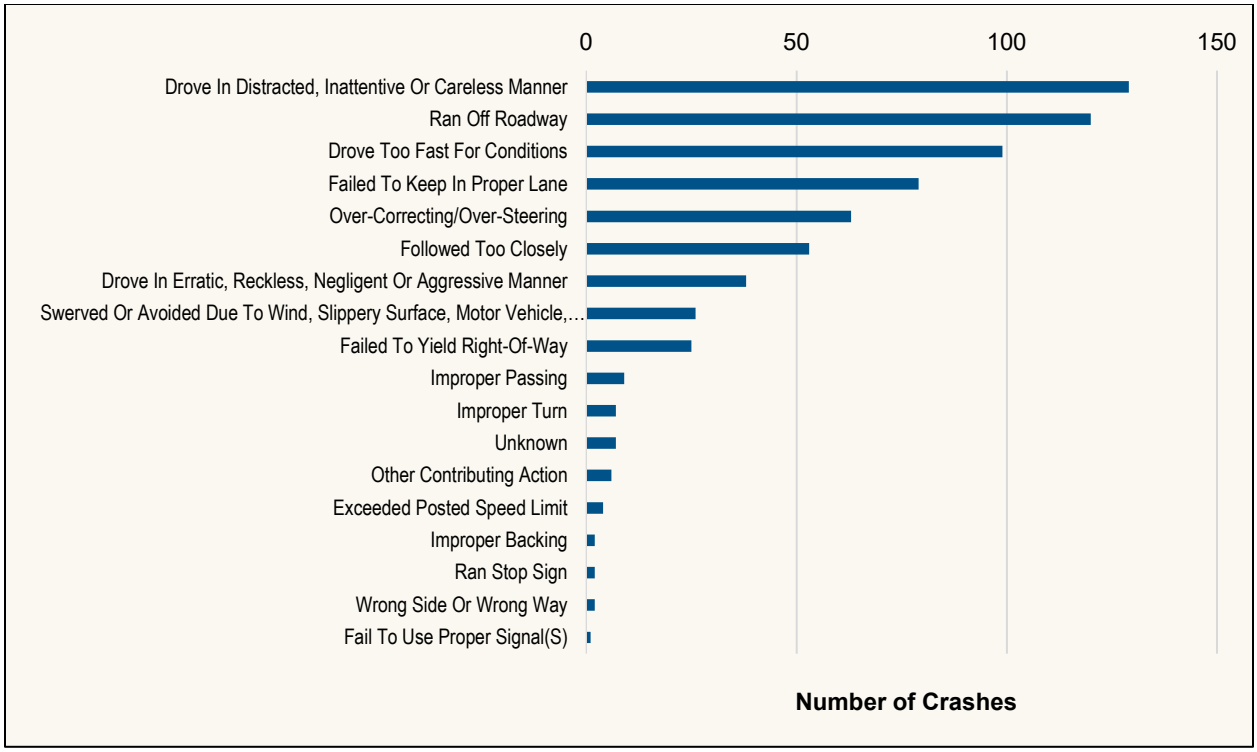


Figure 22: Driver Contributing Actions

The most common contributing action was driving in a distracted, inattentive, or careless manner, accounting for about 13 percent of drivers. Running off the roadway, driving too fast for conditions, failing to keep in the proper lane, and over-correcting/over-steering were listed as contributing actions for a combined 36 percent of drivers. About 64 percent of drivers were found to have no contributing action in the crash.

6.8. Vehicle Details

Over the analysis period, 1,045 vehicles were involved in crashes within the study area. Of these vehicles, 37 percent were passenger cars/vans, 26 percent were pickups, and 30 percent were sport utility vehicles. Large trucks were involved in about two percent of crashes while motorcycles and ATVs were involved in slightly less than two percent of crashes. Other vehicles involved in crashes included light trucks/cargo vans (one percent), motorhomes (one percent), and snowplows (less than one percent). The majority of severe crashes involved passenger vehicles (88 percent) while about seven percent involved motorcycles, four percent involved ATVs, and two percent involved heavy trucks.

6.9. Level of Service of Safety

A level of service of safety (LOSS) analysis was completed by MDT for the study corridor using the five years of crash data and a Montana LOSS model developed for rural, flat, and rolling two-lane undivided highways. These models only pertain to non-junction crashes and provide both a quantitative and qualitative performance of the corridor based on other Montana roadways that have similar traffic volumes and terrain types. Based on the modeling results, the study corridor is performing at a LOSS III rating for all non-junction crashes indicating a moderate to high potential for

crash reduction. When considering fatal and suspected serious injury non-junction crashes, the corridor is also found to perform at LOSS III with a moderate to high potential for crash reduction.

6.10. High Injury Network

A high injury network (HIN) is a screening methodology that identifies areas within the transportation system with the greatest safety concerns. Jurisdictions across the country use various methodologies to develop local HINs depending on the availability of data in their jurisdiction. A HIN was created for the study corridor by considering frequency of crashes, rate of crashes in comparison to traffic volumes, and severity of injuries resulting from crashes. This method helps identify and prioritize locations with unusually high crash occurrences or especially severe crashes.

The segment-based HIN analysis evaluated the roadway network using a “sliding window” method, as recommended by the *Highway Safety Manual*, to effectively compare roadway segments of equal length. The sliding window method evaluates crashes and injuries occurring in one-mile segments (i.e., “windows"), and then slides the window along the roadway 0.1-miles at a time, as demonstrated in **Figure 23**. This method helps identify locations with the highest concentrations of crashes and/or severe injuries and reduces the possibility of splitting locations with high concentrations of crashes into separate segments.

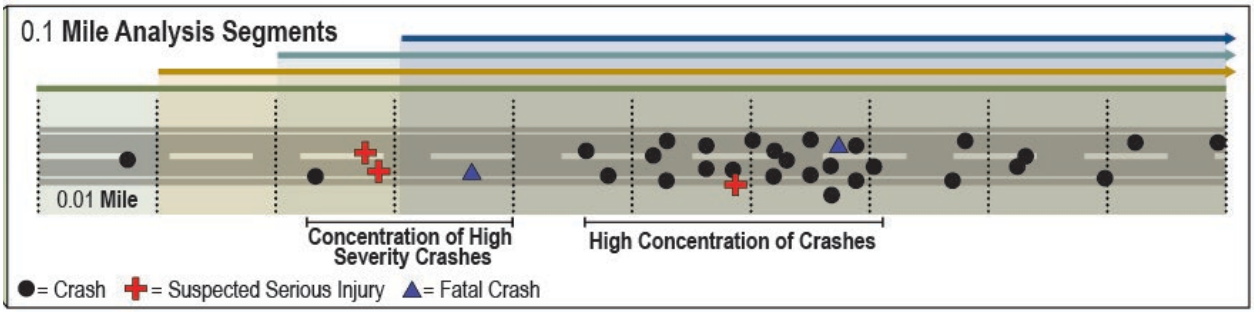


Figure 23: Sliding Window Method

Figure 24 depicts the segments of the corridor with the highest resulting safety scores, and **Table 23** presents the characteristics of the segments with the highest scores.

Table 23: HIN - Highest Scoring Segments

Segment	Total Crashes	No Injuries	Minor/ Possible Injuries	Severe Injuries
Jette *(RP 63.7 – 65.1)*	37	60	4	5
Lindisfarne *(RP 69.4 – 71.3)*	35	45	8	2
Big Arm to Elmo *(RP 73.9 – 78.1)*	55	75	13	4
West Shore *(RP 91.7 – 93.5)*	47	80	12	8
Lakeside *(RP 97.8 – 98.7)*	63	105	19	2

Each segment was examined in detail to understand the circumstances around the crashes that occurred to understand whether crashes occurred due to problematic infrastructure conditions, repeated improper driver behaviors, or chance occurrences that could not have been otherwise prevented. Findings from the HIN analysis are summarized in the following sections.

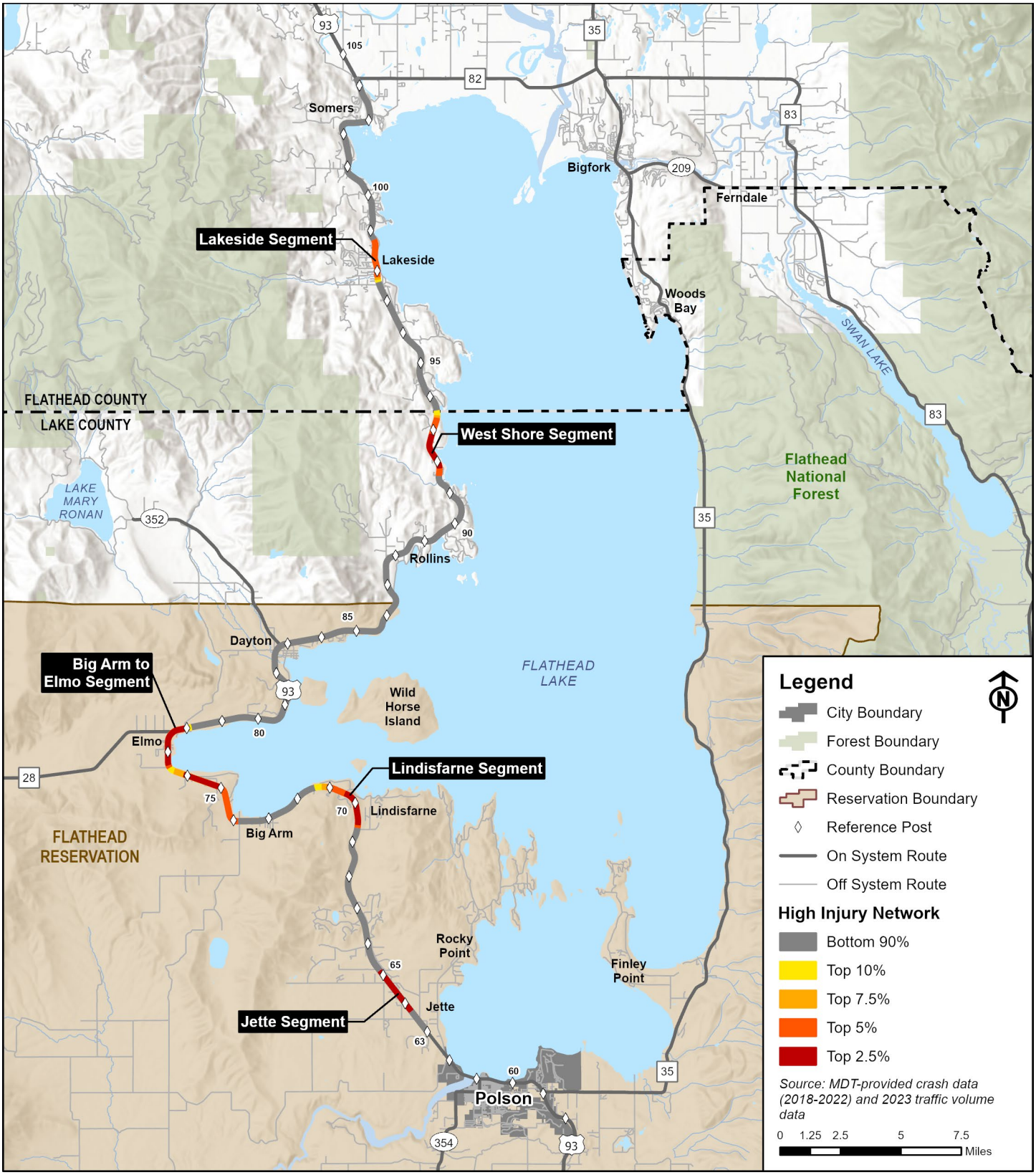


Figure 24: High Injury Network

Jette Segment (RP 63.7 – 65.1)

The Jette Segment is a straight section of US 93 with a 70-mph speed limit just outside of Polson. Land uses surrounding this segment include residential and light industrial. There were 37 reported crashes in this segment including two fatal crashes and one suspected serious injury crash, resulting in five severe injuries overall. Traffic volumes in this segment are approximately 8,000 vpd, which is about average compared to the rest of the corridor. The following crash trends were identified.

- Crashes occurred most often in the fall and early winter months (September to December, [57 percent]). A spike in crashes occurred in the early morning (6:00 AM – 7:00 AM, [eight percent]), and in the later evening hours (7:00 PM – 10:00 PM, [35 percent]).
- The majority of crashes were wild and domestic animal crashes (62 and five percent, respectively). Other common crash types included fixed object (eight percent), roll over (eight percent), and rear-end (five percent). All but two of the crashes were non-junction crashes. The severe crashes included a fatal head on, fatal roll over, and serious rear-end crash.
- Crashes occurring under adverse weather conditions (rain, snow, fog) made up 14 percent of crashes while crashes occurring on adverse roadways (wet, icy, frosty, or snowy) made up 22 percent of crashes. The road surface condition was believed to be a factor in 16 percent of crashes, including the fatal roll over crash.
- Just under 60 percent of crashes occurred at night with no street lighting present. About 86 percent of those crashes involved a wild or domestic animal.
- All but two of the drivers involved in crashes in this segment had Montana driver's licenses and all were driving passenger vehicles (car, van, SUV, pickup).
- Most drivers were said to have no contributing actions in the crash (70 percent), however about 14 percent of drivers were said to have been driving too fast for conditions or exceeding the posted speed limit. Five percent of the crashes involved an impaired driver. Both of the fatal crashes involved impaired drivers.

Lindisfarne Segment (RP 69.4 – 71.3)

The Lindisfarne Segment is a large, curved section of US 93 with a 70-mph speed limit. The segment offers the first scenic views of Flathead Lake after leaving Polson. Surrounding land uses are primarily residential, although most development in this section is not viewable from the roadway due to steep rock faces and tall trees. There were 35 total crashes along this segment. One of the crashes was fatal, resulting in one fatality and one serious injury. Traffic volumes in this segment are approximately 5,000 vpd. The following crash trends were identified.

- About three to five crashes occurred each month of the year, with the exception of the late winter/early spring months (March to May) which accounted for less than ten percent of crashes. A spike in crashes occurred in the early morning (5:00 AM – 7:00 AM, [17 percent]), but were otherwise fairly evenly distributed throughout the day.
- All but two of the crashes occurred at non-junction locations. The most common crash types were wild animal (51 percent), fixed object (23 percent), rollover (11 percent), and head on (six percent). The fatal crash was a head on collision. Animals in the roadway were believed to be a contributing circumstance in 49 percent of crashes in this segment.
- Crashes occurring under adverse weather conditions (rain, snow, fog) made up nine percent of crashes while crashes occurring on adverse roadways (wet, slushy, icy, frosty, or snowy) made up 23 percent of crashes. The road surface condition was believed to be a factor in 20 percent of crashes, including the fatal head on crash. Over half of the crashes (51 percent) occurred at night with no street lighting present.

- All but six of the drivers involved in crashes in this segment had Montana driver's licenses. Almost all vehicles involved in crashes were passenger vehicles with two large trucks reportedly involved.
- The majority of drivers were said to have no contributing actions in the crash (67 percent), however about 15 percent were said to have been driving in a distracted or inattentive manner while 13 percent were said to have been driving too fast for conditions. About 41 percent of vehicles were negotiating a curve at the time of the crash. Nine percent of the crashes involved an impaired driver, including the fatal crash.

Big Arm to Elmo Segment (RP 73.9 – 78.1)

This segment extends from Walking Horse Lane in Big Arm to Grants Lane just north of Elmo. The section consists of sweeping curves and straight sections and passes through residential, Tribal, and recreational lands, including Big Arm State Park. The segment is a transition zone from 55 mph in Big Arm to 70 mph for about half of the segment and stepping down to 45 mph through Elmo. The segment ends at the 55 mph/70 mph transition zone as traffic leaves Elmo. Traffic volumes are lowest in this segment of the corridor (about 4,000 vpd), yet 55 crashes resulting in three fatalities and one serious injury occurred in this segment. The following crash trends were identified.

- The most crashes in this segment occurred in the late summer/fall months (August to November) which accounted for about 47 percent of crashes. A spike in crashes occurred during the morning commute (7:00 AM – 9:00 AM, [15 percent]) and evening commute (5:00 PM to 8 PM, [29 percent]).
- All but four of the crashes occurred at non-junction locations. The most common crash types were wild animal (53 percent), fixed object (24 percent), rollover (13 percent), and rear-end (five percent). The fatal crashes were a roll over crash, fixed object crash with a traffic sign, and a rear-end crash at a driveway. Animals in the roadway were believed to be a contributing circumstance in 55 percent of crashes in this segment.
- Crashes occurring under adverse weather conditions (rain, snow, fog) made up 16 percent of crashes while crashes occurring on adverse roadways (wet, icy, frosty, or snowy) made up 22 percent of crashes. The road surface condition was believed to be a factor in 15 percent of crashes. Road and weather conditions were not believed to be factors in the fatal crashes. About half of the crashes (47 percent) occurred at night with no street lighting present and about nine percent occurred at dawn/dusk.
- About 84 percent of the drivers involved in crashes in this segment had Montana driver's licenses. Almost all vehicles involved in crashes were passenger vehicles, but one of the vehicles involved was a motorcycle, one was a large truck, and one was a motorhome. The motorcyclist was killed in the fatal roll over crash.
- The majority of drivers were said to have no contributing actions in the crash (60 percent), however about 20 percent were said to have been driving in a distracted or inattentive manner while 12 percent were said to have been driving too fast for conditions. Running off the roadway, failing to keep in the proper lane, and over-correcting were listed as contributing actions for 50 percent of drivers. About 79 percent of vehicles were traveling essentially straight ahead at the time of the crash. An impaired driver was involved in 11 percent of the crashes, including the fatal fixed object crash.

West Shore Segment (RP 91.7 – 93.5)

The West Shore Segment is a series of s-curves along the west banks of Flathead Lake passing adjacent to West Shore State Park. This segment ends at the Lake / Flathead County line. In the northbound direction, the roadway climbs at a moderate grade. At Lake Forest Drive, the speed limit

transitions from 65 mph to 70 mph. Traffic volumes in this segment are approximately 6,000 vpd yet 47 crashes occurred in this segment, resulting in one fatal crash and seven suspected serious injury crashes. The following crash trends were identified.

- The most crashes in this segment occurred in July (17 percent) and April (15 percent). A spike in crashes occurred in the early morning (6:00 AM – 9:00 AM, [30 percent]), but were otherwise fairly evenly distributed throughout the day.
- Nearly 90 percent of the crashes occurred at non-junction locations with three crashes being at intersection and two being at driveways. The most common crash types were wild animal (51 percent), rollover (13 percent), fixed object (11 percent), and rear-end (nine percent). Half of the severe injury crashes were rollover crashes. The fatal crash was a left-turn, same direction crash at an intersection. Animals in the roadway were believed to be a contributing circumstance in 51 percent of crashes in this segment.
- Crashes occurring under adverse weather conditions (rain, snow, sleet) made up 13 percent of crashes while crashes occurring on adverse roadways (wet, icy, frosty, or snowy) made up 36 percent of crashes. The road surface condition was believed to be a factor in 17 percent of crashes and weather conditions were a factor in 11 percent of crashes. About one-third of the crashes (30 percent) occurred at night with no street lighting present and about nine percent occurred at dawn. Sixty-three percent of the severe injury crashes occurred at night with no street lighting.
- About 72 percent of the drivers involved in crashes in this segment had Montana driver's licenses. All but two of the vehicles involved in crashes were passenger vehicles. One of the vehicles involved was a motorcycle and one was an ATV. The motorcyclist was killed in the fatal left-turn crash and the ATV rider was seriously injured in a wild animal crash.
- The majority of drivers had no contributing actions in the crash (64 percent), however about 17 percent were said to have been driving in a distracted or inattentive manner while 15 percent were said to have been driving too fast for conditions or exceeding the posted speed limit. Following too closely was listed as a contributing action for seven percent of drivers.
- About 44 percent of vehicles were traveling essentially straight ahead at the time of the crash while 36 percent were negotiating a curve. About five percent were passing, and ten percent were slowing or stopped at the time of the crash.
- An impaired driver was involved in six percent of the crashes involved. Impaired drivers were involved in three of the four rollover crashes causing serious injuries.

Lakeside Segment (RP 97.8 – 98.7)

The Lakeside Segment passes through the community of Lakeside and is the most developed part of the corridor with a variety of land uses adjacent to the roadway. The roadway is generally straight with some gentle curvature and essentially flat grades. The speed limit incrementally steps down from 55 mph to 35 mph then steps back up to 55 mph within this segment. This was the segment with the highest frequency of crashes with 63 total crashes causing one fatality and one suspected serious injury. The following crash trends were identified.

- The number of crashes in this segment have been steadily increasing since 2019. The most crashes in this segment occurred in February (17 percent) and November (14 percent). A spike in crashes occurred during the morning (7:00 AM – 8:00 AM, [ten percent]) and evening commutes (5:00 PM – 7:00 PM, [27 percent]), but were otherwise fairly evenly distributed throughout the day.
- About 70 percent of the crashes occurred at non-junction locations with 21 percent of crashes being at intersections and ten percent being at driveways. The most common crash types were

rear-end (29 percent), wild animal (25 percent), and fixed object (22 percent). The fatal crash was a pedestrian crash, and the suspected serious injury crash was a sideswipe, opposite direction crashes. Animals in the roadway were believed to be a contributing circumstance in 30 percent of crashes in this segment.

- Crashes occurring under adverse weather conditions (rain, snow, sleet, fog) made up 21 percent of crashes while crashes occurring on adverse roadways (wet, icy, frosty, or snowy) made up 40 percent of crashes. However, the road surface condition was reported to be a contributing factor in 19 percent of crashes and weather conditions were reported to be a contributing factor in eight percent of crashes. This indicates that although the roads were not dry in 40 percent of crashes, the surface condition was only believed to be a contributing factor in the crash occurrence in 19 percent of crashes.
- About one-third of crashes (29 percent) occurred at night with no street lighting present, 11 percent occurred at night with street lighting, and about ten percent occurred at dawn/dusk.
- About 84 percent of the drivers involved in crashes in this segment had Montana driver's licenses. All but four vehicles involved in crashes were passenger vehicles. Of the vehicles involved, one was an ATV, one was a cargo van, and two were large trucks. Only passenger vehicles were involved in the fatal and suspected serious injury crashes. The fatal crash involved a pedestrian fatality.
- About half of drivers had no contributing actions in the crash (51 percent), however about 11 percent were said to have been following too closely while ten percent were driving in a distracted or inattentive manner, ten percent ran off the roadway, ten percent failed to keep in the proper lane, and nine percent were said to have been driving too fast for conditions and. An impaired driver was involved in eight percent of the crashes, excluding the severe crashes.
- About 63 percent of vehicles were traveling essentially straight ahead at the time of the crash while five percent were negotiating a curve. About 19 percent were slowing or stopped in traffic at the time of the crash.

6.11. Citations

Citation data was obtained from the MDT Traffic and Safety Bureau for the same five-year analysis period (2018-2022). This data includes citations issued primarily by MHP for violations reflecting State and Federal traffic codes. City codes are typically not reflected in this dataset. **Figure 25** shows the locations of citations issued within the corridor. As shown in the figure, citations are issued throughout the corridor. Hot spots where citations were more frequently issued occurred in the Somers, Lakeside, and Elmo areas. **Figure 25** also shows the locations of driving under the influence (DUI) citations, which primarily occurred in the northern part of the corridor in the Lakeside and Somers areas, and the locations of speed citations which occurred more commonly in the southern part of the corridor, south of Rollins.

A total of 1,130 citations were issued with the greatest number being related to speeding, seatbelt violations, driving under the influence or possession of alcohol/drugs, and license, insurance, or registration related infractions. The dataset indicates that 32 percent of the citations were issued as a result of a crash and about eight percent were issued as a result of a crash causing injury. According to year, the most citations were issued in 2018 (354) with declining numbers of citations in 2019 (199) and 2020 (160) then increasing numbers of citations in 2021 (188) and 2022 (229). Citations appear to be issued evenly throughout the year, with no specific time period garnering more citations. Additionally, the number of citations appears to be unrelated to traffic volumes. The greatest number of citations (39 percent) were issued at night between the hours of 9:00 PM and 2:00 AM and the lowest number of citations (five percent) were issued during the day (8:00 AM to 2:00 PM).

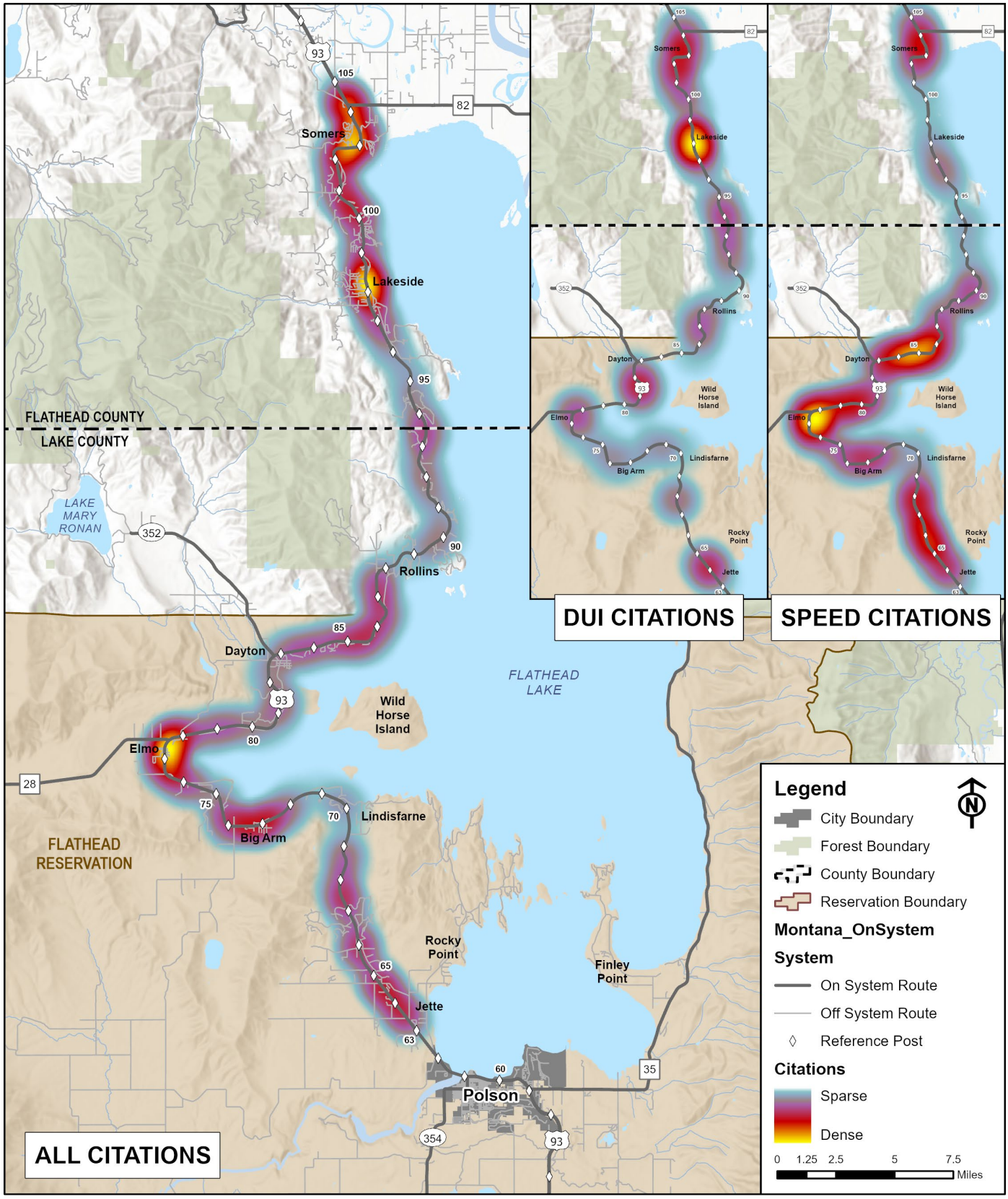


Figure 25: Location of Citations

6.12. Animal Carcasses

Data from the MDT Maintenance Animal Incident Database between January 1, 2018, and December 31, 2022, indicates that a minimum of 2,443 animal carcasses were collected and documented along the study corridor. The database contains information on carcasses collected by MDT maintenance personnel on MDT-maintained routes only. However, not all carcass collection is reported consistently or on a regular schedule. This makes the information useful for pattern identification, but it is not statistically valid.

Table 24 summarizes the large mammal carcasses collected over the five-year period. **Figure 27** shows the locations of large mammal carcasses and clusters of deer carcasses, respectively. Both maps are shown on the same scale. Carcass locations do not necessarily correspond to a crash occurrence or crash location. Deer accounted for the vast majority (90.5%) of the carcasses collected along this section of US 93, with whitetail deer being the most common species involved.

Table 24: Animal Carcasses Collected

Animal	Carcasses Collected	Percent of Total
Whitetail Deer	2,130	87.2%
Mule Deer	80	3.3%
Black Bear	29	1.2%
Elk	13	0.5%
Domestic Animal	11	0.5%
Other Wild Animal	174	7.1%
Unknown	6	0.2%
TOTAL	2,443	100%

Figure 26 shows the number of carcasses collected by month and by year. As shown, animal mortality appears to be greater in fall months (August through November), with the most carcasses collected in September. Based on the relatively few carcasses collected of individual species besides deer and smaller mammals, it is difficult to identify distinct trends in seasonal variation. The number of carcasses collected each year has been increasing significantly from year to year. In 2021 and 2022 there was a 53% and 82% increase from 2020, respectively. Yearly differences could be attributable to differences in staffing availability, frequency of reporting/pick up, or any other number of outside factors and does not necessarily indicate an increase in wildlife activity or mortality. Any improvement projects advanced from this study should utilize the most relevant and recently available data to investigate carcass retrieval and animal mortality in the corridor.

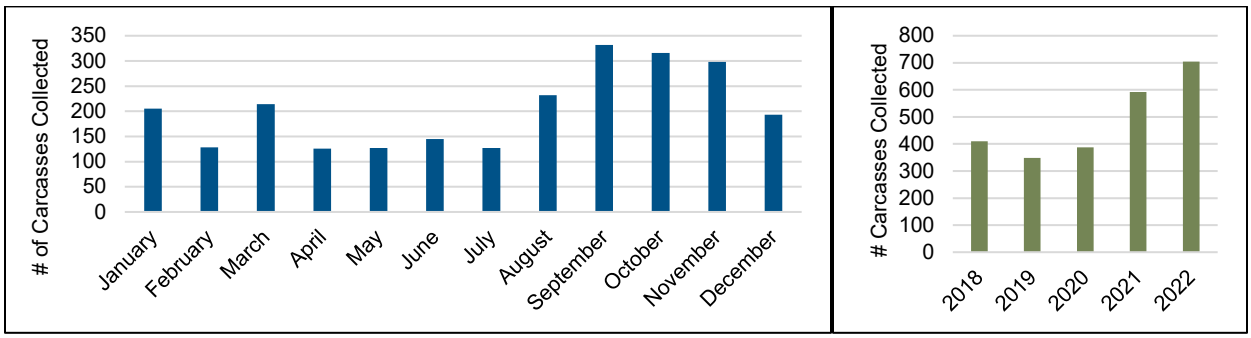


Figure 26: Seasonal and Yearly Distribution of Carcasses Collected

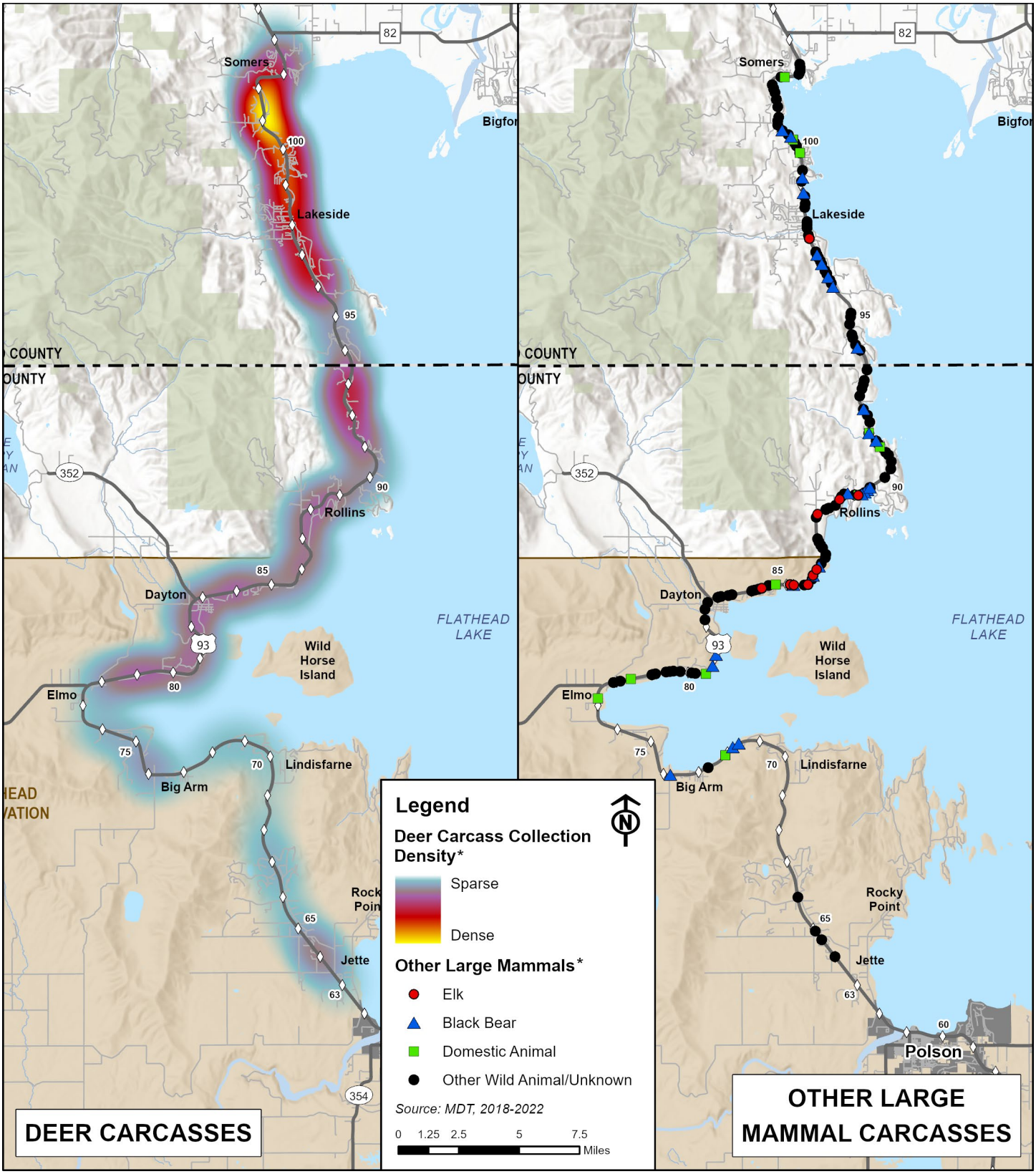


Figure 27: Carcasses Collected

Salvage Permits

In 2013, Montana passed a bill that allows the public to salvage deer, elk, moose, and antelope killed as a result of a motor vehicle collision. To possess salvaged wildlife, a salvage permit must be obtained from a law enforcement officer at the scene or online via the Montana Fish, Wildlife & Parks website. A person has 24 hours from the collision to apply for and obtain a salvage permit.

Over the 2018 to 2022 analysis period, a total of 39 salvage permits were issued within the study corridor. About 28 percent of permit holders hit the animal with their vehicle while the other 72 percent had found the carcass by the roadside. About half of the permits were issued for Flathead County (54 percent), and the greatest number of permits were issued in the vicinity of Lakeside (33 percent), Somers (26 percent), and Rollins (26 percent). The most common animal type was deer (85 percent) followed by elk (13 percent) and antelope (3 percent).

6.13. US 93 / MT 82 Safety Analysis

Given the distinct nature of safety concerns occurring at the high-volume US 93/MT 82 intersection, a separate safety analysis was performed for this location. This analysis stands alone separately from the crash, carcass, and citation analyses performed for the entire study corridor due to the unique characteristics of the intersection compared to other parts of the study corridor. The analysis includes all crashes, carcasses, and citations occurring within a 1,000-foot buffer of the intersection over the same five-year analysis period beginning January 1, 2018, and ending December 31, 2022.

The intersection is composed of US 93 running north and south, MT 82 extending east from the intersection, and Forest Hill Road extending west from the intersection. Within the 1,000-foot buffer, three driveways intersect US 93 south of the intersection, providing access to the White Oak Gas Station/Convenience Store, Best Western Hotel, and a multi-family residential property. On the east leg of the intersection, two driveways provide access to a park-and-ride lot and a commercial property. A summary of key findings from the analysis is provided below.

Crash Analysis

- A total of 62 crashes occurred during the five-year period. One of the crashes resulted in suspected serious injuries, 10 crashes resulted in suspected minor injuries, and 7 resulted in possible injuries. The remaining 44 crashes resulted in property damage only.
- The suspected serious injury crash was an impaired driver crash involving a northbound vehicle turning left into a southbound vehicle at night in the snow. Overall, 22 percent of injury crashes involved impaired drivers, while only 2 percent of non-injury crashes involved an impaired driver.
- About 74 percent of the crashes occurred on weekdays (Monday – Friday). Weekday crashes occurred most often during peak commuting hours while weekend crashes tended to occur midday (11:00 AM to 1:00 PM).
- The majority of crashes occurred under clear or cloudy conditions (84 percent). About 19 percent of crashes occurred on wet roads while 10 percent of crashes occurred on snowy or icy roads. Most crashes occurred during the day (76 percent) while 21 percent occurred during dark lighting conditions.
- About 8 percent of crashes involved a single vehicle. The other 92 percent of crashes involved multiple vehicles. The most common crash type was rear-end crashes (55 percent) followed by right angle (15 percent) and left-turn opposite direction crashes (11 percent).
- Three of the crashes occurred at the intersecting driveways on the highway. Ten of the crashes occurred at non-junction locations including one hit and run in the park-and-ride lot and a fixed object crash in the Best Western parking lot.

- About 10 percent of vehicles involved in crashes were turning left, and about half of those vehicles were traveling southbound. About 12 percent of vehicles involved in crashes were turning right, and 73 percent of those vehicles were traveling westbound. About 35 percent of all vehicles involved in crashes were traveling westbound, and the majority of those vehicles (86 percent) were involved in rear-end crashes.

Carcass Analysis

A total of 17 carcasses were collected in the vicinity of the intersection over the five-year analysis period. All of the carcasses were whitetail deer. An increasing number of carcasses were collected each year. The majority of the carcasses were collected in the spring (March and April) and fall (October and November). No animal crashes were reported at the intersection within the analysis period. Two salvage permits were issued for deer carcasses in the intersection vicinity, with one issued in 2018 and one in 2020.

Citation Analysis

A total of 131 citations were issued in the MT 82 intersection vicinity over the five-year analysis period. The greatest number of citations were issued for licensing, registration, or insurance related violations (31 percent). About 24 percent of citations were issued for careless driving or failure to drive reasonable and prudent. Speeding accounted for 15 percent of citations issued at the intersection. About 13 percent of citations involved improper driving maneuvers including failure to yield/obey traffic signals, improper lane change, unsafe turning maneuvers, or wrong way travel. Over half of the citations (56 percent) were issued as a result of a crash at the intersection.

7.0. AREAS OF CONCERN AND CONSIDERATION

This section provides a list and description of areas of concern and consideration along the study corridor. These areas were identified through review of as-built drawings, field review, public databases, and other resources. More discussion has been provided in the previous sections, and it is reiterated here as appropriate.

7.1. Demographics

- Between 1970 and 2020, Flathead and Lake Counties saw compound annual growth rates of approximately 2.0 percent and 1.6 percent, respectively. In contrast, Montana and the nation grew at compound annual rates of about 1.0 percent annually during the same 50-year period.
- From 2010 to 2020, Flathead and Lake Counties experienced significant population growth, with a collective increase of 13 percent, bringing their combined estimated population to over 135,000 residents. Approximately 50 percent of this population resides in unincorporated areas, while the remaining 50 percent resides in urban centers such as Kalispell and Polson.
- Lake County has the highest percentage of individuals identified as American Indian or Alaska Native at 22.1 percent, compared to 1.0 percent for Flathead County and 5.7 percent for the State. Lake County also has the highest percent of individuals classified as other races or two or more races at 11.8 percent and the lowest percent of individuals classified as White (not Hispanic or Latino) at 65.2 percent.
- Lake County residents have a higher percentage of population carpooling to work at 13.2 percent than Flathead County (6.7 percent) and the State (9.6 percent). Mean travel time to work was also longer in Lake County at 21.1 minutes compared to Flathead County at 19.0 minutes.
- The tourism and outdoor recreation industries play a very important economic role in the region, which is a highly desirable tourist and recreational destination with access to the Flathead, Lolo, and Kootenai National Forests and Glacier National Park.
- The median household income and income per capita are lower in Lake County and Somers compared to the State, Flathead County, Lakeside, and Lindisfarne.
- The unemployment rate in Lake County is 6.5 percent, double the rate for Flathead County (3.2 percent) and higher than the statewide average of 3.9 percent. The percent of the population below poverty level Is 19.0 percent in Lake County, compared to 9.3 percent for Flathead County and 12.4 percent for the State.

7.2. Transportation Conditions

Physical Features

- Right-of-way widths vary considerably within the corridor. For much of the corridor, widths are approximately 160 feet but are typically narrower beginning near Lakeside and continuing north through Somers. There are also locations where the roadway exists on easements on public lands.
- Roadway pavement is in fair condition from the beginning of the study area to RP 85.0 where it transitions into good condition. The pavement remains in good overall condition until RP 102.0 through the end of the study area, where it is considered to be in poor condition.
- The study corridor has varying access density with an average of 9.8 access points per mile. Three existing access control plans are in place along the study corridor but are generally out of date. A new access management plan will be developed for the study corridor, superseding all previous resolutions, as a supplemental component to the study.

- Most of the study corridor is signed as a standard highway with a 70-mph daytime limit for passenger vehicles and 65-mph limit for heavy trucks and nighttime, with the exception of a newly established 65-mph zone between RP 86.3 and 93. Slower speed zones also exist through the main communities including Somers (45-mph), Lakeside (35-mph), Elmo (45-mph), and Big Arm (45-mph).
- There are eight designated passing lanes along the corridor, four northbound and four southbound. There are also a total of 38 segments where passing is allowed, 19 northbound and 19 southbound.
- Several bedrock cut slopes occur where boulders are weathering out of the slope, creating a potential rockfall hazard. There are 26 individually rated rock slopes on the study corridor. Of the identified sites, 10 are conditionally rated as 1-Good, 10 are rated as 2-Fair, and 6 are rated 3-Fair. Historic road-closing failures involving rockfall have occurred in the study corridor.
- There is one bridge on the study corridor at Dayton Creek (RP 82.3). The bridge is in fair to good condition and may be a potential candidate for repair and/or preservation.
- Within the study area, a total of 102 drainage features cross underneath the study corridor. Most are small culverts or conduits ranging in size from four to 42 inches. Of the total, nine are considered major features sized 48 inches or larger. Specific drainage concerns have been noted near RP 63 and at RP 97.8 in Lakeside.
- The study corridor is commonly used by recreational bicyclists in the summer months. The highway is not heavily used by pedestrians, except within the communities of Somers, Lakeside, Elmo/Big Arm, and associated recreation areas. However, sidewalks are discontinuous, ADA-accessible receiving facilities are not provided consistently, and pedestrians were observed crossing US 93 in undesignated locations.

Geometric Conditions

- The study corridor is considered a rural principal arterial on the Non-Interstate NHS and was generally constructed on its current alignment in the late 1950s and throughout the 1960s. Several improvement projects have taken place since then. Those projects consist of a variety of work including realignment, resurfacing, widening, the addition of turn lanes, and other safety improvements.
- There are locations with shoulder widths less than six feet, which are recommended for the corridor. In general, two-foot shoulders exist at the southern end of the corridor (~RP 63-66) and through the Lakeside area (~RP 95 to 102). Wider, six-foot shoulders are present in the segment through Dayton and Rollins (~RP 79 to 93). The remainder of the corridor generally has four-foot shoulders with some variation in constrained areas or where turn lanes/improvement projects have been completed.
- Approximately 36 percent of horizontal curves (22 curves) do not meet baseline criteria for a 70-mph design speed on level terrain. Of those curves, 13 meet the baseline criteria for rolling terrain (60-mph design speed) and nine meet the standards for mountainous terrain (50-mph design speed). No horizontal curves were identified as not meeting baseline criteria for a rural principal arterial route.
- Nearly 50 percent of vertical curves (55) do not meet baseline criteria for a 70-mph design speed for level terrain. Of those curves, 42 meet baseline criteria for a rolling terrain (60-mph design speed), and 10 meets baseline criteria for mountainous terrain (50 mph design speed). Three curves do not meet baseline criteria for rural principal arterial route.
- Portions of the corridor are narrow with limited room for road expansion. The proximity of rock outcroppings, Flathead Lake, and steep side slopes in certain locations may limit sight distances and also restrict the ability to provide recommended clear zone widths.

Traffic Conditions

- Traffic volumes are increasing throughout the study corridor at an average annual rate of 2.1 percent per year.
- Heavy vehicle traffic along the corridor remains relatively constant in terms of total number of vehicles. However, light vehicle traffic increases traveling north, resulting in a lower percentage of heavy vehicle traffic.
- Traffic varies daily, with more traffic on the weekends (Friday through Sunday) than during the week (Monday through Thursday).
- Traffic varies seasonally, with the highest traffic reported during the warmest months of summer (July and August).
- Existing intersection LOS generally decreases traveling north on the corridor. This coincides with the increased traffic at the north end of the study corridor.
- The intersections generally operated with higher delay, and lower LOS, during the weekends due to higher traffic volumes on the weekends.
- Under existing traffic conditions, the intersection of US 93 and Adams Street is the only intersection to be operating at a LOS of D or worse. All other intersections are operating at a LOS of C or better.
- Under projected traffic conditions, all intersections operate at a LOS of D or worse during at least one peak time period. Many of the intersections operate below a LOS of D for all peak time periods.
- Under existing traffic conditions, the corridor was found to be operating at a LOS of C or better from Lakeside to the southern end of the study corridor. North of Lakeside, however, the LOS dropped to a D north of Lakeside and an E in the northbound direction between Somers and Highway 82.
- Under projected traffic conditions, the LOS of the corridor degrades by a full letter grade, with the exception of the section between Somers and Highway 82, which remains at a LOS of E.

Safety

- A total of 814 crashes were reported during the five-year period between January 2018 and December 2022.
- Single vehicle crashes accounted for 76 percent of all reported crashes. The most common crash types were wild animal (50 percent), fixed object (14 percent), rear-end (12 percent) and roll over (eight percent) crashes.
- Of the 814 total reported crashes, 89 percent (721) of crashes were non-junction related.
- There were nine fatal crashes resulting in nine fatalities. There were 28 suspected serious injury crashes and a total of 33 suspected serious injuries. Impaired driving appeared to be the largest contributing factor in fatal or suspected serious injury crashes.
- About 26 percent of all crashes and 35 percent of severe crashes were reported as having occurred on wet, snowy, or icy/frost-covered roads.
- About 37 percent of all crashes were reported as occurring at dark, with 96 percent of those occurring where street lighting was not present. Similarly, severe crashes occurred at dark without street lighting approximately 32 percent of the time.
- Within the study area, approximately six percent of crashes were determined to have involved an impaired driver. Approximately 32 percent of severe crashes involved an impaired driver.
- The LOSS analysis completed by MDT indicates a moderate to high potential for a reduction in total crashes and severe crashes.

- The segment-based HIN analysis identified five crash hot spots: Jette (RP 63.8 – 65.1), Lindisfarne (RP 69.5 – 71.2), Big Arm to Elmo (RP 74.0 – 76.5), West Shore (RP 91.7 – 94.1), and Lakeside (RP 97.0 – 99.0).
- A total of 1,130 citations were issued with the greatest number being related to speeding, seatbelt violations, driving under the influence or possession of alcohol/drugs, and license, insurance, or registration related infractions.
- A minimum of 2,443 animal carcasses were collected and documented by MDT along the study corridor over the five-year analysis period. An additional 39 carcasses were salvaged by the public via permit. Deer accounted for over 90 percent of the carcasses collected by MDT and 85 percent of salvage permits.
- A separate safety analysis was conducted for the 62 crashes that occurred in the vicinity of the US 93/MT 82 intersection. About 29 percent of crashes resulted in some form of injury, including a suspected serious injury. The majority of crashes were rear-end crashes, followed by right angle and left-turn opposite direction crashes. About 21 percent of crashes occurred at night and about 29 percent of crashes occurred on adverse roadways (wet, snowy, or icy).

7.3. Environmental Constraints

Environmental constraints are summarized based on information provided in the *Environmental Scan*[19].

Physical Environment

- Some lands adjacent to the US 93 corridor are publicly held by CSKT, Flathead County, Lake County, and various other State agencies. About 23 miles of the study corridor traverse the Flathead Reservation. Several conservation easements held by Montana Land Reliance exist near or adjacent to the study corridor.
- The study area contains some soils classified as prime farmland, prime farmland if irrigated, and farmland of local or statewide importance that may be subject to protections under FPPA.
- The US 93 study area is in a moderate to high seismic risk zone. Seismic history suggests that larger earthquakes of higher magnitudes occur infrequently, at an average frequency of 10 to 15 years.
- US 93 generally follows the western shore of Flathead Lake throughout the study area and crosses several perennial, fish-bearing streams, additional unnamed streams, and wetlands.
- Flathead Lake is one of the largest natural freshwater lakes in the world and is renowned for its water transparency and purity. The lake is listed as “impaired” due to mercury and PCB contamination from various municipal sources, dam impacts, and atmospheric deposition.
- Groundwater is a plentiful and vital resource throughout the Flathead Lake area. High groundwater may be locally present near drainages, however, elevated groundwater is not anticipated to be a widespread problem within the study corridor. There are 32 public water supply wells and six water and sewer districts within the study area.
- While flooding has occurred in the Flathead Watershed in the past, the flooding is generally constrained to the rivers and streams in the watershed since Flathead Lake water levels are regulated through the use of dams.
- There are two unresolved hazardous waste release sites, two priority remediation response sites, 16 active underground storage tanks, two unresolved petroleum tank release sites, no abandoned mine sites, one permitted opencut mine, and one landfill drop off site within or near the study corridor.

- Residences and Section 4(f)/Section 6(f) properties in the study area are sensitive noise receptors, which could be affected by future roadway improvements.

Biological Resources

- Nearly 40 species of invasive and noxious weeds are present within the study area.
- Flathead Lake and the lands surrounding the US 93 corridor provide forested and riverine habitat for a variety of wildlife species including large ungulates, carnivores, small mammals, raptors, amphibians, reptiles, and aquatic species.
- The Salish Mountains adjacent to Flathead Lake provide suitable habitat for elk, black bear, and deer while also playing a role in maintaining habitat connectivity for wide-ranging wildlife species such as wolverine, lynx, and grizzly bear.
- There is concern for wildlife-vehicle conflicts due to wildlife habitats in proximity to US 93 and the increasing number of carcasses collected along the highway.
- Canada lynx, grizzly bear, wolverine, bull trout, monarch butterfly, and Spalding's catchfly are listed species, or candidates to be listed, under the ESA. Grizzly bears have been observed throughout the study area. Flathead Lake provides critical habitat for bull trout. Several other mammal, bird, fish, and plant SOC have also been observed in the study area.

Social and Cultural Resources

- The US 93 corridor provides direct access to Flathead Lake, multiple parks, and many other recreation areas, which may be subject to Section 4(f) protections. The area surrounding the study corridor is highly used by recreationists for fishing, boating, sailing, canoeing, kayaking, swimming, water skiing, wildlife viewing and bird watching, camping, hiking, and photography.
- The Big Arm, Somers Beach, West Shore, and Wild Horse Island State Parks are located adjacent to the study corridor or are readily accessible via the highway. All four State parks are subject to projections under Section 6(f).
- A total of 34 cultural resource sites have been previously documented within the study corridor, including 23 historic properties and 11 prehistoric sites. Of these, 11 are not eligible for listing in the NRHP, seven are eligible, three are potentially eligible, two are already listed, and 11 are of unknown status, indicating they were not evaluated for NRHP eligibility at the time of original documentation. Some sites categorized as unknown eligibility may represent highly sensitive Tribal heritage properties with potential for buried archaeological deposits, regardless of eligibility status.
- In addition to sensitive Tribal heritage sites including prehistoric occupation sites and burials, three areas of heightened sensitivity for cultural resources were identified, including the stretch of highway that runs through Elmo (approximately RP 76 to RP 78), the Dayton area (approximately RP 80 to RP 84), and the Rollins area (approximately RP 87.5 to RP 90). Historical documentation suggests these areas have special cultural sensitivity for the CSKT.

REFERENCES

[1] United States Census Bureau, American Community Survey, 5-Year Estimates 2018-2022, Obtained in April 2024 and July 2024, https://data.census.gov/advanced

[2] The University of Montana Institute for Tourism and Recreation Research, Nonresident Interactive Data Report. https://www.umt.edu/tourism-recreation-research/interactive-data/landing.php?thanks=true&fid=709893478232.0860096694981

[3] Grau, K. *Montana Travel Region & Counties - Economic Contribution of 2021/2022 Averaged Nonresident Travel Spending*. The University of Montana Institute for Tourism and Recreation Research, June 2023, https://scholarworks.umt.edu/cgi/viewcontent.cgi?article=1447&context=itrr_pubs

[4] Montana Land Reliance, Interactive Conservation Easement Map, accessed April 8, 2024, https://mtlandreliance.org/

[5] Montana Department of Transportation, Resolution: Designation of Limited Access Highway, Project No. F 5-2(5), Elmo – Rollins, September 30, 1981, https://app.mdt.mt.gov/arcgis/rest/services/Custom/ACCESS_CONTROL/MapServer/0/579/attachments/878

[6] Montana Department of Transportation, Resolution: Designation of Limited Access Highway, Project No. F 5-2(3)86, Flathead County Line – South, March 28,1985, https://app.mdt.mt.gov/arcgis/rest/services/Custom/ACCESS_CONTROL/MapServer/0/666/attachments/278

[7] Montana Department of Transportation, Resolution: Designation of Limited Access Highway, Project No. F 5-3(39)104, Somers – Kalispell, October 9, 1991, https://app.mdt.mt.gov/arcgis/rest/services/Custom/ACCESS_CONTROL/MapServer/0/244/attachments/267

[8] Montana Department of Transportation, MDT Speed Studies, accessed July 2024, https://experience.arcgis.com/experience/8995b56fcac04914a171c3f63b85b85f/

[9] Montana Department of Transportation, Road Design Manual, September 2016, https://www.mdt.mt.gov/other/webdata/external/cadd/RDM/50-RDM-COMPLETE.pdf

[10] Montana Department of Transportation, Maintenance Operations and Procedures Manual, Chapter 9, Winter Maintenance Program, December 2009, https://www.mdt.mt.gov/publications/docs/manuals/mmanual/chapt9c.pdf

[11] Montana Department of Natural Resources and Conservation, Rural Fire Districts Map, accessed April 2024, https://mwra-mtdnrc.hub.arcgis.com/datasets/16fea4b6d3544b1b941506fed6c67459/explore?location=47.809755%2C-114.370465%2C11.82

[12] Federal Highway Administration, Recording and Coding Guide for Structure Inventory and Appraisal of the Nation's Bridges, Report number PD-96-001, December 1995.

[13] Strava Metro, Global Heatmap, accessed April 2024, https://www.strava.com/maps/global-heatmap?sport=All&style=dark&terrain=false&labels=true&poi=true&gColor=hot&gOpacity=100

[14] Montana Department of Transportation, Baseline Criteria Practitioner's Guide, March 2021, https://ftp.mdt.mt.gov/other/webdata/external/cadd/RDM/STANDARDS/BASELINE-CRITERIA-PRACTITIONERS-GUIDE.pdf.

[15] Montana Department of Transportation, Route Segment Plan (NHS and non-NHS), April 2014, https://www.mdt.mt.gov/other/webdata/external/cadd/RDM/SAMPLE-PLANS/ROUTE-SEGMENT-PLAN.PDF

[16] Montana Department of Transportation, Road Design Manual, September 2016, Chapter 4 – Vertical Alignment, Section 4.4 Vertical Curves, www.mdt.mt.gov/other/webdata/external/cadd/RDM/50-RDM-COMPLETE.pdf

[17] Transportation Research Board, Highway Capacity Manual 7th Edition: A Guide for Multimodal Mobility Analysis, 2022.

[18] Montana Department of Transportation, Road Design Manual, September 2016, Appendix E – Level of Service Criteria, www.mdt.mt.gov/other/webdata/external/cadd/RDM/50-RDM-COMPLETE.pdf

[19] Robert Peccia and Associates, US 93 Polson-Somers Corridor Study Environmental Scan, 2024.

US 93
POLSON-SOMERS
CORRIDOR STUDY

APPENDIX A:

As Built Geometrics Review

HORIZONTAL ALIGNMENT - AS BUILT REVIEW

Design Speed (mph):	70	60	50
SSD (ft):	730	570	425
Radius (ft):	1810	1200	760
Superelevation Rate:	8.0%	8.0%	8.0%

RADIUS (FT)	SPEED (V)
80	20
140	25
220	30
320	35
450	40
590	45
760	50
960	55
1200	60
1480	65
1810	70
2210	75
2670	80

Exhibit 3-2, Miminum Radii for Rural Conditions; MDT Road Design Manual

ID	PLANS	STATION	RP	TYPE	RADIUS	LENGTH	MIN SIGHT OBST. (FT)	DESIGN SPEED MET (MPH)	MEETS STANDARDS
A1	HSIP 5-2(155)66-2013	224+81.08	65.66	STANDARD	5416	1189	12.3	80	Yes
A1	HSIP 5-2(155)66-2013	232+34.06	65.81	STANDARD	6159	322	10.8	80	Yes
A	F 191(12)	271+05.90	66.54	STANDARD	5730	1732	11.6	80	Yes
B	F 191(13)-1970	333+81.40	67.72	STANDARD	3820	3094	17.4	80	Yes
B	F 191(13)-1970	375+70.60	68.52	STANDARD	1763	1455	37.7	65	No
B	F 191(13)-1970	393+39.10	68.86	STANDARD	1763	1671	37.7	65	No
B	F 191(13)-1970	422+30.40	69.41	STANDARD	5730	3593	11.6	80	Yes
B	F 191(13)-1970	466+11.20	70.24	STANDARD	2292	2337	29.0	75	Yes
B	F 191(13)-1970	533+57.10	71.52	STANDARD	4775	6450	13.9	80	Yes
C	F 191(14) U1-1958	572+22.10	72.31	STANDARD	3820	1928	17.4	80	Yes
C	F 191(14) U1-1958	616+94.00	73.16	STANDARD	3820	1689	17.4	80	Yes
C	F 191(14) U1-1958	664+65.30	74.06	STANDARD	1146	1565	57.6	55	No
C	F 191(14) U1-1958	711+00.90	74.94	STANDARD	1433	1461	46.3	60	No
C	F 191(14) U1-1958	796+44.10	76.57	STANDARD	1433	1761	46.3	60	No
D	F 191(20)-1962	848+04.60	77.55	STANDARD	1910	2633	34.8	70	Yes
E	F 5-2(22)79-1987	955+17.46	79.58	STANDARD	5730	1895	11.6	80	Yes
E	F 5-2(22)79-1987	1011+01.88	80.63	SPIRAL	1432	1765	46.3	60	No
E	F 5-2(22)79-1987	1059+87.66	81.55	SPIRAL	1910	1972	34.8	70	Yes
E	F 5-2(22)79-1987	1093+06.34	82.18	SPIRAL	1910	1379	34.8	70	Yes
E	F 5-2(22)79-1987	1130+07.57	82.88	SPIRAL	1910	2489	34.8	70	Yes
E	F 5-2(22)79-1987	1180+99.16	83.84	STANDARD	11459	597	5.8	80	Yes
E	F 5-2(22)79-1987	1198+85.32	84.17	STANDARD	5730	903	11.6	80	Yes
E	F 5-2(22)79-1987	1221+51.41	84.60	STANDARD	5730	2390	11.6	80	Yes
F	F 5-2(28)85-1990	1262+46.90	85.62	SPIRAL	1146	1365	57.6	55	No
F	F 5-2(28)85-1990	1276+37.90	85.88	SPIRAL	1910	656	34.8	70	Yes
F	F 5-2(28)85-1990	1312+37.20	86.55	SPIRAL	1146	1355	57.6	55	No
F	F 5-2(28)85-1990	1335+81.20	86.99	SPIRAL	3820	2546	17.4	80	Yes
F	F 5-2(28)85-1990	1376+49.00	87.75	SPIRAL	1432	1562	46.3	60	No
F	F 5-2(28)85-1990	1405+91.60	88.30	SPIRAL	1146	623	57.6	55	No
F	F 5-2(28)85-1990	1428+03.90	88.72	SPIRAL	1146	1273	57.6	55	No
F	F 5-2(28)85-1990	1451+26.10	89.15	SPIRAL	1637	1402	40.5	65	No
F	F 5-2(28)85-1990	1470+05.80	89.51	STANDARD	4584	804	14.5	80	Yes
F	F 5-2(28)85-1990	1526+43.70	90.56	SPIRAL	2292	4147	29.0	75	Yes
F	F 5-2(28)85-1990	1547+32.30	90.95	SPIRAL	1432	371	46.3	60	No
F	F 5-2(28)85-1990	1559+10.97	91.17	SPIRAL	1273	445	52.0	60	No
F	F 5-2(28)85-1990	1573+82.90	91.45	SPIRAL	1273	1172	52.0	60	No

ID	PLANS	STATION	RP	TYPE	RADIUS	LENGTH	MIN SIGHT OBST. (FT)	DESIGN SPEED MET (MPH)	MEETS STANDARDS
F	F 5-2(28)85-1990	1596+00.00	91.86	SPIRAL	1910	1009	34.8	70	Yes
F	F 5-2(28)85-1990	1627+91.60	92.46	SPIRAL	1432	901	46.3	60	No
F	F 5-2(28)85-1990	1647+50.10	92.83	STANDARD	5730	319	11.6	80	Yes
G	F 191(24)-1965	1566+98.40	93.52	STANDARD	2865	1232	23.2	80	Yes
G	F 191(24)-1965	1579+63.10	93.76	STANDARD	3274	2093	20.3	80	Yes
G	F 191(24)-1965	1599+47.50	94.14	STANDARD	1910	737	34.8	70	Yes
G	F 191(24)-1965	1623+57.60	94.61	STANDARD	2865	1503	23.2	80	Yes
G	F 191(24)-1965	1658+73.80	95.29	STANDARD	1910	1864	34.8	70	Yes
G	F 191(24)-1965	1691+78.80	95.93	STANDARD	3820	1364	17.4	80	Yes
G	F 191(24)-1965	1783+32.90	97.70	STANDARD	5730	2753	11.6	80	Yes
G	F 191(24)-1965	1800+62.60	98.03	STANDARD	1910	534	34.8	70	Yes
G	F 191(24)-1965	1815+10.80	98.31	STANDARD	1146	381	57.6	55	No
G	F 191(24)-1965	1839+37.10	98.78	SPIRAL	1910	990	34.8	70	Yes
H	F 191(19) U2-1964	1855+02.20	98.96	SPIRAL	1273	794	52.0	60	No
H	F 191(19) U2-1964	1869+20.40	99.23	STANDARD	2865	1082	23.2	80	Yes
H1	HSIP 5-3(115)100-2015	1899+37.22	99.81	STANDARD	1500	618	44.2	65	No
H1	HSIP 5-3(115)100-2015	1930+11.47	100.39	SPIRAL	1960	761	33.9	70	Yes
H	F 191(19) U2-1964	1959+00.60	100.94	SPIRAL	1146	1084	57.6	55	No
H	F 191(19) U2-1964	1973+78.80	101.22	SPIRAL	1910	816	34.8	70	Yes
H	F 191(19) U2-1964	2005+30.50	101.82	STANDARD	5730	733	11.6	80	Yes
H2	STPHS NH 5-3(68)102-1998	2030+14.32	102.33	STANDARD	809	1333	81.0	50	No
H	F 191(19) U2-1964	2068+68.50	103.03	SPIRAL	1146	924	57.6	55	No
H	F 191(19) U2-1964	2087+21.80	103.38	STANDARD	3274	1279	20.3	80	Yes
H	F 191(19) U2-1964	2105+27.50	103.73	STANDARD	2865	543	23.2	80	Yes
H	F 191(19) U2-1964	2121+47.70	104.04	STANDARD	5730	949	11.6	80	Yes

VERTICAL ALIGNMENT

Design Speed (mph):		70	60	50
K-value	**Crest**	247	151	84
	Sag	181	136	96
Maximum Grade	**Level**	3%		
	Rolling	4%		
	Mountainous	7%		

	CREST				SAG			
DESIGN SPEED (V)	**3%**	**6%**	**9%**	**>9%**	**3%**	**6%**	**9%**	**>9%**
20	7	7	7	8	17	17	18	19
25	12	12	13	14	26	27	28	30
30	19	20	22	24	37	38	41	44
35	29	31	35	39	50	51	55	59
40	44	46	52	59	64	67	71	77
45	61	67	75	85	79	83	89	97
50	84	93	105	120	96	102	110	119
55	114	126	142	163	115	122	131	143
60	151	166	189	219	136	144	155	169
65	193	216	246	286	157	167	180	196
70	247	276	316	368	181	192	208	226
75	312	348	399	467	206	219	236	258
80	384	432	497	583	231	247	267	291

MDT Road Design Manual; Chapter 4-Vertial Alignment

ID	PLANS	STATION	RP	TYPE	LENGTH	GRADE BACK	GRADE AHEAD	K-VALUE	DESIGN SPEED MET (MPH)	MEETS STANDARDS
A	F 191(12)	167+00.00	64.58	CREST	700	5.69%	2.44%	215.4	60	No
A	F 191(12)	175+50.00	64.74	SAG	900	2.44%	7.00%	197.4	65	No
A	F 191(12)	219+50.00	65.57	CREST	1500	7.00%	0.00%	214.3	60	No
A	F 191(12)	231+50.00	65.80	SAG	700	0.00%	2.12%	330.2	80	Yes
A	F 191(12)	240+00.00	65.96	CREST	500	2.12%	0.79%	375.9	75	Yes
A	F 191(12)	247+50.00	66.10	SAG	800	0.79%	4.88%	195.6	70	Yes
A	F 191(12)	256+10.00	66.27	CREST	700	4.88%	2.34%	275.8	65	No
A	F 191(12)	273+50.00	66.59	CREST	600	2.34%	0.39%	307.4	70	Yes
A	F 191(12)	280+50.00	66.73	SAG	300	0.39%	1.23%	357.1	80	Yes
A	F 191(12)	295+00.00	67.00	CREST	1000	1.23%	-0.47%	589.3	80	Yes
A	F 191(12)	315+00.00	67.38	CREST	400	-0.47%	-1.86%	287.2	70	Yes
B	F 191(13)-1970	327+00.00	66.57	CREST	850	-1.86%	-5.01%	269.8	65	No
B	F 191(13)-1970	336+00.00	66.71	SAG	700	-5.01%	-1.21%	184.4	65	No
B	F 191(13)-1970	351+50.00	66.98	CREST	750	-1.21%	-4.88%	204.5	60	No
B	F 191(13)-1970	359+50.00	67.36	SAG	600	-4.88%	1.13%	99.9	45	No
B	F 191(13)-1970	371+25.00	61.39	CREST	1300	1.13%	-4.31%	239.1	65	No
B	F 191(13)-1970	390+00.00	61.39	SAG	400	-4.31%	-2.58%	231.2	75	Yes
B	F 191(13)-1970	414+00.00	61.39	CREST	850	-2.58%	-5.41%	300.4	70	Yes
B	F 191(13)-1970	422+75.00	67.59	SAG	850	-5.41%	0.00%	157.1	60	No
B	F 191(13)-1970	433+50.00	67.76	CREST	1000	0.00%	-3.85%	259.7	65	No
B	F 191(13)-1970	444+00.00	68.05	SAG	620	-3.85%	0.00%	161.0	60	No
B	F 191(13)-1970	454+50.00	68.20	CREST	1400	0.00%	-7.00%	200.0	60	No
B	F 191(13)-1970	466+00.00	68.43	SAG	600	-7.00%	-4.34%	225.6	70	Yes
B	F 191(13)-1970	482+50.00	68.78	SAG	800	-4.34%	0.84%	154.4	60	No
B	F 191(13)-1970	498+00.00	69.24	CREST	1600	0.84%	-7.00%	204.1	60	No
B	F 191(13)-1970	512+00.00	69.40	SAG	800	-7.00%	-1.40%	143.0	55	No
B	F 191(13)-1970	532+50.00	69.60	SAG	800	-1.40%	2.43%	208.7	75	Yes
B	F 191(13)-1970	550+00.00	69.80	CREST	1100	2.43%	-2.92%	205.5	65	No
C	F 191(14) U1-1958	570+50.00	72.27	SAG	1000	-2.92%	1.89%	207.7	75	Yes
C	F 191(14) U1-1958	593+75.00	72.72	CREST	800	1.89%	-1.40%	243.2	65	No
C	F 191(14) U1-1958	613+50.00	73.09	SAG	1200	-1.40%	2.12%	340.9	80	Yes
C	F 191(14) U1-1958	629+30.00	73.39	CREST	800	2.12%	-1.39%	227.9	65	No

ID	PLANS	STATION	RP	TYPE	LENGTH	GRADE BACK	GRADE AHEAD	K-VALUE	DESIGN SPEED MET (MPH)	MEETS STANDARDS
A	F 191(12)	167+00.00	64.58	CREST	700	5.69%	2.44%	215.4	60	No
C	F 191(14) U1-1958	641+50.00	73.62	SAG	400	-1.39%	0.00%	287.8	80	Yes
C	F 191(14) U1-1958	675+00.00	74.26	SAG	800	0.00%	4.13%	193.7	70	Yes
C	F 191(14) U1-1958	713+50.00	74.99	CREST	2000	4.13%	-5.15%	215.5	60	No
C	F 191(14) U1-1958	732+00.00	75.34	SAG	800	-5.11%	-2.12%	268.0	80	Yes
C	F 191(14) U1-1958	765+00.00	75.97	SAG	1200	-2.12%	-0.54%	757.6	80	Yes
C	F 191(14) U1-1958	787+00.00	76.39	CREST	800	-0.54%	-1.02%	1652.9	80	Yes
D	F 191(20)-1962	802+50.00	76.68	SAG	400	-1.02%	0.25%	316.0	80	Yes
D	F 191(20)-1962	835+75.00	77.32	SAG	400	0.25%	0.50%	1574.8	80	Yes
D	F 191(20)-1962	846+00.00	77.51	SAG	800	0.50%	0.66%	4938.3	80	Yes
D	F 191(20)-1962	865+00.00	77.88	CREST	400	0.66%	0.36%	1324.5	80	Yes
D	F 191(20)-1962	880+00.00	78.16	SAG	400	0.36%	1.78%	281.7	80	Yes
D	F 191(20)-1962	904+50.00	78.63	CREST	1800	1.78%	-1.22%	599.6	80	Yes
E	F 5-2(22)79-1987	948+00.00	79.44	SAG	800	-0.99%	1.20%	365.0	80	Yes
E	F 5-2(22)79-1987	964+00.00	79.75	CREST	1000	1.20%	-2.09%	304.2	70	Yes
E	F 5-2(22)79-1987	985+10.00	80.14	SAG	1000	-2.09%	3.51%	178.5	65	No
E	F 5-2(22)79-1987	1000+90.00	80.44	CREST	1600	3.51%	-3.28%	235.7	65	No
E	F 5-2(22)79-1987	1016+00.00	80.73	SAG	1420	-3.28%	4.38%	185.4	65	No
E	F 5-2(22)79-1987	1048+40.00	81.34	CREST	2000	4.38%	-3.83%	243.5	65	No
E	F 5-2(22)79-1987	1077+00.00	81.88	SAG	1000	-3.83%	-2.14%	593.1	80	Yes
E	F 5-2(22)79-1987	1101+00.00	82.33	SAG	1000	-2.14%	0.69%	353.2	80	Yes
E	F 5-2(22)79-1987	1118+00.00	82.65	SAG	1000	0.69%	1.63%	1060.4	80	Yes
E	F 5-2(22)79-1987	1128+00.00	82.84	CREST	1000	1.63%	0.45%	848.2	80	Yes
E	F 5-2(22)79-1987	1180+50.00	83.83	SAG	1000	0.45%	5.30%	206.2	70	Yes
E	F 5-2(22)79-1987	1205+80.00	84.30	CREST	3800	5.03%	-4.55%	396.8	75	Yes
E	F 5-2(22)79-1987	1236+10.00	84.88	SAG	1700	-4.55%	3.64%	207.6	70	Yes
F	F 5-2(28)85-1990	1234+50.00	85.09	CREST	920	3.59%	0.23%	274.1	65	No
F	F 5-2(28)85-1990	1267+00.00	85.70	CREST	1000	0.23%	-3.52%	266.7	65	No
F	F 5-2(28)85-1990	1277+00.00	85.89	SAG	1000	-3.52%	-0.47%	327.8	80	Yes
F	F 5-2(28)85-1990	1309+00.00	86.49	CREST	1000	-0.47%	-0.94%	2145.9	80	Yes
F	F 5-2(28)85-1990	1322+50.00	86.74	SAG	1000	-0.94%	6.00%	144.2	55	No
F	F 5-2(28)85-1990	1342+50.00	87.12	CREST	1600	6.00%	-0.49%	246.6	65	No
F	F 5-2(28)85-1990	1360+00.00	87.44	SAG	1000	-0.49%	0.20%	1455.6	80	Yes
F	F 5-2(28)85-1990	1385+00.00	87.91	CREST	1000	0.20%	-3.81%	249.3	65	No
F	F 5-2(28)85-1990	1397+00.00	88.14	SAG	1000	-3.81%	4.15%	125.5	55	No
F	F 5-2(28)85-1990	1410+00.00	88.38	CREST	1600	4.15%	-2.45%	242.4	65	No
F	F 5-2(28)85-1990	1427+50.00	88.71	SAG	1000	-2.45%	-1.76%	1457.7	80	Yes
F	F 5-2(28)85-1990	1448+50.00	89.10	SAG	1000	-1.76%	2.17%	254.3	80	Yes
F	F 5-2(28)85-1990	1468+50.00	89.48	CREST	1000	2.17%	0.25%	519.5	80	Yes
F	F 5-2(28)85-1990	1484+50.00	89.78	SAG	1000	0.25%	1.35%	904.2	80	Yes
F	F 5-2(28)85-1990	1499+00.00	90.05	SAG	1000	1.35%	2.65%	772.2	80	Yes
F	F 5-2(28)85-1990	1517+50.00	90.39	CREST	1200	2.65%	-3.66%	190.2	60	No
F	F 5-2(28)85-1990	1540+68.50	90.83	SAG	1000	-3.66%	1.78%	183.7	65	No
F	F 5-2(28)85-1990	1558+00.00	91.15	CREST	2000	1.78%	-5.50%	274.6	65	No
F	F 5-2(28)85-1990	1576+40.00	91.50	CREST	1400	5.50%	3.88%	865.3	80	Yes
F	F 5-2(28)85-1990	1592+00.00	91.79	CREST	1000	3.88%	2.45%	698.8	80	Yes
F	F 5-2(28)85-1990	1612+00.00	92.16	CREST	1600	2.45%	-3.12%	287.0	70	Yes
F	F 5-2(28)85-1990	1638+00.00	92.65	SAG	1000	-3.12%	-1.12%	499.8	80	Yes
F	F 5-2(28)85-1990	1646+31.41	92.81	SAG	1200	-1.12%	4.25%	223.7	75	Yes
G	F 191(24)-1964	1552+00.00	93.23	CREST	1600	5.07%	-1.70%	236.2	65	No
G	F 191(24)-1964	1572+00.00	93.61	SAG	600	-1.70%	0.85%	235.1	80	Yes
G	F 191(24)-1964	1582+00.00	93.81	CREST	1100	0.85%	-3.87%	233.2	65	No
G	F 191(24)-1964	1599+00.00	94.14	SAG	1600	-3.87%	5.12%	178.0	65	No
G	F 191(24)-1964	1655+00.00	95.22	CREST	1500	5.12%	-6.04%	134.4	50	No
G	F 191(24)-1964	1677+50.00	95.65	SAG	600	-6.04%	-2.60%	174.2	60	No

ID	PLANS	STATION	RP	TYPE	LENGTH	GRADE BACK	GRADE AHEAD	K-VALUE	DESIGN SPEED MET (MPH)	MEETS STANDARDS
A	F 191(12)	167+00.00	64.58	CREST	700	5.69%	2.44%	215.4	60	No
G	F 191(24)-1964	1731+00.00	96.69	SAG	1400	-2.60%	5.14%	181.0	65	No
G	F 191(24)-1964	1757+00.00	97.19	CREST	2400	5.14%	-6.75%	201.8	60	No
G	F 191(24)-1964	1789+50.00	97.82	SAG	1000	-6.75%	0.26%	142.7	55	No
G	F 191(24)-1964	1798+00.00	97.98	CREST	400	0.26%	-0.31%	708.0	80	Yes
G	F 191(24)-1964	1805+00.00	98.12	CREST	400	-0.31%	-1.54%	324.4	75	Yes
G	F 191(24)-1964	1811+00.00	98.23	SAG	200	-1.54%	0.21%	113.9	50	No
G	F 191(24)-1964	1819+75.00	98.40	SAG	600	0.21%	6.89%	89.8	45	No
G	F 191(24)-1964	1832+00.00	98.64	CREST	600	6.89%	2.12%	125.8	50	No
G	F 191(24)-1964	1839+00.00	98.77	CREST	1600	2.19%	-1.63%	419.1	80	Yes
H	F 191(19) U2-1964	1852+00.00	98.90	SAG	800	-1.63%	3.70%	150.2	60	No
H	F 191(19) U2-1964	1872+60.60	99.30	CREST	1200	3.70%	-3.83%	159.2	55	No
H	F 191(19) U2-1964	1887+50.00	99.58	SAG	850	-3.83%	4.67%	100.0	45	No
H	F 191(19) U2-1964	1898+60.00	99.79	CREST	1370	4.67%	-4.00%	158.0	55	No
H	F 191(19) U2-1964	1917+65.00	100.15	SAG	1200	-4.00%	0.70%	255.2	80	Yes
H	F 191(19) U2-1964	1938+93.05	100.56	CREST	6000	0.70%	-1.26%	3054.2	80	Yes
H	F 191(19) U2-1964	1963+00.00	101.02	SAG	700	-1.26%	3.61%	143.7	55	No
H	F 191(19) U2-1964	1995+50.00	101.64	CREST	2200	3.61%	-6.00%	229.0	65	No
H	F 191(19) U2-1964	2020+50.00	102.11	SAG	1000	-6.00%	0.88%	145.4	60	No
H	F 191(19) U2-1964	2032+00.00	102.33	CREST	1000	0.88%	-3.39%	234.5	65	No
H	F 191(19) U2-1964	2043+00.00	102.54	SAG	800	-3.39%	0.19%	223.6	75	Yes
H	F 191(19) U2-1964	2070+50.00	103.07	SAG	600	0.19%	3.26%	195.4	70	Yes
H	F 191(19) U2-1964	2079+00.00	103.23	CREST	700	3.26%	2.02%	564.0	80	Yes
H	F 191(19) U2-1964	2085+90.00	103.36	SAG	600	2.02%	5.21%	188.4	65	No
H	F 191(19) U2-1964	2103+00.00	103.68	CREST	2400	5.21%	-5.57%	222.8	65	No
H	F 191(19) U2-1964	2125+00.00	104.10	SAG	1000	-5.57%	-0.44%	195.2	70	Yes

US 93
POLSON-SOMERS
CORRIDOR STUDY

APPENDIX B:

Traffic Data Collection

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rocky Point Rd & US 93
Site Code: 01
Start Date: 06/20/2024

Turning Movement Data

Start Time	US 93 Northbound				US 93 Southbound			Rocky Point Rd Westbound			
	Left	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
12:00 AM	0	4	2	6	0	1	1	0	0	0	7
12:15 AM	0	8	0	8	0	5	5	0	0	0	13
12:30 AM	0	4	0	4	0	0	0	1	0	1	5
12:45 AM	0	6	0	6	0	3	3	0	0	0	9
Hourly Total	0	22	2	24	0	9	9	1	0	1	34
1:00 AM	0	6	2	8	0	0	0	0	0	0	8
1:15 AM	0	3	0	3	0	2	2	0	0	0	5
1:30 AM	0	0	1	1	0	2	2	1	0	1	4
1:45 AM	0	2	0	2	0	3	3	0	0	0	5
Hourly Total	0	11	3	14	0	7	7	1	0	1	22
2:00 AM	0	2	0	2	0	0	0	0	0	0	2
2:15 AM	0	4	0	4	0	3	3	1	0	1	8
2:30 AM	0	10	0	10	0	2	2	0	0	0	12
2:45 AM	0	5	1	6	0	1	1	1	0	1	8
Hourly Total	0	21	1	22	0	6	6	2	0	2	30
3:00 AM	0	0	0	0	0	1	1	0	0	0	1
3:15 AM	0	6	0	6	0	2	2	0	0	0	8
3:30 AM	0	2	0	2	0	1	1	0	0	0	3
3:45 AM	0	4	0	4	0	2	2	1	0	1	7
Hourly Total	0	12	0	12	0	6	6	1	0	1	19
4:00 AM	0	4	1	5	0	3	3	0	0	0	8
4:15 AM	0	2	0	2	0	2	2	0	0	0	4
4:30 AM	0	9	0	9	0	4	4	0	0	0	13
4:45 AM	0	5	0	5	0	6	6	0	0	0	11
Hourly Total	0	20	1	21	0	15	15	0	0	0	36
5:00 AM	0	13	0	13	0	7	7	1	0	1	21
5:15 AM	0	19	2	21	0	12	12	5	2	7	40
5:30 AM	0	4	1	5	0	20	20	1	0	1	26
5:45 AM	0	18	1	19	0	29	29	9	1	10	58
Hourly Total	0	54	4	58	0	68	68	16	3	19	145
6:00 AM	0	17	1	18	0	24	24	6	0	6	48
6:15 AM	0	20	2	22	1	31	32	11	2	13	67
6:30 AM	0	36	8	44	1	61	62	15	0	15	121
6:45 AM	0	26	11	37	0	43	43	18	1	19	99
Hourly Total	0	99	22	121	2	159	161	50	3	53	335
7:00 AM	0	26	8	34	0	62	62	16	1	17	113
7:15 AM	0	42	8	50	0	54	54	18	1	19	123
7:30 AM	0	42	10	52	2	81	83	17	1	18	153
7:45 AM	0	61	16	77	0	69	69	26	1	27	173
Hourly Total	0	171	42	213	2	266	268	77	4	81	562
8:00 AM	0	46	33	79	1	77	78	21	2	23	180
8:15 AM	0	61	18	79	2	67	69	26	0	26	174
8:30 AM	0	52	18	70	0	65	65	22	1	23	158
8:45 AM	0	63	21	84	1	91	92	37	0	37	213
Hourly Total	0	222	90	312	4	300	304	106	3	109	725
9:00 AM	0	69	21	90	0	73	73	26	0	26	189
9:15 AM	0	61	21	82	2	82	84	16	0	16	182
9:30 AM	0	76	18	94	2	74	76	16	1	17	187
9:45 AM	0	63	17	80	1	89	90	31	2	33	203
Hourly Total	0	269	77	346	5	318	323	89	3	92	761
10:00 AM	0	71	20	91	0	88	88	20	2	22	201
10:15 AM	0	73	26	99	0	82	82	25	2	27	208
10:30 AM	0	92	15	107	1	74	75	31	0	31	213
10:45 AM	0	79	18	97	1	88	89	35	0	35	221
Hourly Total	0	315	79	394	2	332	334	111	4	115	843
11:00 AM	0	88	27	115	0	83	83	23	2	25	223
11:15 AM	0	90	26	116	1	97	98	30	1	31	245
11:30 AM	0	78	18	96	0	87	87	31	0	31	214
11:45 AM	0	66	26	92	0	90	90	32	1	33	215
Hourly Total	0	322	97	419	1	357	358	116	4	120	897
12:00 PM	0	77	17	94	0	78	78	21	2	23	195

12:15 PM	0	75	26	101	2	83	85	19	2	21	207
12:30 PM	0	85	30	115	0	78	78	19	0	19	212
12:45 PM	0	74	33	107	3	93	96	27	4	31	234
Hourly Total	0	311	106	417	5	332	337	86	8	94	848
1:00 PM	0	77	23	100	1	85	86	23	2	25	211
1:15 PM	0	90	26	116	0	82	82	18	1	19	217
1:30 PM	0	78	23	101	1	86	87	15	1	16	204
1:45 PM	0	96	39	135	2	80	82	22	2	24	241
Hourly Total	0	341	111	452	4	333	337	78	6	84	873
2:00 PM	0	85	34	119	1	95	96	25	0	25	240
2:15 PM	0	71	30	101	0	86	86	17	2	19	206
2:30 PM	0	93	26	119	2	96	98	16	3	19	236
2:45 PM	0	89	20	109	0	66	66	20	2	22	197
Hourly Total	0	338	110	448	3	343	346	78	7	85	879
3:00 PM	0	102	25	127	3	87	90	20	0	20	237
3:15 PM	0	95	24	119	4	75	79	22	3	25	223
3:30 PM	0	109	20	129	1	73	74	28	1	29	232
3:45 PM	0	99	35	134	0	83	83	22	5	27	244
Hourly Total	0	405	104	509	8	318	326	92	9	101	936
4:00 PM	0	94	22	116	0	105	105	19	0	19	240
4:15 PM	0	101	32	133	0	86	86	41	3	44	263
4:30 PM	0	89	30	119	1	84	85	33	1	34	238
4:45 PM	0	91	21	112	0	101	101	33	1	34	247
Hourly Total	0	375	105	480	1	376	377	126	5	131	988
5:00 PM	0	92	31	123	0	75	75	24	3	27	225
5:15 PM	0	113	21	134	2	86	88	20	2	22	244
5:30 PM	0	79	33	112	1	88	89	24	2	26	227
5:45 PM	0	99	29	128	0	71	71	16	0	16	215
Hourly Total	0	383	114	497	3	320	323	84	7	91	911
6:00 PM	0	80	34	114	1	64	65	24	1	25	204
6:15 PM	0	60	32	92	1	53	54	20	0	20	166
6:30 PM	0	65	21	86	2	46	48	14	2	16	150
6:45 PM	0	50	22	72	0	52	52	7	0	7	131
Hourly Total	0	255	109	364	4	215	219	65	3	68	651
7:00 PM	0	73	26	99	2	34	36	14	0	14	149
7:15 PM	0	61	16	77	0	35	35	14	1	15	127
7:30 PM	0	54	28	82	2	35	37	8	1	9	128
7:45 PM	0	43	17	60	0	37	37	6	1	7	104
Hourly Total	0	231	87	318	4	141	145	42	3	45	508
8:00 PM	0	45	19	64	1	31	32	12	0	12	108
8:15 PM	0	52	20	72	2	27	29	8	1	9	110
8:30 PM	0	43	21	64	3	31	34	4	0	4	102
8:45 PM	0	34	13	47	0	39	39	11	1	12	98
Hourly Total	0	174	73	247	6	128	134	35	2	37	418
9:00 PM	0	39	13	52	1	26	27	4	0	4	83
9:15 PM	0	36	10	46	0	21	21	8	0	8	75
9:30 PM	0	27	9	36	0	13	13	4	0	4	53
9:45 PM	0	28	8	36	0	17	17	0	1	1	54
Hourly Total	0	130	40	170	1	77	78	16	1	17	265
10:00 PM	0	17	4	21	1	12	13	4	0	4	38
10:15 PM	0	17	10	27	0	13	13	1	0	1	41
10:30 PM	0	15	4	19	0	10	10	1	0	1	30
10:45 PM	0	21	2	23	0	8	8	1	0	1	32
Hourly Total	0	70	20	90	1	43	44	7	0	7	141
11:00 PM	0	9	4	13	0	11	11	2	0	2	26
11:15 PM	0	13	4	17	0	7	7	0	0	0	24
11:30 PM	0	7	3	10	0	8	8	5	0	5	23
11:45 PM	0	10	1	11	0	5	5	5	0	5	21
Hourly Total	0	39	12	51	0	31	31	12	0	12	94
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-
12:00 AM	0	5	0	5	0	9	9	3	0	3	17
12:15 AM	0	3	1	4	0	4	4	0	0	0	8
12:30 AM	0	11	1	12	0	5	5	5	0	5	22
12:45 AM	0	4	1	5	0	4	4	1	0	1	10
Hourly Total	0	23	3	26	0	22	22	9	0	9	57
1:00 AM	0	6	1	7	0	2	2	0	0	0	9
1:15 AM	0	4	0	4	0	3	3	0	0	0	7
1:30 AM	0	4	0	4	0	0	0	0	0	0	4
1:45 AM	0	4	2	6	0	2	2	0	0	0	8
Hourly Total	0	18	3	21	0	7	7	0	0	0	28
2:00 AM	0	2	0	2	0	1	1	0	0	0	3
2:15 AM	0	1	1	2	1	1	2	0	0	0	4
2:30 AM	0	2	2	4	0	2	2	1	0	1	7
2:45 AM	0	3	0	3	0	2	2	0	0	0	5
Hourly Total	0	8	3	11	1	6	7	1	0	1	19
3:00 AM	0	5	0	5	0	2	2	0	0	0	7
3:15 AM	0	0	0	0	0	1	1	0	0	0	1

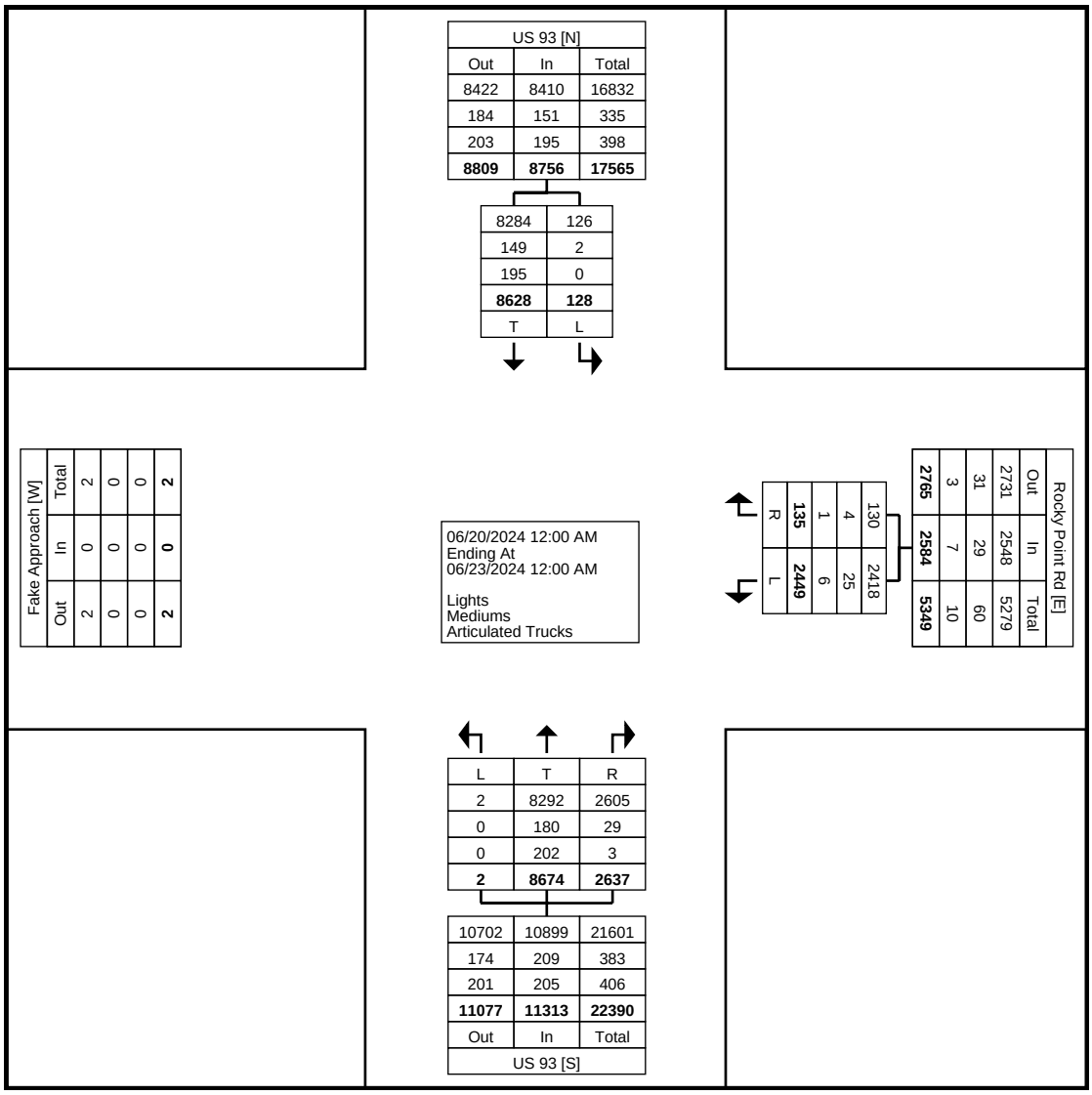
3:30 AM	1	2	1	4	0	3	3	1	0	1	8
3:45 AM	0	2	0	2	0	3	3	0	0	0	5
Hourly Total	1	9	1	11	0	9	9	1	0	1	21
4:00 AM	0	3	0	3	0	3	3	0	0	0	6
4:15 AM	0	2	0	2	0	0	0	0	0	0	2
4:30 AM	0	1	1	2	0	1	1	1	0	1	4
4:45 AM	0	3	0	3	0	3	3	0	0	0	6
Hourly Total	0	9	1	10	0	7	7	1	0	1	18
5:00 AM	0	4	0	4	0	0	0	0	0	0	4
5:15 AM	0	3	0	3	0	2	2	0	0	0	5
5:30 AM	0	6	1	7	0	9	9	0	0	0	16
5:45 AM	0	8	0	8	0	19	19	1	0	1	28
Hourly Total	0	21	1	22	0	30	30	1	0	1	53
6:00 AM	0	9	0	9	0	16	16	4	0	4	29
6:15 AM	0	4	1	5	0	15	15	5	1	6	26
6:30 AM	0	13	0	13	0	22	22	9	0	9	44
6:45 AM	0	17	6	23	0	31	31	9	0	9	63
Hourly Total	0	43	7	50	0	84	84	27	1	28	162
7:00 AM	0	16	6	22	0	16	16	12	0	12	50
7:15 AM	0	23	3	26	0	22	22	4	0	4	52
7:30 AM	0	30	2	32	0	20	20	6	0	6	58
7:45 AM	0	28	6	34	2	47	49	21	0	21	104
Hourly Total	0	97	17	114	2	105	107	43	0	43	264
8:00 AM	0	39	4	43	0	35	35	15	1	16	94
8:15 AM	0	40	10	50	0	39	39	23	0	23	112
8:30 AM	0	41	6	47	0	48	48	15	1	16	111
8:45 AM	0	56	12	68	1	69	70	19	1	20	158
Hourly Total	0	176	32	208	1	191	192	72	3	75	475
9:00 AM	0	72	16	88	1	54	55	21	2	23	166
9:15 AM	0	54	11	65	0	87	87	18	1	19	171
9:30 AM	0	83	17	100	2	67	69	16	0	16	185
9:45 AM	0	78	19	97	3	73	76	27	1	28	201
Hourly Total	0	287	63	350	6	281	287	82	4	86	723
10:00 AM	0	80	27	107	0	76	76	18	1	19	202
10:15 AM	0	70	25	95	0	93	93	27	1	28	216
10:30 AM	0	79	19	98	2	80	82	25	0	25	205
10:45 AM	0	71	29	100	0	80	80	20	2	22	202
Hourly Total	0	300	100	400	2	329	331	90	4	94	825
11:00 AM	0	78	25	103	1	96	97	29	1	30	230
11:15 AM	0	97	28	125	2	100	102	21	0	21	248
11:30 AM	0	80	34	114	1	87	88	27	0	27	229
11:45 AM	0	80	31	111	0	74	74	32	0	32	217
Hourly Total	0	335	118	453	4	357	361	109	1	110	924
12:00 PM	0	78	23	101	3	75	78	22	4	26	205
12:15 PM	0	75	32	107	0	81	81	31	2	33	221
12:30 PM	0	77	25	102	1	110	111	32	1	33	246
12:45 PM	0	108	31	139	3	87	90	30	1	31	260
Hourly Total	0	338	111	449	7	353	360	115	8	123	932
1:00 PM	0	80	26	106	6	100	106	21	0	21	233
1:15 PM	0	74	28	102	2	120	122	32	1	33	257
1:30 PM	0	105	38	143	5	86	91	22	2	24	258
1:45 PM	0	81	35	116	1	109	110	23	1	24	250
Hourly Total	0	340	127	467	14	415	429	98	4	102	998
2:00 PM	0	82	30	112	1	95	96	26	2	28	236
2:15 PM	0	96	29	125	1	66	67	18	2	20	212
2:30 PM	0	85	24	109	1	87	88	26	2	28	225
2:45 PM	0	95	23	118	0	83	83	12	2	14	215
Hourly Total	0	358	106	464	3	331	334	82	8	90	888
3:00 PM	0	99	27	126	2	87	89	24	0	24	239
3:15 PM	0	69	25	94	1	82	83	13	0	13	190
3:30 PM	0	97	24	121	0	75	75	21	0	21	217
3:45 PM	0	74	14	88	3	53	56	16	1	17	161
Hourly Total	0	339	90	429	6	297	303	74	1	75	807
4:00 PM	0	70	23	93	0	74	74	19	2	21	188
4:15 PM	0	68	24	92	1	79	80	20	2	22	194
4:30 PM	0	67	26	93	0	70	70	21	0	21	184
4:45 PM	0	59	19	78	3	65	68	24	3	27	173
Hourly Total	0	264	92	356	4	288	292	84	7	91	739
5:00 PM	0	87	20	107	1	73	74	17	0	17	198
5:15 PM	0	64	21	85	1	64	65	16	2	18	168
5:30 PM	0	59	19	78	1	62	63	16	2	18	159
5:45 PM	0	56	23	79	1	63	64	19	0	19	162
Hourly Total	0	266	83	349	4	262	266	68	4	72	687
6:00 PM	0	59	31	90	0	55	55	16	3	19	164
6:15 PM	0	57	11	68	1	62	63	19	2	21	152
6:30 PM	0	45	14	59	4	49	53	14	0	14	126
6:45 PM	0	66	17	83	1	47	48	24	0	24	155

Hourly Total	0	227	73	300	6	213	219	73	5	78	597
7:00 PM	1	46	17	64	0	56	56	16	2	18	138
7:15 PM	0	52	22	74	1	40	41	14	0	14	129
7:30 PM	0	38	16	54	1	32	33	9	0	9	96
7:45 PM	0	37	19	56	0	34	34	11	1	12	102
Hourly Total	1	173	74	248	2	162	164	50	3	53	465
8:00 PM	0	38	8	46	0	44	44	12	0	12	102
8:15 PM	0	35	11	46	1	41	42	4	0	4	92
8:30 PM	0	54	16	70	1	24	25	6	0	6	101
8:45 PM	0	24	9	33	1	24	25	3	0	3	61
Hourly Total	0	151	44	195	3	133	136	25	0	25	356
9:00 PM	0	42	8	50	2	31	33	7	1	8	91
9:15 PM	0	33	11	44	1	26	27	10	0	10	81
9:30 PM	0	32	5	37	0	21	21	4	1	5	63
9:45 PM	0	22	10	32	0	21	21	4	0	4	57
Hourly Total	0	129	34	163	3	99	102	25	2	27	292
10:00 PM	0	22	9	31	0	15	15	5	0	5	51
10:15 PM	0	27	8	35	2	22	24	2	1	3	62
10:30 PM	0	24	5	29	0	26	26	1	1	2	57
10:45 PM	0	21	6	27	0	18	18	3	0	3	48
Hourly Total	0	94	28	122	2	81	83	11	2	13	218
11:00 PM	0	14	3	17	0	11	11	2	1	3	31
11:15 PM	0	17	8	25	0	24	24	2	1	3	52
11:30 PM	0	29	2	31	2	13	15	6	0	6	52
11:45 PM	0	19	4	23	0	18	18	7	1	8	49
Hourly Total	0	79	17	96	2	66	68	17	3	20	184
Grand Total	2	8674	2637	11313	128	8628	8756	2449	135	2584	22653
Approach %	0.0	76.7	23.3	-	1.5	98.5	-	94.8	5.2	-	-
Total %	0.0	38.3	11.6	49.9	0.6	38.1	38.7	10.8	0.6	11.4	-
Lights	2	8292	2605	10899	126	8284	8410	2418	130	2548	21857
% Lights	100.0	95.6	98.8	96.3	98.4	96.0	96.0	98.7	96.3	98.6	96.5
Mediums	0	180	29	209	2	149	151	25	4	29	389
% Mediums	0.0	2.1	1.1	1.8	1.6	1.7	1.7	1.0	3.0	1.1	1.7
Articulated Trucks	0	202	3	205	0	195	195	6	1	7	407
% Articulated Trucks	0.0	2.3	0.1	1.8	0.0	2.3	2.2	0.2	0.7	0.3	1.8

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rocky Point Rd & US 93
Site Code: 01
Start Date: 06/20/2024



Turning Movement Data Plot

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rocky Point Rd & US 93
Site Code: 01
Start Date: 06/20/2024

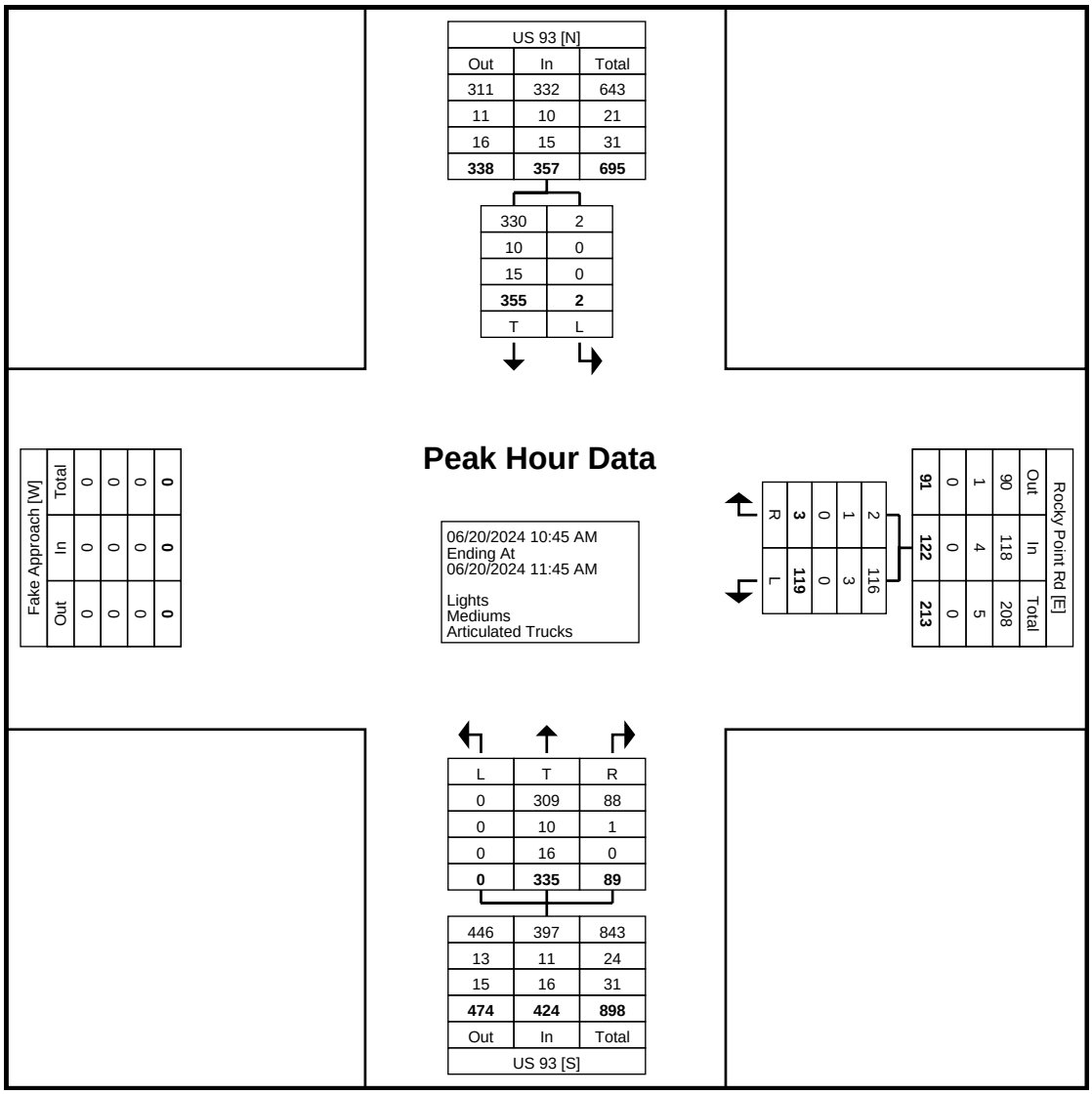
Turning Movement Peak Hour Data (10:45 AM)

Start Time	US 93 Northbound				US 93 Southbound			Rocky Point Rd Westbound			
	Left	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
10:45 AM	0	79	18	97	1	88	89	35	0	35	221
11:00 AM	0	88	27	115	0	83	83	23	2	25	223
11:15 AM	0	90	26	116	1	97	98	30	1	31	245
11:30 AM	0	78	18	96	0	87	87	31	0	31	214
Total	0	335	89	424	2	355	357	119	3	122	903
Approach %	0.0	79.0	21.0	-	0.6	99.4	-	97.5	2.5	-	-
Total %	0.0	37.1	9.9	47.0	0.2	39.3	39.5	13.2	0.3	13.5	-
PHF	0.000	0.931	0.824	0.914	0.500	0.915	0.911	0.850	0.375	0.871	0.921
Lights	0	309	88	397	2	330	332	116	2	118	847
% Lights	-	92.2	98.9	93.6	100.0	93.0	93.0	97.5	66.7	96.7	93.8
Mediums	0	10	1	11	0	10	10	3	1	4	25
% Mediums	-	3.0	1.1	2.6	0.0	2.8	2.8	2.5	33.3	3.3	2.8
Articulated Trucks	0	16	0	16	0	15	15	0	0	0	31
% Articulated Trucks	-	4.8	0.0	3.8	0.0	4.2	4.2	0.0	0.0	0.0	3.4

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rocky Point Rd & US 93
Site Code: 01
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (10:45 AM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rocky Point Rd & US 93
Site Code: 01
Start Date: 06/20/2024

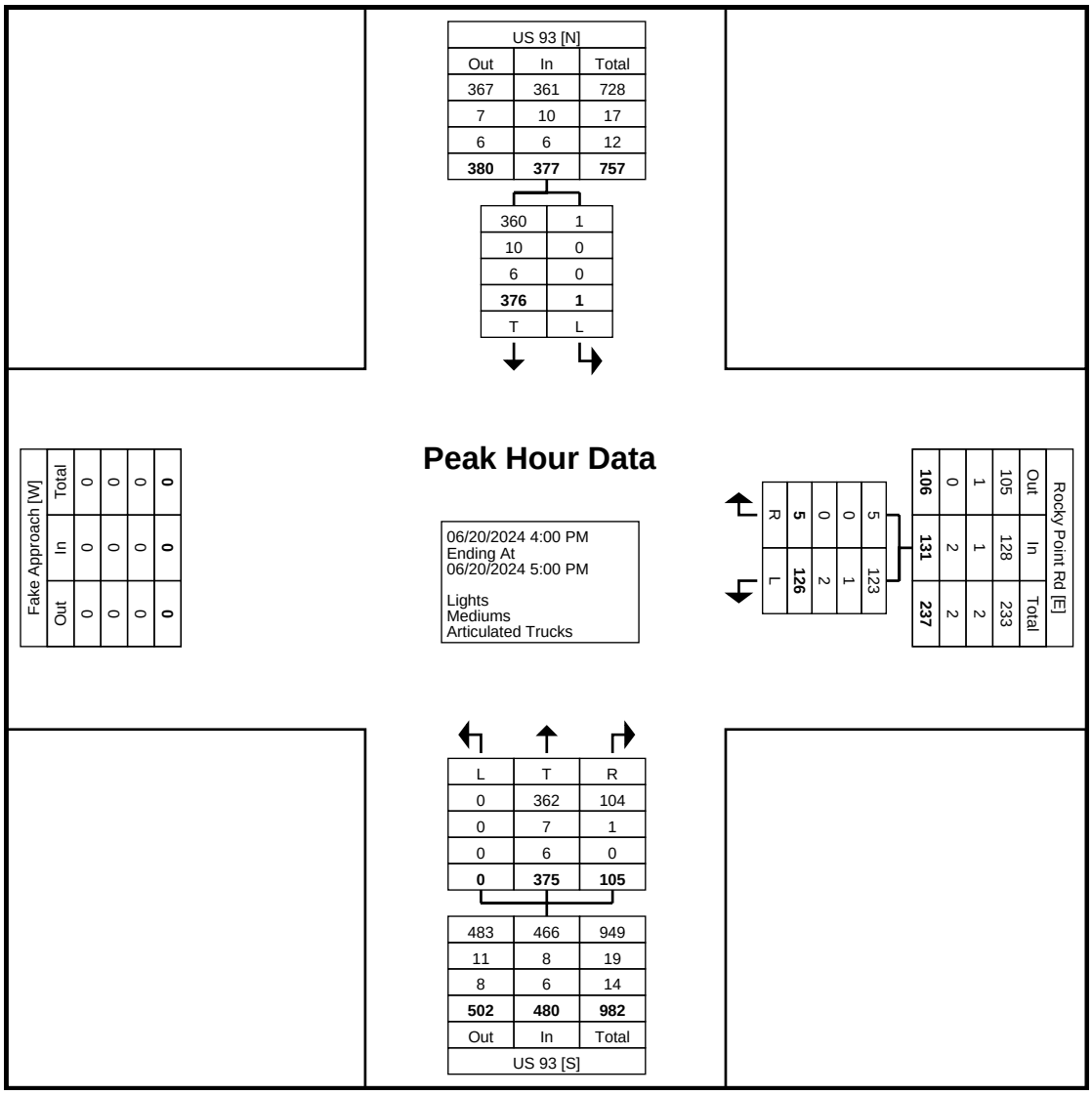
Turning Movement Peak Hour Data (4:00 PM)

Start Time	US 93 Northbound				US 93 Southbound			Rocky Point Rd Westbound			
	Left	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
4:00 PM	0	94	22	116	0	105	105	19	0	19	240
4:15 PM	0	101	32	133	0	86	86	41	3	44	263
4:30 PM	0	89	30	119	1	84	85	33	1	34	238
4:45 PM	0	91	21	112	0	101	101	33	1	34	247
Total	0	375	105	480	1	376	377	126	5	131	988
Approach %	0.0	78.1	21.9	-	0.3	99.7	-	96.2	3.8	-	-
Total %	0.0	38.0	10.6	48.6	0.1	38.1	38.2	12.8	0.5	13.3	-
PHF	0.000	0.928	0.820	0.902	0.250	0.895	0.898	0.768	0.417	0.744	0.939
Lights	0	362	104	466	1	360	361	123	5	128	955
% Lights	-	96.5	99.0	97.1	100.0	95.7	95.8	97.6	100.0	97.7	96.7
Mediums	0	7	1	8	0	10	10	1	0	1	19
% Mediums	-	1.9	1.0	1.7	0.0	2.7	2.7	0.8	0.0	0.8	1.9
Articulated Trucks	0	6	0	6	0	6	6	2	0	2	14
% Articulated Trucks	-	1.6	0.0	1.3	0.0	1.6	1.6	1.6	0.0	1.5	1.4

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rocky Point Rd & US 93
Site Code: 01
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (4:00 PM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rocky Point Rd & US 93
Site Code: 01
Start Date: 06/20/2024

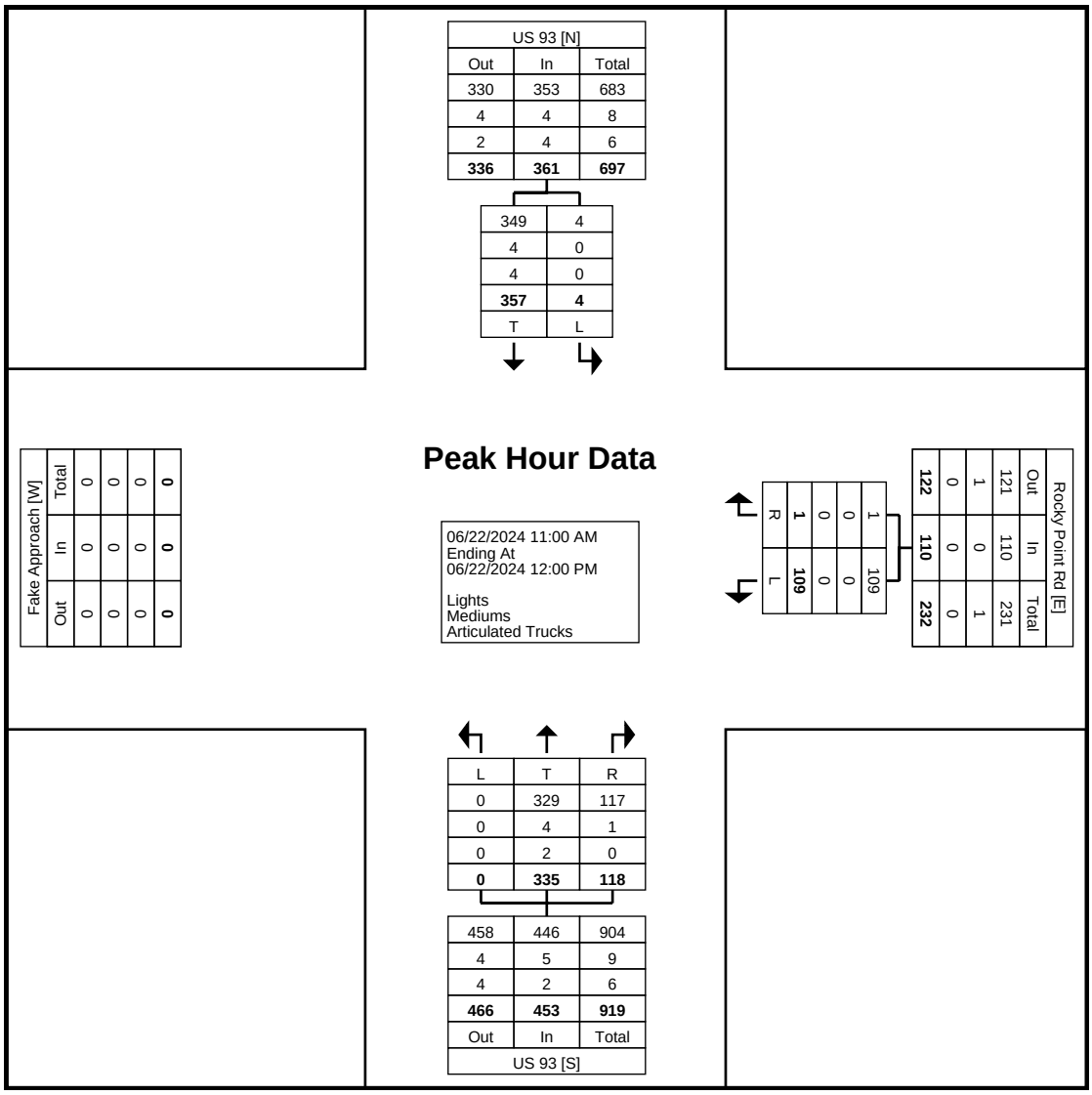
Turning Movement Peak Hour Data (11:00 AM)

Start Time	US 93 Northbound				US 93 Southbound			Rocky Point Rd Westbound			
	Left	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
11:00 AM	0	78	25	103	1	96	97	29	1	30	230
11:15 AM	0	97	28	125	2	100	102	21	0	21	248
11:30 AM	0	80	34	114	1	87	88	27	0	27	229
11:45 AM	0	80	31	111	0	74	74	32	0	32	217
Total	0	335	118	453	4	357	361	109	1	110	924
Approach %	0.0	74.0	26.0	-	1.1	98.9	-	99.1	0.9	-	-
Total %	0.0	36.3	12.8	49.0	0.4	38.6	39.1	11.8	0.1	11.9	-
PHF	0.000	0.863	0.868	0.906	0.500	0.893	0.885	0.852	0.250	0.859	0.931
Lights	0	329	117	446	4	349	353	109	1	110	909
% Lights	-	98.2	99.2	98.5	100.0	97.8	97.8	100.0	100.0	100.0	98.4
Mediums	0	4	1	5	0	4	4	0	0	0	9
% Mediums	-	1.2	0.8	1.1	0.0	1.1	1.1	0.0	0.0	0.0	1.0
Articulated Trucks	0	2	0	2	0	4	4	0	0	0	6
% Articulated Trucks	-	0.6	0.0	0.4	0.0	1.1	1.1	0.0	0.0	0.0	0.6

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rocky Point Rd & US 93
Site Code: 01
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (11:00 AM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rocky Point Rd & US 93
Site Code: 01
Start Date: 06/20/2024

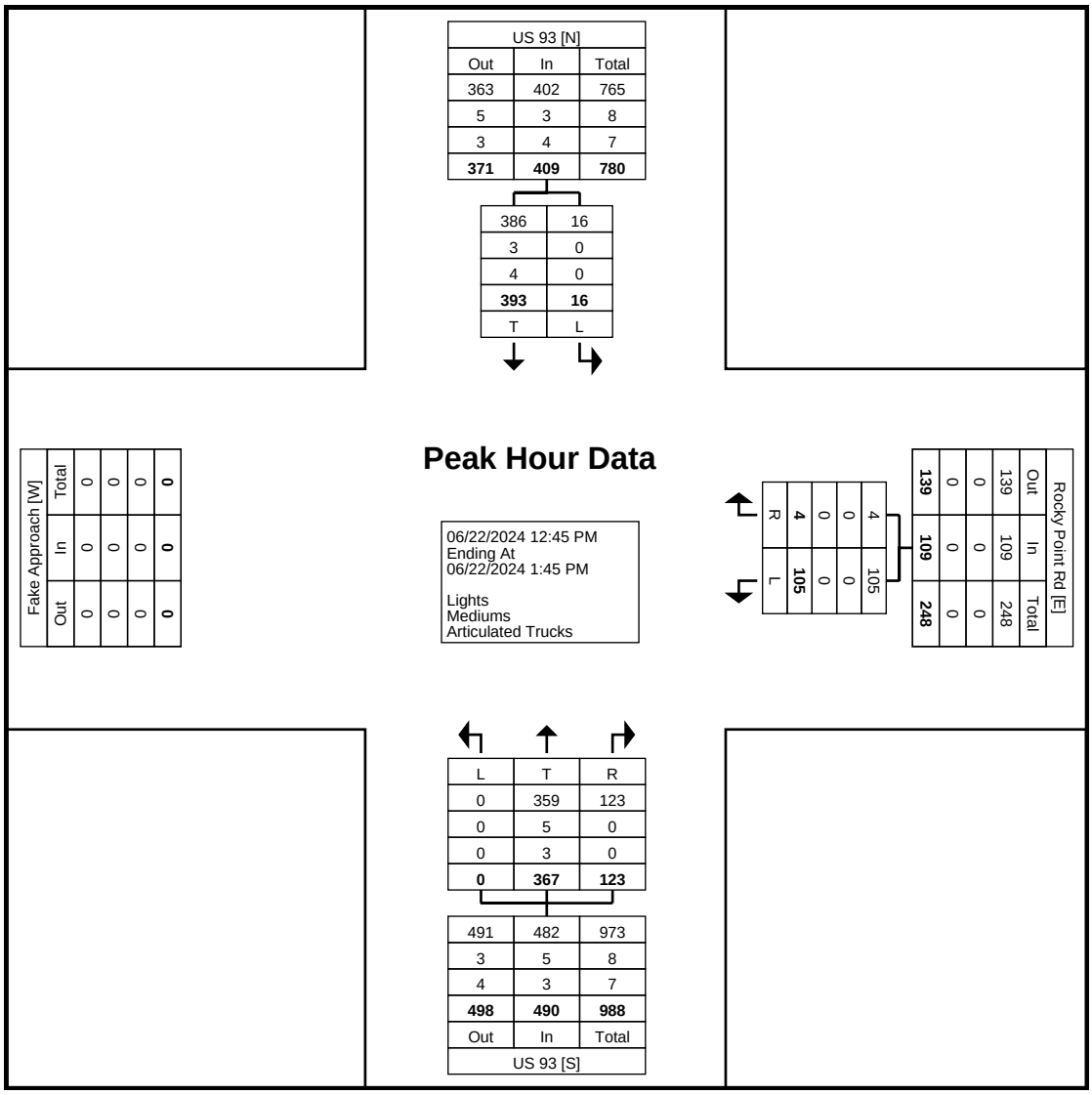
Turning Movement Peak Hour Data (12:45 PM)

Start Time	US 93 Northbound				US 93 Southbound			Rocky Point Rd Westbound			
	Left	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
12:45 PM	0	108	31	139	3	87	90	30	1	31	260
1:00 PM	0	80	26	106	6	100	106	21	0	21	233
1:15 PM	0	74	28	102	2	120	122	32	1	33	257
1:30 PM	0	105	38	143	5	86	91	22	2	24	258
Total	0	367	123	490	16	393	409	105	4	109	1008
Approach %	0.0	74.9	25.1	-	3.9	96.1	-	96.3	3.7	-	-
Total %	0.0	36.4	12.2	48.6	1.6	39.0	40.6	10.4	0.4	10.8	-
PHF	0.000	0.850	0.809	0.857	0.667	0.819	0.838	0.820	0.500	0.826	0.969
Lights	0	359	123	482	16	386	402	105	4	109	993
% Lights	-	97.8	100.0	98.4	100.0	98.2	98.3	100.0	100.0	100.0	98.5
Mediums	0	5	0	5	0	3	3	0	0	0	8
% Mediums	-	1.4	0.0	1.0	0.0	0.8	0.7	0.0	0.0	0.0	0.8
Articulated Trucks	0	3	0	3	0	4	4	0	0	0	7
% Articulated Trucks	-	0.8	0.0	0.6	0.0	1.0	1.0	0.0	0.0	0.0	0.7

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rocky Point Rd & US 93
Site Code: 01
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (12:45 PM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Hwy 28 & US 93
Site Code: 02
Start Date: 06/20/2024

Turning Movement Data

Start Time	US 93 Northbound				US 93 Southbound				Hwy 28 Eastbound				
	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
12:00 AM	0	1	0	1	2	1	0	3	0	0	0	0	4
12:15 AM	0	2	0	2	0	2	0	2	1	0	0	1	5
12:30 AM	0	6	0	6	1	1	0	2	0	0	0	0	8
12:45 AM	0	2	0	2	0	1	0	1	2	0	0	2	5
Hourly Total	0	11	0	11	3	5	0	8	3	0	0	3	22
1:00 AM	1	2	0	3	4	0	0	4	0	0	0	0	7
1:15 AM	1	2	0	3	1	1	0	2	0	0	0	0	5
1:30 AM	0	2	0	2	2	0	0	2	1	1	0	2	6
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	2	6	0	8	7	1	0	8	1	1	0	2	18
2:00 AM	1	0	0	1	2	0	0	2	1	0	0	1	4
2:15 AM	0	0	0	0	2	0	0	2	1	0	0	1	3
2:30 AM	0	3	0	3	0	1	0	1	3	0	0	3	7
2:45 AM	0	2	0	2	2	0	0	2	3	0	0	3	7
Hourly Total	1	5	0	6	6	1	0	7	8	0	0	8	21
3:00 AM	1	10	0	11	1	1	0	2	2	1	0	3	16
3:15 AM	0	1	0	1	0	1	0	1	0	0	0	0	2
3:30 AM	0	5	0	5	1	1	0	2	0	0	0	0	7
3:45 AM	0	1	0	1	1	0	0	1	4	0	0	4	6
Hourly Total	1	17	0	18	3	3	0	6	6	1	0	7	31
4:00 AM	0	5	0	5	0	0	0	0	0	0	0	0	5
4:15 AM	1	3	0	4	1	2	0	3	0	0	0	0	7
4:30 AM	1	0	0	1	3	1	0	4	1	1	0	2	7
4:45 AM	1	5	0	6	6	3	0	9	4	0	0	4	19
Hourly Total	3	13	0	16	10	6	0	16	5	1	0	6	38
5:00 AM	0	7	0	7	3	2	0	5	1	2	0	3	15
5:15 AM	1	9	0	10	5	0	0	5	1	0	0	1	16
5:30 AM	1	11	0	12	7	1	0	8	0	3	0	3	23
5:45 AM	1	7	0	8	6	4	0	10	8	3	0	11	29
Hourly Total	3	34	0	37	21	7	0	28	10	8	0	18	83
6:00 AM	4	19	0	23	14	7	0	21	4	3	0	7	51
6:15 AM	1	17	0	18	14	4	0	18	8	3	0	11	47
6:30 AM	3	15	0	18	10	7	0	17	6	1	0	7	42
6:45 AM	6	23	0	29	31	7	0	38	10	6	0	16	83
Hourly Total	14	74	0	88	69	25	0	94	28	13	0	41	223
7:00 AM	3	26	0	29	26	14	0	40	14	4	0	18	87
7:15 AM	0	22	0	22	19	5	0	24	6	8	1	14	60
7:30 AM	1	25	0	26	24	10	0	34	2	2	0	4	64
7:45 AM	7	26	0	33	30	18	0	48	8	8	0	16	97
Hourly Total	11	99	0	110	99	47	0	146	30	22	1	52	308
8:00 AM	4	31	0	35	29	10	0	39	7	5	0	12	86
8:15 AM	4	35	0	39	30	18	0	48	3	5	0	8	95
8:30 AM	2	34	0	36	37	13	0	50	14	4	0	18	104
8:45 AM	2	30	0	32	32	12	0	44	7	5	0	12	88
Hourly Total	12	130	0	142	128	53	0	181	31	19	0	50	373
9:00 AM	5	35	0	40	39	27	0	66	18	3	0	21	127
9:15 AM	7	37	0	44	24	21	0	45	11	6	0	17	106
9:30 AM	7	42	0	49	45	18	0	63	10	6	0	16	128
9:45 AM	7	50	0	57	47	29	0	76	10	6	0	16	149
Hourly Total	26	164	0	190	155	95	0	250	49	21	0	70	510
10:00 AM	7	38	0	45	50	26	0	76	12	5	0	17	138
10:15 AM	5	48	0	53	53	17	0	70	14	10	0	24	147
10:30 AM	3	49	0	52	40	20	0	60	10	3	0	13	125
10:45 AM	6	51	0	57	53	16	0	69	20	3	0	23	149
Hourly Total	21	186	0	207	196	79	0	275	56	21	0	77	559
11:00 AM	4	53	0	57	42	34	0	76	9	4	0	13	146
11:15 AM	3	56	0	59	49	29	0	78	11	7	0	18	155
11:30 AM	5	50	0	55	44	21	0	65	14	7	0	21	141
11:45 AM	3	44	0	47	45	22	0	67	14	6	0	20	134
Hourly Total	15	203	0	218	180	106	0	286	48	24	0	72	576
12:00 PM	3	32	0	35	41	16	0	57	19	6	0	25	117

12:15 PM	10	42	0	52	50	23	0	73	16	5	0	21	146
12:30 PM	5	35	0	40	44	12	0	56	19	5	0	24	120
12:45 PM	4	44	0	48	49	20	0	69	20	8	0	28	145
Hourly Total	22	153	0	175	184	71	0	255	74	24	0	98	528
1:00 PM	4	62	0	66	50	16	0	66	16	3	0	19	151
1:15 PM	4	42	0	46	60	22	0	82	12	2	0	14	142
1:30 PM	6	46	0	52	43	21	0	64	20	2	0	22	138
1:45 PM	2	57	0	59	59	21	0	80	15	5	0	20	159
Hourly Total	16	207	0	223	212	80	0	292	63	12	0	75	590
2:00 PM	7	41	0	48	45	17	0	62	15	3	0	18	128
2:15 PM	8	58	0	66	44	21	0	65	17	6	0	23	154
2:30 PM	5	45	0	50	37	13	0	50	13	7	0	20	120
2:45 PM	5	47	0	52	58	10	0	68	18	9	0	27	147
Hourly Total	25	191	0	216	184	61	0	245	63	25	0	88	549
3:00 PM	8	50	0	58	63	23	0	86	28	3	0	31	175
3:15 PM	7	54	0	61	32	18	0	50	21	8	0	29	140
3:30 PM	11	49	0	60	49	24	0	73	24	5	0	29	162
3:45 PM	4	66	0	70	47	18	0	65	21	5	0	26	161
Hourly Total	30	219	0	249	191	83	0	274	94	21	0	115	638
4:00 PM	4	54	0	58	42	24	0	66	14	7	0	21	145
4:15 PM	7	56	0	63	53	21	0	74	25	5	0	30	167
4:30 PM	6	62	0	68	56	22	0	78	21	2	0	23	169
4:45 PM	11	44	0	55	55	19	0	74	19	3	0	22	151
Hourly Total	28	216	0	244	206	86	0	292	79	17	0	96	632
5:00 PM	6	45	0	51	47	18	0	65	31	7	0	38	154
5:15 PM	4	37	0	41	55	18	0	73	17	13	0	30	144
5:30 PM	9	58	0	67	43	10	0	53	16	5	0	21	141
5:45 PM	8	38	0	46	48	21	0	69	15	8	0	23	138
Hourly Total	27	178	0	205	193	67	0	260	79	33	0	112	577
6:00 PM	8	37	0	45	42	14	0	56	13	3	0	16	117
6:15 PM	8	26	0	34	31	13	0	44	13	4	0	17	95
6:30 PM	1	26	0	27	33	16	0	49	9	2	0	11	87
6:45 PM	4	26	0	30	19	8	0	27	26	2	0	28	85
Hourly Total	21	115	0	136	125	51	0	176	61	11	0	72	384
7:00 PM	4	31	0	35	21	11	0	32	23	0	0	23	90
7:15 PM	2	36	0	38	29	9	0	38	16	0	0	16	92
7:30 PM	2	32	0	34	30	7	0	37	18	4	0	22	93
7:45 PM	0	18	0	18	21	9	0	30	8	1	0	9	57
Hourly Total	8	117	0	125	101	36	0	137	65	5	0	70	332
8:00 PM	1	32	0	33	22	10	0	32	12	1	0	13	78
8:15 PM	3	20	0	23	26	2	0	28	16	1	0	17	68
8:30 PM	2	24	0	26	25	7	0	32	11	3	0	14	72
8:45 PM	3	21	0	24	19	9	0	28	8	3	0	11	63
Hourly Total	9	97	0	106	92	28	0	120	47	8	0	55	281
9:00 PM	2	25	0	27	8	4	0	12	5	1	0	6	45
9:15 PM	2	14	0	16	13	4	0	17	14	2	0	16	49
9:30 PM	2	14	0	16	9	2	0	11	7	1	0	8	35
9:45 PM	2	13	0	15	9	3	0	12	5	0	0	5	32
Hourly Total	8	66	0	74	39	13	0	52	31	4	0	35	161
10:00 PM	0	12	0	12	4	5	0	9	10	3	0	13	34
10:15 PM	0	5	0	5	8	4	0	12	7	1	0	8	25
10:30 PM	0	8	0	8	12	2	0	14	5	0	0	5	27
10:45 PM	0	6	0	6	12	3	0	15	5	0	0	5	26
Hourly Total	0	31	0	31	36	14	0	50	27	4	0	31	112
11:00 PM	1	5	0	6	6	6	0	12	5	1	0	6	24
11:15 PM	2	2	0	4	5	2	0	7	3	1	0	4	15
11:30 PM	0	4	0	4	4	1	0	5	0	1	0	1	10
11:45 PM	0	5	0	5	3	3	0	6	3	0	0	3	14
Hourly Total	3	16	0	19	18	12	0	30	11	3	0	14	63
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM	0	4	0	4	2	4	0	6	5	0	0	5	15
12:15 AM	0	4	0	4	6	1	0	7	1	1	0	2	13
12:30 AM	0	3	0	3	2	0	0	2	3	2	0	5	10
12:45 AM	1	5	0	6	4	1	0	5	1	0	0	1	12
Hourly Total	1	16	0	17	14	6	0	20	10	3	0	13	50
1:00 AM	0	3	0	3	1	0	0	1	5	0	0	5	9
1:15 AM	0	4	0	4	0	1	0	1	3	1	0	4	9
1:30 AM	0	1	0	1	7	1	0	8	2	1	0	3	12
1:45 AM	0	3	0	3	0	2	0	2	4	2	0	6	11
Hourly Total	0	11	0	11	8	4	0	12	14	4	0	18	41
2:00 AM	0	2	0	2	1	1	0	2	2	1	0	3	7
2:15 AM	0	3	0	3	2	1	0	3	1	0	0	1	7
2:30 AM	0	2	0	2	2	0	0	2	1	0	0	1	5
2:45 AM	1	2	0	3	2	0	0	2	0	0	0	0	5
Hourly Total	1	9	0	10	7	2	0	9	4	1	0	5	24
3:00 AM	0	2	0	2	0	1	0	1	0	1	0	1	4
3:15 AM	0	1	0	1	1	0	0	1	1	0	0	1	3

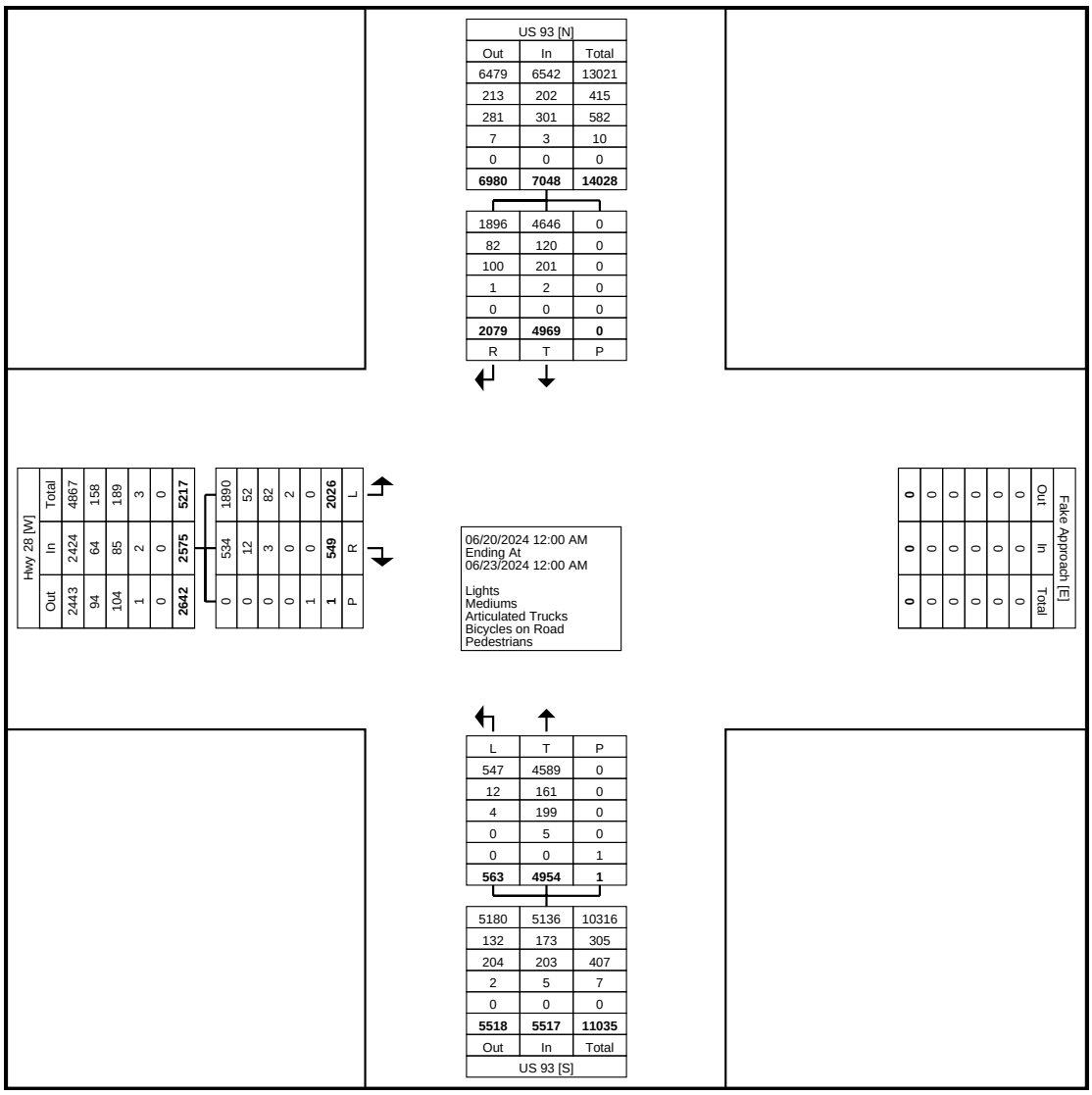
3:30 AM	0	0	0	0	1	1	0	2	1	0	0	1	3
3:45 AM	0	5	0	5	3	0	0	3	0	0	0	0	8
Hourly Total	0	8	0	8	5	2	0	7	2	1	0	3	18
4:00 AM	0	2	0	2	0	0	0	0	0	0	0	0	2
4:15 AM	1	1	0	2	1	1	0	2	0	0	0	0	4
4:30 AM	2	1	0	3	1	1	0	2	0	0	0	0	5
4:45 AM	0	1	0	1	0	0	0	0	1	0	0	1	2
Hourly Total	3	5	0	8	2	2	0	4	1	0	0	1	13
5:00 AM	1	2	0	3	2	3	0	5	1	0	0	1	9
5:15 AM	0	2	0	2	3	1	0	4	1	1	0	2	8
5:30 AM	1	1	0	2	7	1	0	8	4	1	0	5	15
5:45 AM	2	6	0	8	11	1	0	12	1	1	0	2	22
Hourly Total	4	11	0	15	23	6	0	29	7	3	0	10	54
6:00 AM	2	4	0	6	7	3	0	10	1	0	0	1	17
6:15 AM	1	8	0	9	8	6	0	14	0	0	0	0	23
6:30 AM	0	5	0	5	15	16	0	31	1	0	0	1	37
6:45 AM	4	11	0	15	8	11	0	19	2	0	0	2	36
Hourly Total	7	28	0	35	38	36	0	74	4	0	0	4	113
7:00 AM	2	5	0	7	18	9	0	27	0	2	0	2	36
7:15 AM	3	12	0	15	17	18	0	35	4	0	0	4	54
7:30 AM	5	12	0	17	22	18	0	40	10	2	0	12	69
7:45 AM	8	13	0	21	17	39	0	56	2	2	0	4	81
Hourly Total	18	42	0	60	74	84	0	158	16	6	0	22	240
8:00 AM	4	20	0	24	12	20	0	32	7	1	0	8	64
8:15 AM	9	24	0	33	18	24	0	42	2	1	0	3	78
8:30 AM	3	20	1	23	29	21	0	50	8	3	0	11	84
8:45 AM	4	22	0	26	29	16	0	45	8	5	0	13	84
Hourly Total	20	86	1	106	88	81	0	169	25	10	0	35	310
9:00 AM	5	34	0	39	54	25	0	79	11	1	0	12	130
9:15 AM	7	58	0	65	42	17	0	59	14	7	0	21	145
9:30 AM	3	52	0	55	47	9	0	56	16	4	0	20	131
9:45 AM	5	56	0	61	39	18	0	57	12	4	0	16	134
Hourly Total	20	200	0	220	182	69	0	251	53	16	0	69	540
10:00 AM	4	58	0	62	61	20	0	81	15	1	0	16	159
10:15 AM	3	46	0	49	35	14	0	49	14	3	0	17	115
10:30 AM	5	42	0	47	40	29	0	69	10	3	0	13	129
10:45 AM	4	38	0	42	48	16	0	64	12	5	0	17	123
Hourly Total	16	184	0	200	184	79	0	263	51	12	0	63	526
11:00 AM	2	43	0	45	52	20	0	72	18	3	0	21	138
11:15 AM	5	38	0	43	47	23	0	70	9	4	0	13	126
11:30 AM	4	54	0	58	48	13	0	61	15	4	0	19	138
11:45 AM	5	37	0	42	42	30	0	72	21	5	0	26	140
Hourly Total	16	172	0	188	189	86	0	275	63	16	0	79	542
12:00 PM	4	47	0	51	50	30	0	80	20	1	0	21	152
12:15 PM	5	36	0	41	65	25	0	90	16	8	0	24	155
12:30 PM	4	45	0	49	52	21	0	73	23	8	0	31	153
12:45 PM	11	38	0	49	62	23	0	85	24	6	0	30	164
Hourly Total	24	166	0	190	229	99	0	328	83	23	0	106	624
1:00 PM	3	59	0	62	60	18	0	78	16	4	0	20	160
1:15 PM	7	53	0	60	55	27	0	82	18	8	0	26	168
1:30 PM	4	43	0	47	75	22	0	97	22	6	0	28	172
1:45 PM	5	64	0	69	55	13	0	68	18	6	0	24	161
Hourly Total	19	219	0	238	245	80	0	325	74	24	0	98	661
2:00 PM	1	47	0	48	39	15	0	54	32	5	0	37	139
2:15 PM	6	41	0	47	48	19	0	67	26	12	0	38	152
2:30 PM	3	52	0	55	58	7	0	65	21	6	0	27	147
2:45 PM	7	54	0	61	54	27	0	81	12	7	0	19	161
Hourly Total	17	194	0	211	199	68	0	267	91	30	0	121	599
3:00 PM	4	49	0	53	65	24	0	89	23	4	0	27	169
3:15 PM	9	74	0	83	40	15	0	55	27	5	0	32	170
3:30 PM	1	46	0	47	31	10	0	41	24	1	0	25	113
3:45 PM	5	57	0	62	58	16	0	74	27	3	0	30	166
Hourly Total	19	226	0	245	194	65	0	259	101	13	0	114	618
4:00 PM	4	52	0	56	44	14	0	58	42	4	0	46	160
4:15 PM	6	46	0	52	43	12	0	55	34	10	0	44	151
4:30 PM	4	37	0	41	45	22	0	67	27	8	0	35	143
4:45 PM	2	45	0	47	46	12	0	58	26	6	0	32	137
Hourly Total	16	180	0	196	178	60	0	238	129	28	0	157	591
5:00 PM	4	28	0	32	46	16	0	62	30	1	0	31	125
5:15 PM	2	56	0	58	35	10	0	45	24	6	0	30	133
5:30 PM	2	37	0	39	30	12	0	42	17	7	0	24	105
5:45 PM	6	27	0	33	37	18	0	55	27	2	0	29	117
Hourly Total	14	148	0	162	148	56	0	204	98	16	0	114	480
6:00 PM	3	38	0	41	45	10	0	55	21	3	0	24	120
6:15 PM	2	32	0	34	36	12	0	48	11	5	0	16	98
6:30 PM	2	28	0	30	40	17	0	57	18	0	0	18	105
6:45 PM	5	26	0	31	50	19	0	69	15	2	0	17	117

Hourly Total	12	124	0	136	171	58	0	229	65	10	0	75	440
7:00 PM	1	33	0	34	28	14	0	42	21	0	0	21	97
7:15 PM	1	33	0	34	20	10	0	30	15	4	0	19	83
7:30 PM	9	29	0	38	24	6	0	30	10	1	0	11	79
7:45 PM	1	20	0	21	26	7	0	33	8	2	0	10	64
Hourly Total	12	115	0	127	98	37	0	135	54	7	0	61	323
8:00 PM	3	21	0	24	19	8	0	27	6	3	0	9	60
8:15 PM	0	16	0	16	23	3	0	26	12	1	0	13	55
8:30 PM	3	23	0	26	15	6	0	21	8	1	0	9	56
8:45 PM	2	25	0	27	31	9	0	40	7	3	0	10	77
Hourly Total	8	85	0	93	88	26	0	114	33	8	0	41	248
9:00 PM	1	17	0	18	15	5	0	20	11	8	0	19	57
9:15 PM	1	22	0	23	16	6	0	22	8	0	0	8	53
9:30 PM	1	18	0	19	16	1	0	17	11	2	0	13	49
9:45 PM	2	15	0	17	13	4	0	17	7	2	0	9	43
Hourly Total	5	72	0	77	60	16	0	76	37	12	0	49	202
10:00 PM	0	16	0	16	10	5	0	15	9	2	0	11	42
10:15 PM	1	19	0	20	20	6	0	26	4	1	0	5	51
10:30 PM	3	14	0	17	8	1	0	9	3	1	0	4	30
10:45 PM	1	9	0	10	13	1	0	14	7	0	0	7	31
Hourly Total	5	58	0	63	51	13	0	64	23	4	0	27	154
11:00 PM	0	9	0	9	10	4	0	14	6	2	0	8	31
11:15 PM	0	12	0	12	12	4	0	16	4	1	0	5	33
11:30 PM	0	11	0	11	10	3	0	13	4	1	0	5	29
11:45 PM	0	15	0	15	4	3	0	7	5	0	0	5	27
Hourly Total	0	47	0	47	36	14	0	50	19	4	0	23	120
Grand Total	563	4954	1	5517	4969	2079	0	7048	2026	549	1	2575	15140
Approach %	10.2	89.8	-	-	70.5	29.5	-	-	78.7	21.3	-	-	-
Total %	3.7	32.7	-	36.4	32.8	13.7	-	46.6	13.4	3.6	-	17.0	-
Lights	547	4589	-	5136	4646	1896	-	6542	1890	534	-	2424	14102
% Lights	97.2	92.6	-	93.1	93.5	91.2	-	92.8	93.3	97.3	-	94.1	93.1
Mediums	12	161	-	173	120	82	-	202	52	12	-	64	439
% Mediums	2.1	3.2	-	3.1	2.4	3.9	-	2.9	2.6	2.2	-	2.5	2.9
Articulated Trucks	4	199	-	203	201	100	-	301	82	3	-	85	589
% Articulated Trucks	0.7	4.0	-	3.7	4.0	4.8	-	4.3	4.0	0.5	-	3.3	3.9
Bicycles on Road	0	5	-	5	2	1	-	3	2	0	-	2	10
% Bicycles on Road	0.0	0.1	-	0.1	0.0	0.0	-	0.0	0.1	0.0	-	0.1	0.1
Pedestrians	-	-	1	-	-	-	0	-	-	-	1	-	-
% Pedestrians	-	-	100.0	-	-	-	-	-	-	-	100.0	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Hwy 28 & US 93
Site Code: 02
Start Date: 06/20/2024



Turning Movement Data Plot

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Hwy 28 & US 93
Site Code: 02
Start Date: 06/20/2024

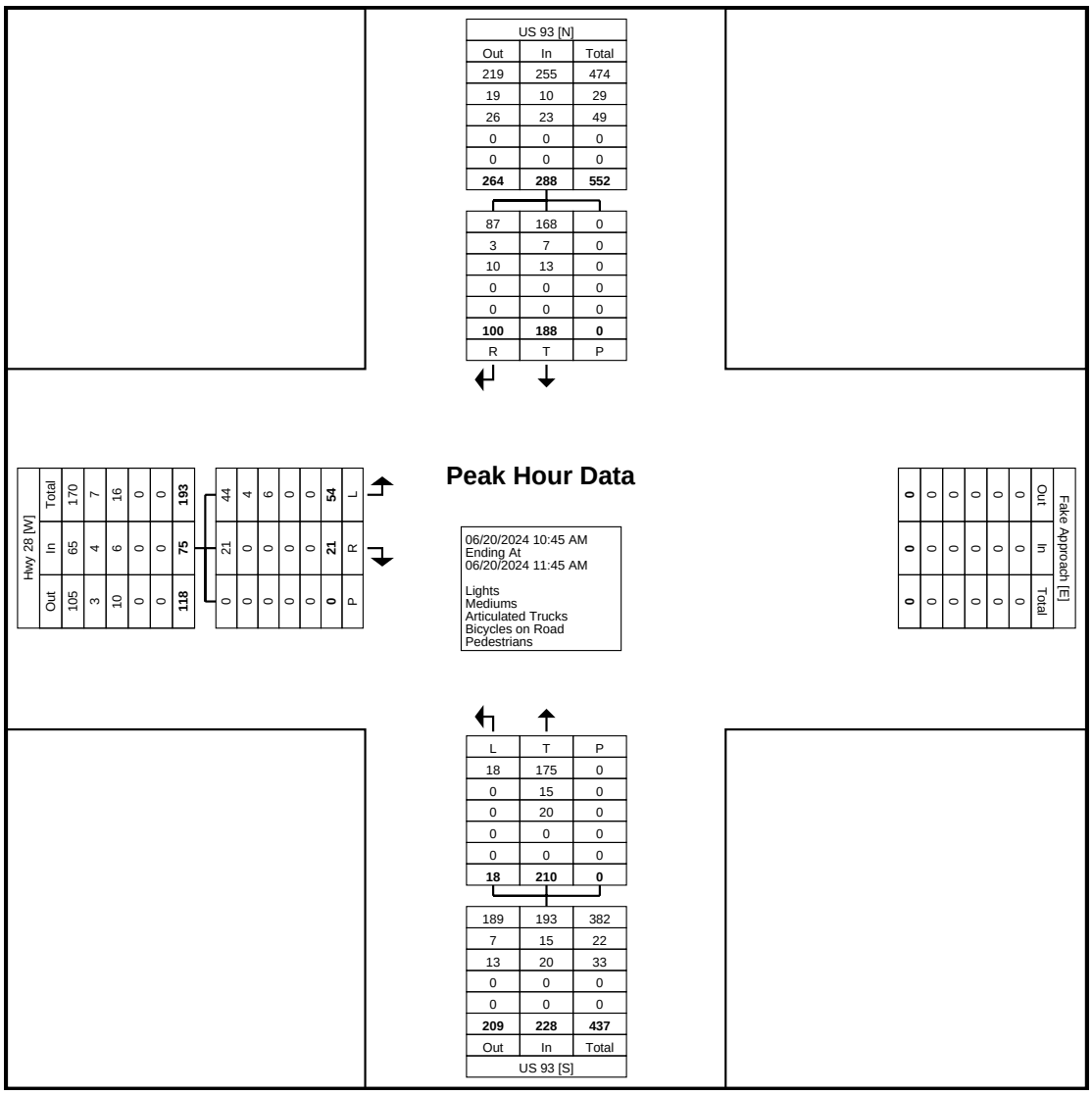
Turning Movement Peak Hour Data (10:45 AM)

Start Time	US 93 Northbound				US 93 Southbound				Hwy 28 Eastbound				
	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
10:45 AM	6	51	0	57	53	16	0	69	20	3	0	23	149
11:00 AM	4	53	0	57	42	34	0	76	9	4	0	13	146
11:15 AM	3	56	0	59	49	29	0	78	11	7	0	18	155
11:30 AM	5	50	0	55	44	21	0	65	14	7	0	21	141
Total	18	210	0	228	188	100	0	288	54	21	0	75	591
Approach %	7.9	92.1	-	-	65.3	34.7	-	-	72.0	28.0	-	-	-
Total %	3.0	35.5	-	38.6	31.8	16.9	-	48.7	9.1	3.6	-	12.7	-
PHF	0.750	0.938	-	0.966	0.887	0.735	-	0.923	0.675	0.750	-	0.815	0.953
Lights	18	175	-	193	168	87	-	255	44	21	-	65	513
% Lights	100.0	83.3	-	84.6	89.4	87.0	-	88.5	81.5	100.0	-	86.7	86.8
Mediums	0	15	-	15	7	3	-	10	4	0	-	4	29
% Mediums	0.0	7.1	-	6.6	3.7	3.0	-	3.5	7.4	0.0	-	5.3	4.9
Articulated Trucks	0	20	-	20	13	10	-	23	6	0	-	6	49
% Articulated Trucks	0.0	9.5	-	8.8	6.9	10.0	-	8.0	11.1	0.0	-	8.0	8.3
Bicycles on Road	0	0	-	0	0	0	-	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Hwy 28 & US 93
Site Code: 02
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (10:45 AM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Hwy 28 & US 93
Site Code: 02
Start Date: 06/20/2024

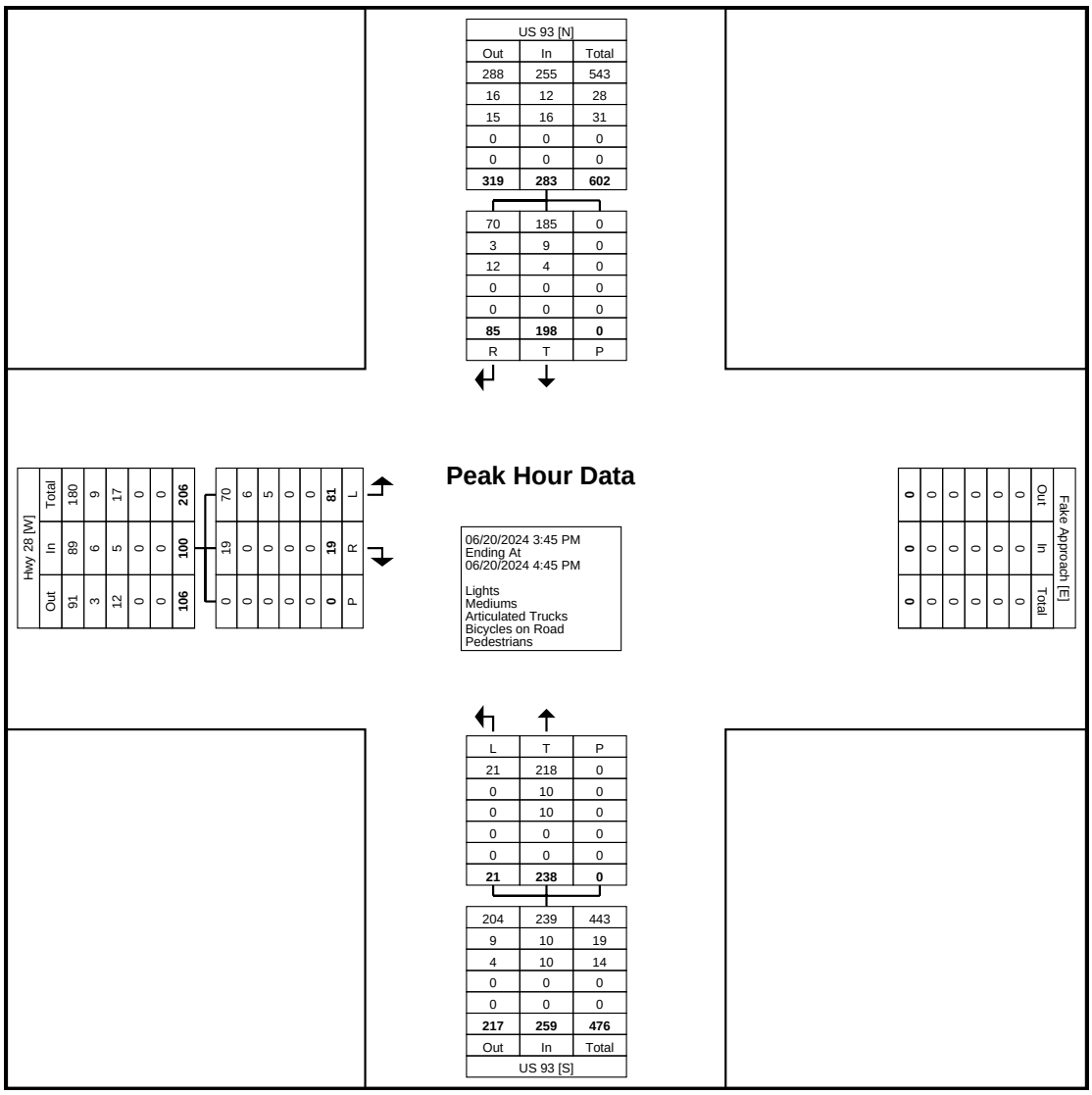
Turning Movement Peak Hour Data (3:45 PM)

Start Time	US 93 Northbound				US 93 Southbound				Hwy 28 Eastbound				
	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
3:45 PM	4	66	0	70	47	18	0	65	21	5	0	26	161
4:00 PM	4	54	0	58	42	24	0	66	14	7	0	21	145
4:15 PM	7	56	0	63	53	21	0	74	25	5	0	30	167
4:30 PM	6	62	0	68	56	22	0	78	21	2	0	23	169
Total	21	238	0	259	198	85	0	283	81	19	0	100	642
Approach %	8.1	91.9	-	-	70.0	30.0	-	-	81.0	19.0	-	-	-
Total %	3.3	37.1	-	40.3	30.8	13.2	-	44.1	12.6	3.0	-	15.6	-
PHF	0.750	0.902	-	0.925	0.884	0.885	-	0.907	0.810	0.679	-	0.833	0.950
Lights	21	218	-	239	185	70	-	255	70	19	-	89	583
% Lights	100.0	91.6	-	92.3	93.4	82.4	-	90.1	86.4	100.0	-	89.0	90.8
Mediums	0	10	-	10	9	3	-	12	6	0	-	6	28
% Mediums	0.0	4.2	-	3.9	4.5	3.5	-	4.2	7.4	0.0	-	6.0	4.4
Articulated Trucks	0	10	-	10	4	12	-	16	5	0	-	5	31
% Articulated Trucks	0.0	4.2	-	3.9	2.0	14.1	-	5.7	6.2	0.0	-	5.0	4.8
Bicycles on Road	0	0	-	0	0	0	-	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Hwy 28 & US 93
Site Code: 02
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (3:45 PM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Hwy 28 & US 93
Site Code: 02
Start Date: 06/20/2024

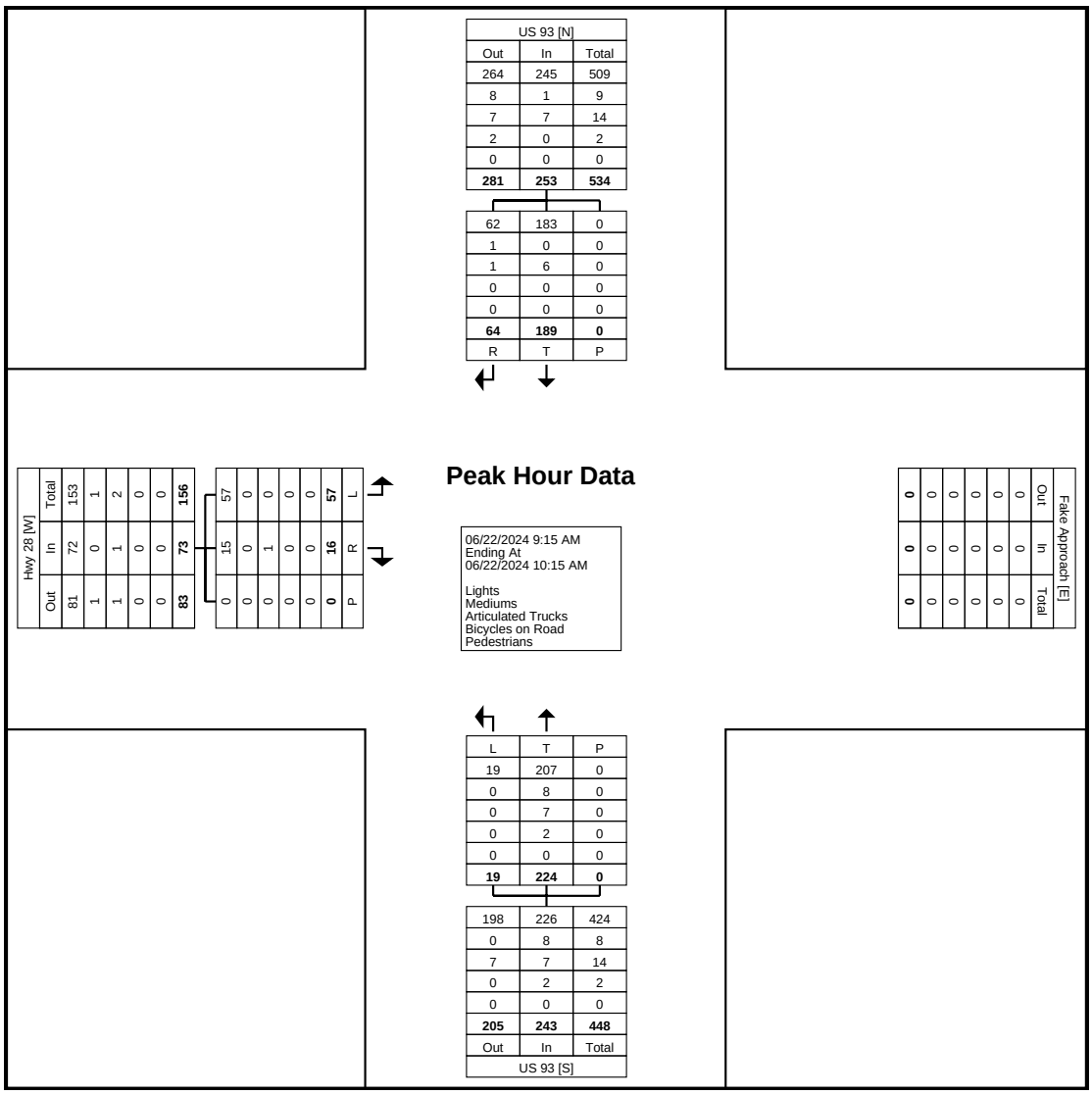
Turning Movement Peak Hour Data (9:15 AM)

Start Time	US 93 Northbound				US 93 Southbound				Hwy 28 Eastbound				
	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
9:15 AM	7	58	0	65	42	17	0	59	14	7	0	21	145
9:30 AM	3	52	0	55	47	9	0	56	16	4	0	20	131
9:45 AM	5	56	0	61	39	18	0	57	12	4	0	16	134
10:00 AM	4	58	0	62	61	20	0	81	15	1	0	16	159
Total	19	224	0	243	189	64	0	253	57	16	0	73	569
Approach %	7.8	92.2	-	-	74.7	25.3	-	-	78.1	21.9	-	-	-
Total %	3.3	39.4	-	42.7	33.2	11.2	-	44.5	10.0	2.8	-	12.8	-
PHF	0.679	0.966	-	0.935	0.775	0.800	-	0.781	0.891	0.571	-	0.869	0.895
Lights	19	207	-	226	183	62	-	245	57	15	-	72	543
% Lights	100.0	92.4	-	93.0	96.8	96.9	-	96.8	100.0	93.8	-	98.6	95.4
Mediums	0	8	-	8	0	1	-	1	0	0	-	0	9
% Mediums	0.0	3.6	-	3.3	0.0	1.6	-	0.4	0.0	0.0	-	0.0	1.6
Articulated Trucks	0	7	-	7	6	1	-	7	0	1	-	1	15
% Articulated Trucks	0.0	3.1	-	2.9	3.2	1.6	-	2.8	0.0	6.3	-	1.4	2.6
Bicycles on Road	0	2	-	2	0	0	-	0	0	0	-	0	2
% Bicycles on Road	0.0	0.9	-	0.8	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.4
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Hwy 28 & US 93
Site Code: 02
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (9:15 AM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Hwy 28 & US 93
Site Code: 02
Start Date: 06/20/2024

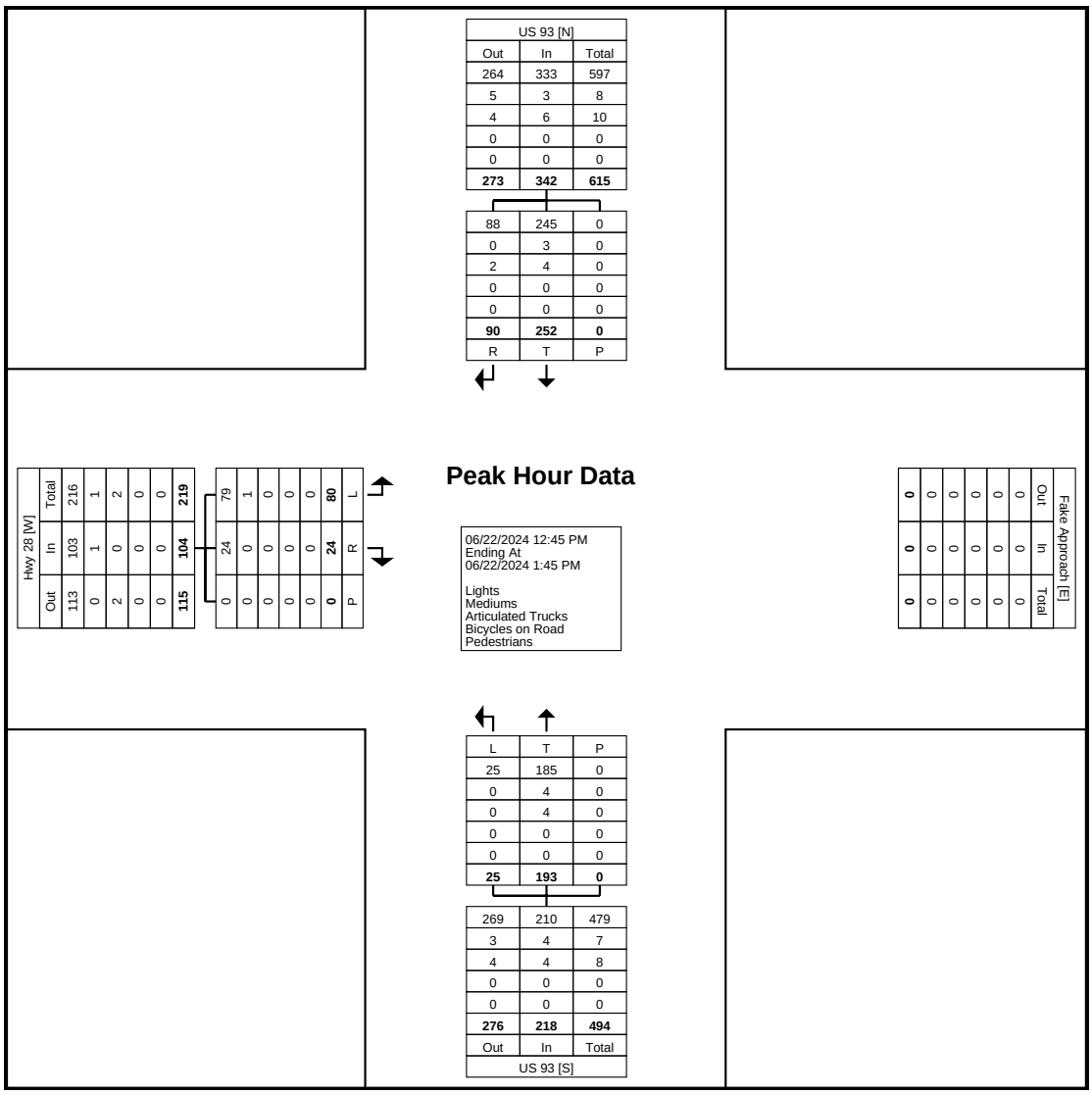
Turning Movement Peak Hour Data (12:45 PM)

Start Time	US 93 Northbound				US 93 Southbound				Hwy 28 Eastbound				
	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
12:45 PM	11	38	0	49	62	23	0	85	24	6	0	30	164
1:00 PM	3	59	0	62	60	18	0	78	16	4	0	20	160
1:15 PM	7	53	0	60	55	27	0	82	18	8	0	26	168
1:30 PM	4	43	0	47	75	22	0	97	22	6	0	28	172
Total	25	193	0	218	252	90	0	342	80	24	0	104	664
Approach %	11.5	88.5	-	-	73.7	26.3	-	-	76.9	23.1	-	-	-
Total %	3.8	29.1	-	32.8	38.0	13.6	-	51.5	12.0	3.6	-	15.7	-
PHF	0.568	0.818	-	0.879	0.840	0.833	-	0.881	0.833	0.750	-	0.867	0.965
Lights	25	185	-	210	245	88	-	333	79	24	-	103	646
% Lights	100.0	95.9	-	96.3	97.2	97.8	-	97.4	98.8	100.0	-	99.0	97.3
Mediums	0	4	-	4	3	0	-	3	1	0	-	1	8
% Mediums	0.0	2.1	-	1.8	1.2	0.0	-	0.9	1.3	0.0	-	1.0	1.2
Articulated Trucks	0	4	-	4	4	2	-	6	0	0	-	0	10
% Articulated Trucks	0.0	2.1	-	1.8	1.6	2.2	-	1.8	0.0	0.0	-	0.0	1.5
Bicycles on Road	0	0	-	0	0	0	-	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Hwy 28 & US 93
Site Code: 02
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (12:45 PM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Lake Mary Ronan Rd & US 93
Site Code: 03
Start Date: 06/20/2024

Turning Movement Data

Start Time	US 93 Northbound					US 93 Southbound					Lake Mary Ronan Rd Eastbound					Lake Mary Ronan Rd Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
12:00 AM	0	3	0	0	3	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	7
12:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
12:30 AM	0	8	0	0	8	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	10
12:45 AM	0	2	0	0	2	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	4
Hourly Total	0	13	0	0	13	0	7	2	0	9	0	1	0	0	1	0	0	0	0	0	23
1:00 AM	0	4	0	0	4	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	8
1:15 AM	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
1:30 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
1:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Hourly Total	0	10	0	0	10	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	17
2:00 AM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3
2:15 AM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3
2:30 AM	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
2:45 AM	0	4	0	0	4	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	7
Hourly Total	0	12	0	0	12	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	19
3:00 AM	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	7
3:15 AM	0	9	0	0	9	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	10
3:30 AM	0	4	0	0	4	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	5
3:45 AM	0	4	0	0	4	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	5
Hourly Total	0	22	0	0	22	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	27
4:00 AM	0	7	0	0	7	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	9
4:15 AM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	4
4:30 AM	0	4	0	0	4	0	7	0	0	7	1	0	0	0	1	0	0	0	0	0	12
4:45 AM	0	0	0	0	0	0	5	0	0	5	2	0	0	0	2	0	0	0	0	0	7
Hourly Total	0	13	0	0	13	0	15	0	0	15	3	0	1	0	4	0	0	0	0	0	32
5:00 AM	0	16	0	0	16	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	23
5:15 AM	0	3	0	0	3	0	5	0	0	5	2	0	0	0	2	0	0	0	0	0	10
5:30 AM	0	15	0	0	15	0	6	0	0	6	3	0	1	0	4	0	0	0	0	0	25
5:45 AM	0	14	0	0	14	0	17	0	0	17	4	0	1	0	5	0	0	0	0	0	36
Hourly Total	0	48	0	0	48	0	35	0	0	35	9	0	2	0	11	0	0	0	0	0	94
6:00 AM	0	25	0	0	25	0	12	0	0	12	3	1	1	0	5	1	0	0	0	1	43
6:15 AM	0	24	1	0	25	0	15	1	0	16	7	0	2	0	9	0	0	1	0	1	51
6:30 AM	1	23	0	0	24	0	18	0	0	18	4	0	1	0	5	0	0	0	0	0	47
6:45 AM	0	26	0	0	26	0	38	0	0	38	6	0	2	0	8	0	0	0	0	0	72
Hourly Total	1	98	1	0	100	0	83	1	0	84	20	1	6	0	27	1	0	1	0	2	213
7:00 AM	0	39	0	0	39	0	34	2	0	36	4	2	2	0	8	0	1	0	0	1	84
7:15 AM	2	30	1	0	33	0	25	1	0	26	5	1	3	0	9	0	1	0	0	1	69
7:30 AM	3	23	1	0	27	0	30	2	0	32	6	0	2	0	8	0	2	0	0	2	69
7:45 AM	1	25	0	0	26	1	41	2	0	44	2	0	2	0	4	0	0	0	0	0	74
Hourly Total	6	117	2	0	125	1	130	7	0	138	17	3	9	0	29	0	4	0	0	4	296
8:00 AM	0	45	0	0	45	1	43	3	0	47	2	2	0	0	4	0	0	0	0	0	96
8:15 AM	0	40	1	0	41	0	41	7	0	48	4	0	2	0	6	0	1	1	0	2	97
8:30 AM	3	39	1	0	43	2	35	1	0	38	0	1	1	0	2	2	0	1	0	3	86
8:45 AM	1	27	1	0	29	3	56	3	0	62	5	2	3	0	10	3	3	0	0	6	107
Hourly Total	4	151	3	0	158	6	175	14	0	195	11	5	6	0	22	5	4	2	0	11	386
9:00 AM	4	49	1	0	54	3	50	3	0	56	4	3	5	0	12	1	1	4	0	6	128
9:15 AM	4	50	1	0	55	2	59	2	0	63	6	4	1	0	11	0	4	3	0	7	136
9:30 AM	7	45	2	0	54	5	60	3	0	68	1	3	8	0	12	2	6	2	0	10	144
9:45 AM	6	46	2	0	54	5	64	5	0	74	6	6	3	0	15	2	3	3	0	8	151
Hourly Total	21	190	6	0	217	15	233	13	0	261	17	16	17	0	50	5	14	12	0	31	559
10:00 AM	2	43	1	0	46	1	73	5	0	79	6	3	5	0	14	1	2	1	0	4	143
10:15 AM	3	51	0	0	54	1	70	6	0	77	5	2	2	0	9	1	1	1	0	3	143
10:30 AM	2	57	1	0	60	1	50	3	2	54	3	4	2	0	9	1	1	1	0	3	126
10:45 AM	4	65	3	0	72	4	52	6	0	62	6	2	6	0	14	0	4	0	0	4	152
Hourly Total	11	216	5	0	232	7	245	20	2	272	20	11	15	0	46	3	8	3	0	14	564
11:00 AM	4	52	2	0	58	2	67	7	0	76	6	3	7	0	16	3	0	2	0	5	155
11:15 AM	3	53	2	0	58	1	67	3	0	71	5	2	6	0	13	1	1	2	0	4	146
11:30 AM	5	49	3	0	57	3	56	4	0	63	2	2	10	0	14	2	3	1	0	6	140
11:45 AM	4	59	1	0	64	4	63	7	0	74	4	2	1	0	7	0	0	3	0	3	148
Hourly Total	16	213	8	0	237	10	253	21	0	284	17	9	24	0	50	6	4	8	0	18	589

12:00 PM	2	55	2	0	59	4	57	3	0	64	6	1	1	0	8	0	2	0	0	2	133
12:15 PM	2	53	4	0	59	3	69	7	0	79	4	3	1	0	8	5	0	2	0	7	153
12:30 PM	3	49	1	0	53	0	57	4	0	61	4	4	4	0	12	1	2	0	0	3	129
12:45 PM	3	44	1	0	48	2	61	4	0	67	4	1	3	0	8	3	2	0	0	5	128
Hourly Total	10	201	8	0	219	9	244	18	0	271	18	9	9	0	36	9	6	2	0	17	543
1:00 PM	4	60	1	0	65	2	57	5	0	64	4	2	5	0	11	1	6	1	0	8	148
1:15 PM	2	47	2	0	51	1	72	5	0	78	6	1	3	0	10	3	3	0	0	6	145
1:30 PM	3	58	1	0	62	6	63	4	0	73	2	2	1	0	5	1	2	0	0	3	143
1:45 PM	6	63	2	0	71	1	56	10	0	67	2	3	4	0	9	1	1	1	0	3	150
Hourly Total	15	228	6	0	249	10	248	24	0	282	14	8	13	0	35	6	12	2	0	20	586
2:00 PM	5	55	2	0	62	1	64	12	0	77	7	4	3	0	14	1	3	1	0	5	158
2:15 PM	7	54	2	0	63	1	53	4	0	58	1	2	3	0	6	1	2	1	0	4	131
2:30 PM	9	41	1	0	51	2	62	6	0	70	6	1	1	0	8	1	1	0	0	2	131
2:45 PM	4	64	1	0	69	2	58	7	0	67	3	1	4	0	8	1	0	1	0	2	146
Hourly Total	25	214	6	0	245	6	237	29	0	272	17	8	11	0	36	4	6	3	0	13	566
3:00 PM	2	71	2	0	75	4	57	4	0	65	2	2	7	0	11	1	1	1	0	3	154
3:15 PM	4	67	0	0	71	6	66	3	0	75	6	2	5	0	13	1	1	3	0	5	164
3:30 PM	3	62	1	0	66	3	60	11	0	74	3	2	0	0	5	2	2	1	0	5	150
3:45 PM	10	90	2	0	102	3	70	6	0	79	5	4	7	0	16	0	1	2	0	3	200
Hourly Total	19	290	5	0	314	16	253	24	0	293	16	10	19	0	45	4	5	7	0	16	668
4:00 PM	3	62	0	0	65	1	55	7	0	63	6	1	6	0	13	2	3	1	0	6	147
4:15 PM	2	53	4	0	59	2	70	8	0	80	10	2	7	0	19	1	2	0	0	3	161
4:30 PM	4	78	1	0	83	2	68	10	0	80	2	1	5	0	8	1	1	1	0	3	174
4:45 PM	6	71	0	0	77	3	66	3	0	72	4	4	7	0	15	3	1	0	0	4	168
Hourly Total	15	264	5	0	284	8	259	28	0	295	22	8	25	0	55	7	7	2	0	16	650
5:00 PM	5	57	2	0	64	2	62	4	0	68	6	0	4	0	10	1	2	0	0	3	145
5:15 PM	4	58	0	0	62	4	60	1	0	65	2	1	3	0	6	0	1	0	0	1	134
5:30 PM	3	50	1	0	54	4	48	3	0	55	3	2	1	0	6	2	1	1	0	4	119
5:45 PM	5	59	2	0	66	3	58	3	0	64	3	0	6	0	9	2	1	0	0	3	142
Hourly Total	17	224	5	0	246	13	228	11	0	252	14	3	14	0	31	5	5	1	0	11	540
6:00 PM	1	41	0	0	42	1	57	6	0	64	0	2	2	0	4	0	1	1	0	2	112
6:15 PM	4	46	1	0	51	0	54	8	0	62	4	0	0	0	4	1	0	0	0	1	118
6:30 PM	3	27	0	0	30	4	39	5	0	48	0	0	1	0	1	1	0	3	0	4	83
6:45 PM	3	46	0	0	49	3	21	3	0	27	1	0	2	0	3	0	1	1	0	2	81
Hourly Total	11	160	1	0	172	8	171	22	0	201	5	2	5	0	12	2	2	5	0	9	394
7:00 PM	2	37	2	0	41	1	33	5	0	39	4	0	3	0	7	0	1	1	0	2	89
7:15 PM	4	45	2	0	51	4	32	3	0	39	0	1	0	0	1	1	2	1	0	4	95
7:30 PM	2	43	1	0	46	1	31	5	0	37	2	0	1	0	3	1	1	0	0	2	88
7:45 PM	2	35	0	0	37	0	25	5	0	30	0	0	1	0	1	1	0	0	0	1	69
Hourly Total	10	160	5	0	175	6	121	18	0	145	6	1	5	0	12	3	4	2	0	9	341
8:00 PM	4	25	0	0	29	1	27	1	0	29	3	1	2	0	6	1	1	1	0	3	67
8:15 PM	5	32	1	0	38	2	25	1	0	28	2	1	3	0	6	0	0	0	0	0	72
8:30 PM	2	36	0	0	38	1	25	0	0	26	1	1	0	0	2	1	1	0	0	2	68
8:45 PM	1	30	1	0	32	1	20	1	0	22	2	0	1	0	3	0	2	0	0	2	59
Hourly Total	12	123	2	0	137	5	97	3	0	105	8	3	6	0	17	2	4	1	0	7	266
9:00 PM	0	27	1	0	28	0	16	3	0	19	2	1	1	0	4	0	1	0	0	1	52
9:15 PM	3	25	0	0	28	0	9	2	0	11	1	1	1	0	3	1	1	0	0	2	44
9:30 PM	0	24	0	0	24	0	10	1	0	11	3	0	1	0	4	0	2	0	0	2	41
9:45 PM	1	13	1	0	15	0	6	2	0	8	1	0	5	0	6	1	0	0	0	1	30
Hourly Total	4	89	2	0	95	0	41	8	0	49	7	2	8	0	17	2	4	0	0	6	167
10:00 PM	0	10	1	0	11	0	8	2	0	10	2	0	1	0	3	0	1	0	0	1	25
10:15 PM	2	16	1	0	19	0	20	4	0	24	2	0	0	0	2	0	0	0	0	0	45
10:30 PM	0	13	0	0	13	0	10	2	0	12	1	0	1	0	2	0	0	0	0	0	27
10:45 PM	0	7	0	0	7	0	14	2	0	16	1	0	0	0	1	0	0	0	0	0	24
Hourly Total	2	46	2	0	50	0	52	10	0	62	6	0	2	0	8	0	1	0	0	1	121
11:00 PM	2	14	0	0	16	0	3	2	0	5	0	0	0	0	0	0	0	0	0	0	21
11:15 PM	0	7	0	0	7	0	9	0	0	9	1	0	0	0	1	0	0	0	0	0	17
11:30 PM	0	2	0	0	2	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	5
11:45 PM	0	6	0	0	6	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	12
Hourly Total	2	29	0	0	31	0	20	2	0	22	1	0	1	0	2	0	0	0	0	0	55
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM	0	7	0	0	7	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	15
12:15 AM	1	5	0	0	6	0	5	1	0	6	0	0	0	0	0	0	0	0	0	0	12
12:30 AM	0	4	0	0	4	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	7
12:45 AM	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	5
Hourly Total	1	19	0	0	20	0	18	1	0	19	0	0	0	0	0	0	0	0	0	0	39
1:00 AM	1	9	0	0	10	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	12
1:15 AM	0	8	0	0	8	0	5	0	0	5	1	0	0	0	1	0	0	0	0	0	14
1:30 AM	0	5	0	0	5	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	9
1:45 AM	0	7	0	0	7	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	9
Hourly Total	1	29	0	0	30	1	12	0	0	13	1	0	0	0	1	0	0	0	0	0	44
2:00 AM	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
2:15 AM	0	4	0	0	4	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	7
2:30 AM	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
2:45 AM	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
Hourly Total	0	12	0	0	12	0	5	0	0	5	1	0	0	0	1	0	0	0	0	0	18
3:00 AM	0	3	0	0	3	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	5

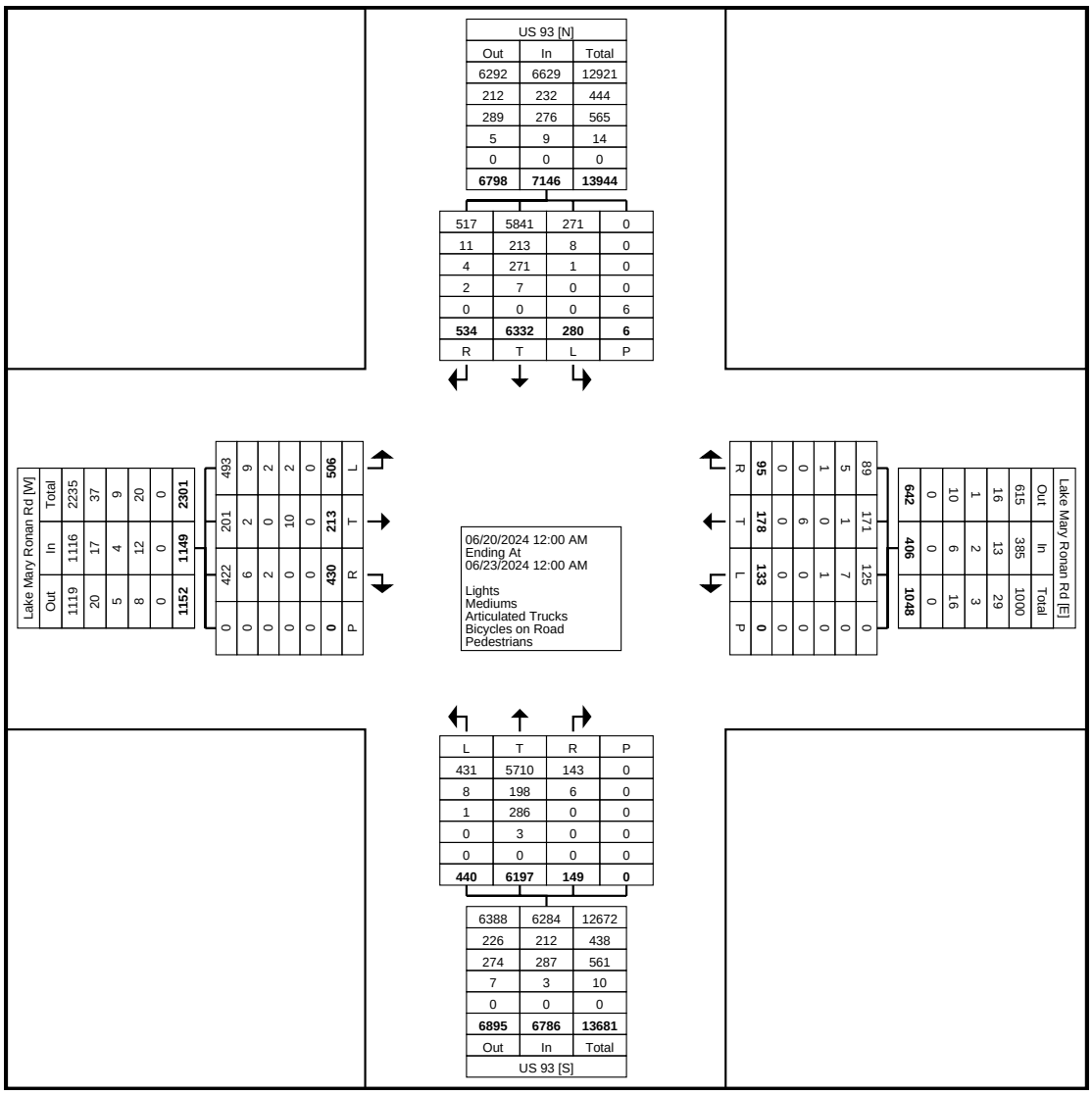
3:15 AM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
3:30 AM	0	2	0	0	2	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	6
3:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Hourly Total	0	7	0	0	7	1	7	0	0	8	0	0	0	0	0	0	0	0	0	0	15
4:00 AM	0	4	0	0	4	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	5
4:15 AM	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3
4:30 AM	1	0	0	0	1	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	3
4:45 AM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
Hourly Total	1	8	0	0	9	0	3	0	0	3	1	0	1	0	2	0	0	0	0	0	14
5:00 AM	0	3	0	0	3	0	4	0	0	4	1	0	0	0	1	0	0	0	0	0	8
5:15 AM	0	4	0	0	4	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	11
5:30 AM	0	5	0	0	5	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	12
5:45 AM	0	4	0	0	4	0	13	1	0	14	0	0	0	0	0	0	0	0	0	0	18
Hourly Total	0	16	0	0	16	0	31	1	0	32	1	0	0	0	1	0	0	0	0	0	49
6:00 AM	0	7	0	0	7	1	11	1	0	13	0	0	0	0	0	0	0	0	0	0	20
6:15 AM	0	6	0	0	6	1	22	1	0	24	1	1	0	0	2	1	0	0	0	1	33
6:30 AM	0	5	1	0	6	0	28	0	0	28	0	0	1	0	1	0	0	1	0	1	36
6:45 AM	0	18	0	0	18	0	18	0	0	18	1	0	0	0	1	1	0	0	0	1	38
Hourly Total	0	36	1	0	37	2	79	2	0	83	2	1	1	0	4	2	0	1	0	3	127
7:00 AM	0	5	0	0	5	0	24	0	0	24	1	0	1	0	2	1	0	0	0	1	32
7:15 AM	0	14	0	0	14	0	34	2	0	36	2	0	0	0	2	0	0	0	0	0	52
7:30 AM	0	18	0	0	18	0	42	3	0	45	3	0	1	0	4	0	0	0	0	0	67
7:45 AM	0	19	1	0	20	3	49	2	0	54	1	0	2	0	3	0	0	0	0	0	77
Hourly Total	0	56	1	0	57	3	149	7	0	159	7	0	4	0	11	1	0	0	0	1	228
8:00 AM	1	18	1	0	20	1	28	1	0	30	4	0	3	0	7	0	1	0	0	1	58
8:15 AM	1	27	0	0	28	0	35	5	0	40	1	1	2	0	4	0	0	0	0	0	72
8:30 AM	3	23	4	0	30	0	53	3	0	56	2	5	1	0	8	0	2	1	0	3	97
8:45 AM	5	27	0	0	32	5	48	2	0	55	3	2	4	0	9	0	1	1	0	2	98
Hourly Total	10	95	5	0	110	6	164	11	0	181	10	8	10	0	28	0	4	2	0	6	325
9:00 AM	5	38	1	0	44	0	57	2	0	59	3	6	5	0	14	3	1	5	0	9	126
9:15 AM	4	51	2	0	57	2	59	4	0	65	6	2	2	0	10	1	1	0	0	2	134
9:30 AM	1	68	3	0	72	1	44	2	0	47	12	3	1	0	16	5	5	3	0	13	148
9:45 AM	3	55	0	0	58	3	50	6	0	59	5	4	3	0	12	1	3	1	0	5	134
Hourly Total	13	212	6	0	231	6	210	14	0	230	26	15	11	0	52	10	10	9	0	29	542
10:00 AM	1	70	1	0	72	4	80	5	0	89	9	3	2	0	14	0	2	2	0	4	179
10:15 AM	3	58	1	0	62	4	41	9	0	54	7	3	4	0	14	1	5	2	0	8	138
10:30 AM	7	43	0	0	50	2	70	6	0	78	5	5	4	0	14	0	3	0	0	3	145
10:45 AM	7	43	3	0	53	3	68	4	0	75	3	3	1	0	7	0	2	2	0	4	139
Hourly Total	18	214	5	0	237	13	259	24	0	296	24	14	11	0	49	1	12	6	0	19	601
11:00 AM	3	58	0	0	61	5	60	3	0	68	14	4	5	0	23	2	5	0	0	7	159
11:15 AM	2	53	2	0	57	5	53	6	0	64	7	6	3	0	16	3	5	1	0	9	146
11:30 AM	27	34	2	0	63	5	57	5	0	67	4	1	5	0	10	2	1	0	0	3	143
11:45 AM	5	45	4	0	54	5	78	12	3	95	7	1	4	0	12	1	0	3	0	4	165
Hourly Total	37	190	8	0	235	20	248	26	3	294	32	12	17	0	61	8	11	4	0	23	613
12:00 PM	6	56	0	0	62	8	69	7	0	84	5	1	2	0	8	2	1	0	0	3	157
12:15 PM	5	43	3	0	51	0	91	8	0	99	5	5	6	0	16	2	1	2	0	5	171
12:30 PM	4	56	1	0	61	4	60	8	0	72	3	3	8	0	14	0	3	0	0	3	150
12:45 PM	6	63	1	0	70	3	78	5	1	86	3	2	6	0	11	4	2	0	0	6	173
Hourly Total	21	218	5	0	244	15	298	28	1	341	16	11	22	0	49	8	7	2	0	17	651
1:00 PM	14	57	1	0	72	4	70	4	0	78	6	4	4	0	14	0	2	0	0	2	166
1:15 PM	4	58	3	0	65	5	86	10	0	101	7	1	5	0	13	1	2	0	0	3	182
1:30 PM	8	61	1	0	70	2	72	4	0	78	6	3	5	0	14	2	2	0	0	4	166
1:45 PM	6	55	3	0	64	3	60	5	0	68	3	1	4	0	8	2	3	1	0	6	146
Hourly Total	32	231	8	0	271	14	288	23	0	325	22	9	18	0	49	5	9	1	0	15	660
2:00 PM	3	78	2	0	83	8	42	4	0	54	4	3	6	0	13	2	2	1	0	5	155
2:15 PM	3	54	2	0	59	3	55	2	0	60	5	3	29	0	37	1	1	1	0	3	159
2:30 PM	8	71	2	0	81	2	62	9	0	73	2	0	1	0	3	2	0	2	0	4	161
2:45 PM	4	59	2	0	65	7	75	4	0	86	5	2	7	0	14	1	0	0	0	1	166
Hourly Total	18	262	8	0	288	20	234	19	0	273	16	8	43	0	67	6	3	4	0	13	641
3:00 PM	9	62	1	0	72	2	57	5	0	64	5	4	6	0	15	2	1	2	0	5	156
3:15 PM	3	96	5	0	104	3	37	2	0	42	4	3	3	0	10	3	0	0	0	3	159
3:30 PM	9	54	2	0	65	6	53	7	0	66	6	3	5	0	14	3	3	1	0	7	152
3:45 PM	5	76	1	0	82	4	53	4	0	61	5	0	1	0	6	1	2	1	0	4	153
Hourly Total	26	288	9	0	323	15	200	18	0	233	20	10	15	0	45	9	6	4	0	19	620
4:00 PM	8	66	0	0	74	3	62	4	0	69	6	1	1	0	8	1	2	0	0	3	154
4:15 PM	4	88	1	0	93	7	45	8	0	60	14	5	8	0	27	1	1	1	0	3	183
4:30 PM	2	62	1	0	65	0	51	1	0	52	8	1	1	0	10	2	0	2	0	4	131
4:45 PM	4	62	4	0	70	1	49	3	0	53	1	2	4	0	7	1	1	1	0	3	133
Hourly Total	18	278	6	0	302	11	207	16	0	234	29	9	14	0	52	5	4	4	0	13	601
5:00 PM	1	56	0	0	57	1	52	3	0	56	5	1	6	0	12	3	1	0	0	4	129
5:15 PM	4	57	0	0	61	5	51	8	0	64	2	1	6	0	9	0	0	1	0	1	135
5:30 PM	3	70	1	0	74	3	32	2	0	37	3	0	6	0	9	1	1	0	0	2	122
5:45 PM	2	49	0	0	51	1	46	3	0	50	2	1	3	0	6	2	2	0	0	4	111
Hourly Total	10	232	1	0	243	10	181	16	0	207	12	3	21	0	36	6	4	1	0	11	497
6:00 PM	4	51	0	0	55	3	61	0	0	64	4	1	5	0	10	2	0	0	0	2	131
6:15 PM	2	33	2	0	37	2	49	2	0	53	1	0	0	0	1	0	2	0	0	2	93
6:30 PM	1	52	1	0	54	1	51	4	0	56	2	1	5	0	8	0	1	1	0	2	120

6:45 PM	0	35	2	0	37	4	51	8	0	63	2	0	3	0	5	0	2	0	0	2	107
Hourly Total	7	171	5	0	183	10	212	14	0	236	9	2	13	0	24	2	5	1	0	8	451
7:00 PM	3	42	2	0	47	5	38	4	0	47	0	2	6	0	8	2	0	0	0	2	104
7:15 PM	3	42	0	0	45	1	23	0	0	24	2	2	1	0	5	1	0	0	0	1	75
7:30 PM	1	42	0	0	43	0	19	3	0	22	1	1	0	0	2	0	1	0	0	1	68
7:45 PM	2	39	0	0	41	0	26	2	0	28	1	2	0	0	3	0	1	1	0	2	74
Hourly Total	9	165	2	0	176	6	106	9	0	121	4	7	7	0	18	3	2	1	0	6	321
8:00 PM	0	22	1	0	23	0	27	1	0	28	0	0	3	0	3	0	1	1	0	2	56
8:15 PM	1	18	3	0	22	0	16	0	0	16	2	0	4	0	6	0	1	2	0	3	47
8:30 PM	1	30	0	0	31	1	20	1	0	22	3	2	1	0	6	1	1	0	0	2	61
8:45 PM	1	34	0	0	35	0	27	2	0	29	1	1	5	0	7	1	4	0	0	5	76
Hourly Total	3	104	4	0	111	1	90	4	0	95	6	3	13	0	22	2	7	3	0	12	240
9:00 PM	4	28	1	0	33	0	18	2	0	20	8	0	2	0	10	1	1	0	0	2	65
9:15 PM	1	25	0	0	26	0	20	4	0	24	3	0	1	0	4	0	1	0	0	1	55
9:30 PM	0	33	0	0	33	1	14	3	0	18	1	1	1	0	3	0	0	0	0	0	54
9:45 PM	3	19	0	0	22	1	12	0	0	13	1	0	0	0	1	0	0	1	0	1	37
Hourly Total	8	105	1	0	114	2	64	9	0	75	13	1	4	0	18	1	2	1	0	4	211
10:00 PM	0	21	1	0	22	0	13	1	0	14	0	0	3	0	3	0	0	0	0	0	39
10:15 PM	1	17	0	0	18	0	24	0	0	24	3	0	1	0	4	0	0	0	0	0	46
10:30 PM	1	15	0	0	16	1	5	6	0	12	2	0	2	0	4	0	0	0	0	0	32
10:45 PM	3	8	0	0	11	1	16	2	0	19	0	0	0	0	0	0	0	0	0	0	30
Hourly Total	5	61	1	0	67	2	58	9	0	69	5	0	6	0	11	0	0	0	0	0	147
11:00 PM	0	12	0	0	12	2	14	2	0	18	1	0	1	0	2	0	1	0	0	1	33
11:15 PM	0	15	0	0	15	0	10	2	0	12	0	0	0	0	0	0	1	0	0	1	28
11:30 PM	0	14	1	0	15	0	13	3	0	16	0	0	0	0	0	0	0	0	0	0	31
11:45 PM	1	16	0	0	17	0	6	1	0	7	0	0	0	0	0	0	0	0	0	0	24
Hourly Total	1	57	1	0	59	2	43	8	0	53	1	0	1	0	2	0	2	0	0	2	116
Grand Total	440	6197	149	0	6786	280	6332	534	6	7146	506	213	430	0	1149	133	178	95	0	406	15487
Approach %	6.5	91.3	2.2	-	-	3.9	88.6	7.5	-	-	44.0	18.5	37.4	-	-	32.8	43.8	23.4	-	-	-
Total %	2.8	40.0	1.0	-	43.8	1.8	40.9	3.4	-	46.1	3.3	1.4	2.8	-	7.4	0.9	1.1	0.6	-	2.6	-
Lights	431	5710	143	-	6284	271	5841	517	-	6629	493	201	422	-	1116	125	171	89	-	385	14414
% Lights	98.0	92.1	96.0	-	92.6	96.8	92.2	96.8	-	92.8	97.4	94.4	98.1	-	97.1	94.0	96.1	93.7	-	94.8	93.1
Mediums	8	198	6	-	212	8	213	11	-	232	9	2	6	-	17	7	1	5	-	13	474
% Mediums	1.8	3.2	4.0	-	3.1	2.9	3.4	2.1	-	3.2	1.8	0.9	1.4	-	1.5	5.3	0.6	5.3	-	3.2	3.1
Articulated Trucks	1	286	0	-	287	1	271	4	-	276	2	0	2	-	4	1	0	1	-	2	569
% Articulated Trucks	0.2	4.6	0.0	-	4.2	0.4	4.3	0.7	-	3.9	0.4	0.0	0.5	-	0.3	0.8	0.0	1.1	-	0.5	3.7
Bicycles on Road	0	3	0	-	3	0	7	2	-	9	2	10	0	-	12	0	6	0	-	6	30
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.1	0.4	-	0.1	0.4	4.7	0.0	-	1.0	0.0	3.4	0.0	-	1.5	0.2
Pedestrians	-	-	-	0	-	-	-	-	6	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Lake Mary Ronan Rd & US 93
Site Code: 03
Start Date: 06/20/2024



Turning Movement Data Plot

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Lake Mary Ronan Rd & US 93
Site Code: 03
Start Date: 06/20/2024

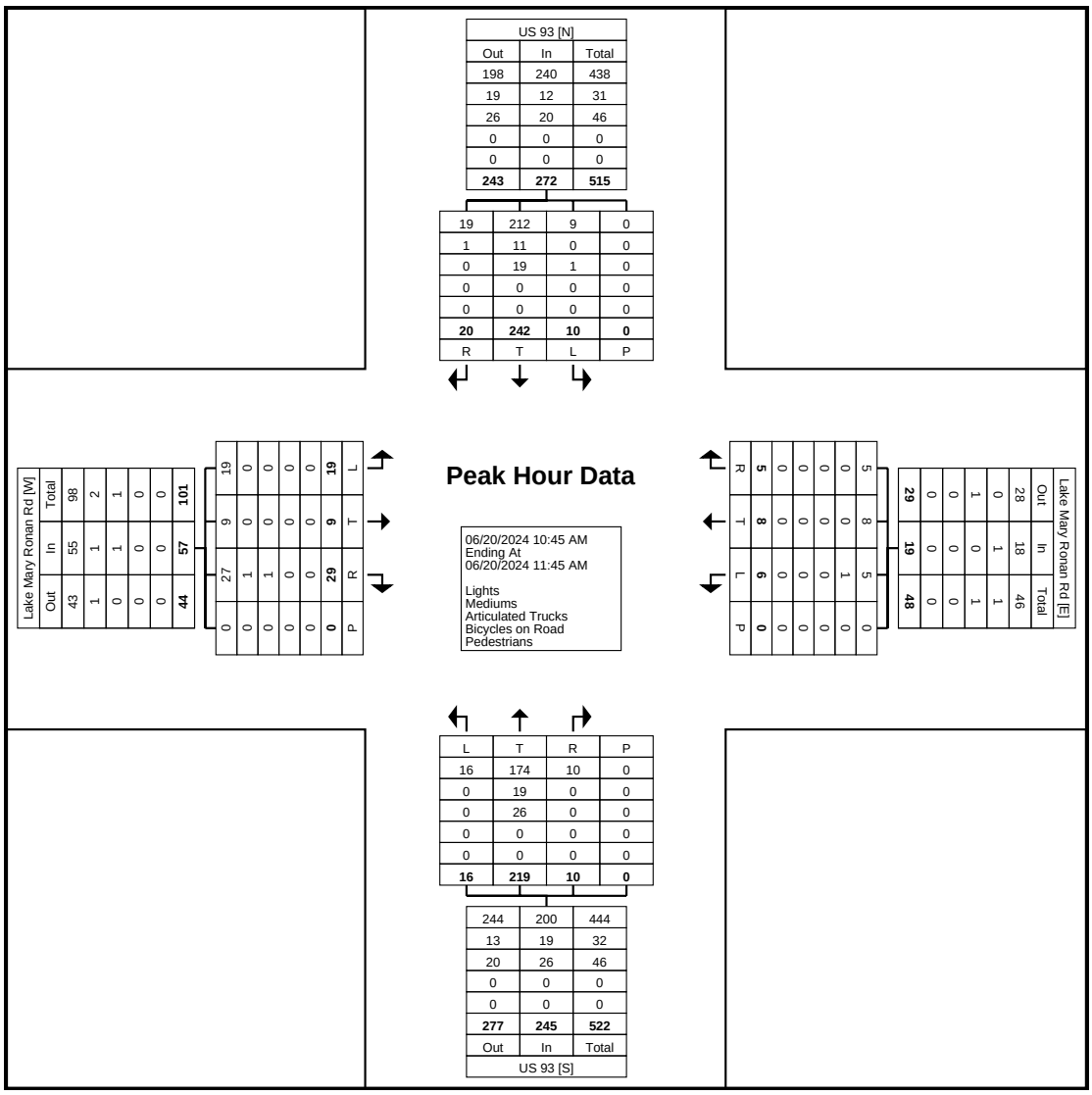
Turning Movement Peak Hour Data (10:45 AM)

Start Time	US 93 Northbound					US 93 Southbound					Lake Mary Ronan Rd Eastbound					Lake Mary Ronan Rd Westbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
10:45 AM	4	65	3	0	72	4	52	6	0	62	6	2	6	0	14	0	4	0	0	4	152
11:00 AM	4	52	2	0	58	2	67	7	0	76	6	3	7	0	16	3	0	2	0	5	155
11:15 AM	3	53	2	0	58	1	67	3	0	71	5	2	6	0	13	1	1	2	0	4	146
11:30 AM	5	49	3	0	57	3	56	4	0	63	2	2	10	0	14	2	3	1	0	6	140
Total	16	219	10	0	245	10	242	20	0	272	19	9	29	0	57	6	8	5	0	19	593
Approach %	6.5	89.4	4.1	-	-	3.7	89.0	7.4	-	-	33.3	15.8	50.9	-	-	31.6	42.1	26.3	-	-	-
Total %	2.7	36.9	1.7	-	41.3	1.7	40.8	3.4	-	45.9	3.2	1.5	4.9	-	9.6	1.0	1.3	0.8	-	3.2	-
PHF	0.800	0.842	0.833	-	0.851	0.625	0.903	0.714	-	0.895	0.792	0.750	0.725	-	0.891	0.500	0.500	0.625	-	0.792	0.956
Lights	16	174	10	-	200	9	212	19	-	240	19	9	27	-	55	5	8	5	-	18	513
% Lights	100.0	79.5	100.0	-	81.6	90.0	87.6	95.0	-	88.2	100.0	100.0	93.1	-	96.5	83.3	100.0	100.0	-	94.7	86.5
Mediums	0	19	0	-	19	0	11	1	-	12	0	0	1	-	1	1	0	0	-	1	33
% Mediums	0.0	8.7	0.0	-	7.8	0.0	4.5	5.0	-	4.4	0.0	0.0	3.4	-	1.8	16.7	0.0	0.0	-	5.3	5.6
Articulated Trucks	0	26	0	-	26	1	19	0	-	20	0	0	1	-	1	0	0	0	-	0	47
% Articulated Trucks	0.0	11.9	0.0	-	10.6	10.0	7.9	0.0	-	7.4	0.0	0.0	3.4	-	1.8	0.0	0.0	0.0	-	0.0	7.9
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	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	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Lake Mary Ronan Rd & US 93
Site Code: 03
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (10:45 AM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Lake Mary Ronan Rd & US 93
Site Code: 03
Start Date: 06/20/2024

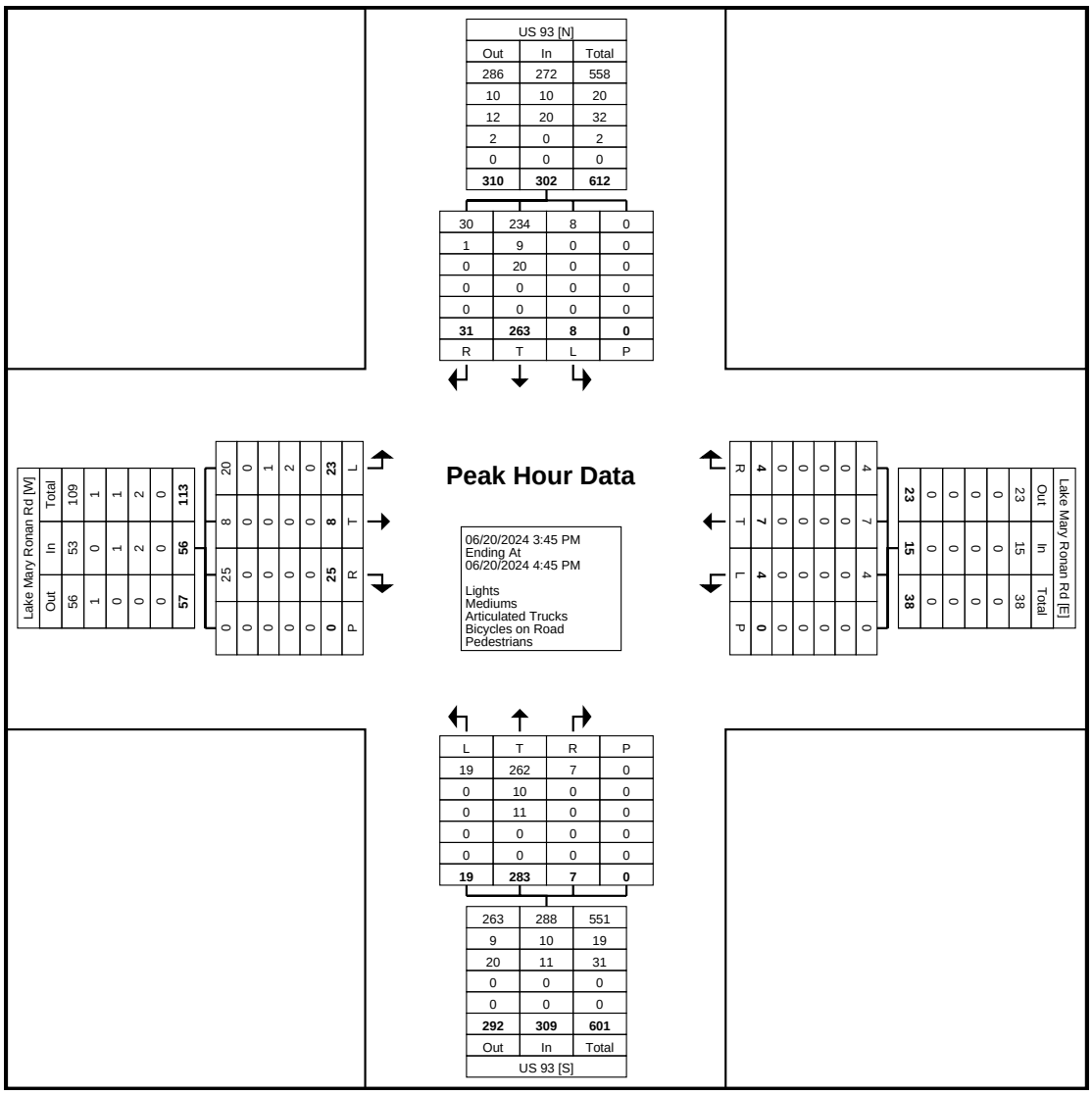
Turning Movement Peak Hour Data (3:45 PM)

Start Time	US 93 Northbound					US 93 Southbound					Lake Mary Ronan Rd Eastbound					Lake Mary Ronan Rd Westbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
3:45 PM	10	90	2	0	102	3	70	6	0	79	5	4	7	0	16	0	1	2	0	3	200
4:00 PM	3	62	0	0	65	1	55	7	0	63	6	1	6	0	13	2	3	1	0	6	147
4:15 PM	2	53	4	0	59	2	70	8	0	80	10	2	7	0	19	1	2	0	0	3	161
4:30 PM	4	78	1	0	83	2	68	10	0	80	2	1	5	0	8	1	1	1	0	3	174
Total	19	283	7	0	309	8	263	31	0	302	23	8	25	0	56	4	7	4	0	15	682
Approach %	6.1	91.6	2.3	-	-	2.6	87.1	10.3	-	-	41.1	14.3	44.6	-	-	26.7	46.7	26.7	-	-	-
Total %	2.8	41.5	1.0	-	45.3	1.2	38.6	4.5	-	44.3	3.4	1.2	3.7	-	8.2	0.6	1.0	0.6	-	2.2	-
PHF	0.475	0.786	0.438	-	0.757	0.667	0.939	0.775	-	0.944	0.575	0.500	0.893	-	0.737	0.500	0.583	0.500	-	0.625	0.853
Lights	19	262	7	-	288	8	234	30	-	272	20	8	25	-	53	4	7	4	-	15	628
% Lights	100.0	92.6	100.0	-	93.2	100.0	89.0	96.8	-	90.1	87.0	100.0	100.0	-	94.6	100.0	100.0	100.0	-	100.0	92.1
Mediums	0	10	0	-	10	0	9	1	-	10	0	0	0	-	0	0	0	0	-	0	20
% Mediums	0.0	3.5	0.0	-	3.2	0.0	3.4	3.2	-	3.3	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	2.9
Articulated Trucks	0	11	0	-	11	0	20	0	-	20	1	0	0	-	1	0	0	0	-	0	32
% Articulated Trucks	0.0	3.9	0.0	-	3.6	0.0	7.6	0.0	-	6.6	4.3	0.0	0.0	-	1.8	0.0	0.0	0.0	-	0.0	4.7
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	2	0	0	-	2	0	0	0	-	0	2
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	8.7	0.0	0.0	-	3.6	0.0	0.0	0.0	-	0.0	0.3
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Lake Mary Ronan Rd & US 93
Site Code: 03
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (3:45 PM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Lake Mary Ronan Rd & US 93
Site Code: 03
Start Date: 06/20/2024

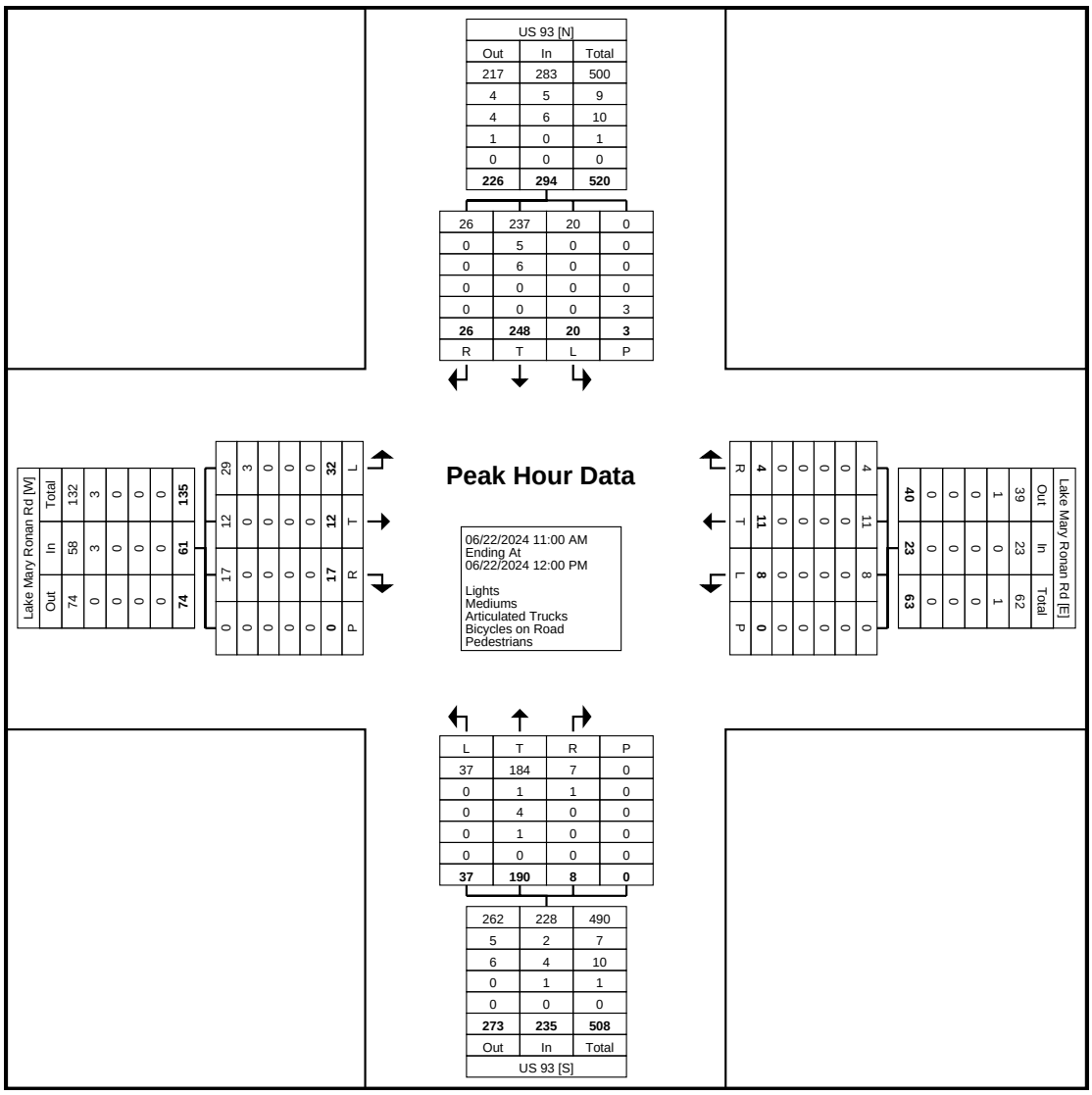
Turning Movement Peak Hour Data (11:00 AM)

Start Time	US 93 Northbound					US 93 Southbound					Lake Mary Ronan Rd Eastbound					Lake Mary Ronan Rd Westbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
11:00 AM	3	58	0	0	61	5	60	3	0	68	14	4	5	0	23	2	5	0	0	7	159
11:15 AM	2	53	2	0	57	5	53	6	0	64	7	6	3	0	16	3	5	1	0	9	146
11:30 AM	27	34	2	0	63	5	57	5	0	67	4	1	5	0	10	2	1	0	0	3	143
11:45 AM	5	45	4	0	54	5	78	12	3	95	7	1	4	0	12	1	0	3	0	4	165
Total	37	190	8	0	235	20	248	26	3	294	32	12	17	0	61	8	11	4	0	23	613
Approach %	15.7	80.9	3.4	-	-	6.8	84.4	8.8	-	-	52.5	19.7	27.9	-	-	34.8	47.8	17.4	-	-	-
Total %	6.0	31.0	1.3	-	38.3	3.3	40.5	4.2	-	48.0	5.2	2.0	2.8	-	10.0	1.3	1.8	0.7	-	3.8	-
PHF	0.343	0.819	0.500	-	0.933	1.000	0.795	0.542	-	0.774	0.571	0.500	0.850	-	0.663	0.667	0.550	0.333	-	0.639	0.929
Lights	37	184	7	-	228	20	237	26	-	283	29	12	17	-	58	8	11	4	-	23	592
% Lights	100.0	96.8	87.5	-	97.0	100.0	95.6	100.0	-	96.3	90.6	100.0	100.0	-	95.1	100.0	100.0	100.0	-	100.0	96.6
Mediums	0	1	1	-	2	0	5	0	-	5	3	0	0	-	3	0	0	0	-	0	10
% Mediums	0.0	0.5	12.5	-	0.9	0.0	2.0	0.0	-	1.7	9.4	0.0	0.0	-	4.9	0.0	0.0	0.0	-	0.0	1.6
Articulated Trucks	0	4	0	-	4	0	6	0	-	6	0	0	0	-	0	0	0	0	-	0	10
% Articulated Trucks	0.0	2.1	0.0	-	1.7	0.0	2.4	0.0	-	2.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	1.6
Bicycles on Road	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.5	0.0	-	0.4	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.2
Pedestrians	-	-	-	0	-	-	-	-	3	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Lake Mary Ronan Rd & US 93
Site Code: 03
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (11:00 AM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Lake Mary Ronan Rd & US 93
Site Code: 03
Start Date: 06/20/2024

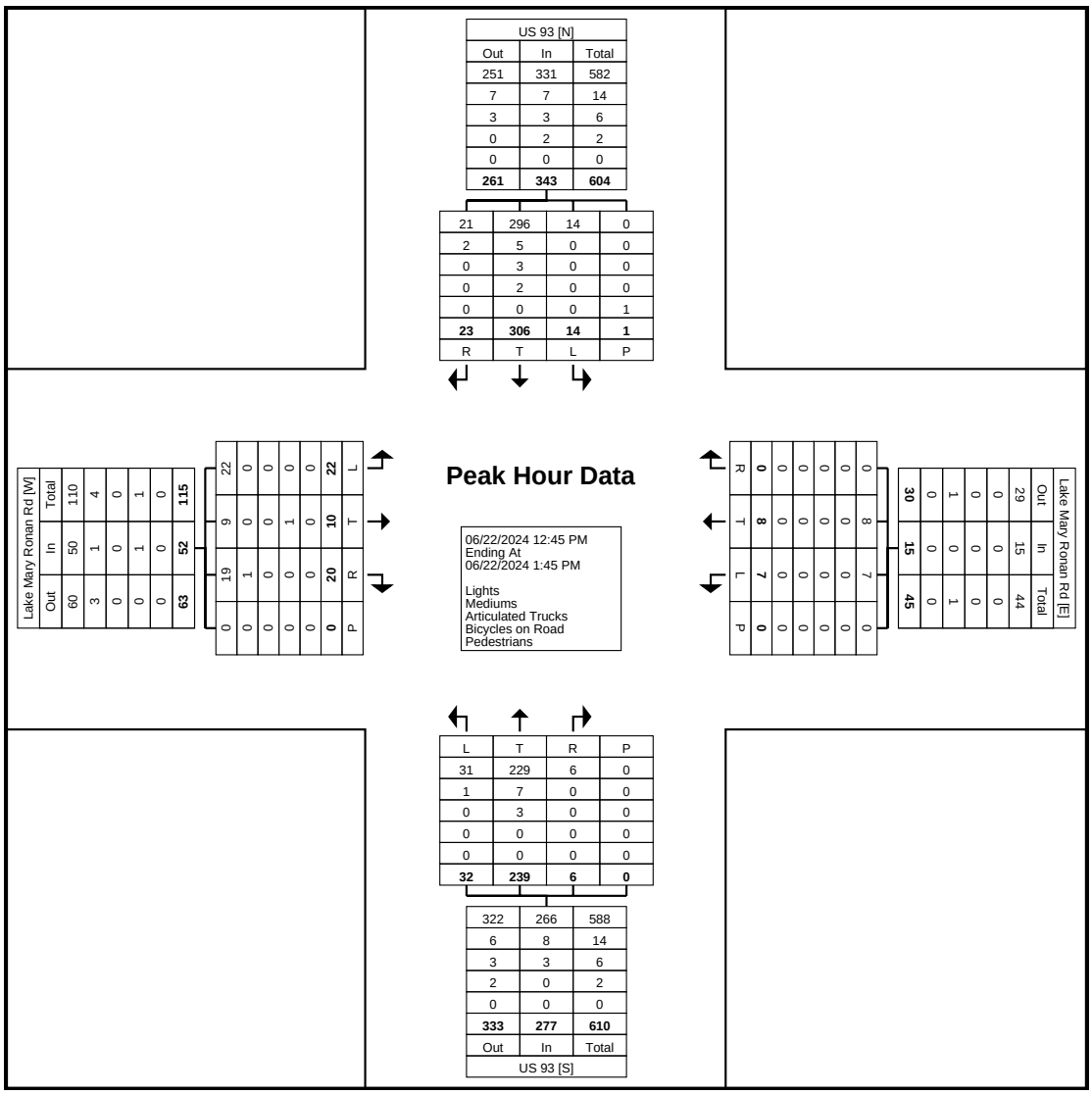
Turning Movement Peak Hour Data (12:45 PM)

Start Time	US 93 Northbound					US 93 Southbound					Lake Mary Ronan Rd Eastbound					Lake Mary Ronan Rd Westbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
12:45 PM	6	63	1	0	70	3	78	5	1	86	3	2	6	0	11	4	2	0	0	6	173
1:00 PM	14	57	1	0	72	4	70	4	0	78	6	4	4	0	14	0	2	0	0	2	166
1:15 PM	4	58	3	0	65	5	86	10	0	101	7	1	5	0	13	1	2	0	0	3	182
1:30 PM	8	61	1	0	70	2	72	4	0	78	6	3	5	0	14	2	2	0	0	4	166
Total	32	239	6	0	277	14	306	23	1	343	22	10	20	0	52	7	8	0	0	15	687
Approach %	11.6	86.3	2.2	-	-	4.1	89.2	6.7	-	-	42.3	19.2	38.5	-	-	46.7	53.3	0.0	-	-	-
Total %	4.7	34.8	0.9	-	40.3	2.0	44.5	3.3	-	49.9	3.2	1.5	2.9	-	7.6	1.0	1.2	0.0	-	2.2	-
PHF	0.571	0.948	0.500	-	0.962	0.700	0.890	0.575	-	0.849	0.786	0.625	0.833	-	0.929	0.438	1.000	0.000	-	0.625	0.944
Lights	31	229	6	-	266	14	296	21	-	331	22	9	19	-	50	7	8	0	-	15	662
% Lights	96.9	95.8	100.0	-	96.0	100.0	96.7	91.3	-	96.5	100.0	90.0	95.0	-	96.2	100.0	100.0	-	-	100.0	96.4
Mediums	1	7	0	-	8	0	5	2	-	7	0	0	1	-	1	0	0	0	-	0	16
% Mediums	3.1	2.9	0.0	-	2.9	0.0	1.6	8.7	-	2.0	0.0	0.0	5.0	-	1.9	0.0	0.0	-	-	0.0	2.3
Articulated Trucks	0	3	0	-	3	0	3	0	-	3	0	0	0	-	0	0	0	0	-	0	6
% Articulated Trucks	0.0	1.3	0.0	-	1.1	0.0	1.0	0.0	-	0.9	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.9
Bicycles on Road	0	0	0	-	0	0	2	0	-	2	0	1	0	-	1	0	0	0	-	0	3
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.7	0.0	-	0.6	0.0	10.0	0.0	-	1.9	0.0	0.0	-	-	0.0	0.4
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Lake Mary Ronan Rd & US 93
Site Code: 03
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (12:45 PM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rimrock Dr & US 93
Site Code: 04
Start Date: 06/20/2024

Turning Movement Data

Start Time	US 93 Northbound				US 93 Southbound				Rimrock Dr Eastbound				Rollins Lakeshore Dr Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
12:00 AM	0	3	0	3	0	4	0	4	0	0	0	0	0	0	0	0	7
12:15 AM	0	1	0	1	0	3	0	3	0	0	0	0	0	0	0	0	4
12:30 AM	0	4	0	4	0	3	0	3	0	0	0	0	0	0	0	0	7
12:45 AM	0	4	0	4	0	2	0	2	0	0	0	0	0	0	0	0	6
Hourly Total	0	12	0	12	0	12	0	12	0	0	0	0	0	0	0	0	24
1:00 AM	0	4	0	4	0	3	0	3	0	0	0	0	0	0	0	0	7
1:15 AM	0	2	0	2	0	3	0	3	0	0	0	0	0	0	0	0	5
1:30 AM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
1:45 AM	0	3	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
Hourly Total	0	10	0	10	0	8	0	8	0	0	0	0	0	0	0	0	18
2:00 AM	0	1	0	1	0	3	0	3	0	0	0	0	0	0	0	0	4
2:15 AM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
2:30 AM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
2:45 AM	0	6	0	6	0	4	0	4	0	0	0	0	0	0	0	0	10
Hourly Total	0	11	0	11	0	9	0	9	0	0	0	0	0	0	0	0	20
3:00 AM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
3:15 AM	0	4	0	4	0	2	0	2	0	0	0	0	0	0	0	0	6
3:30 AM	0	7	0	7	0	1	0	1	0	0	0	0	0	0	0	0	8
3:45 AM	0	4	0	4	0	1	0	1	0	0	0	0	0	0	0	0	5
Hourly Total	0	17	0	17	0	5	0	5	0	0	0	0	0	0	0	0	22
4:00 AM	0	5	0	5	0	1	0	1	0	0	0	0	0	0	1	1	7
4:15 AM	0	6	0	6	0	5	0	5	0	0	0	0	0	0	0	0	11
4:30 AM	0	3	0	3	0	7	0	7	0	0	0	0	0	0	0	0	10
4:45 AM	0	5	0	5	0	4	0	4	0	0	0	0	0	0	0	0	9
Hourly Total	0	19	0	19	0	17	0	17	0	0	0	0	0	0	1	1	37
5:00 AM	0	13	0	13	0	6	0	6	0	0	0	0	0	0	0	0	19
5:15 AM	0	10	0	10	0	8	0	8	0	0	0	0	0	0	0	0	18
5:30 AM	0	16	0	16	0	7	0	7	0	0	0	0	0	0	1	1	24
5:45 AM	0	21	0	21	0	16	0	16	0	0	0	0	0	0	0	0	37
Hourly Total	0	60	0	60	0	37	0	37	0	0	0	0	0	0	1	1	98
6:00 AM	0	22	0	22	0	9	0	9	1	0	0	1	0	0	0	0	32
6:15 AM	1	31	0	32	0	16	0	16	0	0	0	0	0	0	0	0	48
6:30 AM	0	34	0	34	0	33	1	34	1	0	0	1	0	0	0	0	69
6:45 AM	0	31	0	31	0	34	0	34	1	0	0	1	0	0	0	0	66
Hourly Total	1	118	0	119	0	92	1	93	3	0	0	3	0	0	0	0	215
7:00 AM	0	39	0	39	0	33	0	33	0	0	0	0	0	0	2	2	74
7:15 AM	1	45	0	46	1	35	0	36	2	0	0	2	1	0	0	1	85
7:30 AM	0	37	0	37	0	45	0	45	0	0	0	0	0	0	0	0	82
7:45 AM	0	33	0	33	0	42	0	42	2	0	0	2	0	0	0	0	77
Hourly Total	1	154	0	155	1	155	0	156	4	0	0	4	1	0	2	3	318
8:00 AM	0	39	0	39	2	61	0	63	1	0	0	1	1	0	1	2	105
8:15 AM	0	44	0	44	0	56	0	56	0	0	0	0	1	0	0	1	101
8:30 AM	0	48	0	48	1	47	0	48	0	0	0	0	0	0	1	1	97
8:45 AM	0	33	0	33	0	63	0	63	1	0	0	1	1	0	2	3	100
Hourly Total	0	164	0	164	3	227	0	230	2	0	0	2	3	0	4	7	403
9:00 AM	0	43	0	43	0	55	0	55	0	0	0	0	0	0	1	1	99
9:15 AM	0	65	0	65	2	63	0	65	0	0	0	0	0	0	0	0	130
9:30 AM	0	51	0	51	1	71	0	72	2	0	0	2	1	0	2	3	128
9:45 AM	0	65	0	65	0	61	0	61	0	0	0	0	1	0	0	1	127
Hourly Total	0	224	0	224	3	250	0	253	2	0	0	2	2	0	3	5	484
10:00 AM	0	60	0	60	0	74	0	74	1	0	1	2	0	0	0	0	136
10:15 AM	0	55	1	56	0	71	1	72	0	0	0	0	0	0	0	0	128
10:30 AM	0	58	2	60	1	55	0	56	0	0	0	0	1	0	1	2	118
10:45 AM	0	63	0	63	0	77	1	78	1	0	0	1	0	0	0	0	142
Hourly Total	0	236	3	239	1	277	2	280	2	0	1	3	1	0	1	2	524
11:00 AM	0	63	0	63	1	69	0	70	0	0	0	0	2	0	3	5	138
11:15 AM	0	72	0	72	1	71	0	72	1	0	0	1	0	0	2	2	147
11:30 AM	0	53	1	54	1	67	3	71	1	1	0	2	0	0	0	0	127
11:45 AM	0	70	1	71	2	68	0	70	0	0	0	0	0	0	0	0	141
Hourly Total	0	258	2	260	5	275	3	283	2	1	0	3	2	0	5	7	553

12:00 PM	1	64	2	67	1	64	2	67	0	0	0	0	0	0	0	0	134
12:15 PM	0	52	0	52	1	71	1	73	0	0	1	1	0	0	1	1	127
12:30 PM	0	63	0	63	0	68	1	69	0	0	0	0	0	0	1	1	133
12:45 PM	0	58	0	58	1	64	0	65	0	0	0	0	0	0	0	0	123
Hourly Total	1	237	2	240	3	267	4	274	0	0	1	1	0	0	2	2	517
1:00 PM	0	64	1	65	0	73	0	73	0	0	0	0	1	0	1	2	140
1:15 PM	0	64	0	64	0	78	0	78	0	0	0	0	1	0	2	3	145
1:30 PM	1	64	0	65	4	82	0	86	1	0	0	1	0	0	0	0	152
1:45 PM	0	58	0	58	2	76	0	78	0	0	0	0	0	0	2	2	138
Hourly Total	1	250	1	252	6	309	0	315	1	0	0	1	2	0	5	7	575
2:00 PM	0	78	1	79	0	69	1	70	0	0	0	0	1	0	2	3	152
2:15 PM	0	58	0	58	1	59	0	60	0	0	0	0	0	0	1	1	119
2:30 PM	0	62	1	63	0	72	1	73	0	0	0	0	0	0	1	1	137
2:45 PM	0	52	0	52	1	72	0	73	0	0	0	0	0	0	0	0	125
Hourly Total	0	250	2	252	2	272	2	276	0	0	0	0	1	0	4	5	533
3:00 PM	0	82	1	83	3	70	0	73	1	0	0	1	0	0	0	0	157
3:15 PM	0	73	2	75	1	87	0	88	0	0	0	0	0	0	3	3	166
3:30 PM	0	72	0	72	2	70	0	72	2	0	0	2	1	1	2	4	150
3:45 PM	0	93	0	93	0	74	2	76	1	0	0	1	0	0	0	0	170
Hourly Total	0	320	3	323	6	301	2	309	4	0	0	4	1	1	5	7	643
4:00 PM	0	78	0	78	0	65	3	68	1	0	0	1	2	0	1	3	150
4:15 PM	0	84	0	84	0	77	0	77	0	0	1	1	0	0	1	1	163
4:30 PM	0	79	0	79	0	79	1	80	0	0	0	0	0	0	1	1	160
4:45 PM	0	78	1	79	0	58	1	59	0	0	0	0	1	0	0	1	139
Hourly Total	0	319	1	320	0	279	5	284	1	0	1	2	3	0	3	6	612
5:00 PM	0	79	1	80	2	73	2	77	0	0	0	0	0	0	2	2	159
5:15 PM	0	69	0	69	0	66	1	67	0	0	0	0	0	0	0	0	136
5:30 PM	0	61	0	61	0	68	1	69	0	1	0	1	0	0	1	1	132
5:45 PM	0	67	0	67	1	61	0	62	0	1	0	1	0	0	1	1	131
Hourly Total	0	276	1	277	3	268	4	275	0	2	0	2	0	0	4	4	558
6:00 PM	1	52	0	53	0	58	0	58	3	0	0	3	1	0	0	1	115
6:15 PM	0	50	1	51	0	68	1	69	0	0	0	0	1	0	0	1	121
6:30 PM	0	47	1	48	0	45	1	46	0	0	0	0	1	0	0	1	95
6:45 PM	0	40	2	42	1	37	0	38	1	0	0	1	0	0	1	1	82
Hourly Total	1	189	4	194	1	208	2	211	4	0	0	4	3	0	1	4	413
7:00 PM	0	41	1	42	1	44	1	46	0	0	0	0	1	0	0	1	89
7:15 PM	0	46	0	46	0	35	0	35	0	0	0	0	1	0	0	1	82
7:30 PM	0	53	0	53	1	36	0	37	0	0	0	0	0	0	0	0	90
7:45 PM	0	35	1	36	1	37	0	38	0	0	0	0	0	0	0	0	74
Hourly Total	0	175	2	177	3	152	1	156	0	0	0	0	2	0	0	2	335
8:00 PM	0	25	0	25	0	29	0	29	0	0	0	0	0	0	1	1	55
8:15 PM	0	39	0	39	0	33	0	33	0	0	0	0	0	0	1	1	73
8:30 PM	0	38	0	38	1	32	1	34	0	0	0	0	0	0	0	0	72
8:45 PM	0	31	1	32	0	27	0	27	0	0	0	0	1	0	1	2	61
Hourly Total	0	133	1	134	1	121	1	123	0	0	0	0	1	0	3	4	261
9:00 PM	0	31	1	32	0	22	1	23	0	0	0	0	1	0	0	1	56
9:15 PM	0	26	0	26	2	12	1	15	0	0	0	0	0	0	0	0	41
9:30 PM	0	25	0	25	0	9	0	9	0	0	0	0	1	0	0	1	35
9:45 PM	0	20	0	20	0	15	0	15	0	0	1	1	0	0	0	0	36
Hourly Total	0	102	1	103	2	58	2	62	0	0	1	1	2	0	0	2	168
10:00 PM	0	14	0	14	0	13	0	13	0	0	0	0	0	1	0	1	28
10:15 PM	0	15	0	15	0	19	0	19	0	0	1	1	0	0	0	0	35
10:30 PM	0	12	0	12	1	17	0	18	0	0	0	0	0	0	0	0	30
10:45 PM	0	10	1	11	0	16	0	16	0	0	0	0	0	0	0	0	27
Hourly Total	0	51	1	52	1	65	0	66	0	0	1	1	0	1	0	1	120
11:00 PM	0	12	0	12	1	12	0	13	0	0	0	0	0	0	1	1	26
11:15 PM	0	10	0	10	0	7	1	8	0	0	0	0	0	0	0	0	18
11:30 PM	0	5	0	5	0	4	0	4	0	0	0	0	0	0	0	0	9
11:45 PM	0	6	0	6	0	7	0	7	0	0	0	0	0	0	0	0	13
Hourly Total	0	33	0	33	1	30	1	32	0	0	0	0	0	0	1	1	66
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM	0	8	0	8	0	8	0	8	0	0	0	0	0	0	0	0	16
12:15 AM	0	9	0	9	0	4	0	4	0	0	0	0	0	0	0	0	13
12:30 AM	0	4	0	4	0	4	1	5	0	0	0	0	0	0	0	0	9
12:45 AM	0	3	0	3	0	3	0	3	0	0	0	0	0	0	0	0	6
Hourly Total	0	24	0	24	0	19	1	20	0	0	0	0	0	0	0	0	44
1:00 AM	0	6	1	7	0	3	0	3	0	0	0	0	0	0	0	0	10
1:15 AM	0	9	0	9	1	5	0	6	0	0	0	0	0	0	0	0	15
1:30 AM	0	4	0	4	0	5	0	5	0	0	0	0	0	0	0	0	9
1:45 AM	0	6	0	6	0	1	0	1	0	0	0	0	0	0	0	0	7
Hourly Total	0	25	1	26	1	14	0	15	0	0	0	0	0	0	0	0	41
2:00 AM	0	3	0	3	0	3	0	3	0	0	0	0	0	0	0	0	6
2:15 AM	0	7	0	7	0	3	0	3	0	0	0	0	0	0	0	0	10
2:30 AM	0	4	0	4	0	1	0	1	0	0	0	0	0	0	0	0	5
2:45 AM	0	4	0	4	0	1	0	1	0	0	0	0	0	0	0	0	5
Hourly Total	0	18	0	18	0	8	0	8	0	0	0	0	0	0	0	0	26
3:00 AM	0	3	0	3	0	3	0	3	0	0	0	0	0	0	0	0	6

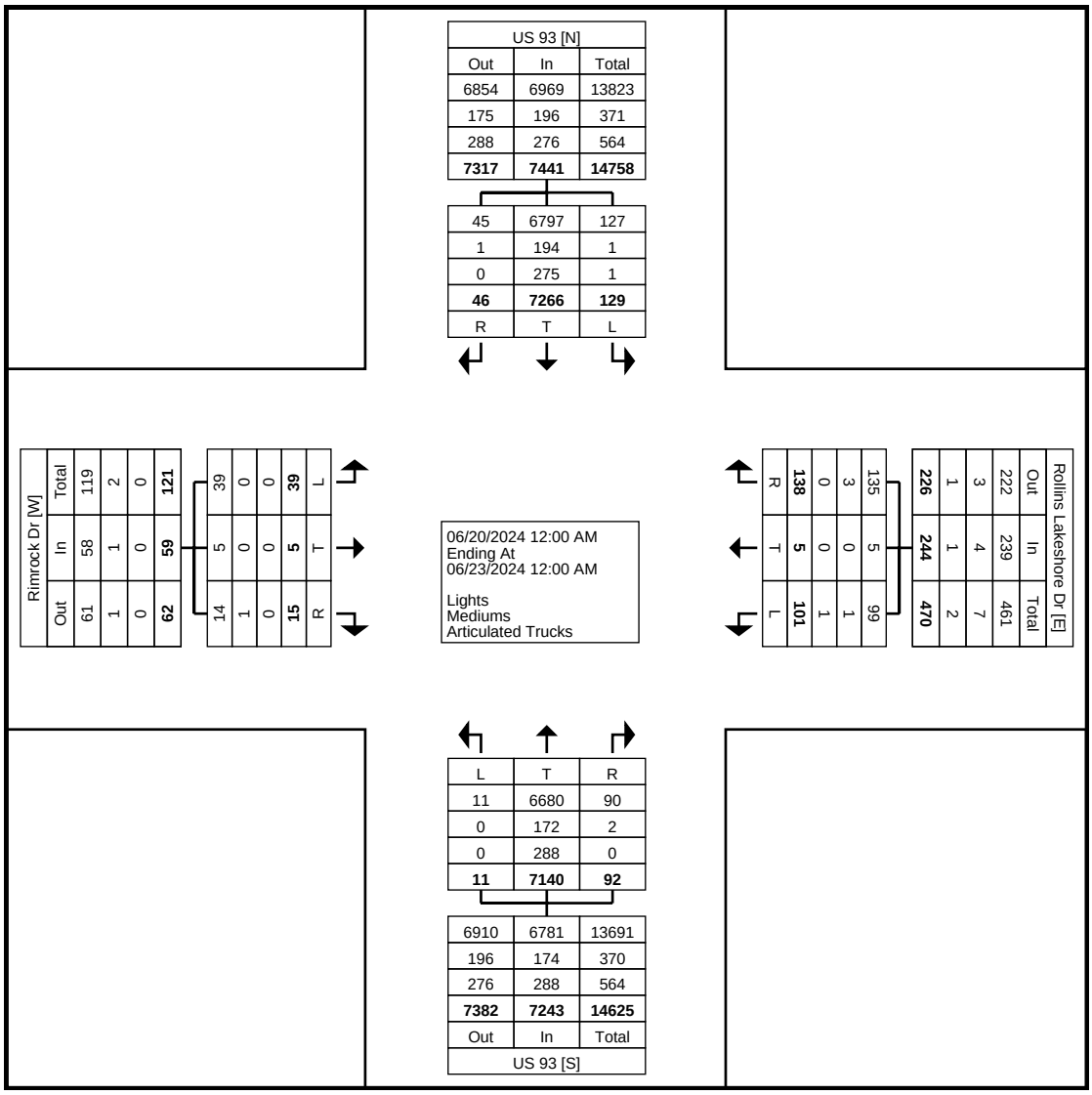
3:15 AM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
3:30 AM	0	3	0	3	0	5	0	5	0	0	0	0	0	0	0	0	8
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	8	0	8	0	8	0	8	0	0	0	0	0	0	0	0	16
4:00 AM	0	3	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
4:15 AM	0	3	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
Hourly Total	0	8	0	8	0	4	0	4	0	0	0	0	0	0	0	0	12
5:00 AM	0	2	0	2	0	5	0	5	0	0	0	0	0	0	0	0	7
5:15 AM	0	6	0	6	0	8	0	8	0	0	0	0	0	0	0	0	14
5:30 AM	0	5	0	5	0	5	0	5	0	0	0	0	0	0	1	1	11
5:45 AM	0	4	0	4	0	12	0	12	0	0	0	0	0	0	0	0	16
Hourly Total	0	17	0	17	0	30	0	30	0	0	0	0	0	0	1	1	48
6:00 AM	0	9	0	9	0	18	0	18	0	0	0	0	0	0	0	0	27
6:15 AM	0	8	0	8	0	23	0	23	0	1	0	1	0	0	0	0	32
6:30 AM	0	9	0	9	0	23	0	23	0	0	0	0	0	0	0	0	32
6:45 AM	0	14	0	14	0	22	0	22	0	0	0	0	0	0	0	0	36
Hourly Total	0	40	0	40	0	86	0	86	0	1	0	1	0	0	0	0	127
7:00 AM	0	14	0	14	0	22	0	22	0	0	0	0	1	0	0	1	37
7:15 AM	0	15	0	15	0	41	0	41	0	0	0	0	0	0	0	0	56
7:30 AM	0	21	0	21	0	52	0	52	0	0	0	0	0	0	0	0	73
7:45 AM	0	28	0	28	0	41	0	41	1	0	0	1	0	0	1	1	71
Hourly Total	0	78	0	78	0	156	0	156	1	0	0	1	1	0	1	2	237
8:00 AM	0	24	0	24	2	34	0	36	0	0	0	0	0	0	2	2	62
8:15 AM	0	25	0	25	0	38	0	38	0	0	1	1	0	0	0	0	64
8:30 AM	0	39	0	39	0	63	0	63	0	0	0	0	0	0	0	0	102
8:45 AM	0	24	2	26	1	68	0	69	1	0	0	1	1	0	2	3	99
Hourly Total	0	112	2	114	3	203	0	206	1	0	1	2	1	0	4	5	327
9:00 AM	0	38	1	39	2	53	0	55	0	0	1	1	1	1	2	4	99
9:15 AM	1	58	2	61	2	61	1	64	0	0	1	1	1	0	0	1	127
9:30 AM	1	76	3	80	7	51	0	58	1	0	1	2	0	0	0	0	140
9:45 AM	0	68	10	78	6	65	0	71	0	0	0	0	0	0	1	1	150
Hourly Total	2	240	16	258	17	230	1	248	1	0	3	4	2	1	3	6	516
10:00 AM	0	57	13	70	22	67	0	89	0	0	0	0	0	0	1	1	160
10:15 AM	0	72	10	82	10	70	0	80	0	0	0	0	0	0	1	1	163
10:30 AM	0	64	2	66	2	78	1	81	0	1	0	1	1	0	0	1	149
10:45 AM	0	59	0	59	1	58	0	59	0	0	0	0	0	0	1	1	119
Hourly Total	0	252	25	277	35	273	1	309	0	1	0	1	1	0	3	4	591
11:00 AM	0	66	1	67	1	71	1	73	0	0	0	0	3	0	0	3	143
11:15 AM	0	64	1	65	0	67	0	67	0	0	0	0	1	0	2	3	135
11:30 AM	0	48	2	50	1	60	0	61	0	0	0	0	0	0	2	2	113
11:45 AM	0	56	0	56	0	103	0	103	0	0	0	0	1	0	1	2	161
Hourly Total	0	234	4	238	2	301	1	304	0	0	0	0	5	0	5	10	552
12:00 PM	0	42	0	42	1	76	0	77	0	0	0	0	12	0	12	24	143
12:15 PM	0	70	1	71	0	67	1	68	0	0	0	0	11	1	10	22	161
12:30 PM	0	57	1	58	1	93	0	94	0	0	0	0	6	0	4	10	162
12:45 PM	0	62	0	62	1	77	0	78	0	0	0	0	14	0	18	32	172
Hourly Total	0	231	2	233	3	313	1	317	0	0	0	0	43	1	44	88	638
1:00 PM	1	63	0	64	0	81	0	81	0	0	1	1	7	0	10	17	163
1:15 PM	1	68	0	69	0	100	1	101	0	0	0	0	5	0	2	7	177
1:30 PM	0	68	1	69	0	74	0	74	0	0	0	0	3	0	0	3	146
1:45 PM	0	72	0	72	0	52	0	52	0	0	0	0	0	0	3	3	127
Hourly Total	2	271	1	274	0	307	1	308	0	0	1	1	15	0	15	30	613
2:00 PM	0	71	1	72	3	53	1	57	1	0	2	3	0	0	1	1	133
2:15 PM	0	65	0	65	2	64	1	67	0	0	0	0	0	0	0	0	132
2:30 PM	0	73	1	74	1	82	0	83	0	0	0	0	0	0	1	1	158
2:45 PM	0	63	0	63	0	72	1	73	0	0	0	0	0	0	0	0	136
Hourly Total	0	272	2	274	6	271	3	280	1	0	2	3	0	0	2	2	559
3:00 PM	1	80	1	82	1	66	0	67	0	0	0	0	1	0	1	2	151
3:15 PM	0	65	2	67	1	49	0	50	1	0	0	1	0	0	0	0	118
3:30 PM	0	106	0	106	2	73	0	75	0	0	1	1	0	0	2	2	184
3:45 PM	0	69	0	69	0	63	0	63	0	0	0	0	0	1	2	3	135
Hourly Total	1	320	3	324	4	251	0	255	1	0	1	2	1	1	5	7	588
4:00 PM	0	70	0	70	2	61	0	63	0	0	1	1	0	0	0	0	134
4:15 PM	1	129	1	131	2	67	0	69	1	0	0	1	0	0	2	2	203
4:30 PM	0	86	0	86	0	56	2	58	0	0	1	1	1	0	2	3	148
4:45 PM	0	72	0	72	0	49	0	49	1	0	0	1	1	0	0	1	123
Hourly Total	1	357	1	359	4	233	2	239	2	0	2	4	2	0	4	6	608
5:00 PM	0	74	0	74	0	69	1	70	1	0	0	1	0	0	0	0	145
5:15 PM	0	49	1	50	1	42	0	43	0	0	0	0	1	0	1	2	95
5:30 PM	0	86	2	88	0	53	0	53	0	0	0	0	0	0	0	0	141
5:45 PM	0	62	0	62	0	41	0	41	1	0	0	1	1	0	0	1	105
Hourly Total	0	271	3	274	1	205	1	207	2	0	0	2	2	0	1	3	486
6:00 PM	0	53	2	55	1	58	0	59	1	0	0	1	0	0	0	0	115
6:15 PM	0	55	0	55	1	58	1	60	0	0	0	0	1	0	2	3	118
6:30 PM	0	46	1	47	0	64	0	64	1	0	0	1	2	0	0	2	114

6:45 PM	0	47	0	47	0	57	0	57	1	0	0	1	0	0	0	0	105
Hourly Total	0	201	3	204	2	237	1	240	3	0	0	3	3	0	2	5	452
7:00 PM	0	36	0	36	2	37	0	39	0	0	0	0	1	0	1	2	77
7:15 PM	0	43	0	43	2	27	0	29	1	0	0	1	0	0	1	1	74
7:30 PM	0	51	1	52	0	27	0	27	0	0	0	0	0	0	1	1	80
7:45 PM	0	37	0	37	0	27	0	27	0	0	0	0	0	0	0	0	64
Hourly Total	0	167	1	168	4	118	0	122	1	0	0	1	1	0	3	4	295
8:00 PM	0	28	1	29	2	20	0	22	1	0	0	1	0	0	0	0	52
8:15 PM	0	34	0	34	0	26	1	27	0	0	0	0	0	0	0	0	61
8:30 PM	0	29	0	29	0	24	0	24	0	0	0	0	0	0	0	0	53
8:45 PM	0	33	1	34	0	29	0	29	0	0	0	0	0	0	0	0	63
Hourly Total	0	124	2	126	2	99	1	102	1	0	0	1	0	0	0	0	229
9:00 PM	0	40	0	40	0	25	0	25	0	0	0	0	0	0	0	0	65
9:15 PM	0	32	1	33	0	19	0	19	0	0	0	0	0	0	0	0	52
9:30 PM	0	33	0	33	1	23	0	24	0	0	0	0	0	0	0	0	57
9:45 PM	0	25	0	25	0	14	1	15	0	0	0	0	0	0	0	0	40
Hourly Total	0	130	1	131	1	81	1	83	0	0	0	0	0	0	0	0	214
10:00 PM	0	20	0	20	1	25	0	26	0	0	0	0	0	0	0	0	46
10:15 PM	0	15	0	15	0	19	1	20	0	0	0	0	0	0	0	0	35
10:30 PM	0	20	0	20	0	7	0	7	0	0	0	0	0	0	0	0	27
10:45 PM	0	12	1	13	0	20	0	20	0	0	0	0	0	0	0	0	33
Hourly Total	0	67	1	68	1	71	1	73	0	0	0	0	0	0	0	0	141
11:00 PM	0	13	0	13	0	16	0	16	0	0	0	0	0	0	0	0	29
11:15 PM	0	10	0	10	0	16	0	16	0	0	0	0	0	0	0	0	26
11:30 PM	0	14	0	14	0	12	0	12	0	0	0	0	0	0	0	0	26
11:45 PM	0	18	0	18	1	10	0	11	0	0	0	0	0	0	0	0	29
Hourly Total	0	55	0	55	1	54	0	55	0	0	0	0	0	0	0	0	110
Grand Total	11	7140	92	7243	129	7266	46	7441	39	5	15	59	101	5	138	244	14987
Approach %	0.2	98.6	1.3	-	1.7	97.6	0.6	-	66.1	8.5	25.4	-	41.4	2.0	56.6	-	-
Total %	0.1	47.6	0.6	48.3	0.9	48.5	0.3	49.6	0.3	0.0	0.1	0.4	0.7	0.0	0.9	1.6	-
Lights	11	6680	90	6781	127	6797	45	6969	39	5	14	58	99	5	135	239	14047
% Lights	100.0	93.6	97.8	93.6	98.4	93.5	97.8	93.7	100.0	100.0	93.3	98.3	98.0	100.0	97.8	98.0	93.7
Mediums	0	172	2	174	1	194	1	196	0	0	1	1	1	0	3	4	375
% Mediums	0.0	2.4	2.2	2.4	0.8	2.7	2.2	2.6	0.0	0.0	6.7	1.7	1.0	0.0	2.2	1.6	2.5
Articulated Trucks	0	288	0	288	1	275	0	276	0	0	0	0	1	0	0	1	565
% Articulated Trucks	0.0	4.0	0.0	4.0	0.8	3.8	0.0	3.7	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.4	3.8

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rimrock Dr & US 93
Site Code: 04
Start Date: 06/20/2024



Turning Movement Data Plot

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rimrock Dr & US 93
Site Code: 04
Start Date: 06/20/2024

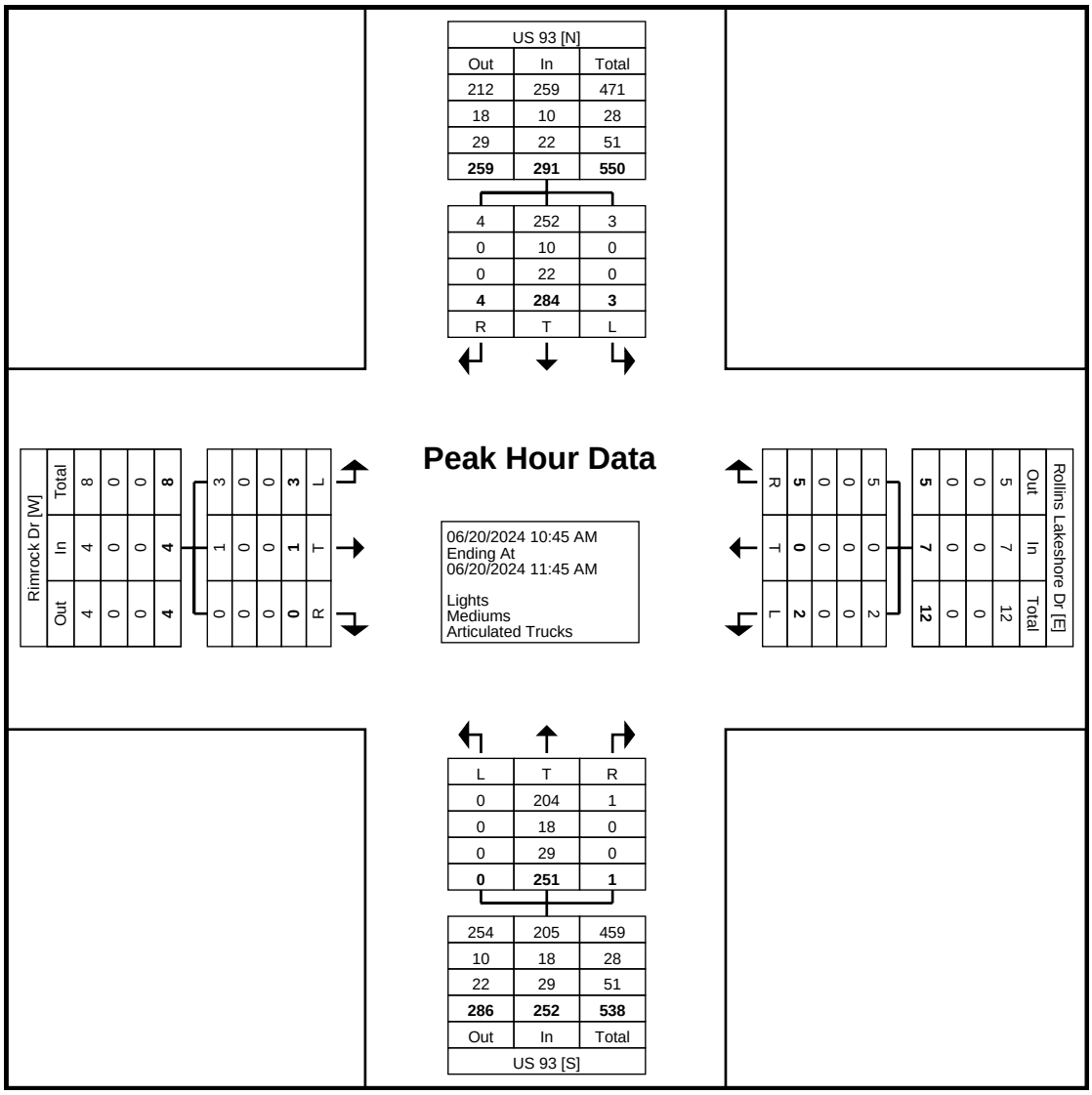
Turning Movement Peak Hour Data (10:45 AM)

Start Time	US 93 Northbound				US 93 Southbound				Rimrock Dr Eastbound				Rollins Lakeshore Dr Westbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
10:45 AM	0	63	0	63	0	77	1	78	1	0	0	1	0	0	0	0	142
11:00 AM	0	63	0	63	1	69	0	70	0	0	0	0	2	0	3	5	138
11:15 AM	0	72	0	72	1	71	0	72	1	0	0	1	0	0	2	2	147
11:30 AM	0	53	1	54	1	67	3	71	1	1	0	2	0	0	0	0	127
Total	0	251	1	252	3	284	4	291	3	1	0	4	2	0	5	7	554
Approach %	0.0	99.6	0.4	-	1.0	97.6	1.4	-	75.0	25.0	0.0	-	28.6	0.0	71.4	-	-
Total %	0.0	45.3	0.2	45.5	0.5	51.3	0.7	52.5	0.5	0.2	0.0	0.7	0.4	0.0	0.9	1.3	-
PHF	0.000	0.872	0.250	0.875	0.750	0.922	0.333	0.933	0.750	0.250	0.000	0.500	0.250	0.000	0.417	0.350	0.942
Lights	0	204	1	205	3	252	4	259	3	1	0	4	2	0	5	7	475
% Lights	-	81.3	100.0	81.3	100.0	88.7	100.0	89.0	100.0	100.0	-	100.0	100.0	-	100.0	100.0	85.7
Mediums	0	18	0	18	0	10	0	10	0	0	0	0	0	0	0	0	28
% Mediums	-	7.2	0.0	7.1	0.0	3.5	0.0	3.4	0.0	0.0	-	0.0	0.0	-	0.0	0.0	5.1
Articulated Trucks	0	29	0	29	0	22	0	22	0	0	0	0	0	0	0	0	51
% Articulated Trucks	-	11.6	0.0	11.5	0.0	7.7	0.0	7.6	0.0	0.0	-	0.0	0.0	-	0.0	0.0	9.2

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rimrock Dr & US 93
Site Code: 04
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (10:45 AM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rimrock Dr & US 93
Site Code: 04
Start Date: 06/20/2024

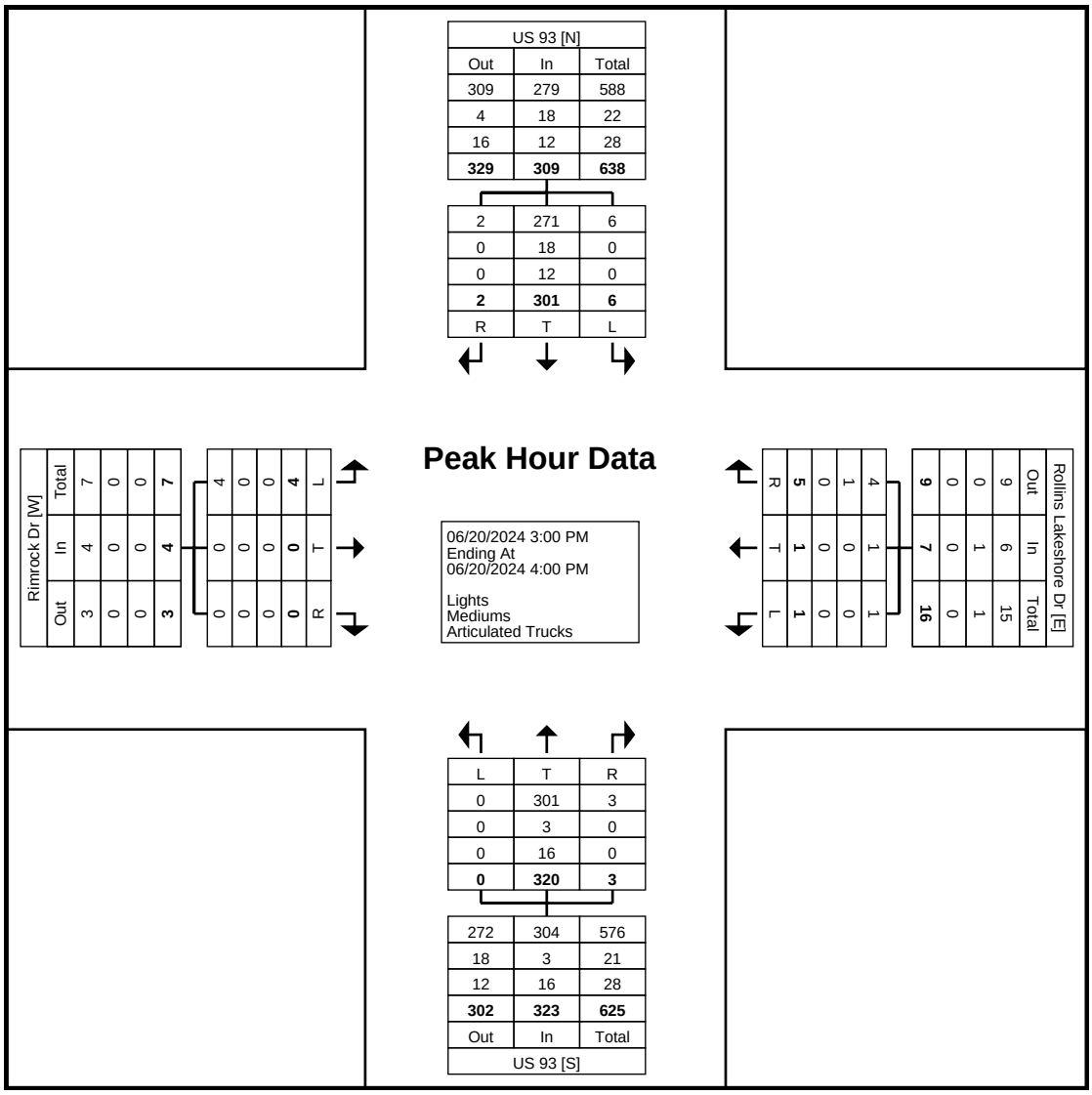
Turning Movement Peak Hour Data (3:00 PM)

Start Time	US 93 Northbound				US 93 Southbound				Rimrock Dr Eastbound				Rollins Lakeshore Dr Westbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
3:00 PM	0	82	1	83	3	70	0	73	1	0	0	1	0	0	0	0	157
3:15 PM	0	73	2	75	1	87	0	88	0	0	0	0	0	0	3	3	166
3:30 PM	0	72	0	72	2	70	0	72	2	0	0	2	1	1	2	4	150
3:45 PM	0	93	0	93	0	74	2	76	1	0	0	1	0	0	0	0	170
Total	0	320	3	323	6	301	2	309	4	0	0	4	1	1	5	7	643
Approach %	0.0	99.1	0.9	-	1.9	97.4	0.6	-	100.0	0.0	0.0	-	14.3	14.3	71.4	-	-
Total %	0.0	49.8	0.5	50.2	0.9	46.8	0.3	48.1	0.6	0.0	0.0	0.6	0.2	0.2	0.8	1.1	-
PHF	0.000	0.860	0.375	0.868	0.500	0.865	0.250	0.878	0.500	0.000	0.000	0.500	0.250	0.250	0.417	0.438	0.946
Lights	0	301	3	304	6	271	2	279	4	0	0	4	1	1	4	6	593
% Lights	-	94.1	100.0	94.1	100.0	90.0	100.0	90.3	100.0	-	-	100.0	100.0	100.0	80.0	85.7	92.2
Mediums	0	3	0	3	0	18	0	18	0	0	0	0	0	0	1	1	22
% Mediums	-	0.9	0.0	0.9	0.0	6.0	0.0	5.8	0.0	-	-	0.0	0.0	0.0	20.0	14.3	3.4
Articulated Trucks	0	16	0	16	0	12	0	12	0	0	0	0	0	0	0	0	28
% Articulated Trucks	-	5.0	0.0	5.0	0.0	4.0	0.0	3.9	0.0	-	-	0.0	0.0	0.0	0.0	0.0	4.4

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rimrock Dr & US 93
Site Code: 04
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (3:00 PM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rimrock Dr & US 93
Site Code: 04
Start Date: 06/20/2024

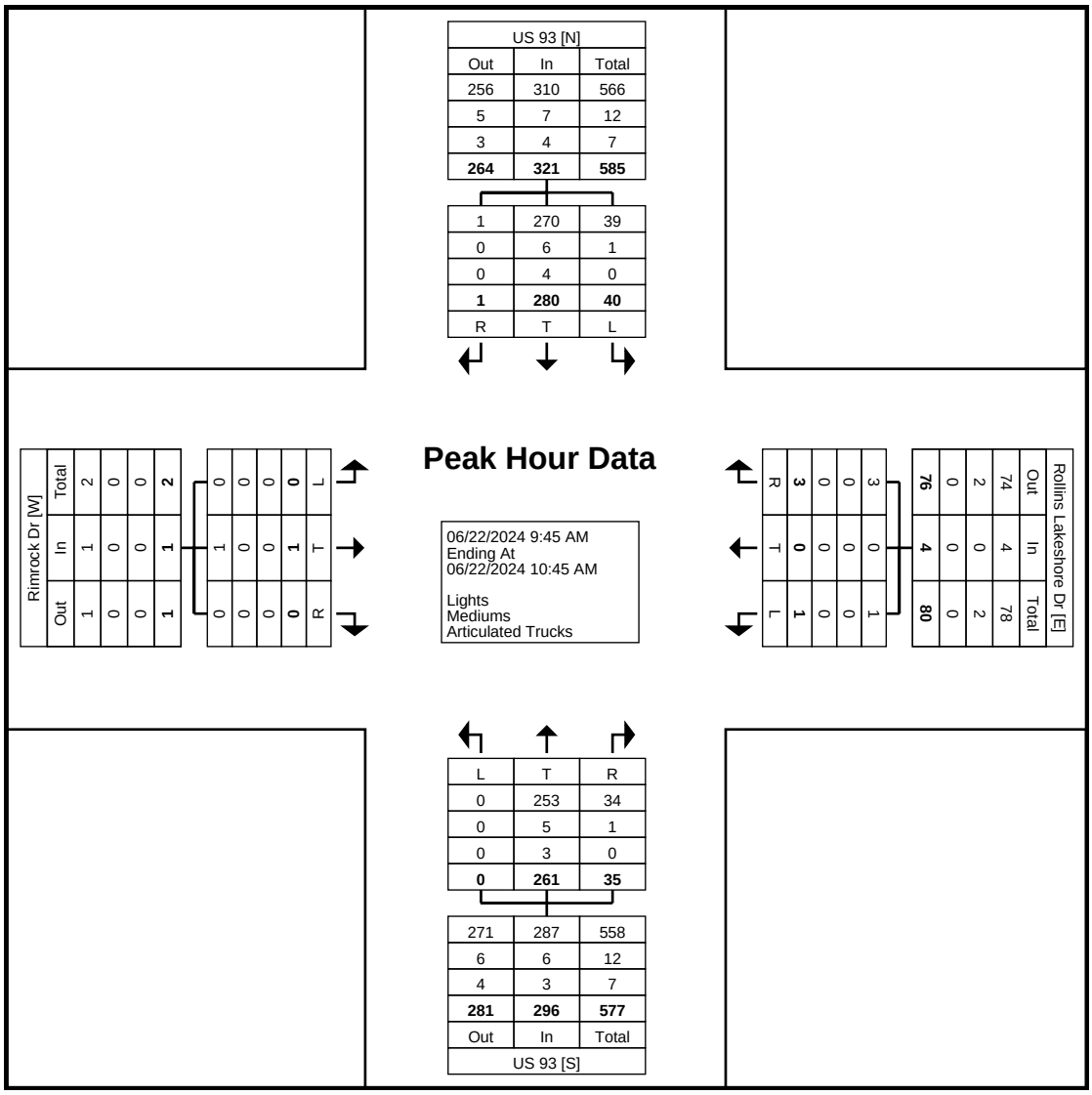
Turning Movement Peak Hour Data (9:45 AM)

Start Time	US 93 Northbound				US 93 Southbound				Rimrock Dr Eastbound				Rollins Lakeshore Dr Westbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
9:45 AM	0	68	10	78	6	65	0	71	0	0	0	0	0	0	1	1	150
10:00 AM	0	57	13	70	22	67	0	89	0	0	0	0	0	0	1	1	160
10:15 AM	0	72	10	82	10	70	0	80	0	0	0	0	0	0	1	1	163
10:30 AM	0	64	2	66	2	78	1	81	0	1	0	1	1	0	0	1	149
Total	0	261	35	296	40	280	1	321	0	1	0	1	1	0	3	4	622
Approach %	0.0	88.2	11.8	-	12.5	87.2	0.3	-	0.0	100.0	0.0	-	25.0	0.0	75.0	-	-
Total %	0.0	42.0	5.6	47.6	6.4	45.0	0.2	51.6	0.0	0.2	0.0	0.2	0.2	0.0	0.5	0.6	-
PHF	0.000	0.906	0.673	0.902	0.455	0.897	0.250	0.902	0.000	0.250	0.000	0.250	0.250	0.000	0.750	1.000	0.954
Lights	0	253	34	287	39	270	1	310	0	1	0	1	1	0	3	4	602
% Lights	-	96.9	97.1	97.0	97.5	96.4	100.0	96.6	-	100.0	-	100.0	100.0	-	100.0	100.0	96.8
Mediums	0	5	1	6	1	6	0	7	0	0	0	0	0	0	0	0	13
% Mediums	-	1.9	2.9	2.0	2.5	2.1	0.0	2.2	-	0.0	-	0.0	0.0	-	0.0	0.0	2.1
Articulated Trucks	0	3	0	3	0	4	0	4	0	0	0	0	0	0	0	0	7
% Articulated Trucks	-	1.1	0.0	1.0	0.0	1.4	0.0	1.2	-	0.0	-	0.0	0.0	-	0.0	0.0	1.1

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rimrock Dr & US 93
Site Code: 04
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (9:45 AM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rimrock Dr & US 93
Site Code: 04
Start Date: 06/20/2024

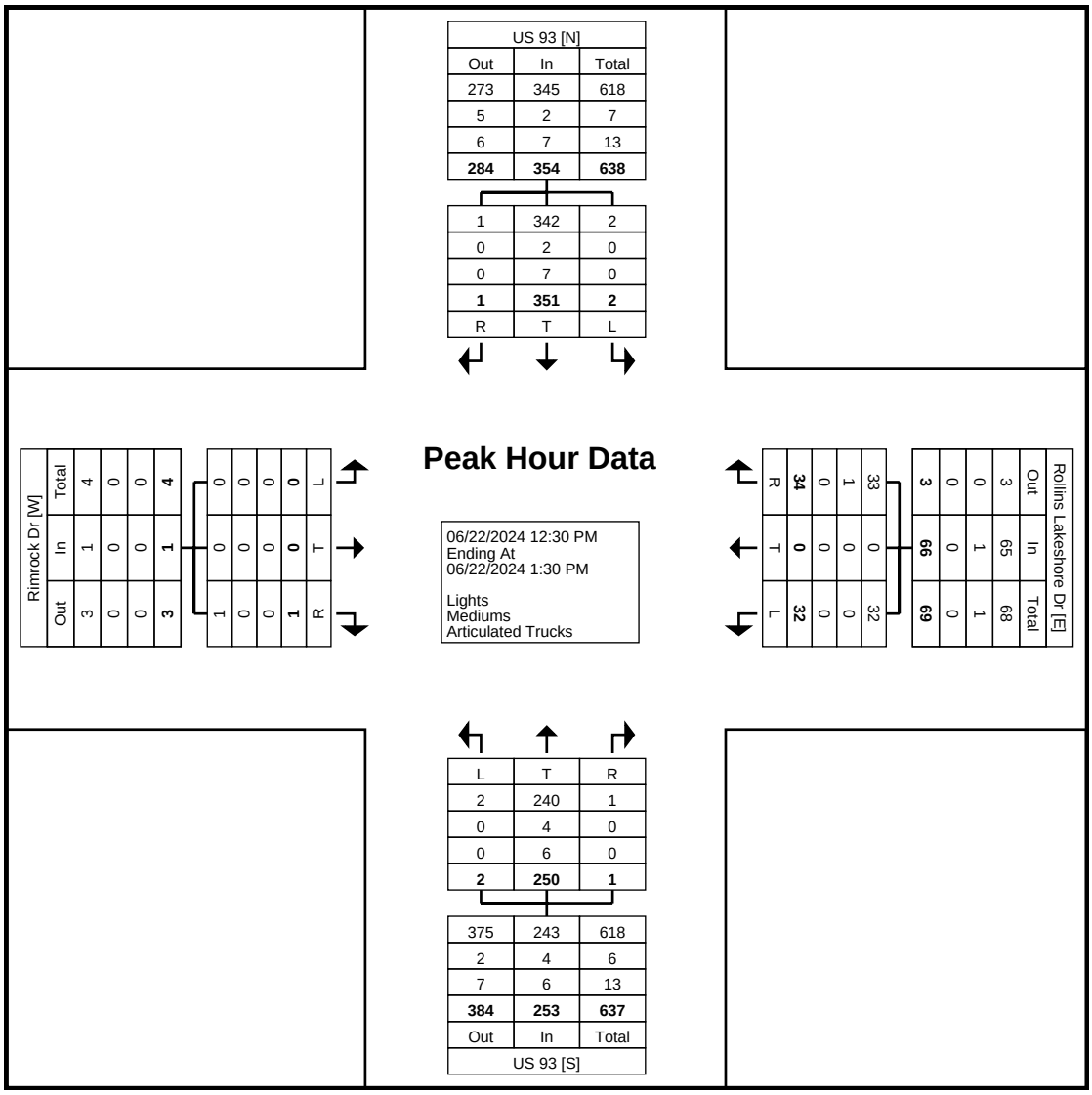
Turning Movement Peak Hour Data (12:30 PM)

Start Time	US 93 Northbound				US 93 Southbound				Rimrock Dr Eastbound				Rollins Lakeshore Dr Westbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
12:30 PM	0	57	1	58	1	93	0	94	0	0	0	0	6	0	4	10	162
12:45 PM	0	62	0	62	1	77	0	78	0	0	0	0	14	0	18	32	172
1:00 PM	1	63	0	64	0	81	0	81	0	0	1	1	7	0	10	17	163
1:15 PM	1	68	0	69	0	100	1	101	0	0	0	0	5	0	2	7	177
Total	2	250	1	253	2	351	1	354	0	0	1	1	32	0	34	66	674
Approach %	0.8	98.8	0.4	-	0.6	99.2	0.3	-	0.0	0.0	100.0	-	48.5	0.0	51.5	-	-
Total %	0.3	37.1	0.1	37.5	0.3	52.1	0.1	52.5	0.0	0.0	0.1	0.1	4.7	0.0	5.0	9.8	-
PHF	0.500	0.919	0.250	0.917	0.500	0.878	0.250	0.876	0.000	0.000	0.250	0.250	0.571	0.000	0.472	0.516	0.952
Lights	2	240	1	243	2	342	1	345	0	0	1	1	32	0	33	65	654
% Lights	100.0	96.0	100.0	96.0	100.0	97.4	100.0	97.5	-	-	100.0	100.0	100.0	-	97.1	98.5	97.0
Mediums	0	4	0	4	0	2	0	2	0	0	0	0	0	0	1	1	7
% Mediums	0.0	1.6	0.0	1.6	0.0	0.6	0.0	0.6	-	-	0.0	0.0	0.0	-	2.9	1.5	1.0
Articulated Trucks	0	6	0	6	0	7	0	7	0	0	0	0	0	0	0	0	13
% Articulated Trucks	0.0	2.4	0.0	2.4	0.0	2.0	0.0	2.0	-	-	0.0	0.0	0.0	-	0.0	0.0	1.9

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Rimrock Dr & US 93
Site Code: 04
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (12:30 PM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Adams St & US 93
Site Code: 05
Start Date: 06/20/2024

Turning Movement Data

Start Time	US 93 Northbound					US 93 Southbound					Adams St Eastbound					Adams St Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
12:00 AM	1	6	0	0	7	0	7	0	0	7	0	0	1	0	1	0	0	1	0	1	16
12:15 AM	1	4	0	0	5	0	4	0	0	4	0	0	1	0	1	0	0	0	0	0	10
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	1	8	0	0	9	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	16
Hourly Total	3	18	0	0	21	0	18	0	0	18	0	0	2	0	2	0	0	1	0	1	42
1:00 AM	0	1	0	0	1	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	6
1:15 AM	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	5
1:30 AM	1	2	0	0	3	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	7
1:45 AM	0	2	0	0	2	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	9
Hourly Total	1	8	0	0	9	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	27
2:00 AM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3
2:15 AM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
2:30 AM	0	1	0	0	1	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	7
2:45 AM	0	9	0	0	9	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	12
Hourly Total	0	13	0	0	13	0	12	0	0	12	0	0	0	0	0	0	0	0	0	0	25
3:00 AM	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	5
3:15 AM	0	10	0	0	10	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	13
3:30 AM	0	4	0	0	4	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	5
3:45 AM	0	11	0	0	11	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	15
Hourly Total	0	28	0	0	28	0	9	0	0	9	0	1	0	0	1	0	0	0	0	0	38
4:00 AM	0	4	0	0	4	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	9
4:15 AM	0	9	0	0	9	0	8	0	0	8	1	0	0	0	1	0	0	1	0	1	19
4:30 AM	0	8	0	0	8	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	16
4:45 AM	0	8	1	0	9	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	15
Hourly Total	0	29	1	0	30	0	27	0	0	27	1	0	0	0	1	0	0	1	0	1	59
5:00 AM	0	4	0	0	4	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	13
5:15 AM	1	20	0	0	21	0	8	0	0	8	1	0	0	0	1	0	0	0	0	0	30
5:30 AM	0	20	0	0	20	0	19	0	0	19	0	0	0	0	0	0	0	0	0	0	39
5:45 AM	0	23	0	0	23	1	22	1	0	24	0	0	0	0	0	1	0	0	0	1	48
Hourly Total	1	67	0	0	68	1	58	1	0	60	1	0	0	0	1	1	0	0	0	1	130
6:00 AM	0	34	0	0	34	0	35	0	0	35	0	0	1	0	1	0	0	0	0	0	70
6:15 AM	0	51	0	0	51	1	35	1	2	37	1	0	0	0	1	0	0	1	0	1	90
6:30 AM	1	54	0	0	55	0	76	1	0	77	2	0	0	0	2	0	0	1	0	1	135
6:45 AM	1	45	3	0	49	1	69	0	2	70	1	0	0	0	1	2	0	0	0	2	122
Hourly Total	2	184	3	0	189	2	215	2	4	219	4	0	1	0	5	2	0	2	0	4	417
7:00 AM	1	65	3	0	69	1	53	0	3	54	1	0	2	0	3	0	0	1	2	1	127
7:15 AM	1	73	3	0	77	0	54	0	0	54	0	0	1	0	1	0	0	3	0	3	135
7:30 AM	3	74	0	0	77	2	77	2	0	81	0	1	3	0	4	0	0	2	0	2	164
7:45 AM	2	71	2	0	75	3	102	4	0	109	4	0	3	0	7	2	0	3	0	5	196
Hourly Total	7	283	8	0	298	6	286	6	3	298	5	1	9	0	15	2	0	9	2	11	622
8:00 AM	1	70	2	0	73	1	99	0	0	100	1	3	4	0	8	3	0	4	0	7	188
8:15 AM	7	81	3	0	91	4	94	10	0	108	3	0	3	0	6	1	0	4	0	5	210
8:30 AM	5	97	4	0	106	2	83	1	5	86	2	1	3	4	6	1	0	3	0	4	202
8:45 AM	3	86	2	0	91	2	116	2	0	120	0	0	4	0	4	4	0	3	4	7	222
Hourly Total	16	334	11	0	361	9	392	13	5	414	6	4	14	4	24	9	0	14	4	23	822
9:00 AM	3	72	2	0	77	2	90	3	4	95	2	1	3	3	6	1	0	0	0	1	179
9:15 AM	2	89	2	0	93	1	102	4	0	107	7	0	10	0	17	3	0	4	0	7	224
9:30 AM	3	111	2	0	116	5	102	1	5	108	2	0	7	1	9	2	0	8	0	10	243
9:45 AM	5	102	2	0	109	6	124	5	0	135	1	1	1	6	3	1	1	4	0	6	253
Hourly Total	13	374	8	0	395	14	418	13	9	445	12	2	21	10	35	7	1	16	0	24	899
10:00 AM	2	104	4	0	110	3	115	5	0	123	3	0	7	0	10	0	0	5	0	5	248
10:15 AM	3	105	4	0	112	4	95	3	1	102	1	0	3	0	4	2	1	5	0	8	226
10:30 AM	2	104	3	0	109	8	105	2	6	115	1	0	4	6	5	1	0	9	0	10	239
10:45 AM	2	97	3	0	102	13	121	5	4	139	0	0	5	1	5	2	0	4	3	6	252
Hourly Total	9	410	14	0	433	28	436	15	11	479	5	0	19	7	24	5	1	23	3	29	965
11:00 AM	3	125	6	0	134	5	107	3	10	115	2	0	2	9	4	3	0	3	1	6	259
11:15 AM	4	107	7	0	118	14	98	1	3	113	5	0	2	4	7	2	2	4	4	8	246
11:30 AM	2	117	7	0	126	3	119	4	3	126	0	2	4	2	6	3	0	8	4	11	269
11:45 AM	3	113	3	0	119	10	117	2	3	129	2	0	3	3	5	3	1	5	1	9	262
Hourly Total	12	462	23	0	497	32	441	10	19	483	9	2	11	18	22	11	3	20	10	34	1036

12:00 PM	1	122	4	0	127	6	121	5	4	132	1	1	3	2	5	1	0	10	0	11	275
12:15 PM	1	125	3	0	129	4	105	6	2	115	3	0	3	1	6	2	0	4	2	6	256
12:30 PM	2	113	9	0	124	2	125	2	6	129	3	3	4	3	10	1	0	3	0	4	267
12:45 PM	4	100	8	0	112	5	115	4	7	124	1	1	3	1	5	5	1	8	0	14	255
Hourly Total	8	460	24	0	492	17	466	17	19	500	8	5	13	7	26	9	1	25	2	35	1053
1:00 PM	4	103	4	0	111	8	127	5	0	140	0	2	1	1	3	5	0	5	0	10	264
1:15 PM	3	118	8	0	129	6	127	5	1	138	7	0	6	1	13	2	1	5	1	8	288
1:30 PM	3	98	2	0	103	4	110	0	11	114	2	0	3	1	5	4	0	3	0	7	229
1:45 PM	6	124	2	0	132	9	133	4	0	146	3	0	4	0	7	2	1	6	2	9	294
Hourly Total	16	443	16	0	475	27	497	14	12	538	12	2	14	3	28	13	2	19	3	34	1075
2:00 PM	5	114	1	0	120	3	118	6	15	127	3	2	5	1	10	4	0	5	0	9	266
2:15 PM	4	119	4	0	127	3	119	1	9	123	2	0	1	0	3	1	0	10	0	11	264
2:30 PM	1	117	3	0	121	7	110	6	14	123	2	0	5	5	7	0	1	4	1	5	256
2:45 PM	1	104	5	0	110	9	127	1	12	137	6	0	4	9	10	6	0	6	0	12	269
Hourly Total	11	454	13	0	478	22	474	14	50	510	13	2	15	15	30	11	1	25	1	37	1055
3:00 PM	1	107	6	0	114	3	117	6	16	126	3	0	2	1	5	2	0	4	1	6	251
3:15 PM	1	125	2	0	128	2	135	6	6	143	3	0	5	4	8	2	0	7	2	9	288
3:30 PM	6	142	4	0	152	4	144	0	5	148	1	0	3	5	4	3	0	9	0	12	316
3:45 PM	3	140	5	1	148	4	131	3	5	138	2	0	4	10	6	3	1	5	0	9	301
Hourly Total	11	514	17	1	542	13	527	15	32	555	9	0	14	20	23	10	1	25	3	36	1156
4:00 PM	7	164	4	0	175	5	132	4	5	141	0	0	6	1	6	3	0	7	0	10	332
4:15 PM	1	138	5	0	144	6	122	4	10	132	1	0	2	4	3	2	0	6	0	8	287
4:30 PM	2	142	3	0	147	4	135	1	8	140	1	0	2	0	3	4	0	6	4	10	300
4:45 PM	0	145	4	1	149	4	111	1	10	116	2	0	4	2	6	2	0	2	5	4	275
Hourly Total	10	589	16	1	615	19	500	10	33	529	4	0	14	7	18	11	0	21	9	32	1194
5:00 PM	3	161	4	0	168	8	138	4	0	150	4	0	1	1	5	3	0	3	0	6	329
5:15 PM	4	140	5	0	149	3	149	6	3	158	3	0	4	3	7	3	0	9	0	12	326
5:30 PM	5	115	1	0	121	7	130	6	14	143	3	0	5	1	8	3	0	5	0	8	280
5:45 PM	3	111	3	0	117	7	144	4	10	155	2	0	4	1	6	3	0	4	0	7	285
Hourly Total	15	527	13	0	555	25	561	20	27	606	12	0	14	6	26	12	0	21	0	33	1220
6:00 PM	0	128	3	0	131	3	120	5	8	128	1	0	3	0	4	5	1	3	0	9	272
6:15 PM	2	90	1	0	93	6	108	3	7	117	2	0	4	3	6	3	0	3	0	6	222
6:30 PM	0	92	4	1	96	8	77	2	7	87	1	0	1	0	2	4	0	5	0	9	194
6:45 PM	4	64	1	0	69	4	91	5	6	100	1	0	1	1	2	2	0	2	0	4	175
Hourly Total	6	374	9	1	389	21	396	15	28	432	5	0	9	4	14	14	1	13	0	28	863
7:00 PM	2	86	1	0	89	2	76	1	16	79	1	0	5	3	6	1	0	3	0	4	178
7:15 PM	3	79	1	0	83	7	77	3	2	87	1	0	2	5	3	2	0	3	0	5	178
7:30 PM	2	85	2	0	89	5	70	3	0	78	1	0	1	2	2	2	0	4	0	6	175
7:45 PM	5	74	3	0	82	2	60	1	5	63	2	1	2	5	5	2	1	2	0	5	155
Hourly Total	12	324	7	0	343	16	283	8	23	307	5	1	10	15	16	7	1	12	0	20	686
8:00 PM	3	51	2	0	56	5	67	0	9	72	0	0	0	9	0	1	0	3	0	4	132
8:15 PM	4	62	2	0	68	2	49	1	5	52	1	0	3	1	4	3	0	2	0	5	129
8:30 PM	5	56	5	0	66	3	50	3	0	56	0	1	2	0	3	1	0	1	0	2	127
8:45 PM	5	73	3	0	81	3	36	3	5	42	1	0	0	5	1	1	0	7	0	8	132
Hourly Total	17	242	12	0	271	13	202	7	19	222	2	1	5	15	8	6	0	13	0	19	520
9:00 PM	2	59	4	0	65	0	41	1	0	42	1	0	2	0	3	1	0	0	0	1	111
9:15 PM	4	42	2	0	48	2	35	0	2	37	2	0	1	1	3	2	1	3	0	6	94
9:30 PM	1	47	0	0	48	4	23	1	4	28	1	0	2	0	3	1	0	4	0	5	84
9:45 PM	0	30	1	0	31	1	27	0	0	28	0	0	1	2	1	2	0	1	0	3	63
Hourly Total	7	178	7	0	192	7	126	2	6	135	4	0	6	3	10	6	1	8	0	15	352
10:00 PM	2	30	0	0	32	1	30	3	3	34	1	0	1	5	2	1	0	2	0	3	71
10:15 PM	1	23	0	0	24	0	39	1	3	40	1	1	0	3	2	0	0	1	0	1	67
10:30 PM	0	31	1	0	32	0	23	1	0	24	1	0	0	0	1	1	0	2	0	3	60
10:45 PM	1	23	1	0	25	0	20	0	2	20	0	0	0	1	0	1	0	0	0	1	46
Hourly Total	4	107	2	0	113	1	112	5	8	118	3	1	1	9	5	3	0	5	0	8	244
11:00 PM	0	11	0	0	11	0	18	1	0	19	0	0	0	0	0	0	0	0	0	0	30
11:15 PM	0	17	0	0	17	0	14	1	0	15	0	0	0	0	0	0	0	0	0	0	32
11:30 PM	0	17	0	0	17	0	10	0	0	10	0	0	0	0	0	0	0	1	0	1	28
11:45 PM	0	7	0	0	7	0	17	0	2	17	0	0	0	0	0	0	0	0	0	0	24
Hourly Total	0	52	0	0	52	0	59	2	2	61	0	0	0	0	0	0	0	1	0	1	114
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM	0	13	1	0	14	0	9	0	0	9	1	0	0	0	1	2	0	1	0	3	27
12:15 AM	0	10	0	0	10	0	12	1	0	13	0	0	0	2	0	0	0	0	0	0	23
12:30 AM	0	13	0	0	13	1	10	0	0	11	0	0	0	1	0	0	0	1	0	1	25
12:45 AM	0	8	0	0	8	1	8	0	0	9	0	0	0	0	0	0	0	0	0	0	17
Hourly Total	0	44	1	0	45	2	39	1	0	42	1	0	0	3	1	2	0	2	0	4	92
1:00 AM	0	8	0	0	8	1	12	0	2	13	0	0	0	0	0	0	0	0	0	0	21
1:15 AM	0	10	0	0	10	0	11	0	0	11	0	0	0	1	0	0	0	0	0	0	21
1:30 AM	0	7	1	0	8	0	6	0	3	6	0	0	0	1	0	0	0	0	0	0	14
1:45 AM	0	6	0	0	6	0	8	0	0	8	0	0	2	1	2	0	0	2	10	2	18
Hourly Total	0	31	1	0	32	1	37	0	5	38	0	0	2	3	2	0	0	2	10	2	74
2:00 AM	0	9	0	0	9	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	17
2:15 AM	0	4	2	0	6	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	8
2:30 AM	0	5	0	0	5	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	8
2:45 AM	0	4	0	0	4	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	8
Hourly Total	0	22	2	0	24	0	17	0	0	17	0	0	0	0	0	0	0	0	0	0	41
3:00 AM	0	5	0	0	5	1	3	0	0	4	0	0	0	0	0	0	0	2	0	2	11

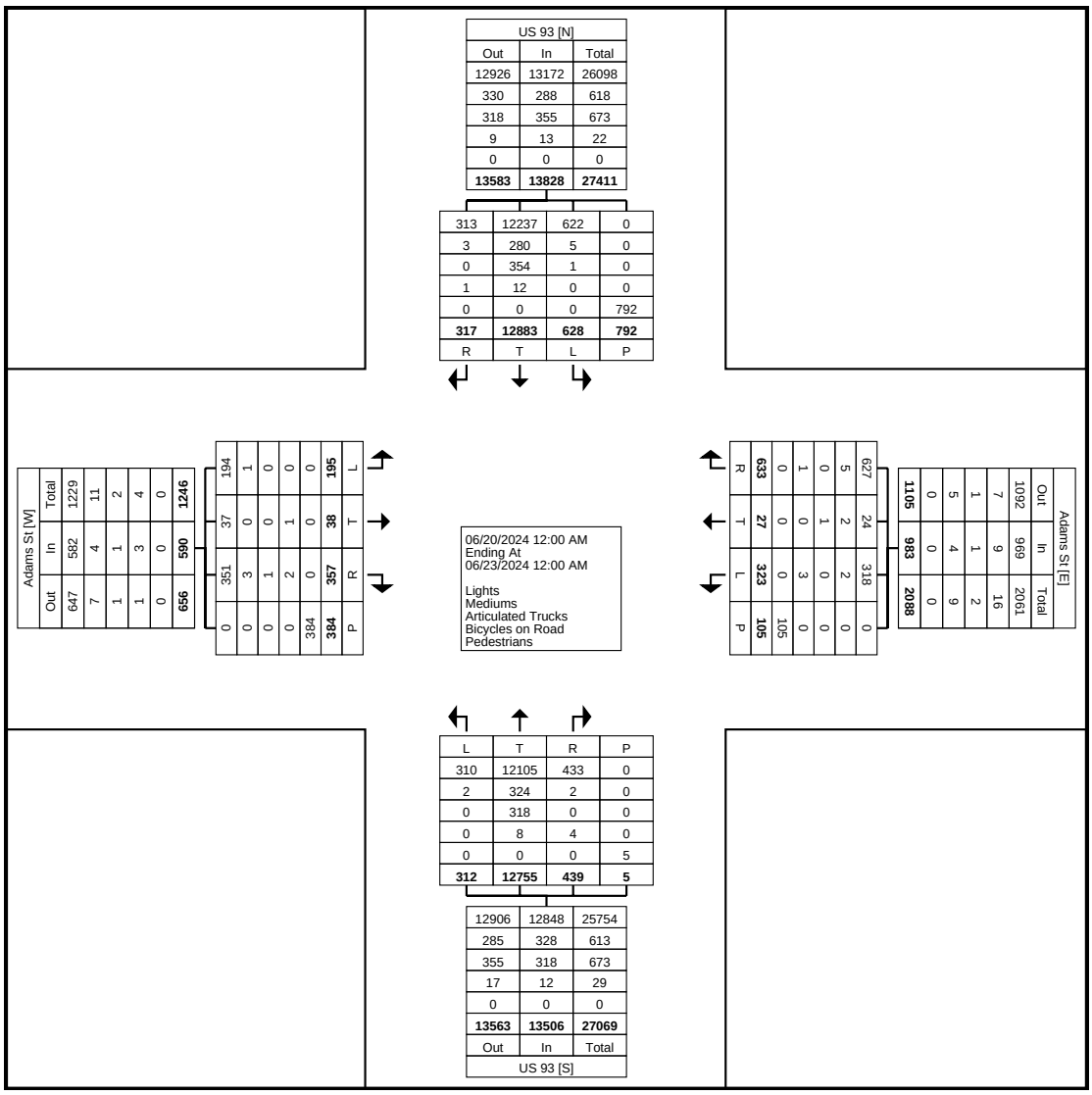
3:15 AM	0	4	0	0	4	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0	9
3:30 AM	0	5	0	0	5	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	6
3:45 AM	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Hourly Total	0	18	0	0	18	1	7	1	0	9	0	0	1	0	1	0	0	2	0	2	30
4:00 AM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	4
4:15 AM	0	5	0	0	5	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	7
4:30 AM	0	5	0	0	5	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	7
4:45 AM	0	3	1	0	4	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	10
Hourly Total	0	15	1	0	16	0	10	0	0	10	1	0	0	0	1	0	0	1	0	1	28
5:00 AM	0	5	1	0	6	0	5	0	0	5	1	0	1	0	2	1	0	0	0	1	14
5:15 AM	0	5	0	0	5	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	12
5:30 AM	0	9	0	0	9	1	11	0	0	12	1	0	0	0	1	0	0	0	0	0	22
5:45 AM	0	9	0	0	9	0	13	0	1	13	0	0	1	0	1	0	0	1	0	1	24
Hourly Total	0	28	1	0	29	1	36	0	1	37	2	0	2	0	4	1	0	1	0	2	72
6:00 AM	0	11	0	0	11	1	25	0	0	26	0	0	0	0	0	0	0	0	0	0	37
6:15 AM	0	15	1	0	16	1	29	0	0	30	0	0	0	0	0	0	0	0	0	0	46
6:30 AM	0	15	0	0	15	1	22	2	0	25	0	0	0	0	0	0	0	1	0	1	41
6:45 AM	0	19	3	0	22	1	40	1	0	42	0	0	2	0	2	0	0	0	0	0	66
Hourly Total	0	60	4	0	64	4	116	3	0	123	0	0	2	0	2	0	0	1	0	1	190
7:00 AM	0	25	2	0	27	4	34	0	0	38	0	1	0	0	1	0	0	1	2	1	67
7:15 AM	0	22	3	0	25	3	50	0	0	53	0	0	1	0	1	1	0	0	0	1	80
7:30 AM	3	37	1	0	41	6	68	1	2	75	1	0	1	1	2	3	0	6	0	9	127
7:45 AM	0	54	1	0	55	3	49	1	0	53	0	0	0	1	0	1	0	1	0	2	110
Hourly Total	3	138	7	0	148	16	201	2	2	219	1	1	2	2	4	5	0	8	2	13	384
8:00 AM	0	70	3	0	73	2	64	2	1	68	2	2	0	1	4	6	0	0	0	6	151
8:15 AM	0	59	3	0	62	0	73	1	0	74	2	0	3	0	5	1	0	4	0	5	146
8:30 AM	0	87	1	0	88	3	73	1	1	77	0	0	0	0	0	2	0	5	0	7	172
8:45 AM	0	66	5	0	71	4	98	1	0	103	0	0	0	1	0	6	0	5	0	11	185
Hourly Total	0	282	12	0	294	9	308	5	2	322	4	2	3	2	9	15	0	14	0	29	654
9:00 AM	3	66	3	0	72	2	83	0	0	85	2	0	6	0	8	3	0	3	0	6	171
9:15 AM	1	72	3	0	76	4	123	1	4	128	2	0	6	1	8	3	0	5	0	8	220
9:30 AM	3	71	5	0	79	4	170	1	4	175	1	1	2	4	4	4	0	4	0	8	266
9:45 AM	3	106	2	0	111	6	207	0	14	213	0	1	2	15	3	2	0	11	0	13	340
Hourly Total	10	315	13	0	338	16	583	2	22	601	5	2	16	20	23	12	0	23	0	35	997
10:00 AM	0	95	5	0	100	10	108	2	3	120	1	1	2	3	4	2	0	4	2	6	230
10:15 AM	3	110	7	0	120	1	109	0	8	110	0	1	3	9	4	3	0	4	0	7	241
10:30 AM	3	102	6	0	111	7	117	2	5	126	0	0	3	5	3	0	0	6	1	6	246
10:45 AM	3	103	6	0	112	11	105	2	3	118	0	0	4	1	4	4	0	5	0	9	243
Hourly Total	9	410	24	0	443	29	439	6	19	474	1	2	12	18	15	9	0	19	3	28	960
11:00 AM	8	95	1	0	104	2	107	3	4	112	1	1	1	5	3	4	0	2	0	6	225
11:15 AM	3	167	2	0	172	10	102	3	10	115	4	0	5	7	9	3	1	7	6	11	307
11:30 AM	1	221	5	0	227	4	116	0	17	120	0	0	3	2	3	1	0	11	9	12	362
11:45 AM	0	151	3	0	154	9	113	3	20	125	0	0	2	11	2	3	0	9	1	12	293
Hourly Total	12	634	11	0	657	25	438	9	51	472	5	1	11	25	17	11	1	29	16	41	1187
12:00 PM	2	116	6	0	124	10	108	2	3	120	0	0	6	0	6	7	0	7	0	14	264
12:15 PM	5	110	4	0	119	8	156	3	4	167	0	0	4	0	4	2	0	5	0	7	297
12:30 PM	1	127	2	0	130	7	155	5	0	167	3	1	5	2	9	1	1	7	0	9	315
12:45 PM	2	124	4	0	130	10	117	1	14	128	2	0	0	7	2	1	0	5	0	6	266
Hourly Total	10	477	16	0	503	35	536	11	21	582	5	1	15	9	21	11	1	24	0	36	1142
1:00 PM	2	120	8	0	130	4	128	2	20	134	1	0	2	5	3	3	1	14	0	18	285
1:15 PM	5	118	5	0	128	10	113	1	9	124	4	1	2	0	7	2	0	10	0	12	271
1:30 PM	1	115	5	0	121	10	126	3	5	139	1	0	3	0	4	2	1	9	0	12	276
1:45 PM	1	99	8	0	108	8	106	2	17	116	5	0	2	4	7	5	1	4	0	10	241
Hourly Total	9	452	26	0	487	32	473	8	51	513	11	1	9	9	21	12	3	37	0	52	1073
2:00 PM	1	92	5	0	98	17	115	5	10	137	0	1	2	3	3	1	0	7	0	8	246
2:15 PM	0	125	5	0	130	6	125	2	17	133	1	1	2	2	4	0	0	7	0	7	274
2:30 PM	1	111	4	0	116	13	117	3	7	133	0	0	4	1	4	4	0	4	3	8	261
2:45 PM	1	94	4	0	99	7	118	2	11	127	1	0	1	10	2	7	1	5	0	13	241
Hourly Total	3	422	18	0	443	43	475	12	45	530	2	2	9	16	13	12	1	23	3	36	1022
3:00 PM	6	125	6	1	137	4	93	2	6	99	2	0	4	4	6	3	0	10	1	13	255
3:15 PM	5	123	5	1	133	8	88	4	43	100	1	0	5	13	6	1	0	15	5	16	255
3:30 PM	5	128	3	0	136	7	116	2	15	125	2	1	3	6	6	2	0	8	0	10	277
3:45 PM	2	107	8	0	117	6	127	4	10	137	2	0	1	3	3	1	0	7	5	8	265
Hourly Total	18	483	22	2	523	25	424	12	74	461	7	1	13	26	21	7	0	40	11	47	1052
4:00 PM	0	116	2	0	118	9	112	1	3	122	2	0	3	4	5	4	1	5	2	10	255
4:15 PM	0	111	1	0	112	8	170	1	2	179	1	0	3	13	4	1	0	7	3	8	303
4:30 PM	3	123	2	0	128	4	222	3	15	229	0	0	6	19	6	4	0	1	0	5	368
4:45 PM	4	104	2	0	110	4	224	2	9	230	0	0	1	4	1	1	0	4	0	5	346
Hourly Total	7	454	7	0	468	25	728	7	29	760	3	0	13	40	16	10	1	17	5	28	1272
5:00 PM	1	106	5	0	112	6	97	1	2	104	3	0	3	0	6	1	0	1	0	2	224
5:15 PM	3	106	2	0	111	7	95	0	8	102	1	1	4	7	6	5	0	8	0	13	232
5:30 PM	9	105	2	0	116	7	80	3	24	90	2	0	4	5	6	3	1	6	0	10	222
5:45 PM	2	122	1	0	125	4	100	2	5	106	0	0	2	2	2	1	0	12	0	13	246
Hourly Total	15	439	10	0	464	24	372	6	39	402	6	1	13	14	20	10	1	27	0	38	924
6:00 PM	2	110	2	0	114	7	75	4	3	86	4	1	2	0	7	1	0	11	1	12	219
6:15 PM	0	235	5	0	240	7	82	4	13	93	0	0	1	2	1	2	0	5	3	7	341
6:30 PM	3	210	4	0	217	6	82	5	6	93	0	0	0	4	0	10	0	6	3	16	326

6:45 PM	1	115	3	0	119	6	83	0	23	89	0	0	5	0	5	5	0	6	0	11	224
Hourly Total	6	670	14	0	690	26	322	13	45	361	4	1	8	6	13	18	0	28	7	46	1110
7:00 PM	3	71	5	0	79	5	56	1	2	62	1	0	2	0	3	6	0	4	0	10	154
7:15 PM	2	71	5	0	78	2	67	1	6	70	1	0	2	2	3	3	1	2	0	6	157
7:30 PM	1	72	3	0	76	9	62	5	7	76	0	0	4	4	4	4	0	7	0	11	167
7:45 PM	3	71	1	0	75	5	69	2	16	76	3	0	1	8	4	2	0	9	4	11	166
Hourly Total	9	285	14	0	308	21	254	9	31	284	5	0	9	14	14	15	1	22	4	38	644
8:00 PM	2	50	5	0	57	3	52	4	3	59	2	0	5	5	7	3	0	3	0	6	129
8:15 PM	2	37	7	0	46	2	46	0	5	48	0	0	3	0	3	4	0	4	0	8	105
8:30 PM	2	58	5	0	65	2	57	3	18	62	1	0	6	8	7	4	1	2	0	7	141
8:45 PM	3	69	1	0	73	2	42	6	5	50	0	0	3	2	3	4	0	6	7	10	136
Hourly Total	9	214	18	0	241	9	197	13	31	219	3	0	17	15	20	15	1	15	7	31	511
9:00 PM	1	57	3	0	61	2	35	1	0	38	1	0	0	1	1	5	0	4	0	9	109
9:15 PM	0	51	3	0	54	2	37	1	4	40	0	0	0	1	0	10	1	4	0	15	109
9:30 PM	1	51	1	0	53	2	32	1	2	35	1	1	2	0	4	0	1	4	0	5	97
9:45 PM	2	43	0	0	45	1	30	0	2	31	0	0	1	0	1	1	1	2	0	4	81
Hourly Total	4	202	7	0	213	7	134	3	8	144	2	1	3	2	6	16	3	14	0	33	396
10:00 PM	3	27	0	0	30	1	38	1	0	40	3	0	0	0	3	1	0	1	0	2	75
10:15 PM	1	37	1	0	39	0	27	1	0	28	0	0	4	1	4	0	0	6	0	6	77
10:30 PM	1	29	0	0	30	1	29	0	0	30	1	0	0	2	1	0	0	1	0	1	62
10:45 PM	1	24	0	0	25	1	34	0	2	35	1	0	0	8	1	0	0	1	0	1	62
Hourly Total	6	117	1	0	124	3	128	2	2	133	5	0	4	11	9	1	0	9	0	10	276
11:00 PM	0	15	2	0	17	1	23	1	0	25	0	0	0	0	0	1	1	0	0	2	44
11:15 PM	0	13	2	0	15	0	26	2	4	28	1	0	0	2	1	1	0	0	0	1	45
11:30 PM	0	18	1	0	19	0	15	0	0	15	1	0	0	0	1	0	0	0	0	0	35
11:45 PM	1	23	0	0	24	0	12	0	0	12	0	0	1	4	1	0	0	1	0	1	38
Hourly Total	1	69	5	0	75	1	76	3	4	80	2	0	1	6	3	2	1	1	0	4	162
Grand Total	312	12755	439	5	13506	628	12883	317	792	13828	195	38	357	384	590	323	27	633	105	983	28907
Approach %	2.3	94.4	3.3	-	-	4.5	93.2	2.3	-	-	33.1	6.4	60.5	-	-	32.9	2.7	64.4	-	-	-
Total %	1.1	44.1	1.5	-	46.7	2.2	44.6	1.1	-	47.8	0.7	0.1	1.2	-	2.0	1.1	0.1	2.2	-	3.4	-
Lights	310	12105	433	-	12848	622	12237	313	-	13172	194	37	351	-	582	318	24	627	-	969	27571
% Lights	99.4	94.9	98.6	-	95.1	99.0	95.0	98.7	-	95.3	99.5	97.4	98.3	-	98.6	98.5	88.9	99.1	-	98.6	95.4
Mediums	2	324	2	-	328	5	280	3	-	288	1	0	3	-	4	2	2	5	-	9	629
% Mediums	0.6	2.5	0.5	-	2.4	0.8	2.2	0.9	-	2.1	0.5	0.0	0.8	-	0.7	0.6	7.4	0.8	-	0.9	2.2
Articulated Trucks	0	318	0	-	318	1	354	0	-	355	0	0	1	-	1	0	1	0	-	1	675
% Articulated Trucks	0.0	2.5	0.0	-	2.4	0.2	2.7	0.0	-	2.6	0.0	0.0	0.3	-	0.2	0.0	3.7	0.0	-	0.1	2.3
Bicycles on Road	0	8	4	-	12	0	12	1	-	13	0	1	2	-	3	3	0	1	-	4	32
% Bicycles on Road	0.0	0.1	0.9	-	0.1	0.0	0.1	0.3	-	0.1	0.0	2.6	0.6	-	0.5	0.9	0.0	0.2	-	0.4	0.1
Pedestrians	-	-	-	5	-	-	-	-	792	-	-	-	-	384	-	-	-	-	105	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Adams St & US 93
Site Code: 05
Start Date: 06/20/2024
Page No: 5



Turning Movement Data Plot

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Adams St & US 93
Site Code: 05
Start Date: 06/20/2024

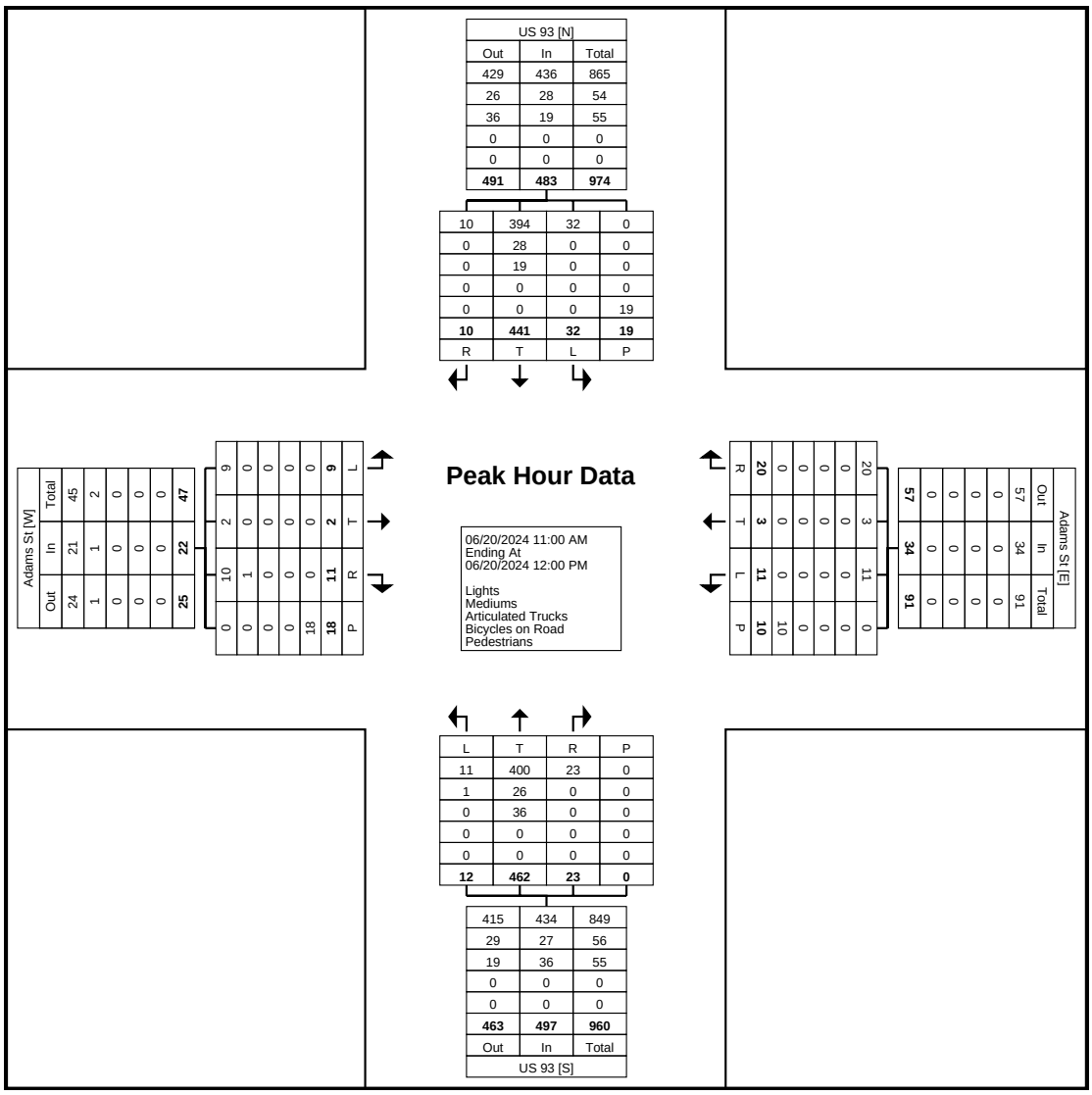
Turning Movement Peak Hour Data (11:00 AM)

Start Time	US 93 Northbound					US 93 Southbound					Adams St Eastbound					Adams St Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
11:00 AM	3	125	6	0	134	5	107	3	10	115	2	0	2	9	4	3	0	3	1	6	259
11:15 AM	4	107	7	0	118	14	98	1	3	113	5	0	2	4	7	2	2	4	4	8	246
11:30 AM	2	117	7	0	126	3	119	4	3	126	0	2	4	2	6	3	0	8	4	11	269
11:45 AM	3	113	3	0	119	10	117	2	3	129	2	0	3	3	5	3	1	5	1	9	262
Total	12	462	23	0	497	32	441	10	19	483	9	2	11	18	22	11	3	20	10	34	1036
Approach %	2.4	93.0	4.6	-	-	6.6	91.3	2.1	-	-	40.9	9.1	50.0	-	-	32.4	8.8	58.8	-	-	-
Total %	1.2	44.6	2.2	-	48.0	3.1	42.6	1.0	-	46.6	0.9	0.2	1.1	-	2.1	1.1	0.3	1.9	-	3.3	-
PHF	0.750	0.924	0.821	-	0.927	0.571	0.926	0.625	-	0.936	0.450	0.250	0.688	-	0.786	0.917	0.375	0.625	-	0.773	0.963
Lights	11	400	23	-	434	32	394	10	-	436	9	2	10	-	21	11	3	20	-	34	925
% Lights	91.7	86.6	100.0	-	87.3	100.0	89.3	100.0	-	90.3	100.0	100.0	90.9	-	95.5	100.0	100.0	100.0	-	100.0	89.3
Mediums	1	26	0	-	27	0	28	0	-	28	0	0	1	-	1	0	0	0	-	0	56
% Mediums	8.3	5.6	0.0	-	5.4	0.0	6.3	0.0	-	5.8	0.0	0.0	9.1	-	4.5	0.0	0.0	0.0	-	0.0	5.4
Articulated Trucks	0	36	0	-	36	0	19	0	-	19	0	0	0	-	0	0	0	0	-	0	55
% Articulated Trucks	0.0	7.8	0.0	-	7.2	0.0	4.3	0.0	-	3.9	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	5.3
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	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	0.0
Pedestrians	-	-	-	0	-	-	-	-	19	-	-	-	-	18	-	-	-	-	10	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Adams St & US 93
Site Code: 05
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (11:00 AM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Adams St & US 93
Site Code: 05
Start Date: 06/20/2024

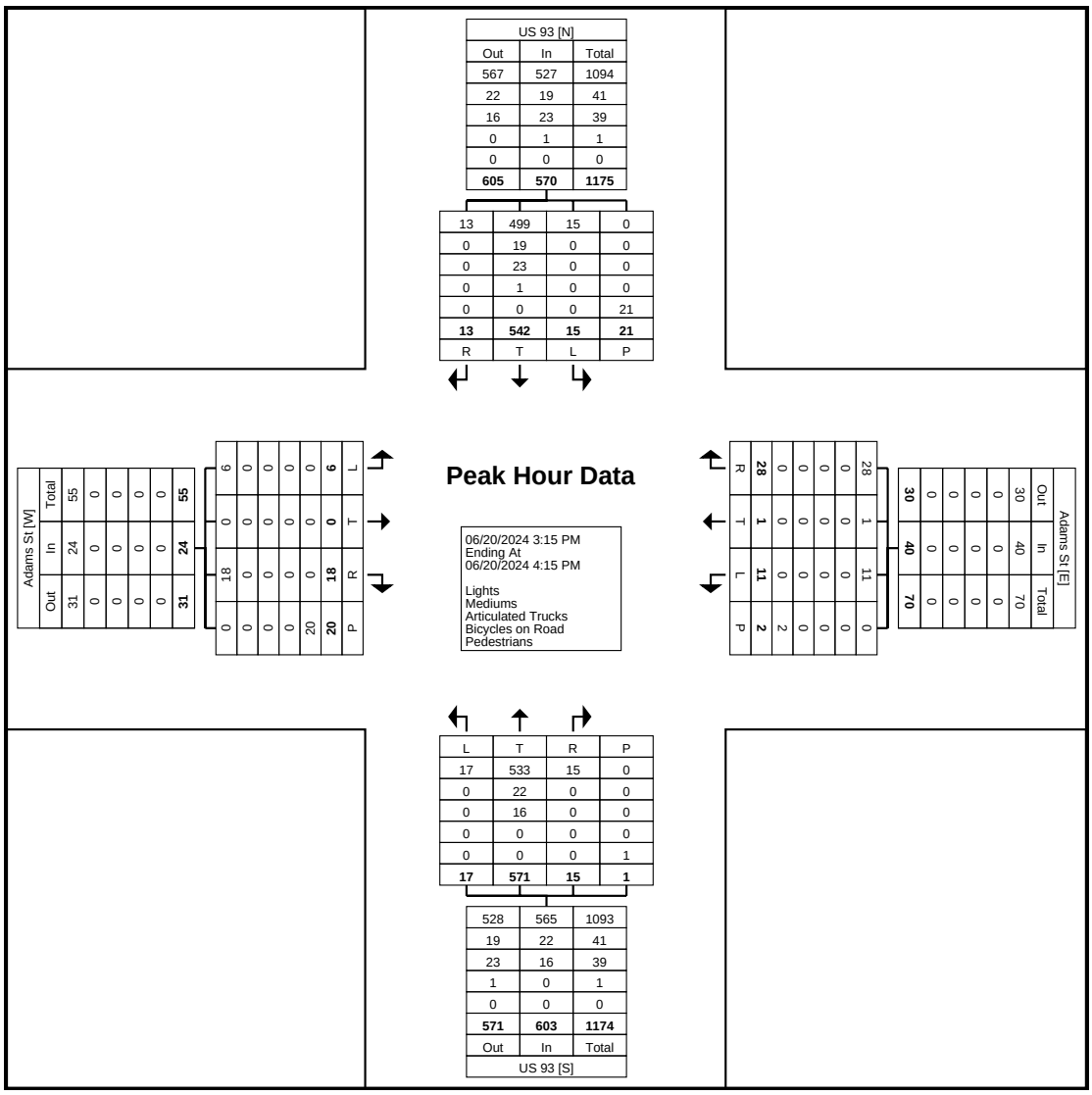
Turning Movement Peak Hour Data (3:15 PM)

Start Time	US 93 Northbound					US 93 Southbound					Adams St Eastbound					Adams St Westbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
3:15 PM	1	125	2	0	128	2	135	6	6	143	3	0	5	4	8	2	0	7	2	9	288
3:30 PM	6	142	4	0	152	4	144	0	5	148	1	0	3	5	4	3	0	9	0	12	316
3:45 PM	3	140	5	1	148	4	131	3	5	138	2	0	4	10	6	3	1	5	0	9	301
4:00 PM	7	164	4	0	175	5	132	4	5	141	0	0	6	1	6	3	0	7	0	10	332
Total	17	571	15	1	603	15	542	13	21	570	6	0	18	20	24	11	1	28	2	40	1237
Approach %	2.8	94.7	2.5	-	-	2.6	95.1	2.3	-	-	25.0	0.0	75.0	-	-	27.5	2.5	70.0	-	-	-
Total %	1.4	46.2	1.2	-	48.7	1.2	43.8	1.1	-	46.1	0.5	0.0	1.5	-	1.9	0.9	0.1	2.3	-	3.2	-
PHF	0.607	0.870	0.750	-	0.861	0.750	0.941	0.542	-	0.963	0.500	0.000	0.750	-	0.750	0.917	0.250	0.778	-	0.833	0.931
Lights	17	533	15	-	565	15	499	13	-	527	6	0	18	-	24	11	1	28	-	40	1156
% Lights	100.0	93.3	100.0	-	93.7	100.0	92.1	100.0	-	92.5	100.0	-	100.0	-	100.0	100.0	100.0	100.0	-	100.0	93.5
Mediums	0	22	0	-	22	0	19	0	-	19	0	0	0	-	0	0	0	0	-	0	41
% Mediums	0.0	3.9	0.0	-	3.6	0.0	3.5	0.0	-	3.3	0.0	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0	3.3
Articulated Trucks	0	16	0	-	16	0	23	0	-	23	0	0	0	-	0	0	0	0	-	0	39
% Articulated Trucks	0.0	2.8	0.0	-	2.7	0.0	4.2	0.0	-	4.0	0.0	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0	3.2
Bicycles on Road	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.2	0.0	-	0.2	0.0	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	1	-	-	-	-	21	-	-	-	-	20	-	-	-	-	2	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Adams St & US 93
Site Code: 05
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (3:15 PM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Adams St & US 93
Site Code: 05
Start Date: 06/20/2024

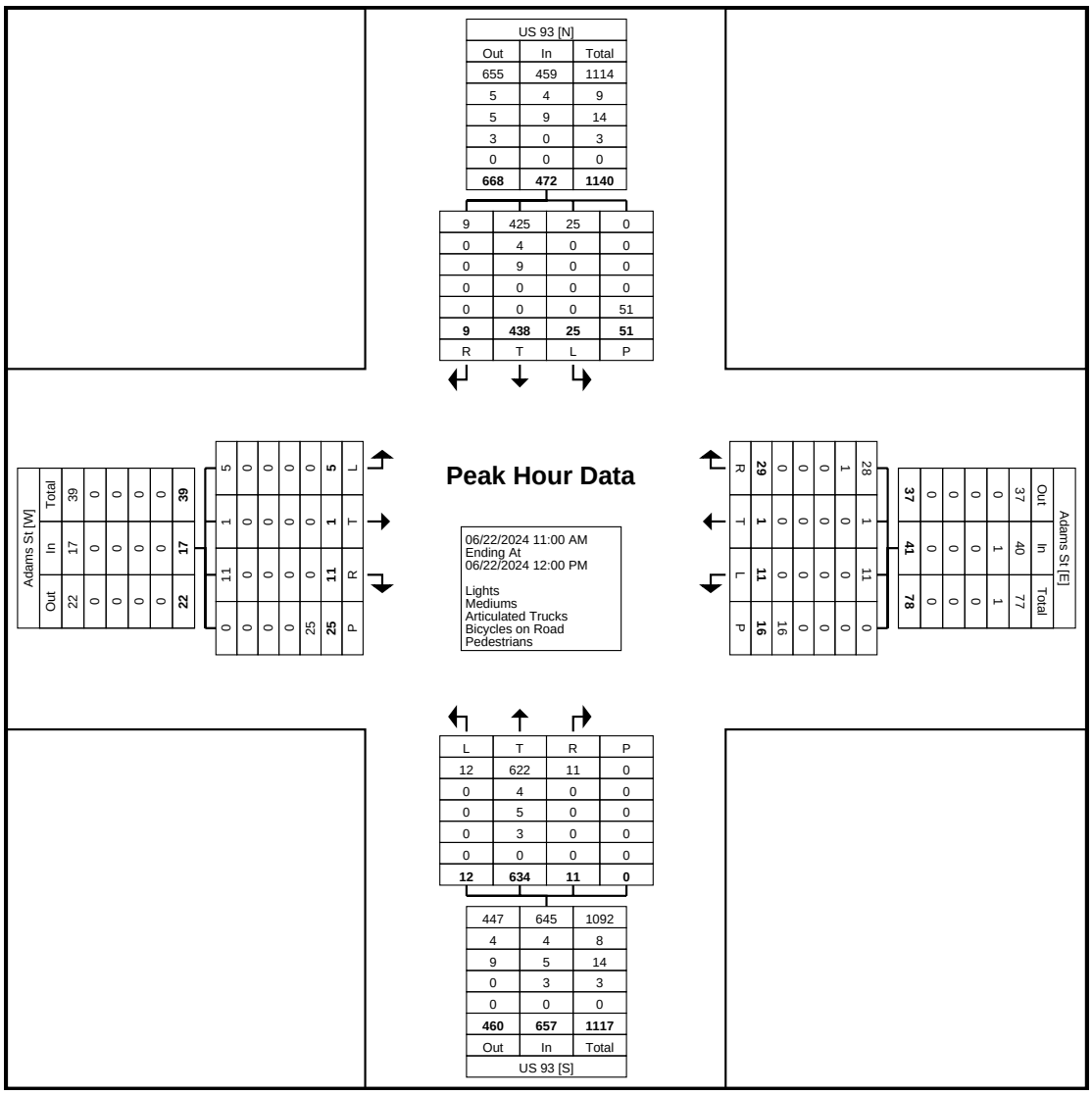
Turning Movement Peak Hour Data (11:00 AM)

Start Time	US 93 Northbound					US 93 Southbound					Adams St Eastbound					Adams St Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
11:00 AM	8	95	1	0	104	2	107	3	4	112	1	1	1	5	3	4	0	2	0	6	225
11:15 AM	3	167	2	0	172	10	102	3	10	115	4	0	5	7	9	3	1	7	6	11	307
11:30 AM	1	221	5	0	227	4	116	0	17	120	0	0	3	2	3	1	0	11	9	12	362
11:45 AM	0	151	3	0	154	9	113	3	20	125	0	0	2	11	2	3	0	9	1	12	293
Total	12	634	11	0	657	25	438	9	51	472	5	1	11	25	17	11	1	29	16	41	1187
Approach %	1.8	96.5	1.7	-	-	5.3	92.8	1.9	-	-	29.4	5.9	64.7	-	-	26.8	2.4	70.7	-	-	-
Total %	1.0	53.4	0.9	-	55.3	2.1	36.9	0.8	-	39.8	0.4	0.1	0.9	-	1.4	0.9	0.1	2.4	-	3.5	-
PHF	0.375	0.717	0.550	-	0.724	0.625	0.944	0.750	-	0.944	0.313	0.250	0.550	-	0.472	0.688	0.250	0.659	-	0.854	0.820
Lights	12	622	11	-	645	25	425	9	-	459	5	1	11	-	17	11	1	28	-	40	1161
% Lights	100.0	98.1	100.0	-	98.2	100.0	97.0	100.0	-	97.2	100.0	100.0	100.0	-	100.0	100.0	100.0	96.6	-	97.6	97.8
Mediums	0	4	0	-	4	0	4	0	-	4	0	0	0	-	0	0	0	1	-	1	9
% Mediums	0.0	0.6	0.0	-	0.6	0.0	0.9	0.0	-	0.8	0.0	0.0	0.0	-	0.0	0.0	0.0	3.4	-	2.4	0.8
Articulated Trucks	0	5	0	-	5	0	9	0	-	9	0	0	0	-	0	0	0	0	-	0	14
% Articulated Trucks	0.0	0.8	0.0	-	0.8	0.0	2.1	0.0	-	1.9	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	1.2
Bicycles on Road	0	3	0	-	3	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	3
% Bicycles on Road	0.0	0.5	0.0	-	0.5	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.3
Pedestrians	-	-	-	0	-	-	-	-	51	-	-	-	-	25	-	-	-	-	16	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Adams St & US 93
Site Code: 05
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (11:00 AM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Adams St & US 93
Site Code: 05
Start Date: 06/20/2024

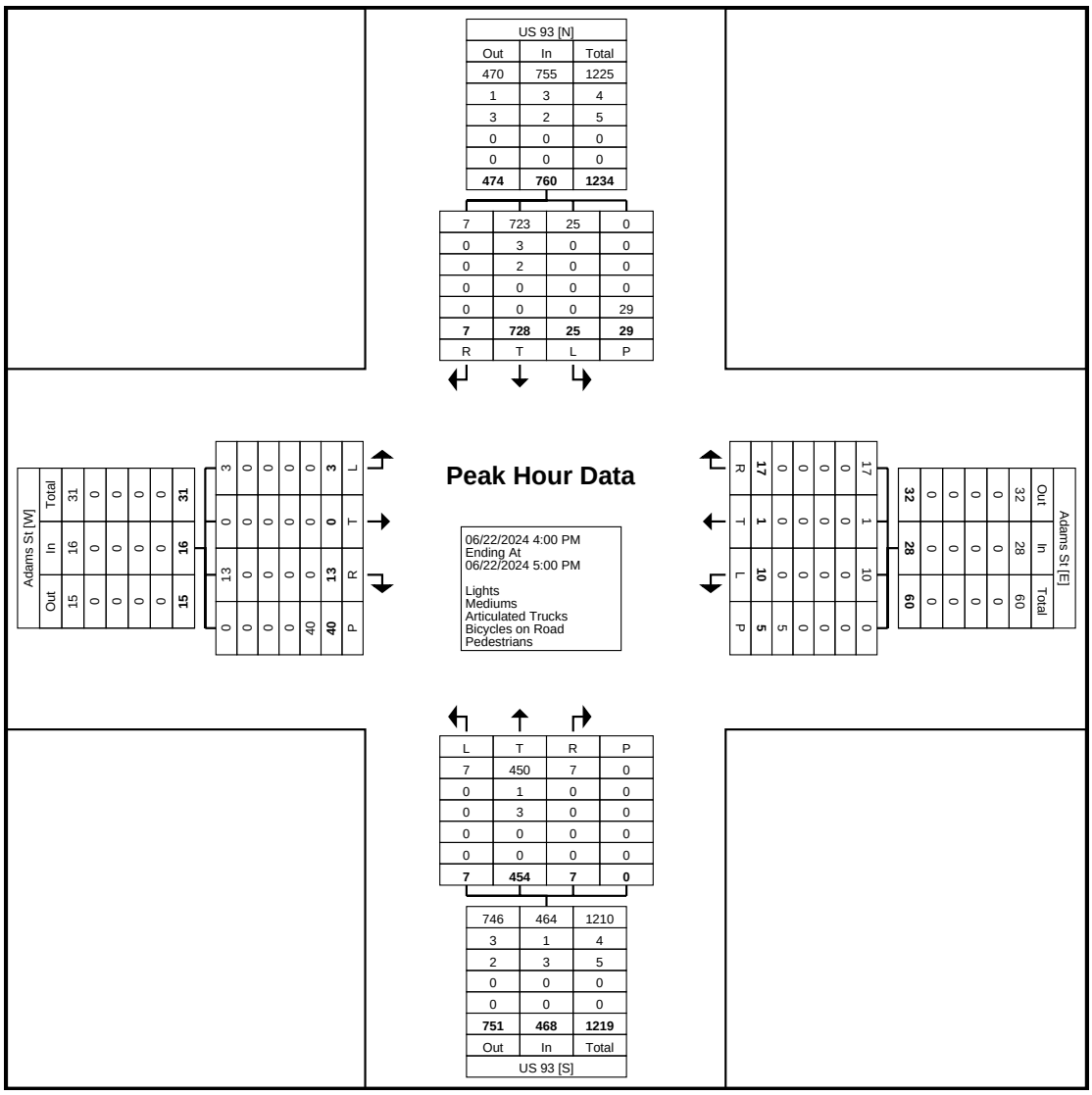
Turning Movement Peak Hour Data (4:00 PM)

Start Time	US 93 Northbound					US 93 Southbound					Adams St Eastbound					Adams St Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
4:00 PM	0	116	2	0	118	9	112	1	3	122	2	0	3	4	5	4	1	5	2	10	255
4:15 PM	0	111	1	0	112	8	170	1	2	179	1	0	3	13	4	1	0	7	3	8	303
4:30 PM	3	123	2	0	128	4	222	3	15	229	0	0	6	19	6	4	0	1	0	5	368
4:45 PM	4	104	2	0	110	4	224	2	9	230	0	0	1	4	1	1	0	4	0	5	346
Total	7	454	7	0	468	25	728	7	29	760	3	0	13	40	16	10	1	17	5	28	1272
Approach %	1.5	97.0	1.5	-	-	3.3	95.8	0.9	-	-	18.8	0.0	81.3	-	-	35.7	3.6	60.7	-	-	-
Total %	0.6	35.7	0.6	-	36.8	2.0	57.2	0.6	-	59.7	0.2	0.0	1.0	-	1.3	0.8	0.1	1.3	-	2.2	-
PHF	0.438	0.923	0.875	-	0.914	0.694	0.813	0.583	-	0.826	0.375	0.000	0.542	-	0.667	0.625	0.250	0.607	-	0.700	0.864
Lights	7	450	7	-	464	25	723	7	-	755	3	0	13	-	16	10	1	17	-	28	1263
% Lights	100.0	99.1	100.0	-	99.1	100.0	99.3	100.0	-	99.3	100.0	-	100.0	-	100.0	100.0	100.0	100.0	-	100.0	99.3
Mediums	0	1	0	-	1	0	3	0	-	3	0	0	0	-	0	0	0	0	-	0	4
% Mediums	0.0	0.2	0.0	-	0.2	0.0	0.4	0.0	-	0.4	0.0	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.3
Articulated Trucks	0	3	0	-	3	0	2	0	-	2	0	0	0	-	0	0	0	0	-	0	5
% Articulated Trucks	0.0	0.7	0.0	-	0.6	0.0	0.3	0.0	-	0.3	0.0	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	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
Pedestrians	-	-	-	0	-	-	-	-	29	-	-	-	-	40	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: Adams St & US 93
Site Code: 05
Start Date: 06/20/2024



Turning Movement Peak Hour Data Plot (4:00 PM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: US 93 & Hwy 82
Site Code: 06
Start Date: 07/11/2024

Turning Movement Data

Start Time	US 93 Northbound					US 93 Southbound					Forest Hill Rd Eastbound					Hwy 82 Westbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
12:00 AM	0	16	1	0	17	4	8	1	0	13	1	2	0	0	3	2	0	4	0	6	39
12:15 AM	0	23	1	0	24	8	4	1	0	13	1	2	1	0	4	2	1	6	0	9	50
12:30 AM	0	13	1	0	14	3	9	1	0	13	0	1	0	0	1	1	1	3	0	5	33
12:45 AM	0	8	1	0	9	4	4	0	0	8	2	0	0	0	2	0	0	5	0	5	24
Hourly Total	0	60	4	0	64	19	25	3	0	47	4	5	1	0	10	5	2	18	0	25	146
1:00 AM	0	5	0	0	5	5	3	1	0	9	1	0	0	0	1	0	0	2	0	2	17
1:15 AM	0	6	3	0	9	3	4	1	0	8	0	0	0	0	0	0	0	4	0	4	21
1:30 AM	0	11	0	0	11	3	2	0	0	5	0	0	0	0	0	0	1	2	0	3	19
1:45 AM	0	2	1	0	3	3	1	0	0	4	1	0	0	0	1	0	1	3	0	4	12
Hourly Total	0	24	4	0	28	14	10	2	0	26	2	0	0	0	2	0	2	11	0	13	69
2:00 AM	0	6	1	0	7	1	4	0	0	5	0	0	0	0	0	1	0	2	0	3	15
2:15 AM	0	4	0	0	4	2	7	0	0	9	1	0	0	0	1	0	0	3	0	3	17
2:30 AM	0	3	2	0	5	3	4	1	0	8	0	0	0	0	0	0	0	3	0	3	16
2:45 AM	0	6	3	0	9	1	0	0	0	1	0	0	0	0	0	0	0	4	0	4	14
Hourly Total	0	19	6	0	25	7	15	1	0	23	1	0	0	0	1	1	0	12	0	13	62
3:00 AM	1	2	0	0	3	1	5	0	0	6	0	0	0	0	0	0	0	1	0	1	10
3:15 AM	1	2	1	0	4	1	4	0	0	5	1	0	0	0	1	1	0	0	0	1	11
3:30 AM	0	4	0	0	4	2	4	0	0	6	0	1	0	0	1	0	0	2	0	2	13
3:45 AM	0	8	1	0	9	1	9	0	0	10	0	0	0	0	0	0	1	3	0	4	23
Hourly Total	2	16	2	0	20	5	22	0	0	27	1	1	0	0	2	1	1	6	0	8	57
4:00 AM	0	6	0	0	6	1	6	0	0	7	0	0	0	0	0	1	0	6	0	7	20
4:15 AM	0	9	2	0	11	2	6	2	0	10	0	1	1	0	2	1	0	4	0	5	28
4:30 AM	1	12	2	0	15	5	11	0	0	16	0	0	0	0	0	1	0	8	0	9	40
4:45 AM	0	14	3	0	17	10	12	0	0	22	1	0	0	0	1	0	1	9	0	10	50
Hourly Total	1	41	7	0	49	18	35	2	0	55	1	1	1	0	3	3	1	27	0	31	138
5:00 AM	0	15	0	0	15	7	11	1	0	19	1	0	0	0	1	0	3	19	0	22	57
5:15 AM	0	14	5	0	19	13	17	7	0	37	0	2	1	0	3	3	2	21	0	26	85
5:30 AM	1	28	6	0	35	10	27	10	0	47	4	6	4	0	14	5	2	21	0	28	124
5:45 AM	3	31	5	0	39	13	31	14	0	58	5	5	5	0	15	5	4	27	0	36	148
Hourly Total	4	88	16	0	108	43	86	32	0	161	10	13	10	0	33	13	11	88	0	112	414
6:00 AM	3	36	5	0	44	13	29	16	0	58	7	5	5	0	17	4	6	28	0	38	157
6:15 AM	1	42	5	0	48	29	38	14	0	81	11	8	9	0	28	11	7	46	0	64	221
6:30 AM	1	64	11	0	76	40	62	15	0	117	6	11	6	0	23	20	10	66	0	96	312
6:45 AM	1	70	8	0	79	53	54	11	0	118	9	4	2	0	15	10	4	62	0	76	288
Hourly Total	6	212	29	0	247	135	183	56	0	374	33	28	22	0	83	45	27	202	0	274	978
7:00 AM	3	77	13	0	93	35	42	19	0	96	5	8	4	0	17	7	3	64	1	74	280
7:15 AM	0	83	7	0	90	56	54	13	0	123	15	3	3	0	21	9	9	76	1	94	328
7:30 AM	1	109	18	0	128	77	71	20	0	168	7	8	5	0	20	11	4	104	2	119	435
7:45 AM	1	111	13	0	125	83	81	14	0	178	12	15	9	0	36	25	8	120	1	153	492
Hourly Total	5	380	51	0	436	251	248	66	0	565	39	34	21	0	94	52	24	364	5	440	1535
8:00 AM	1	95	15	0	111	72	69	32	0	173	13	8	6	0	27	16	5	105	0	126	437
8:15 AM	0	134	18	0	152	60	92	20	1	172	11	7	9	0	27	15	14	101	1	130	481
8:30 AM	2	113	23	0	138	78	90	17	0	185	10	10	9	0	29	22	9	106	1	137	489
8:45 AM	3	115	17	0	135	77	95	29	0	201	10	9	8	0	27	16	12	94	0	122	485
Hourly Total	6	457	73	0	536	287	346	98	1	731	44	34	32	0	110	69	40	406	2	515	1892
9:00 AM	3	110	29	0	142	69	95	20	0	184	13	8	20	0	41	18	7	80	0	105	472
9:15 AM	5	115	18	0	138	59	114	17	0	190	14	7	16	0	37	9	8	105	0	122	487
9:30 AM	4	126	14	0	144	85	110	29	0	224	12	11	9	0	32	15	6	97	0	118	518
9:45 AM	2	122	12	0	136	70	99	19	0	188	16	17	15	0	48	39	11	103	0	153	525
Hourly Total	14	473	73	0	560	283	418	85	0	786	55	43	60	0	158	81	32	385	0	498	2002
10:00 AM	2	114	22	0	138	72	121	30	0	223	12	12	12	0	36	34	9	115	0	158	555
10:15 AM	3	110	25	0	138	68	106	19	0	193	10	13	14	0	37	24	9	93	0	126	494
10:30 AM	7	126	23	0	156	66	110	14	0	190	9	9	13	0	31	27	5	108	2	140	517
10:45 AM	5	113	27	0	145	90	117	19	0	226	10	6	14	0	30	22	6	110	0	138	539
Hourly Total	17	463	97	0	577	296	454	82	0	832	41	40	53	0	134	107	29	426	2	562	2105
11:00 AM	3	124	27	0	154	72	107	29	0	208	13	13	10	0	36	26	11	94	2	131	529
11:15 AM	3	110	22	0	135	100	124	13	0	237	11	8	9	0	28	16	7	92	2	115	515
11:30 AM	4	118	15	0	137	91	94	18	0	203	12	9	6	0	27	23	6	82	0	111	478
11:45 AM	2	111	24	0	137	104	106	13	0	223	12	8	8	0	28	22	9	108	0	139	527
Hourly Total	12	463	88	0	563	367	431	73	0	871	48	38	33	0	119	87	33	376	4	496	2049

12:00 PM	3	103	29	0	135	89	126	29	0	244	14	9	8	0	31	23	11	94	0	128	538
12:15 PM	4	124	30	0	158	101	119	19	0	239	15	13	7	0	35	26	13	132	0	171	603
12:30 PM	4	117	27	0	148	99	104	17	0	220	17	12	8	0	37	29	10	101	0	140	545
12:45 PM	2	137	26	0	165	86	104	25	0	215	11	6	10	0	27	25	7	102	0	134	541
Hourly Total	13	481	112	0	606	375	453	90	0	918	57	40	33	0	130	103	41	429	0	573	2227
1:00 PM	5	141	18	0	164	94	127	28	0	249	12	14	10	0	36	28	8	113	0	149	598
1:15 PM	3	121	19	0	143	104	127	13	0	244	14	8	9	0	31	23	6	91	0	120	538
1:30 PM	2	116	18	0	136	107	123	25	0	255	7	8	9	0	24	14	10	142	0	166	581
1:45 PM	4	128	18	0	150	88	135	23	0	246	20	8	19	0	47	19	10	90	3	119	562
Hourly Total	14	506	73	0	593	393	512	89	0	994	53	38	47	0	138	84	34	436	3	554	2279
2:00 PM	7	122	17	0	146	89	109	19	0	217	19	6	12	0	37	16	11	83	0	110	510
2:15 PM	4	141	34	0	179	99	134	13	0	246	10	8	8	0	26	19	8	122	0	149	600
2:30 PM	1	128	25	0	154	71	147	14	0	232	13	4	8	0	25	19	8	107	0	134	545
2:45 PM	1	119	22	0	142	103	133	23	0	259	9	9	9	0	27	30	9	122	0	161	589
Hourly Total	13	510	98	0	621	362	523	69	0	954	51	27	37	0	115	84	36	434	0	554	2244
3:00 PM	0	116	32	0	148	101	115	19	0	235	8	7	13	0	28	29	7	89	0	125	536
3:15 PM	4	147	23	0	174	130	148	21	0	299	11	14	11	0	36	38	8	119	0	165	674
3:30 PM	4	137	27	0	168	105	124	21	0	250	10	14	11	0	35	29	14	105	1	148	601
3:45 PM	4	107	33	0	144	139	125	22	0	286	18	11	11	0	40	22	9	110	0	141	611
Hourly Total	12	507	115	0	634	475	512	83	0	1070	47	46	46	0	139	118	38	423	1	579	2422
4:00 PM	3	136	15	0	154	115	143	26	0	284	10	6	11	0	27	21	6	111	0	138	603
4:15 PM	5	140	27	0	172	128	133	23	0	284	15	13	12	0	40	26	10	133	0	169	665
4:30 PM	2	146	26	0	174	133	131	23	0	287	10	18	9	0	37	35	15	98	0	148	646
4:45 PM	3	141	31	0	175	119	167	35	0	321	17	13	10	0	40	28	14	128	0	170	706
Hourly Total	13	563	99	0	675	495	574	107	0	1176	52	50	42	0	144	110	45	470	0	625	2620
5:00 PM	2	124	25	0	151	135	166	25	0	326	11	21	14	0	46	27	5	94	0	126	649
5:15 PM	3	140	29	0	172	126	159	30	0	315	10	12	12	0	34	27	12	108	0	147	668
5:30 PM	1	100	14	0	115	165	163	19	0	347	13	14	10	0	37	30	5	97	1	132	631
5:45 PM	2	163	37	0	202	121	145	33	0	299	8	10	11	0	29	24	6	94	0	124	654
Hourly Total	8	527	105	0	640	547	633	107	0	1287	42	57	47	0	146	108	28	393	1	529	2602
6:00 PM	2	115	24	0	141	113	149	26	0	288	6	9	10	0	25	14	8	82	1	104	558
6:15 PM	3	117	28	0	148	71	106	25	0	202	12	21	10	0	43	19	4	66	0	89	482
6:30 PM	2	101	29	0	132	67	107	18	0	192	9	11	19	0	39	26	4	78	0	108	471
6:45 PM	4	108	29	0	141	56	90	17	0	163	14	11	6	0	31	14	2	61	0	77	412
Hourly Total	11	441	110	0	562	307	452	86	0	845	41	52	45	0	138	73	18	287	1	378	1923
7:00 PM	3	85	26	0	114	55	84	12	0	151	7	6	5	0	18	13	5	56	0	74	357
7:15 PM	2	90	11	0	103	66	90	12	0	168	6	7	10	0	23	15	3	53	0	71	365
7:30 PM	4	84	19	0	107	68	75	8	0	151	10	6	4	0	20	12	5	53	0	70	348
7:45 PM	3	90	11	0	104	67	74	18	0	159	7	5	7	0	19	11	8	44	0	63	345
Hourly Total	12	349	67	0	428	256	323	50	0	629	30	24	26	0	80	51	21	206	0	278	1415
8:00 PM	1	93	19	0	113	57	53	12	0	122	7	10	6	0	23	10	6	48	0	64	322
8:15 PM	0	78	9	0	87	48	60	8	0	116	11	5	3	0	19	11	5	47	0	63	285
8:30 PM	1	81	14	0	96	52	53	16	0	121	11	4	1	0	16	8	2	34	0	44	277
8:45 PM	2	76	6	0	84	48	55	3	0	106	2	6	4	0	12	15	6	46	0	67	269
Hourly Total	4	328	48	0	380	205	221	39	0	465	31	25	14	0	70	44	19	175	0	238	1153
9:00 PM	2	54	4	0	60	50	56	4	0	110	2	3	2	0	7	8	1	40	0	49	226
9:15 PM	1	78	9	0	88	37	45	7	0	89	2	3	3	0	8	9	5	43	0	57	242
9:30 PM	2	67	7	0	76	30	54	5	0	89	9	5	3	0	17	6	5	36	0	47	229
9:45 PM	1	60	12	0	73	21	34	7	0	62	2	2	0	0	4	4	2	34	0	40	179
Hourly Total	6	259	32	0	297	138	189	23	0	350	15	13	8	0	36	27	13	153	0	193	876
10:00 PM	0	51	10	0	61	39	46	6	0	91	7	8	3	0	18	11	5	33	0	49	219
10:15 PM	2	37	6	0	45	19	42	3	1	64	2	3	2	0	7	9	1	25	0	35	151
10:30 PM	3	31	3	0	37	19	29	4	0	52	5	1	0	0	6	6	5	29	0	40	135
10:45 PM	2	40	5	0	47	22	24	5	0	51	7	1	7	0	15	16	11	42	0	69	182
Hourly Total	7	159	24	0	190	99	141	18	1	258	21	13	12	0	46	42	22	129	0	193	687
11:00 PM	1	20	5	0	26	23	17	1	0	41	3	2	2	0	7	1	0	6	0	7	81
11:15 PM	0	25	7	0	32	16	18	1	0	35	1	0	0	0	1	3	1	4	0	8	76
11:30 PM	0	26	2	0	28	5	13	3	0	21	4	2	2	0	8	0	3	11	0	14	71
11:45 PM	0	29	3	0	32	2	16	0	0	18	0	1	2	0	3	0	0	11	0	11	64
Hourly Total	1	100	17	0	118	46	64	5	0	115	8	5	6	0	19	4	4	32	0	40	292
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM	0	17	5	0	22	11	23	3	0	37	1	0	0	0	1	0	2	13	0	15	75
12:15 AM	0	16	2	0	18	11	34	3	0	48	0	0	0	0	0	1	0	9	0	10	76
12:30 AM	0	15	6	0	21	14	24	3	0	41	0	0	0	0	0	2	0	3	0	5	67
12:45 AM	0	5	1	0	6	8	15	1	0	24	0	0	1	0	1	0	0	8	0	8	39
Hourly Total	0	53	14	0	67	44	96	10	0	150	1	0	1	0	2	3	2	33	0	38	257
1:00 AM	0	12	1	0	13	1	17	2	0	20	0	1	1	0	2	1	0	4	0	5	40
1:15 AM	0	3	1	0	4	10	15	0	0	25	0	0	0	0	0	2	0	5	0	7	36
1:30 AM	0	10	0	0	10	6	6	1	0	13	0	1	0	0	1	1	1	6	0	8	32
1:45 AM	0	3	0	0	3	3	4	1	0	8	0	0	1	0	1	0	0	3	0	3	15
Hourly Total	0	28	2	0	30	20	42	4	0	66	0	2	2	0	4	4	1	18	0	23	123
2:00 AM	0	6	0	0	6	4	9	2	0	15	0	1	1	0	2	1	0	2	0	3	26
2:15 AM	0	7	0	0	7	6	7	0	0	13	0	0	0	0	0	0	0	0	0	0	20
2:30 AM	0	12	3	0	15	4	8	1	0	13	0	0	1	0	1	0	0	6	0	6	35
2:45 AM	0	4	1	0	5	5	5	0	0	10	0	0	0	0	0	2	0	1	0	3	18
Hourly Total	0	29	4	0	33	19	29	3	0	51	0	1	2	0	3	3	0	9	0	12	99
3:00 AM	0	9	0	0	9	2	2	0	0	4	1	0	0	0	1	0	1	3	0	4	18

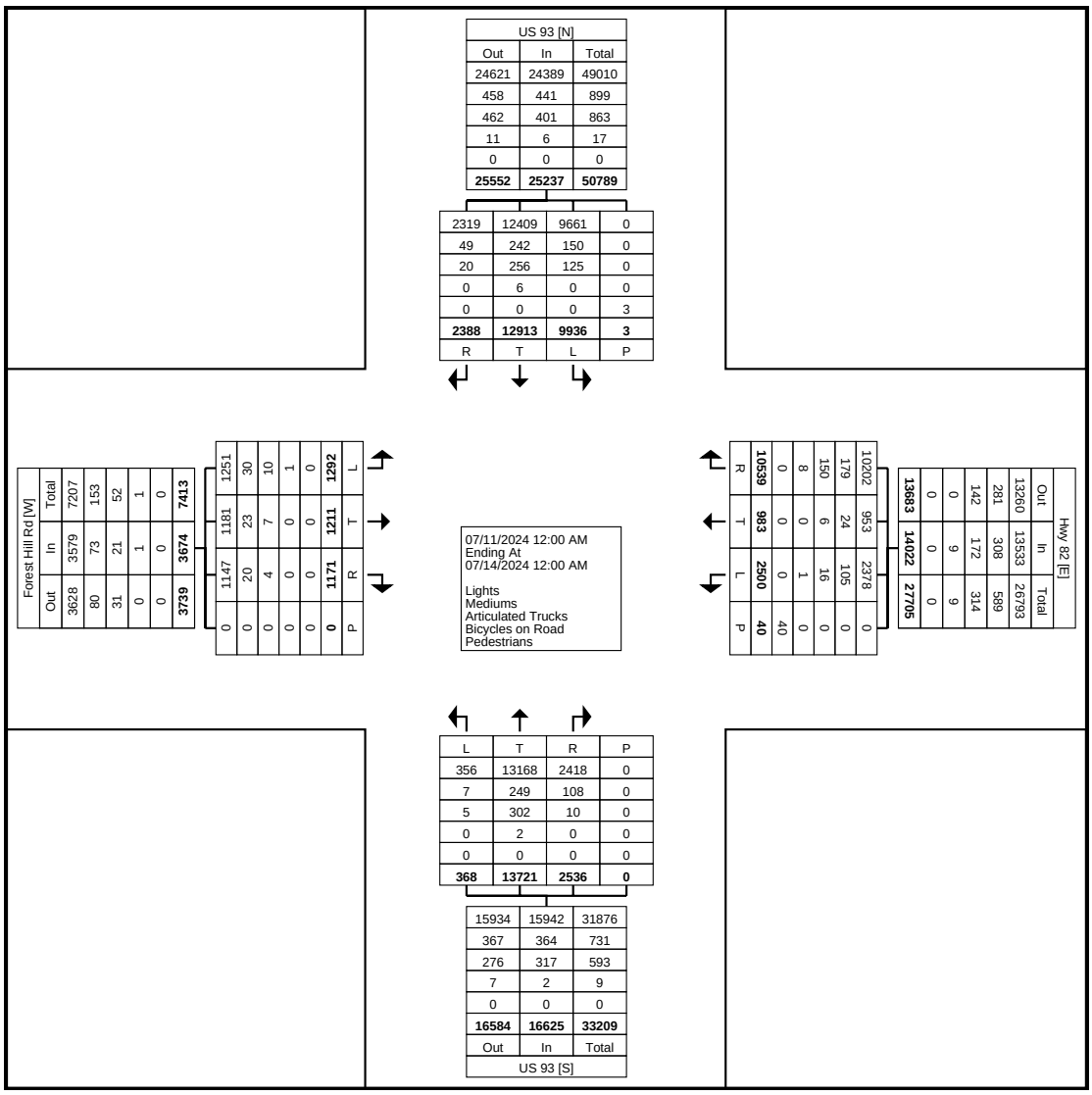
3:15 AM	0	5	0	0	5	3	5	0	0	8	1	0	0	0	1	1	0	3	0	4	18
3:30 AM	1	6	4	0	11	4	5	0	0	9	1	0	0	0	1	0	0	2	0	2	23
3:45 AM	0	4	0	0	4	2	4	1	0	7	0	0	0	0	0	1	0	1	0	2	13
Hourly Total	1	24	4	0	29	11	16	1	0	28	3	0	0	0	3	2	1	9	0	12	72
4:00 AM	1	9	0	0	10	2	2	1	0	5	0	1	0	0	1	0	0	5	0	5	21
4:15 AM	0	10	0	0	10	3	5	0	0	8	0	1	0	0	1	0	0	5	0	5	24
4:30 AM	0	5	0	0	5	2	3	1	0	6	0	0	0	0	0	2	0	3	0	5	16
4:45 AM	0	9	2	0	11	6	8	0	0	14	1	0	0	0	1	0	0	2	0	2	28
Hourly Total	1	33	2	0	36	13	18	2	0	33	1	2	0	0	3	2	0	15	0	17	89
5:00 AM	0	5	2	0	7	2	5	1	0	8	0	1	0	0	1	0	2	3	0	5	21
5:15 AM	0	4	0	0	4	4	13	3	0	20	0	1	1	0	2	2	2	7	0	11	37
5:30 AM	0	4	2	0	6	10	11	1	0	22	2	1	2	0	5	3	1	8	0	12	45
5:45 AM	0	17	3	0	20	14	12	6	0	32	3	0	2	0	5	2	3	8	0	13	70
Hourly Total	0	30	7	0	37	30	41	11	0	82	5	3	5	0	13	7	8	26	0	41	173
6:00 AM	0	7	3	0	10	11	10	3	0	24	1	2	1	0	4	6	3	13	0	22	60
6:15 AM	1	18	3	0	22	10	27	11	0	48	1	3	4	0	8	3	2	14	0	19	97
6:30 AM	2	23	10	0	35	25	37	8	0	70	5	3	5	0	13	4	5	23	1	32	150
6:45 AM	2	23	6	0	31	21	40	7	0	68	3	4	7	0	14	4	6	15	0	25	138
Hourly Total	5	71	22	0	98	67	114	29	0	210	10	12	17	0	39	17	16	65	1	98	445
7:00 AM	3	32	3	0	38	25	33	6	0	64	6	1	5	0	12	6	3	21	0	30	144
7:15 AM	1	42	17	0	60	30	45	10	0	85	5	8	4	0	17	11	3	20	0	34	196
7:30 AM	0	42	5	0	47	21	41	14	0	76	4	6	6	0	16	10	8	29	2	47	186
7:45 AM	1	51	16	0	68	50	62	10	0	122	5	3	11	0	19	7	3	36	0	46	255
Hourly Total	5	167	41	0	213	126	181	40	0	347	20	18	26	0	64	34	17	106	2	157	781
8:00 AM	1	59	13	0	73	49	53	12	0	114	8	3	3	0	14	6	3	31	1	40	241
8:15 AM	3	75	16	0	94	44	56	12	1	112	4	7	8	0	19	14	9	64	1	87	312
8:30 AM	2	84	20	0	106	54	73	16	0	143	5	12	4	0	21	6	5	56	1	67	337
8:45 AM	2	81	18	0	101	76	87	11	0	174	4	7	5	0	16	13	9	56	0	78	369
Hourly Total	8	299	67	0	374	223	269	51	1	543	21	29	20	0	70	39	26	207	3	272	1259
9:00 AM	4	85	13	0	102	48	81	19	0	148	11	7	10	0	28	22	6	58	1	86	364
9:15 AM	2	83	14	0	99	62	100	27	0	189	9	11	12	0	32	17	11	75	0	103	423
9:30 AM	1	89	13	0	103	49	95	19	0	163	14	15	8	0	37	24	9	87	0	120	423
9:45 AM	13	88	18	0	119	59	118	14	0	191	11	12	3	0	26	19	4	69	0	92	428
Hourly Total	20	345	58	0	423	218	394	79	0	691	45	45	33	0	123	82	30	289	1	401	1638
10:00 AM	2	101	17	0	120	55	102	16	0	173	14	8	12	0	34	19	10	83	1	112	439
10:15 AM	2	85	24	0	111	60	86	33	0	179	9	10	17	0	36	25	9	93	0	127	453
10:30 AM	3	98	22	0	123	93	106	16	0	215	13	13	12	0	38	25	13	76	0	114	490
10:45 AM	4	99	18	0	121	68	102	20	0	190	14	7	13	0	34	33	6	83	0	122	467
Hourly Total	11	383	81	0	475	276	396	85	0	757	50	38	54	0	142	102	38	335	1	475	1849
11:00 AM	4	120	18	0	142	86	109	19	0	214	8	14	9	0	31	17	12	81	0	110	497
11:15 AM	6	118	15	0	139	103	106	13	0	222	16	22	12	0	50	24	5	102	0	131	542
11:30 AM	3	130	24	0	157	75	125	31	0	231	11	7	12	0	30	23	8	93	0	124	542
11:45 AM	4	110	15	0	129	82	126	22	0	230	12	11	12	0	35	29	10	99	0	138	532
Hourly Total	17	478	72	0	567	346	466	85	0	897	47	54	45	0	146	93	35	375	0	503	2113
12:00 PM	3	118	22	0	143	105	120	35	0	260	12	13	18	0	43	22	5	89	0	116	562
12:15 PM	2	123	28	0	153	94	97	31	0	222	7	14	11	0	32	21	8	100	0	129	536
12:30 PM	3	122	40	0	165	94	125	26	0	245	7	14	12	0	33	28	12	79	0	119	562
12:45 PM	6	126	22	0	154	106	127	23	0	256	10	10	13	0	33	22	5	112	0	139	582
Hourly Total	14	489	112	0	615	399	469	115	0	983	36	51	54	0	141	93	30	380	0	503	2242
1:00 PM	3	144	28	0	175	110	159	31	0	300	12	17	7	0	36	18	6	106	0	130	641
1:15 PM	4	141	24	0	169	117	133	21	0	271	13	11	8	0	32	28	8	98	2	134	606
1:30 PM	3	132	32	0	167	94	100	17	0	211	9	20	13	0	42	28	11	82	1	121	541
1:45 PM	0	110	26	0	136	102	123	29	0	254	13	11	16	0	40	13	11	85	2	109	539
Hourly Total	10	527	110	0	647	423	515	98	0	1036	47	59	44	0	150	87	36	371	5	494	2327
2:00 PM	3	127	19	0	149	87	123	29	0	239	7	12	17	0	36	29	10	82	0	121	545
2:15 PM	4	127	20	0	151	89	125	18	0	232	13	16	15	0	44	24	8	110	0	142	569
2:30 PM	1	136	23	0	160	80	120	24	0	224	6	10	11	0	27	20	6	110	0	136	547
2:45 PM	1	105	16	0	122	103	124	21	0	248	11	12	3	0	26	33	9	87	0	129	525
Hourly Total	9	495	78	0	582	359	492	92	0	943	37	50	46	0	133	106	33	389	0	528	2186
3:00 PM	3	161	29	0	193	93	100	17	0	210	15	17	9	0	41	26	7	78	0	111	555
3:15 PM	3	116	18	0	137	75	124	22	0	221	7	11	12	0	30	24	9	89	0	122	510
3:30 PM	0	126	20	0	146	107	119	23	0	249	9	14	9	0	32	18	7	81	1	106	533
3:45 PM	5	113	25	0	143	90	125	16	0	231	15	9	6	0	30	26	11	111	0	148	552
Hourly Total	11	516	92	0	619	365	468	78	0	911	46	51	36	0	133	94	34	359	1	487	2150
4:00 PM	2	106	21	0	129	87	114	15	0	216	9	5	12	0	26	24	9	75	0	108	479
4:15 PM	8	119	28	0	155	86	110	15	0	211	7	11	16	0	34	28	10	84	0	122	522
4:30 PM	4	98	25	0	127	86	125	15	0	226	8	6	8	0	22	16	9	79	0	104	479
4:45 PM	4	102	18	0	124	84	100	15	0	199	18	11	2	0	31	18	10	71	1	99	453
Hourly Total	18	425	92	0	535	343	449	60	0	852	42	33	38	0	113	86	38	309	1	433	1933
5:00 PM	6	111	15	0	132	61	94	13	0	168	12	7	10	0	29	23	6	80	1	109	438
5:15 PM	1	98	23	0	122	87	104	15	0	206	5	8	12	0	25	15	9	72	1	96	449
5:30 PM	0	85	14	0	99	89	112	13	0	214	11	11	5	0	27	20	5	60	0	85	425
5:45 PM	7	111	19	0	137	60	78	15	0	153	5	7	7	0	19	21	3	67	0	91	400
Hourly Total	14	405	71	0	490	297	388	56	0	741	33	33	34	0	100	79	23	279	2	381	1712
6:00 PM	4	110	12	0	126	59	90	17	0	166	12	10	12	0	34	19	10	81	2	110	436
6:15 PM	1	98	18	0	117	77	72	5	0	154	7	10	10	0	27	6	8	68	1	82	380
6:30 PM	2	86	13	0	101	61	75	14	0	150	8	2	6	0	16	8	10	69	0	87	354

6:45 PM	3	101	19	0	123	69	84	14	0	167	12	7	3	0	22	25	4	61	0	90	402
Hourly Total	10	395	62	0	467	266	321	50	0	637	39	29	31	0	99	58	32	279	3	369	1572
7:00 PM	1	64	17	0	82	58	71	9	0	138	6	6	8	0	20	12	3	38	0	53	293
7:15 PM	3	89	14	0	106	48	76	13	0	137	10	4	10	0	24	10	5	55	0	70	337
7:30 PM	2	71	14	0	87	46	66	23	0	135	2	6	2	0	10	14	4	49	1	67	299
7:45 PM	2	85	11	0	98	55	51	15	0	121	2	6	10	0	18	12	1	66	0	79	316
Hourly Total	8	309	56	0	373	207	264	60	0	531	20	22	30	0	72	48	13	208	1	269	1245
8:00 PM	3	75	14	0	92	36	44	8	0	88	6	4	6	0	16	12	3	36	0	51	247
8:15 PM	2	58	13	0	73	44	50	12	0	106	1	5	3	0	9	10	4	58	0	72	260
8:30 PM	0	71	9	0	80	30	64	11	0	105	7	4	9	0	20	16	3	51	0	70	275
8:45 PM	3	74	14	0	91	35	45	9	0	89	5	5	4	0	14	10	5	54	0	69	263
Hourly Total	8	278	50	0	336	145	203	40	0	388	19	18	22	0	59	48	15	199	0	262	1045
9:00 PM	3	71	20	0	94	39	47	5	0	91	9	3	4	0	16	11	4	45	0	60	261
9:15 PM	2	65	9	0	76	31	42	10	0	83	8	6	1	0	15	12	4	47	0	63	237
9:30 PM	4	60	7	0	71	34	34	6	0	74	7	2	1	0	10	18	4	38	0	60	215
9:45 PM	1	51	5	0	57	20	41	4	0	65	1	3	6	0	10	6	2	30	0	38	170
Hourly Total	10	247	41	0	298	124	164	25	0	313	25	14	12	0	51	47	14	160	0	221	883
10:00 PM	1	58	20	0	79	29	45	8	0	82	5	3	5	0	13	7	1	49	0	57	231
10:15 PM	0	47	7	0	54	25	23	8	0	56	2	1	5	0	8	6	2	39	0	47	165
10:30 PM	0	42	11	0	53	33	41	4	0	78	0	2	1	0	3	7	3	25	0	35	169
10:45 PM	2	25	2	0	29	21	27	10	0	58	1	3	3	0	7	15	1	32	0	48	142
Hourly Total	3	172	40	0	215	108	136	30	0	274	8	9	14	0	31	35	7	145	0	187	707
11:00 PM	2	22	1	0	25	29	23	1	0	53	4	3	1	0	8	9	6	37	0	52	138
11:15 PM	2	27	3	0	32	20	25	5	0	50	1	2	4	0	7	5	4	13	0	22	111
11:30 PM	0	22	2	0	24	11	38	6	0	55	3	1	4	0	8	2	3	16	0	21	108
11:45 PM	0	26	2	0	28	24	26	6	0	56	2	5	0	0	7	3	0	20	0	23	114
Hourly Total	4	97	8	0	109	84	112	18	0	214	10	11	9	0	30	19	13	86	0	118	471
Grand Total	368	13721	2536	0	16625	9936	12913	2388	3	25237	1292	1211	1171	0	3674	2500	983	10539	40	14022	59558
Approach %	2.2	82.5	15.3	-	-	39.4	51.2	9.5	-	-	35.2	33.0	31.9	-	-	17.8	7.0	75.2	-	-	-
Total %	0.6	23.0	4.3	-	27.9	16.7	21.7	4.0	-	42.4	2.2	2.0	2.0	-	6.2	4.2	1.7	17.7	-	23.5	-
Lights	356	13168	2418	-	15942	9661	12409	2319	-	24389	1251	1181	1147	-	3579	2378	953	10202	-	13533	57443
% Lights	96.7	96.0	95.3	-	95.9	97.2	96.1	97.1	-	96.6	96.8	97.5	98.0	-	97.4	95.1	96.9	96.8	-	96.5	96.4
Mediums	7	249	108	-	364	150	242	49	-	441	30	23	20	-	73	105	24	179	-	308	1186
% Mediums	1.9	1.8	4.3	-	2.2	1.5	1.9	2.1	-	1.7	2.3	1.9	1.7	-	2.0	4.2	2.4	1.7	-	2.2	2.0
Articulated Trucks	5	302	10	-	317	125	256	20	-	401	10	7	4	-	21	16	6	150	-	172	911
% Articulated Trucks	1.4	2.2	0.4	-	1.9	1.3	2.0	0.8	-	1.6	0.8	0.6	0.3	-	0.6	0.6	0.6	1.4	-	1.2	1.5
Bicycles on Road	0	2	0	-	2	0	6	0	-	6	1	0	0	-	1	1	0	8	-	9	18
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.1	0.0	0.0	-	0.0	0.0	0.0	0.1	-	0.1	0.0
Pedestrians	-	-	-	0	-	-	-	-	3	-	-	-	-	0	-	-	-	-	40	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: US 93 & Hwy 82
Site Code: 06
Start Date: 07/11/2024



Turning Movement Data Plot

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: US 93 & Hwy 82
Site Code: 06
Start Date: 07/11/2024

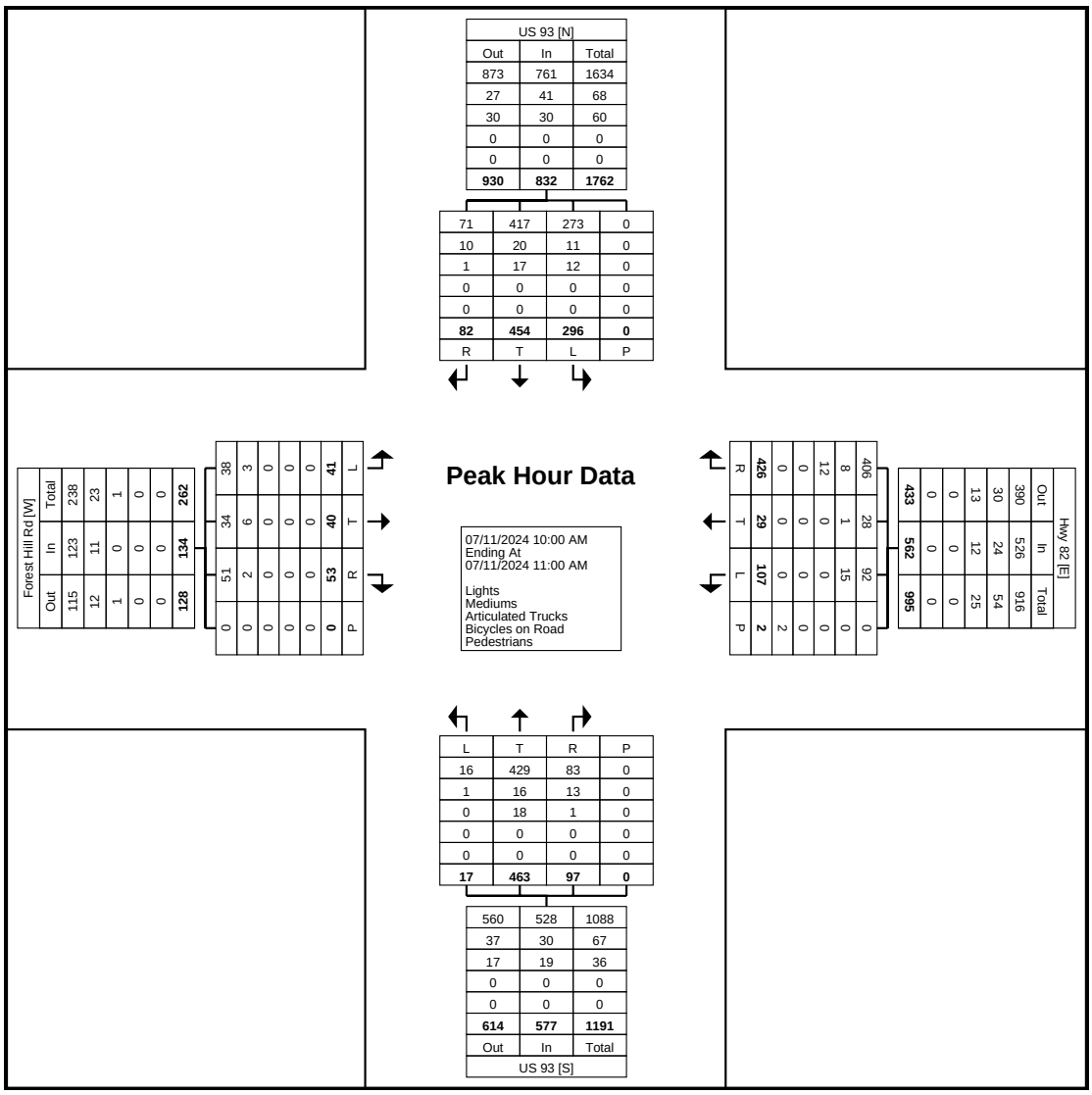
Turning Movement Peak Hour Data (10:00 AM)

Start Time	US 93 Northbound					US 93 Southbound					Forest Hill Rd Eastbound					Hwy 82 Westbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
10:00 AM	2	114	22	0	138	72	121	30	0	223	12	12	12	0	36	34	9	115	0	158	555
10:15 AM	3	110	25	0	138	68	106	19	0	193	10	13	14	0	37	24	9	93	0	126	494
10:30 AM	7	126	23	0	156	66	110	14	0	190	9	9	13	0	31	27	5	108	2	140	517
10:45 AM	5	113	27	0	145	90	117	19	0	226	10	6	14	0	30	22	6	110	0	138	539
Total	17	463	97	0	577	296	454	82	0	832	41	40	53	0	134	107	29	426	2	562	2105
Approach %	2.9	80.2	16.8	-	-	35.6	54.6	9.9	-	-	30.6	29.9	39.6	-	-	19.0	5.2	75.8	-	-	-
Total %	0.8	22.0	4.6	-	27.4	14.1	21.6	3.9	-	39.5	1.9	1.9	2.5	-	6.4	5.1	1.4	20.2	-	26.7	-
PHF	0.607	0.919	0.898	-	0.925	0.822	0.938	0.683	-	0.920	0.854	0.769	0.946	-	0.905	0.787	0.806	0.926	-	0.889	0.948
Lights	16	429	83	-	528	273	417	71	-	761	38	34	51	-	123	92	28	406	-	526	1938
% Lights	94.1	92.7	85.6	-	91.5	92.2	91.9	86.6	-	91.5	92.7	85.0	96.2	-	91.8	86.0	96.6	95.3	-	93.6	92.1
Mediums	1	16	13	-	30	11	20	10	-	41	3	6	2	-	11	15	1	8	-	24	106
% Mediums	5.9	3.5	13.4	-	5.2	3.7	4.4	12.2	-	4.9	7.3	15.0	3.8	-	8.2	14.0	3.4	1.9	-	4.3	5.0
Articulated Trucks	0	18	1	-	19	12	17	1	-	30	0	0	0	-	0	0	0	12	-	12	61
% Articulated Trucks	0.0	3.9	1.0	-	3.3	4.1	3.7	1.2	-	3.6	0.0	0.0	0.0	-	0.0	0.0	0.0	2.8	-	2.1	2.9
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	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	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: US 93 & Hwy 82
Site Code: 06
Start Date: 07/11/2024



Turning Movement Peak Hour Data Plot (10:00 AM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: US 93 & Hwy 82
Site Code: 06
Start Date: 07/11/2024

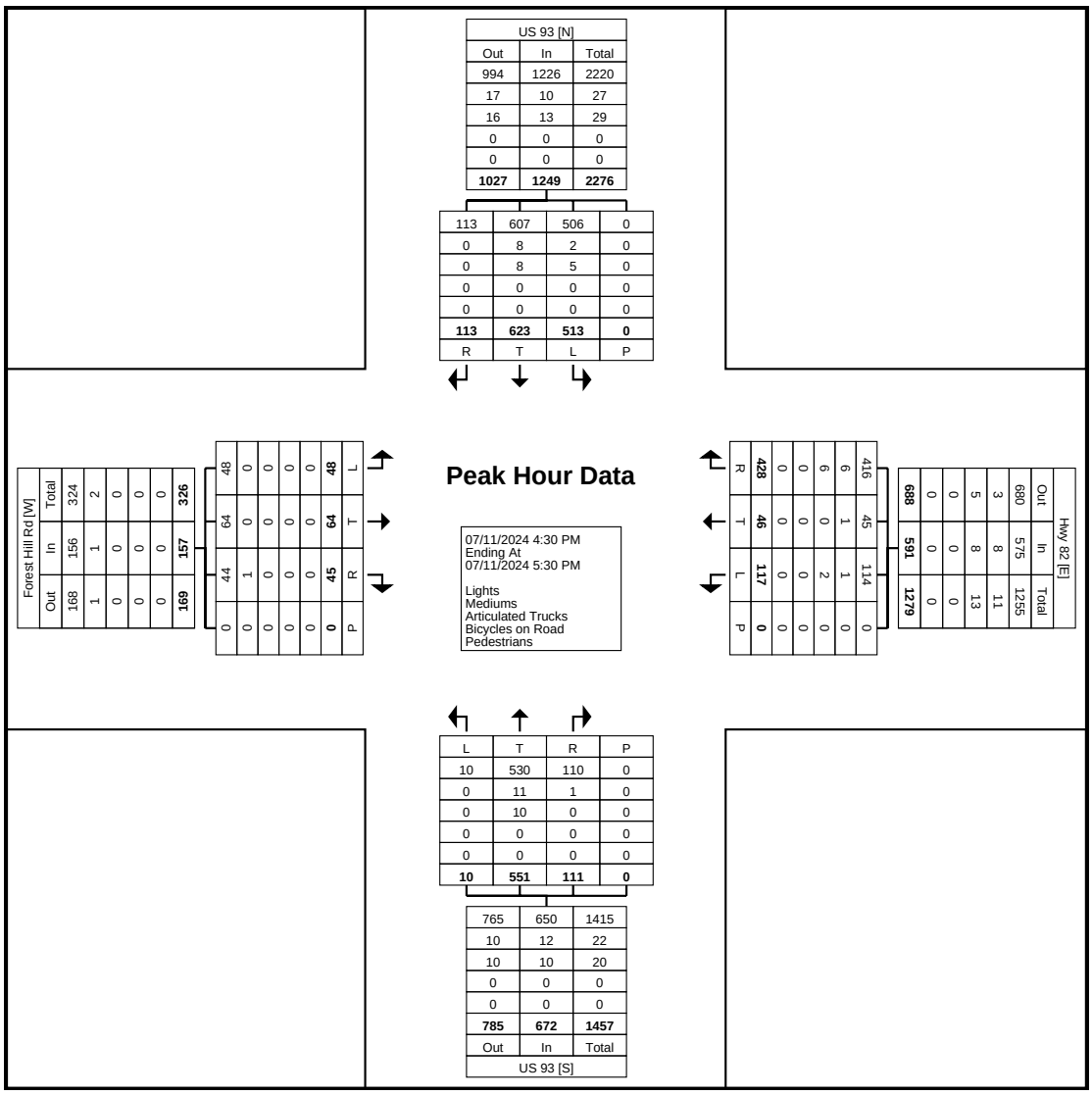
Turning Movement Peak Hour Data (4:30 PM)

Start Time	US 93 Northbound					US 93 Southbound					Forest Hill Rd Eastbound					Hwy 82 Westbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
4:30 PM	2	146	26	0	174	133	131	23	0	287	10	18	9	0	37	35	15	98	0	148	646
4:45 PM	3	141	31	0	175	119	167	35	0	321	17	13	10	0	40	28	14	128	0	170	706
5:00 PM	2	124	25	0	151	135	166	25	0	326	11	21	14	0	46	27	5	94	0	126	649
5:15 PM	3	140	29	0	172	126	159	30	0	315	10	12	12	0	34	27	12	108	0	147	668
Total	10	551	111	0	672	513	623	113	0	1249	48	64	45	0	157	117	46	428	0	591	2669
Approach %	1.5	82.0	16.5	-	-	41.1	49.9	9.0	-	-	30.6	40.8	28.7	-	-	19.8	7.8	72.4	-	-	-
Total %	0.4	20.6	4.2	-	25.2	19.2	23.3	4.2	-	46.8	1.8	2.4	1.7	-	5.9	4.4	1.7	16.0	-	22.1	-
PHF	0.833	0.943	0.895	-	0.960	0.950	0.933	0.807	-	0.958	0.706	0.762	0.804	-	0.853	0.836	0.767	0.836	-	0.869	0.945
Lights	10	530	110	-	650	506	607	113	-	1226	48	64	44	-	156	114	45	416	-	575	2607
% Lights	100.0	96.2	99.1	-	96.7	98.6	97.4	100.0	-	98.2	100.0	100.0	97.8	-	99.4	97.4	97.8	97.2	-	97.3	97.7
Mediums	0	11	1	-	12	2	8	0	-	10	0	0	1	-	1	1	1	6	-	8	31
% Mediums	0.0	2.0	0.9	-	1.8	0.4	1.3	0.0	-	0.8	0.0	0.0	2.2	-	0.6	0.9	2.2	1.4	-	1.4	1.2
Articulated Trucks	0	10	0	-	10	5	8	0	-	13	0	0	0	-	0	2	0	6	-	8	31
% Articulated Trucks	0.0	1.8	0.0	-	1.5	1.0	1.3	0.0	-	1.0	0.0	0.0	0.0	-	0.0	1.7	0.0	1.4	-	1.4	1.2
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	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	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: US 93 & Hwy 82
Site Code: 06
Start Date: 07/11/2024



Turning Movement Peak Hour Data Plot (4:30 PM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: US 93 & Hwy 82
Site Code: 06
Start Date: 07/11/2024

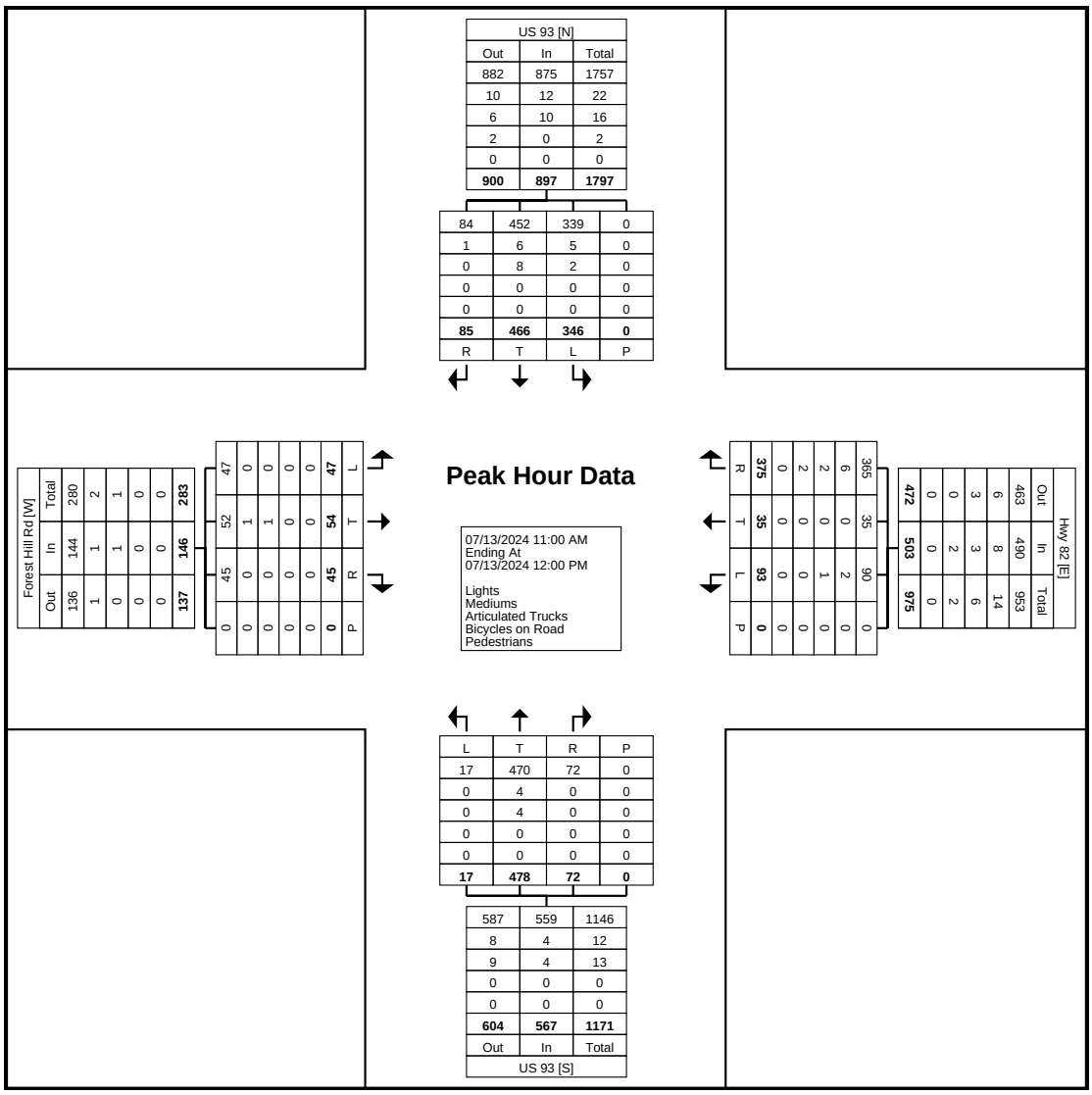
Turning Movement Peak Hour Data (11:00 AM)

Start Time	US 93 Northbound					US 93 Southbound					Forest Hill Rd Eastbound					Hwy 82 Westbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
11:00 AM	4	120	18	0	142	86	109	19	0	214	8	14	9	0	31	17	12	81	0	110	497
11:15 AM	6	118	15	0	139	103	106	13	0	222	16	22	12	0	50	24	5	102	0	131	542
11:30 AM	3	130	24	0	157	75	125	31	0	231	11	7	12	0	30	23	8	93	0	124	542
11:45 AM	4	110	15	0	129	82	126	22	0	230	12	11	12	0	35	29	10	99	0	138	532
Total	17	478	72	0	567	346	466	85	0	897	47	54	45	0	146	93	35	375	0	503	2113
Approach %	3.0	84.3	12.7	-	-	38.6	52.0	9.5	-	-	32.2	37.0	30.8	-	-	18.5	7.0	74.6	-	-	-
Total %	0.8	22.6	3.4	-	26.8	16.4	22.1	4.0	-	42.5	2.2	2.6	2.1	-	6.9	4.4	1.7	17.7	-	23.8	-
PHF	0.708	0.919	0.750	-	0.903	0.840	0.925	0.685	-	0.971	0.734	0.614	0.938	-	0.730	0.802	0.729	0.919	-	0.911	0.975
Lights	17	470	72	-	559	339	452	84	-	875	47	52	45	-	144	90	35	365	-	490	2068
% Lights	100.0	98.3	100.0	-	98.6	98.0	97.0	98.8	-	97.5	100.0	96.3	100.0	-	98.6	96.8	100.0	97.3	-	97.4	97.9
Mediums	0	4	0	-	4	5	6	1	-	12	0	1	0	-	1	2	0	6	-	8	25
% Mediums	0.0	0.8	0.0	-	0.7	1.4	1.3	1.2	-	1.3	0.0	1.9	0.0	-	0.7	2.2	0.0	1.6	-	1.6	1.2
Articulated Trucks	0	4	0	-	4	2	8	0	-	10	0	1	0	-	1	1	0	2	-	3	18
% Articulated Trucks	0.0	0.8	0.0	-	0.7	0.6	1.7	0.0	-	1.1	0.0	1.9	0.0	-	0.7	1.1	0.0	0.5	-	0.6	0.9
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	2	-	2	2
% Bicycles on Road	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	-	0.4	0.1
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: US 93 & Hwy 82
Site Code: 06
Start Date: 07/11/2024



Turning Movement Peak Hour Data Plot (11:00 AM)

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: US 93 & Hwy 82
Site Code: 06
Start Date: 07/11/2024

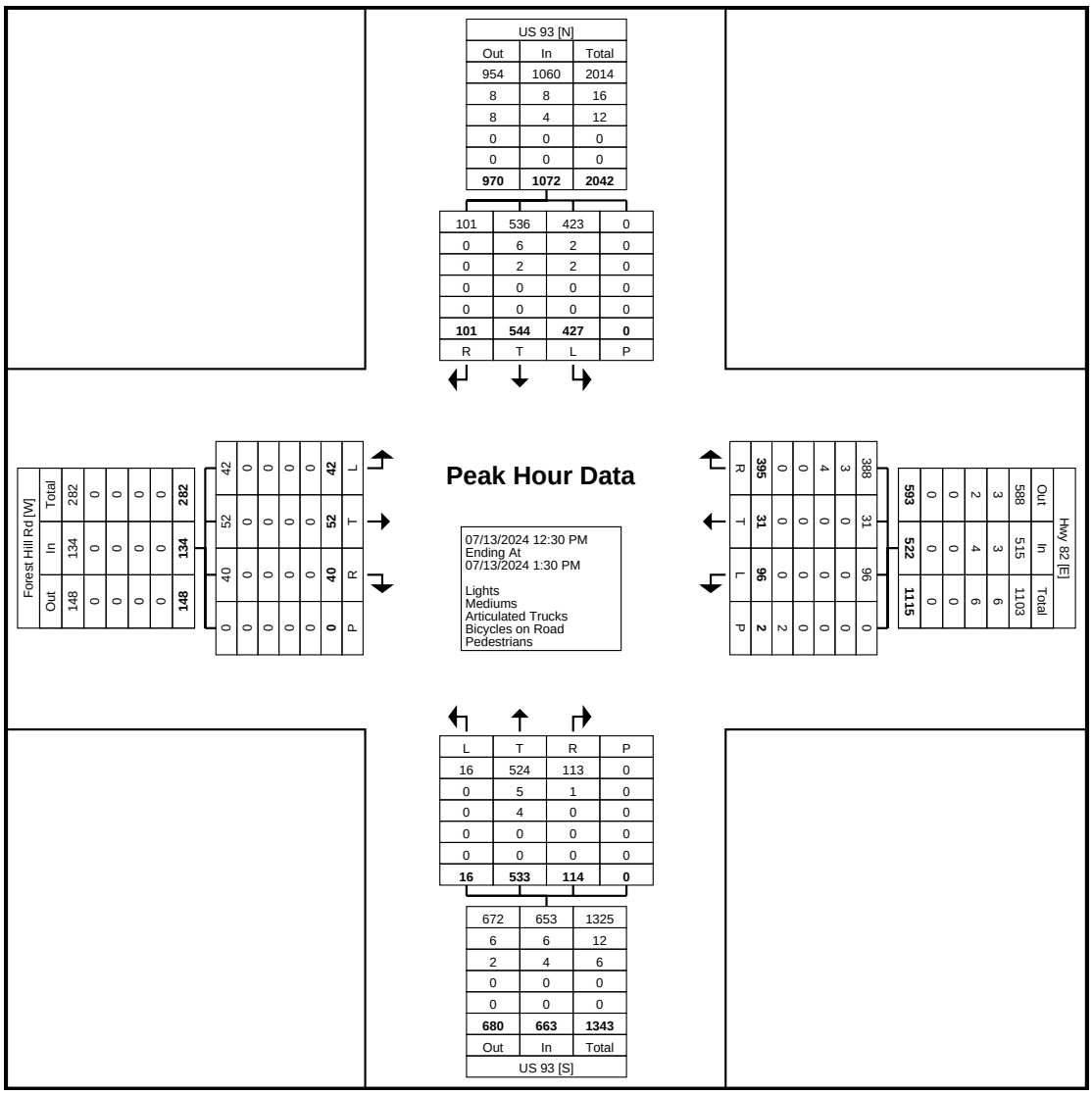
Turning Movement Peak Hour Data (12:30 PM)

Start Time	US 93 Northbound					US 93 Southbound					Forest Hill Rd Eastbound					Hwy 82 Westbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
12:30 PM	3	122	40	0	165	94	125	26	0	245	7	14	12	0	33	28	12	79	0	119	562
12:45 PM	6	126	22	0	154	106	127	23	0	256	10	10	13	0	33	22	5	112	0	139	582
1:00 PM	3	144	28	0	175	110	159	31	0	300	12	17	7	0	36	18	6	106	0	130	641
1:15 PM	4	141	24	0	169	117	133	21	0	271	13	11	8	0	32	28	8	98	2	134	606
Total	16	533	114	0	663	427	544	101	0	1072	42	52	40	0	134	96	31	395	2	522	2391
Approach %	2.4	80.4	17.2	-	-	39.8	50.7	9.4	-	-	31.3	38.8	29.9	-	-	18.4	5.9	75.7	-	-	-
Total %	0.7	22.3	4.8	-	27.7	17.9	22.8	4.2	-	44.8	1.8	2.2	1.7	-	5.6	4.0	1.3	16.5	-	21.8	-
PHF	0.667	0.925	0.713	-	0.947	0.912	0.855	0.815	-	0.893	0.808	0.765	0.769	-	0.931	0.857	0.646	0.882	-	0.939	0.933
Lights	16	524	113	-	653	423	536	101	-	1060	42	52	40	-	134	96	31	388	-	515	2362
% Lights	100.0	98.3	99.1	-	98.5	99.1	98.5	100.0	-	98.9	100.0	100.0	100.0	-	100.0	100.0	100.0	98.2	-	98.7	98.8
Mediums	0	5	1	-	6	2	6	0	-	8	0	0	0	-	0	0	0	3	-	3	17
% Mediums	0.0	0.9	0.9	-	0.9	0.5	1.1	0.0	-	0.7	0.0	0.0	0.0	-	0.0	0.0	0.0	0.8	-	0.6	0.7
Articulated Trucks	0	4	0	-	4	2	2	0	-	4	0	0	0	-	0	0	0	4	-	4	12
% Articulated Trucks	0.0	0.8	0.0	-	0.6	0.5	0.4	0.0	-	0.4	0.0	0.0	0.0	-	0.0	0.0	0.0	1.0	-	0.8	0.5
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	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	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Robert Peccia & Associates
3147 Saddle Drive

Helena, Montana, United States 59601
406-447-5000 srandall@rpa-hln.com

Count Name: US 93 & Hwy 82
Site Code: 06
Start Date: 07/11/2024



Turning Movement Peak Hour Data Plot (12:30 PM)

US 93
POLSON-SOMERS
CORRIDOR STUDY

APPENDIX C:

Existing Conditions Operations Analysis

Polson to Somers Corridor Study

Vistro File: F:\...\PolsonSomers.vistro
Report File: F:\...\2024 Weekday AM.pdf

Scenario 1 2024 Weekday AM
7/19/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	US 93 & Rocky Point Rd	Two-way stop	HCM 7th Edition	WB Left	0.367	21.1	C
2	US 93 & Hwy 28	Two-way stop	HCM 7th Edition	EB Left	0.116	13.5	B
3	US 93 & Lake Mary Ronan Rd	Two-way stop	HCM 7th Edition	WB Left	0.016	14.8	B
4	US 93 & Rimrock Rd/Rollins Lakeshore Dr	Two-way stop	HCM 7th Edition	EB Left	0.007	13.5	B
5	US 93 & Adams St	Two-way stop	HCM 7th Edition	EB Left	0.053	27.5	D
6	US 93 & Hwy 82/Forest Hill Rd	Signalized	HCM 7th Edition	WB Left	0.585	24.6	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: US 93 & Rocky Point Rd

Control Type:	Two-way stop	Delay (sec / veh):	21.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.367

Intersection Setup

Name	US 93		US 93		Rocky Point Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00		70.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Rocky Point Rd	
Base Volume Input [veh/h]	335	89	2	355	119	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	7.80	1.10	0.00	7.00	2.50	33.30
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	335	89	2	355	119	3
Peak Hour Factor	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	91	24	1	96	32	1
Total Analysis Volume [veh/h]	364	97	2	385	129	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.37	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	8.24	0.00	21.11	17.11
Movement LOS	A	A	A	A	C	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	1.67	1.67
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.08	0.08	41.87	41.87
d_A, Approach Delay [s/veh]	0.00		0.04		21.02	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.85					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: US 93 & Hwy 28

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.116

Intersection Setup

Name	US 93		US 93		Hwy 28	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		70.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Hwy 28	
Base Volume Input [veh/h]	18	210	188	100	54	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	16.70	10.60	13.00	18.50	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	210	188	100	54	21
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	55	49	26	14	6
Total Analysis Volume [veh/h]	19	220	197	105	57	22
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.12	0.03
d_M, Delay for Movement [s/veh]	7.88	0.00	0.00	0.00	13.46	10.64
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.05	0.00	0.00	0.00	0.50	0.50
95th-Percentile Queue Length [ft/ln]	1.14	0.00	0.00	0.00	12.52	12.52
d_A, Approach Delay [s/veh]	0.63		0.00		12.67	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.86					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: US 93 & Lake Mary Ronan Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			70.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			No		

Volumes

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Base Volume Input [veh/h]	16	219	10	10	242	20	19	9	29	6	8	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	20.50	0.00	10.00	12.40	5.00	0.00	0.00	6.90	16.70	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	219	10	10	242	20	19	9	29	6	8	5
Peak Hour Factor	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	57	3	3	63	5	5	2	8	2	2	1
Total Analysis Volume [veh/h]	17	229	10	10	253	21	20	9	30	6	8	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00	0.05	0.02	0.04	0.02	0.02	0.01
d_M, Delay for Movement [s/veh]	7.80	0.00	0.00	7.83	0.00	0.00	14.12	13.97	10.41	14.76	13.65	9.74
Movement LOS	A	A	A	A	A	A	B	B	B	B	B	A
95th-Percentile Queue Length [veh/ln]	0.04	0.00	0.00	0.02	0.00	0.00	0.35	0.35	0.35	0.13	0.13	0.13
95th-Percentile Queue Length [ft/ln]	0.99	0.00	0.00	0.59	0.00	0.00	8.82	8.82	8.82	3.15	3.15	3.15
d_A, Approach Delay [s/veh]	0.52			0.28			12.21			12.97		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.91											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 4: US 93 & Rimrock Rd/Rollins Lakeshore Dr

Note: Intersection is rotated to keep NB/SB on US 93

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Base Volume Input [veh/h]	0	251	1	3	284	4	3	1	0	2	0	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	18.70	0.00	0.00	11.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	251	1	3	284	4	3	1	0	2	0	5
Peak Hour Factor	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	67	0	1	75	1	1	0	0	1	0	1
Total Analysis Volume [veh/h]	0	266	1	3	301	4	3	1	0	2	0	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.84	0.00	0.00	7.76	0.00	0.00	13.52	13.46	9.94	13.45	13.46	9.70
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.03	0.03	0.03	0.03	0.03
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.17	0.00	0.00	0.71	0.71	0.71	0.84	0.84	0.84
d_A, Approach Delay [s/veh]	0.00			0.08			13.51			10.77		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	0.26											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 5: US 93 & Adams St

Control Type:	Two-way stop	Delay (sec / veh):	27.5
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.053

Intersection Setup

Name	US 93			US 93			Adams St			Adams St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Adams St			Adams St		
Base Volume Input [veh/h]	12	462	23	32	441	10	9	2	11	11	3	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.30	13.40	0.00	0.00	10.70	0.00	0.00	0.00	9.10	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	462	23	32	441	10	9	2	11	11	3	20
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	120	6	8	114	3	2	1	3	3	1	5
Total Analysis Volume [veh/h]	12	480	24	33	458	10	9	2	11	11	3	21
Pedestrian Volume [ped/h]	0			19			18			10		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.03	0.00	0.00	0.05	0.01	0.02	0.06	0.01	0.04
d_M, Delay for Movement [s/veh]	8.55	0.00	0.00	8.53	0.00	0.00	27.51	23.91	12.63	25.68	23.97	13.07
Movement LOS	A	A	A	A	A	A	D	C	B	D	C	B
95th-Percentile Queue Length [veh/ln]	0.04	0.00	0.00	0.10	0.00	0.00	0.27	0.27	0.27	0.37	0.37	0.37
95th-Percentile Queue Length [ft/ln]	0.89	0.00	0.00	2.43	0.00	0.00	6.70	6.70	6.70	9.36	9.36	9.36
d_A, Approach Delay [s/veh]	0.20			0.56			19.74			17.97		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	1.35											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 6: US 93 & Hwy 82/Forest Hill Rd

Control Type:	Signalized	Delay (sec / veh):	24.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.585

Intersection Setup

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00			55.00			60.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Base Volume Input [veh/h]	17	463	97	296	454	82	41	40	53	107	29	426
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.90	7.30	14.40	7.80	8.10	13.40	7.30	15.00	3.80	14.00	3.40	4.70
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	463	97	296	454	82	41	40	53	107	29	426
Peak Hour Factor	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	122	26	78	120	22	11	11	14	28	8	112
Total Analysis Volume [veh/h]	18	488	102	312	479	86	43	42	56	113	31	449
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal Group	0	6	0	5	2	0	0	8	0	0	4	5
Auxiliary Signal Groups												4,5
Maximum Green [s]	0	18	0	3	26	0	0	18	0	0	18	3
Amber [s]	0.0	5.0	0.0	5.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	5.0
All red [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	7	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	6.0	0.0	6.0	6.0	0.0	0.0	6.0	0.0	0.0	6.0	6.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Phasing & Timing: Pattern 1

Split [s]	0	27	0	13	40	0	0	80	0	0	80	13
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	10	5
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Minimum Recall		No		No	No			No			No	No
Maximum Recall		No		No	No			No			No	No
Pedestrian Recall		No		No	No			No			No	No

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C	R
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	6.00	6.00	6.00	0.00	6.00	6.00	6.00	6.00	6.00	0.00
g_i, Effective Green Time [s]	55	55	55	68	68	68	36	36	36	49
g / C, Green / Cycle	0.46	0.46	0.46	0.56	0.56	0.56	0.30	0.30	0.30	0.41
(v / s)_i Volume / Saturation Flow Rate	0.02	0.18	0.19	0.34	0.18	0.18	0.12	0.10	0.02	0.31
s, saturation flow rate [veh/h]	819	1649	1552	914	1638	1552	1188	1172	1703	1432
c, Capacity [veh/h]	327	752	708	490	925	876	398	311	515	588
d1, Uniform Delay [s]	27.84	21.73	21.77	18.24	13.83	13.83	32.62	35.65	29.76	30.38
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.32	1.60	1.72	6.21	0.89	0.94	0.53	0.71	0.05	2.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.40	0.41	0.64	0.31	0.31	0.35	0.36	0.06	0.76
d, Delay for Lane Group [s/veh]	28.16	23.33	23.50	24.45	14.71	14.76	33.15	36.36	29.81	32.47
Lane Group LOS	C	C	C	C	B	B	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.37	5.56	5.31	4.93	3.92	3.73	3.06	2.84	0.66	11.46
50th-Percentile Queue Length [ft/ln]	9.20	139.03	132.70	123.27	98.06	93.29	76.62	70.89	16.45	286.59
95th-Percentile Queue Length [veh/ln]	0.66	9.43	9.09	8.57	7.06	6.72	5.52	5.10	1.18	17.02
95th-Percentile Queue Length [ft/ln]	16.57	235.71	227.16	214.31	176.51	167.91	137.91	127.61	29.60	425.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.16	23.40	23.50	24.45	14.73	14.76	33.15	33.15	33.15	36.36	29.81	32.47
Movement LOS	C	C	C	C	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	23.55			18.19			33.15			33.08		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	24.59											
Intersection LOS	C											
Intersection V/C	0.585											

Emissions

Vehicle Miles Traveled [mph]	0.42	7.11	6.75	7.33	6.81	6.46	3.32	2.66	0.73	10.58
Stops [stops/h]	11.04	166.83	159.24	147.92	117.67	111.94	91.94	85.07	19.74	343.91
Fuel consumption [US gal/h]	0.32	4.77	4.56	4.54	3.28	3.12	3.10	1.28	0.30	4.76
CO [g/h]	22.54	333.72	318.55	317.69	229.41	218.20	216.48	89.63	20.73	332.87
NOx [g/h]	4.39	64.93	61.98	61.81	44.63	42.45	42.12	17.44	4.03	64.76
VOC [g/h]	5.22	77.34	73.83	73.63	53.17	50.57	50.17	20.77	4.81	77.15

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersectio	2.925	3.040	2.025	2.569
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	533	1200	1200
d_b, Bicycle Delay [s]	42.50	32.27	9.60	9.60
l_b,int, Bicycle LOS Score for Intersection	2.061	2.283	1.792	2.538
Bicycle LOS	B	B	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Polson to Somers Corridor Study

Vistro File: F:\...\PolsonSomers.vistro
Report File: F:\...\2024 Weekday PM.pdf

Scenario 2 2024 Weekday PM
7/19/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	US 93 & Rocky Point Rd	Two-way stop	HCM 7th Edition	WB Left	0.410	23.6	C
2	US 93 & Hwy 28	Two-way stop	HCM 7th Edition	EB Left	0.181	14.5	B
3	US 93 & Lake Mary Ronan Rd	Two-way stop	HCM 7th Edition	EB Left	0.086	17.9	C
4	US 93 & Rimrock Rd/Rollins Lakeshore Dr	Two-way stop	HCM 7th Edition	EB Left	0.011	14.9	B
5	US 93 & Adams St	Two-way stop	HCM 7th Edition	EB Left	0.053	37.9	E
6	US 93 & Hwy 82/Forest Hill Rd	Signalized	HCM 7th Edition	WB Left	0.669	28.5	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: US 93 & Rocky Point Rd

Control Type:	Two-way stop	Delay (sec / veh):	23.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.410

Intersection Setup

Name	US 93		US 93		Rocky Point Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00		70.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Rocky Point Rd	
Base Volume Input [veh/h]	375	105	1	376	126	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.50	1.00	0.00	4.30	2.40	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	375	105	1	376	126	5
Peak Hour Factor	0.9390	0.9390	0.9390	0.9390	0.9390	0.9390
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	100	28	0	100	34	1
Total Analysis Volume [veh/h]	399	112	1	400	134	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.41	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	8.38	0.00	23.58	18.48
Movement LOS	A	A	A	A	C	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	1.99	1.99
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.04	0.04	49.81	49.81
d_A, Approach Delay [s/veh]	0.00		0.02		23.40	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	3.10					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: US 93 & Hwy 28

Control Type:	Two-way stop	Delay (sec / veh):	14.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.181

Intersection Setup

Name	US 93		US 93		Hwy 28	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		70.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Hwy 28	
Base Volume Input [veh/h]	21	238	198	85	81	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	8.40	6.60	17.60	13.60	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	238	198	85	81	19
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	63	52	22	21	5
Total Analysis Volume [veh/h]	22	251	208	89	85	20
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.18	0.03
d_M, Delay for Movement [s/veh]	7.87	0.00	0.00	0.00	14.48	11.38
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.05	0.00	0.00	0.00	0.77	0.77
95th-Percentile Queue Length [ft/ln]	1.32	0.00	0.00	0.00	19.18	19.18
d_A, Approach Delay [s/veh]	0.63		0.00		13.89	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.42					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: US 93 & Lake Mary Ronan Rd

Control Type:	Two-way stop	Delay (sec / veh):	17.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.086

Intersection Setup

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			70.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			No		

Volumes

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Base Volume Input [veh/h]	19	283	7	8	263	31	23	8	25	4	7	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	7.40	0.00	0.00	11.00	3.20	13.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	283	7	8	263	31	23	8	25	4	7	4
Peak Hour Factor	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	83	2	2	77	9	7	2	7	1	2	1
Total Analysis Volume [veh/h]	22	332	8	9	308	36	27	9	29	5	8	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.01	0.00	0.00	0.09	0.03	0.04	0.02	0.02	0.01
d_M, Delay for Movement [s/veh]	7.99	0.00	0.00	7.95	0.00	0.00	17.90	16.70	11.36	17.20	16.07	10.50
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.05	0.00	0.00	0.02	0.00	0.00	0.53	0.53	0.53	0.15	0.15	0.15
95th-Percentile Queue Length [ft/ln]	1.37	0.00	0.00	0.55	0.00	0.00	13.15	13.15	13.15	3.68	3.68	3.68
d_A, Approach Delay [s/veh]	0.49			0.20			14.81			14.84		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.85											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 4: US 93 & Rimrock Rd/Rollins Lakeshore Dr

Note: Intersection is rotated to keep NB/SB on US 93

Control Type:	Two-way stop	Delay (sec / veh):	14.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Base Volume Input [veh/h]	0	320	3	6	301	2	4	0	0	1	1	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.90	0.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	320	3	6	301	2	4	0	0	1	1	5
Peak Hour Factor	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	85	1	2	80	1	1	0	0	0	0	1
Total Analysis Volume [veh/h]	0	338	3	6	318	2	4	0	0	1	1	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.88	0.00	0.00	7.94	0.00	0.00	14.95	14.64	10.07	14.78	14.61	10.51
Movement LOS	A	A	A	A	A	A	B	B	B	B	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.03	0.03	0.04	0.04	0.04
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.37	0.00	0.00	0.83	0.83	0.83	0.98	0.98	0.98
d_A, Approach Delay [s/veh]	0.00			0.15			14.95			11.71		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	0.28											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 5: US 93 & Adams St

Control Type:	Two-way stop	Delay (sec / veh):	37.9
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.053

Intersection Setup

Name	US 93			US 93			Adams St			Adams St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Adams St			Adams St		
Base Volume Input [veh/h]	17	571	15	15	542	13	6	0	18	11	1	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.70	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	571	15	15	542	13	6	0	18	11	1	28
Peak Hour Factor	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	153	4	4	146	3	2	0	5	3	0	8
Total Analysis Volume [veh/h]	18	613	16	16	582	14	6	0	19	12	1	30
Pedestrian Volume [ped/h]	0			21			20			2		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.02	0.01	0.00	0.05	0.00	0.04	0.09	0.01	0.06
d_M, Delay for Movement [s/veh]	8.84	0.00	0.00	8.82	0.00	0.00	37.94	30.01	13.68	35.03	31.27	15.34
Movement LOS	A	A	A	A	A	A	E	D	B	E	D	C
95th-Percentile Queue Length [veh/ln]	0.06	0.00	0.00	0.05	0.00	0.00	0.30	0.30	0.30	0.57	0.57	0.57
95th-Percentile Queue Length [ft/ln]	1.44	0.00	0.00	1.27	0.00	0.00	7.48	7.48	7.48	14.24	14.24	14.24
d_A, Approach Delay [s/veh]	0.25			0.23			19.50			21.21		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	1.28											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 6: US 93 & Hwy 82/Forest Hill Rd

Control Type:	Signalized	Delay (sec / veh):	28.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.669

Intersection Setup

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00			55.00			60.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Base Volume Input [veh/h]	10	551	111	513	623	113	48	64	45	117	46	428
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.80	0.90	1.40	2.60	0.00	0.00	0.00	2.20	2.60	2.20	2.80
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	551	111	513	623	113	48	64	45	117	46	428
Peak Hour Factor	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	146	29	136	165	30	13	17	12	31	12	113
Total Analysis Volume [veh/h]	11	583	117	543	659	120	51	68	48	124	49	453
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal Group	0	6	0	5	2	0	0	8	0	0	4	5
Auxiliary Signal Groups												4,5
Maximum Green [s]	0	18	0	3	26	0	0	18	0	0	18	3
Amber [s]	0.0	5.0	0.0	5.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	5.0
All red [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	7	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	6.0	0.0	6.0	6.0	0.0	0.0	6.0	0.0	0.0	6.0	6.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Phasing & Timing: Pattern 1

Split [s]	0	27	0	27	54	0	0	66	0	0	66	27
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	10	5
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Minimum Recall		No		No	No			No			No	No
Maximum Recall		No		No	No			No			No	No
Pedestrian Recall		No		No	No			No			No	No

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C	R
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	6.00	6.00	6.00	0.00	6.00	6.00	6.00	6.00	6.00	0.00
g_i, Effective Green Time [s]	45	45	45	72	72	72	32	32	32	59
g / C, Green / Cycle	0.38	0.38	0.38	0.60	0.60	0.60	0.26	0.26	0.26	0.49
(v / s)_i Volume / Saturation Flow Rate	0.02	0.21	0.21	0.51	0.23	0.23	0.12	0.10	0.03	0.31
s, saturation flow rate [veh/h]	704	1697	1600	1060	1714	1624	1364	1270	1720	1455
c, Capacity [veh/h]	218	641	605	591	1033	979	399	270	454	711
d1, Uniform Delay [s]	36.69	29.47	29.51	19.66	12.34	12.36	36.46	40.20	33.46	22.76
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.17
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.44	3.52	3.77	21.58	1.09	1.16	0.70	1.22	0.10	1.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.56	0.56	0.92	0.39	0.39	0.42	0.46	0.11	0.64
d, Delay for Lane Group [s/veh]	37.13	33.00	33.27	41.24	13.43	13.53	37.16	41.42	33.57	24.29
Lane Group LOS	D	C	C	D	B	B	D	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.27	8.25	7.86	11.00	5.10	4.89	3.90	3.35	1.12	9.77
50th-Percentile Queue Length [ft/ln]	6.76	206.29	196.47	275.09	127.49	122.27	97.40	83.84	27.92	244.17
95th-Percentile Queue Length [veh/ln]	0.49	12.96	12.46	16.44	8.80	8.52	7.01	6.04	2.01	14.89
95th-Percentile Queue Length [ft/ln]	12.17	324.06	311.40	411.09	220.08	212.95	175.32	150.91	50.26	372.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.13	33.10	33.27	41.24	13.47	13.53	37.16	37.16	37.16	41.42	33.57	24.29
Movement LOS	D	C	C	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	33.19			24.88			37.16			28.41		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	28.48											
Intersection LOS	C											
Intersection V/C	0.669											

Emissions

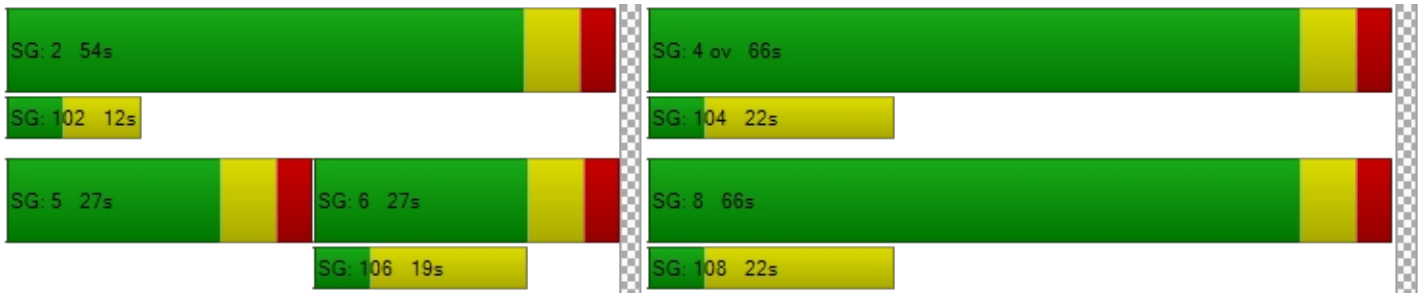
Vehicle Miles Traveled [mph]	0.26	8.45	8.00	12.76	9.37	8.93	3.94	2.92	1.15	10.68
Stops [stops/h]	8.12	247.54	235.76	330.10	152.99	146.73	116.88	100.61	33.51	293.01
Fuel consumption [US gal/h]	0.24	7.29	6.95	11.11	4.24	4.07	3.98	1.56	0.52	3.84
CO [g/h]	16.95	509.91	485.91	776.89	296.70	284.58	278.26	109.21	36.01	268.65
NOx [g/h]	3.30	99.21	94.54	151.16	57.73	55.37	54.14	21.25	7.01	52.27
VOC [g/h]	3.93	118.18	112.62	180.05	68.76	65.95	64.49	25.31	8.35	62.26

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersectio	3.043	3.249	2.084	2.726
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	767	967	967
d_b, Bicycle Delay [s]	42.50	22.82	16.02	16.02
l_b,int, Bicycle LOS Score for Intersection	2.146	2.650	1.835	2.593
Bicycle LOS	B	B	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Polson to Somers Corridor Study

Vistro File: F:\...\PolsonSomers.vistro
Report File: F:\...\2024 Weekend AM.pdf

Scenario 3 2024 Weekend AM
7/19/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	US 93 & Rocky Point Rd	Two-way stop	HCM 7th Edition	WB Left	0.336	20.5	C
2	US 93 & Hwy 28	Two-way stop	HCM 7th Edition	EB Left	0.128	13.4	B
3	US 93 & Lake Mary Ronan Rd	Two-way stop	HCM 7th Edition	EB Left	0.093	16.3	C
4	US 93 & Rimrock Rd/Rollins Lakeshore Dr	Two-way stop	HCM 7th Edition	EB Thru	0.003	15.1	C
5	US 93 & Adams St	Two-way stop	HCM 7th Edition	EB Left	0.076	53.0	F
6	US 93 & Hwy 82/Forest Hill Rd	Signalized	HCM 7th Edition	WB Left	0.521	22.5	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: US 93 & Rocky Point Rd

Control Type:	Two-way stop	Delay (sec / veh):	20.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.336

Intersection Setup

Name	US 93		US 93		Rocky Point Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00		70.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Rocky Point Rd	
Base Volume Input [veh/h]	335	118	4	357	109	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.80	0.80	0.00	2.20	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	335	118	4	357	109	1
Peak Hour Factor	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	90	32	1	96	29	0
Total Analysis Volume [veh/h]	360	127	4	383	117	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.34	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	8.32	0.00	20.49	15.83
Movement LOS	A	A	A	A	C	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.01	0.01	1.45	1.45
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.17	0.17	36.37	36.37
d_A, Approach Delay [s/veh]	0.00		0.09		20.45	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.47					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: US 93 & Hwy 28

Control Type:	Two-way stop	Delay (sec / veh):	13.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.128

Intersection Setup

Name	US 93		US 93		Hwy 28	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		70.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Hwy 28	
Base Volume Input [veh/h]	19	224	189	64	57	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	7.60	3.20	3.10	0.00	6.20
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	224	189	64	57	16
Peak Hour Factor	0.8950	0.8950	0.8950	0.8950	0.8950	0.8950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	63	53	18	16	4
Total Analysis Volume [veh/h]	21	250	211	72	64	18
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.13	0.02
d_M, Delay for Movement [s/veh]	7.83	0.00	0.00	0.00	13.40	10.79
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.05	0.00	0.00	0.00	0.53	0.53
95th-Percentile Queue Length [ft/ln]	1.24	0.00	0.00	0.00	13.26	13.26
d_A, Approach Delay [s/veh]	0.61		0.00		12.83	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.91					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: US 93 & Lake Mary Ronan Rd

Control Type:	Two-way stop	Delay (sec / veh):	16.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.093

Intersection Setup

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			70.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			No		

Volumes

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Base Volume Input [veh/h]	37	190	8	20	248	26	32	12	17	8	11	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.20	12.50	0.00	4.40	0.00	9.40	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	190	8	20	248	26	32	12	17	8	11	4
Peak Hour Factor	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	51	2	5	67	7	9	3	5	2	3	1
Total Analysis Volume [veh/h]	40	205	9	22	267	28	34	13	18	9	12	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.02	0.00	0.00	0.09	0.03	0.02	0.02	0.03	0.00
d_M, Delay for Movement [s/veh]	7.91	0.00	0.00	7.67	0.00	0.00	16.30	15.55	11.08	15.55	14.91	9.85
Movement LOS	A	A	A	A	A	A	C	C	B	C	B	A
95th-Percentile Queue Length [veh/ln]	0.10	0.00	0.00	0.05	0.00	0.00	0.52	0.52	0.52	0.19	0.19	0.19
95th-Percentile Queue Length [ft/ln]	2.42	0.00	0.00	1.23	0.00	0.00	13.00	13.00	13.00	4.84	4.84	4.84
d_A, Approach Delay [s/veh]	1.25			0.53			14.70			14.33		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	2.72											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 4: US 93 & Rimrock Rd/Rollins Lakeshore Dr

Note: Intersection is rotated to keep NB/SB on US 93

Control Type:	Two-way stop	Delay (sec / veh):	15.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Base Volume Input [veh/h]	0	261	35	40	280	1	0	1	0	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.10	3.00	2.50	3.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	261	35	40	280	1	0	1	0	1	0	3
Peak Hour Factor	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	68	9	10	73	0	0	0	0	0	0	1
Total Analysis Volume [veh/h]	0	274	37	42	294	1	0	1	0	1	0	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.82	0.00	0.00	7.99	0.00	0.00	15.08	15.07	9.83	15.07	14.85	9.83
Movement LOS	A	A	A	A	A	A	C	C	A	C	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.10	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	2.61	0.00	0.00	0.21	0.21	0.21	0.51	0.51	0.51
d_A, Approach Delay [s/veh]	0.00			1.00			15.07			11.14		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	0.61											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: US 93 & Adams St

Control Type:	Two-way stop	Delay (sec / veh):	53.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.076

Intersection Setup

Name	US 93			US 93			Adams St			Adams St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Adams St			Adams St		
Base Volume Input [veh/h]	12	634	11	25	438	9	5	1	11	11	1	29
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.90	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	3.40
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	634	11	25	438	9	5	1	11	11	1	29
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	193	3	8	134	3	2	0	3	3	0	9
Total Analysis Volume [veh/h]	15	773	13	30	534	11	6	1	13	13	1	35
Pedestrian Volume [ped/h]	0			51			25			16		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.04	0.01	0.00	0.08	0.01	0.03	0.13	0.01	0.10
d_M, Delay for Movement [s/veh]	8.70	0.00	0.00	9.57	0.00	0.00	52.98	37.56	14.39	45.68	40.56	21.14
Movement LOS	A	A	A	A	A	A	F	E	B	E	E	C
95th-Percentile Queue Length [veh/ln]	0.05	0.00	0.00	0.11	0.00	0.00	0.36	0.36	0.36	0.90	0.90	0.90
95th-Percentile Queue Length [ft/ln]	1.16	0.00	0.00	2.85	0.00	0.00	9.06	9.06	9.06	22.57	22.57	22.57
d_A, Approach Delay [s/veh]	0.16			0.50			27.12			28.05		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	1.62											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 6: US 93 & Hwy 82/Forest Hill Rd

Control Type:	Signalized	Delay (sec / veh):	22.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.521

Intersection Setup

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00			55.00			60.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Base Volume Input [veh/h]	17	478	72	346	466	85	47	54	45	93	35	375
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.70	0.00	2.00	3.00	1.20	0.00	3.70	0.00	3.20	0.00	2.70
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	478	72	346	466	85	47	54	45	93	35	375
Peak Hour Factor	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	123	18	89	119	22	12	14	12	24	9	96
Total Analysis Volume [veh/h]	17	490	74	355	478	87	48	55	46	95	36	385
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal Group	0	6	0	5	2	0	0	8	0	0	4	5
Auxiliary Signal Groups												4,5
Maximum Green [s]	0	18	0	3	26	0	0	18	0	0	18	3
Amber [s]	0.0	5.0	0.0	5.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	5.0
All red [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	7	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	6.0	0.0	6.0	6.0	0.0	0.0	6.0	0.0	0.0	6.0	6.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Phasing & Timing: Pattern 1

Split [s]	0	27	0	13	40	0	0	80	0	0	80	13
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	10	5
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Minimum Recall		No		No	No			No			No	No
Maximum Recall		No		No	No			No			No	No
Pedestrian Recall		No		No	No			No			No	No

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C	R
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	6.00	6.00	6.00	0.00	6.00	6.00	6.00	6.00	6.00	0.00
g_i, Effective Green Time [s]	60	60	60	73	73	73	31	31	31	44
g / C, Green / Cycle	0.50	0.50	0.50	0.61	0.61	0.61	0.26	0.26	0.26	0.37
(v / s)_i Volume / Saturation Flow Rate	0.02	0.17	0.17	0.37	0.17	0.17	0.11	0.07	0.02	0.26
s, saturation flow rate [veh/h]	859	1726	1649	966	1709	1618	1342	1281	1750	1456
c, Capacity [veh/h]	385	863	824	569	1039	984	387	284	452	534
d1, Uniform Delay [s]	23.67	18.01	18.04	15.04	11.10	11.10	36.61	38.48	33.68	32.70
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.22	1.04	1.10	5.10	0.67	0.71	0.63	0.69	0.07	1.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.33	0.34	0.62	0.28	0.28	0.39	0.34	0.08	0.72
d, Delay for Lane Group [s/veh]	23.89	19.05	19.14	20.14	11.77	11.81	37.24	39.17	33.75	34.55
Lane Group LOS	C	B	B	C	B	B	D	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.31	4.60	4.45	4.89	3.34	3.18	3.47	2.47	0.82	9.94
50th-Percentile Queue Length [ft/ln]	7.81	115.10	111.18	122.27	83.61	79.46	86.73	61.71	20.53	248.59
95th-Percentile Queue Length [veh/ln]	0.56	8.12	7.91	8.52	6.02	5.72	6.24	4.44	1.48	15.12
95th-Percentile Queue Length [ft/ln]	14.06	203.07	197.64	212.94	150.50	143.02	156.12	111.07	36.95	377.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.89	19.09	19.14	20.14	11.78	11.81	37.24	37.24	37.24	39.17	33.75	34.55
Movement LOS	C	B	B	C	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	19.23			15.01			37.24			35.35		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	22.52											
Intersection LOS	C											
Intersection V/C	0.521											

Emissions

Vehicle Miles Traveled [mph]	0.40	6.75	6.50	8.34	6.82	6.46	3.51	2.24	0.85	9.07
Stops [stops/h]	9.37	138.12	133.41	146.73	100.33	95.35	104.08	74.05	24.63	298.31
Fuel consumption [US gal/h]	0.27	3.91	3.77	4.46	2.79	2.65	3.55	1.14	0.38	4.26
CO [g/h]	18.88	273.02	263.69	311.70	194.78	185.06	248.13	79.82	26.55	297.72
NOx [g/h]	3.67	53.12	51.30	60.65	37.90	36.01	48.28	15.53	5.17	57.93
VOC [g/h]	4.38	63.27	61.11	72.24	45.14	42.89	57.51	18.50	6.15	69.00

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersectio	2.879	3.042	2.036	2.611
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	317	533	1200	1200
d_b, Bicycle Delay [s]	42.50	32.27	9.60	9.60
l_b,int, Bicycle LOS Score for Intersection	2.039	2.319	1.805	2.411
Bicycle LOS	B	B	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Polson to Somers Corridor Study

Vistro File: F:\...\PolsonSomers.vistro
Report File: F:\...\2024 Weekend PM.pdf

Scenario 4 2024 Weekend PM
7/19/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	US 93 & Rocky Point Rd	Two-way stop	HCM 7th Edition	WB Left	0.346	22.5	C
2	US 93 & Hwy 28	Two-way stop	HCM 7th Edition	EB Left	0.173	14.3	B
3	US 93 & Lake Mary Ronan Rd	Two-way stop	HCM 7th Edition	WB Left	0.022	16.7	C
4	US 93 & Rimrock Rd/Rollins Lakeshore Dr	Two-way stop	HCM 7th Edition	WB Left	0.088	15.3	C
5	US 93 & Adams St	Two-way stop	HCM 7th Edition	EB Left	0.036	49.9	E
6	US 93 & Hwy 82/Forest Hill Rd	Signalized	HCM 7th Edition	SB Left	0.605	26.8	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: US 93 & Rocky Point Rd

Control Type:	Two-way stop	Delay (sec / veh):	22.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.346

Intersection Setup

Name	US 93		US 93		Rocky Point Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00		70.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Rocky Point Rd	
Base Volume Input [veh/h]	367	123	16	393	105	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.20	0.00	0.00	1.80	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	367	123	16	393	105	4
Peak Hour Factor	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	95	32	4	101	27	1
Total Analysis Volume [veh/h]	379	127	17	406	108	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.35	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	8.39	0.00	22.54	16.83
Movement LOS	A	A	A	A	C	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.03	0.03	1.54	1.54
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.71	0.71	38.45	38.45
d_A, Approach Delay [s/veh]	0.00		0.34		22.34	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.54					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: US 93 & Hwy 28

Control Type:	Two-way stop	Delay (sec / veh):	14.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.173

Intersection Setup

Name	US 93		US 93		Hwy 28	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		70.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Hwy 28	
Base Volume Input [veh/h]	25	193	252	90	80	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.10	2.80	2.20	1.20	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	193	252	90	80	24
Peak Hour Factor	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	50	65	23	21	6
Total Analysis Volume [veh/h]	26	200	261	93	83	25
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.17	0.03
d_M, Delay for Movement [s/veh]	8.03	0.00	0.00	0.00	14.27	11.67
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.07	0.00	0.00	0.00	0.77	0.77
95th-Percentile Queue Length [ft/ln]	1.64	0.00	0.00	0.00	19.24	19.24
d_A, Approach Delay [s/veh]	0.92		0.00		13.67	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.45					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: US 93 & Lake Mary Ronan Rd

Control Type:	Two-way stop	Delay (sec / veh):	16.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

Intersection Setup

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			70.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			No		

Volumes

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Base Volume Input [veh/h]	32	239	6	14	306	23	22	10	20	7	8	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.10	4.20	0.00	0.00	3.30	8.70	0.00	10.00	5.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	239	6	14	306	23	22	10	20	7	8	0
Peak Hour Factor	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	63	2	4	81	6	6	3	5	2	2	0
Total Analysis Volume [veh/h]	34	253	6	15	324	24	23	11	21	7	8	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.01	0.00	0.00	0.07	0.03	0.03	0.02	0.02	0.00
d_M, Delay for Movement [s/veh]	8.07	0.00	0.00	7.76	0.00	0.00	16.68	16.55	11.29	16.72	15.73	10.05
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.09	0.00	0.00	0.03	0.00	0.00	0.44	0.44	0.44	0.14	0.14	0.14
95th-Percentile Queue Length [ft/ln]	2.18	0.00	0.00	0.86	0.00	0.00	10.90	10.90	10.90	3.48	3.48	3.48
d_A, Approach Delay [s/veh]	0.94			0.32			14.60			16.19		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	1.98											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 4: US 93 & Rimrock Rd/Rollins Lakeshore Dr

Note: Intersection is rotated to keep NB/SB on US 93

Control Type:	Two-way stop	Delay (sec / veh):	15.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.088

Intersection Setup

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Base Volume Input [veh/h]	2	250	1	2	351	1	0	0	1	32	0	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	0.00	0.00	2.60	0.00	0.00	0.00	0.00	0.00	0.00	2.90
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	250	1	2	351	1	0	0	1	32	0	34
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	66	0	1	92	0	0	0	0	8	0	9
Total Analysis Volume [veh/h]	2	263	1	2	369	1	0	0	1	34	0	36
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.05
d_M, Delay for Movement [s/veh]	8.00	0.00	0.00	7.75	0.00	0.00	14.99	14.15	10.30	15.34	15.21	10.72
Movement LOS	A	A	A	A	A	A	B	B	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.46	0.46
95th-Percentile Queue Length [ft/ln]	0.08	0.08	0.08	0.11	0.00	0.00	0.11	0.11	0.11	11.53	11.53	11.53
d_A, Approach Delay [s/veh]	0.06			0.04			10.30			12.97		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.34											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: US 93 & Adams St

Control Type:	Two-way stop	Delay (sec / veh):	49.9
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name	US 93			US 93			Adams St			Adams St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Adams St			Adams St		
Base Volume Input [veh/h]	7	454	7	25	728	7	3	0	13	10	1	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.90	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	454	7	25	728	7	3	0	13	10	1	17
Peak Hour Factor	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	131	2	7	211	2	1	0	4	3	0	5
Total Analysis Volume [veh/h]	8	525	8	29	843	8	3	0	15	12	1	20
Pedestrian Volume [ped/h]	0			29			40			5		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.03	0.01	0.00	0.04	0.00	0.05	0.12	0.01	0.04
d_M, Delay for Movement [s/veh]	9.92	0.00	0.00	8.58	0.00	0.00	49.90	38.13	17.25	45.32	40.45	15.77
Movement LOS	A	A	A	A	A	A	E	E	C	E	E	C
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.09	0.00	0.00	0.26	0.26	0.26	0.60	0.60	0.60
95th-Percentile Queue Length [ft/ln]	0.82	0.00	0.00	2.16	0.00	0.00	6.57	6.57	6.57	14.89	14.89	14.89
d_A, Approach Delay [s/veh]	0.15			0.28			22.69			27.27		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	1.11											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 6: US 93 & Hwy 82/Forest Hill Rd

Control Type:	Signalized	Delay (sec / veh):	26.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.605

Intersection Setup

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00			55.00			60.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Base Volume Input [veh/h]	16	533	114	427	544	101	42	52	40	96	31	395
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.70	0.90	0.90	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.80
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	533	114	427	544	101	42	52	40	96	31	395
Peak Hour Factor	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	143	31	114	146	27	11	14	11	26	8	106
Total Analysis Volume [veh/h]	17	571	122	458	583	108	45	56	43	103	33	423
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal Group	0	6	0	5	2	0	0	8	0	0	4	5
Auxiliary Signal Groups												4,5
Maximum Green [s]	0	18	0	3	26	0	0	18	0	0	18	3
Amber [s]	0.0	5.0	0.0	5.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	5.0
All red [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	7	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	6.0	0.0	6.0	6.0	0.0	0.0	6.0	0.0	0.0	6.0	6.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Phasing & Timing: Pattern 1

Split [s]	0	26	0	16	42	0	0	78	0	0	78	16
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	10	5
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Minimum Recall		No		No	No			No			No	No
Maximum Recall		No		No	No			No			No	No
Pedestrian Recall		No		No	No			No			No	No

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C	R
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	6.00	6.00	6.00	0.00	6.00	6.00	6.00	6.00	6.00	0.00
g_i, Effective Green Time [s]	55	55	55	71	71	71	33	33	33	49
g / C, Green / Cycle	0.46	0.46	0.46	0.59	0.59	0.59	0.27	0.27	0.27	0.41
(v / s)_i Volume / Saturation Flow Rate	0.02	0.21	0.21	0.49	0.21	0.21	0.10	0.08	0.02	0.29
s, saturation flow rate [veh/h]	764	1726	1623	934	1729	1637	1375	1317	1750	1466
c, Capacity [veh/h]	302	796	748	521	1028	973	414	315	477	595
d1, Uniform Delay [s]	28.61	21.97	22.00	22.93	12.43	12.43	34.96	37.10	32.37	29.78
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.35	1.82	1.95	18.78	0.92	0.98	0.50	0.60	0.06	1.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.45	0.45	0.88	0.35	0.35	0.35	0.33	0.07	0.71
d, Delay for Lane Group [s/veh]	28.96	23.79	23.95	41.72	13.35	13.41	35.46	37.70	32.44	31.37
Lane Group LOS	C	C	C	D	B	B	D	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.36	6.66	6.32	8.72	4.50	4.28	3.24	2.61	0.73	10.47
50th-Percentile Queue Length [ft/ln]	8.88	166.53	158.01	218.10	112.41	106.97	81.04	65.35	18.37	261.72
95th-Percentile Queue Length [veh/ln]	0.64	10.89	10.44	13.57	7.97	7.67	5.83	4.70	1.32	15.77
95th-Percentile Queue Length [ft/ln]	15.99	272.34	261.09	339.20	199.34	191.78	145.87	117.62	33.07	394.37

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.96	23.85	23.95	41.72	13.37	13.41	35.46	35.46	35.46	37.70	32.44	31.37
Movement LOS	C	C	C	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	23.99			24.67			35.46			32.60		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	26.82											
Intersection LOS	C											
Intersection V/C	0.605											

Emissions

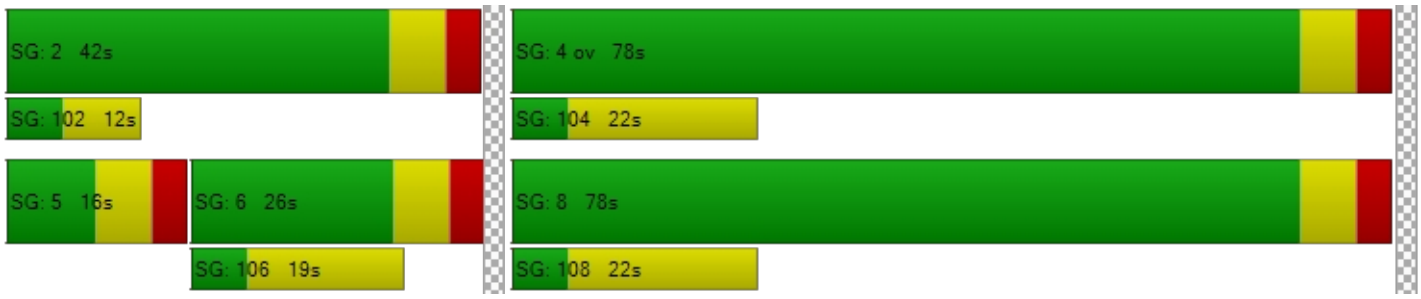
Vehicle Miles Traveled [mph]	0.40	8.38	7.91	10.76	8.33	7.90	3.39	2.43	0.78	9.97
Stops [stops/h]	10.66	199.83	189.62	261.72	134.89	128.36	97.24	78.42	22.05	314.06
Fuel consumption [US gal/h]	0.31	5.72	5.43	9.11	3.75	3.57	3.30	1.20	0.34	4.35
CO [g/h]	21.77	399.69	379.32	636.72	261.97	249.27	231.00	83.89	23.58	304.28
NOx [g/h]	4.24	77.77	73.80	123.88	50.97	48.50	44.94	16.32	4.59	59.20
VOC [g/h]	5.05	92.63	87.91	147.57	60.71	57.77	53.54	19.44	5.47	70.52

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersectio	2.976	3.161	2.049	2.727
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	300	567	1167	1167
d_b, Bicycle Delay [s]	43.35	30.82	10.42	10.42
l_b,int, Bicycle LOS Score for Intersection	2.145	2.508	1.797	2.482
Bicycle LOS	B	B	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/17/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 1 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	3124
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	5.1

Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	74.1
Speed Slope Coefficient (m)	9.07717	Speed Power Coefficient (p)	0.70398
PF Slope Coefficient (m)	-1.32660	PF Power Coefficient (p)	0.78495
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3124	-	-	70.1

Vehicle Results			
Average Speed, mi/h	70.1	Percent Followers, %	48.6
Segment Travel Time, minutes	0.51	Adj. Follower Density, followers/mi/ln	2.9
Vehicle LOS	B		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	4911
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	5.4

Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	277
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	73.6
Speed Slope Coefficient (m)	11.74425	Speed Power Coefficient (p)	0.78222

PF Slope Coefficient (m)	-1.33353	PF Power Coefficient (p)	0.85045
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4911	-	-	68.8

Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	46.8
Segment Travel Time, minutes	0.81	Adj. Follower Density, followers/mi/ln	2.8
Vehicle LOS	B		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1895
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	77.5
Speed Slope Coefficient (m)	8.46909	Speed Power Coefficient (p)	0.72167
PF Slope Coefficient (m)	-1.36874	PF Power Coefficient (p)	0.78673
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1895	-	-	73.8

Vehicle Results

Average Speed, mi/h	73.8	Percent Followers, %	49.6
Segment Travel Time, minutes	0.29	Adj. Follower Density, followers/mi/ln	2.8
Vehicle LOS	B		

Segment 4

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	4575
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.28

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	74.5
Speed Slope Coefficient (m)	10.18185	Speed Power Coefficient (p)	0.87818
PF Slope Coefficient (m)	-1.16495	PF Power Coefficient (p)	0.91187
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4575	-	-	70.9

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	254	161
Percentage of Heavy Vehicles (HV%), %	2.00	9.75
Initial Average Speed (Sint), mi/h	74.0	71.8
Average Speed at Midpoint (SPLmid), mi/h	75.5	70.2
Percent Followers at Midpoint (PFPLmid), %	30.8	17.1

Vehicle Results

Average Speed, mi/h	70.9	Percent Followers, %	40.7
Segment Travel Time, minutes	0.73	Adj. Follower Density, followers/mi/ln	2.4
Follower Density Mid-Point, followers/mi/ln	0.7	Vehicle LOS	A

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1247
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	78.7
Speed Slope Coefficient (m)	5.91495	Speed Power Coefficient (p)	0.55405
PF Slope Coefficient (m)	-1.30550	PF Power Coefficient (p)	0.75788
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	2.7
%Improvement to Percent Followers	23.5	%Improvement to Speed	2.7

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Horizontal Curve	1247	5770	8.0	75.6

Vehicle Results

Average Speed, mi/h	77.6	Percent Followers, %	48.9
Segment Travel Time, minutes	0.18	Adj. Follower Density, followers/mi/ln	2.0
Vehicle LOS	B		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1057
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	277
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	78.8
Speed Slope Coefficient (m)	5.40866	Speed Power Coefficient (p)	0.67794
PF Slope Coefficient (m)	-1.19910	PF Power Coefficient (p)	0.82076
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	2.4
%Improvement to Percent Followers	22.0	%Improvement to Speed	2.5

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1057	-	-	76.3

Vehicle Results

Average Speed, mi/h	78.2	Percent Followers, %	44.2
Segment Travel Time, minutes	0.15	Adj. Follower Density, followers/mi/ln	1.8
Vehicle LOS	A		

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	30469
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.7

Demand and Capacity

Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	74.9
Speed Slope Coefficient (m)	19.14766	Speed Power Coefficient (p)	0.35548
PF Slope Coefficient (m)	-2.15797	PF Power Coefficient (p)	0.69497
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	4.6
%Improvement to Percent Followers	7.2	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	27343	-	-	62.2
2	Horizontal Curve	1455	1763	8.0	62.2
3	Horizontal Curve	1671	1763	8.0	62.2

Vehicle Results			
Average Speed, mi/h	62.2	Percent Followers, %	69.0
Segment Travel Time, minutes	5.57	Adj. Follower Density, followers/mi/ln	4.3
Vehicle LOS	C		

Segment 8

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2536
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.1

Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	277
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.4
Speed Slope Coefficient (m)	8.18996	Speed Power Coefficient (p)	0.81115
PF Slope Coefficient (m)	-1.23130	PF Power Coefficient (p)	0.84255
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	2.5
%Improvement to Percent Followers	6.6	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2536	-	-	73.2

Vehicle Results			
Average Speed, mi/h	73.2	Percent Followers, %	44.4
Segment Travel Time, minutes	0.39	Adj. Follower Density, followers/mi/ln	2.4
Vehicle LOS	B		

Segment 9

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1199
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	4.4

Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	277
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	59.9
Speed Slope Coefficient (m)	3.11550	Speed Power Coefficient (p)	0.56620
PF Slope Coefficient (m)	-1.33764	PF Power Coefficient (p)	0.76861
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.5
%Improvement to Percent Followers	6.4	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1199	-	-	58.2

Vehicle Results			
Average Speed, mi/h	58.2	Percent Followers, %	49.4
Segment Travel Time, minutes	0.23	Adj. Follower Density, followers/mi/ln	3.3
Vehicle LOS	B		

Segment 10

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1756
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	3.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	59.6
Speed Slope Coefficient (m)	5.41667	Speed Power Coefficient (p)	0.55587
PF Slope Coefficient (m)	-1.43890	PF Power Coefficient (p)	0.74114
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.9
%Improvement to Percent Followers	6.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1756	-	-	56.8

Vehicle Results			
Average Speed, mi/h	56.8	Percent Followers, %	52.8
Segment Travel Time, minutes	0.35	Adj. Follower Density, followers/mi/ln	3.6
Vehicle LOS	B		

Segment 11

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2115
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	7.5
Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	47.5
Speed Slope Coefficient (m)	3.47869	Speed Power Coefficient (p)	0.44882
PF Slope Coefficient (m)	-1.50635	PF Power Coefficient (p)	0.70132
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	5.1

%Improvement to Percent Followers		5.6	%Improvement to Speed		0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2115	-	-	45.4
Vehicle Results					
Average Speed, mi/h		45.4	Percent Followers, %		55.7
Segment Travel Time, minutes		0.53	Adj. Follower Density, followers/mi/ln		4.8
Vehicle LOS		B			

Segment 12

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	191
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24
Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	61.1
Speed Slope Coefficient (m)	3.82216	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.38577	PF Power Coefficient (p)	0.73923
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.6
%Improvement to Percent Followers	5.5	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	191	-	-	58.8

Vehicle Results			
Average Speed, mi/h	58.8	Percent Followers, %	51.5
Segment Travel Time, minutes	0.04	Adj. Follower Density, followers/mi/ln	3.4
Vehicle LOS	B		

Segment 13

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1823
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	277
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	60.4
Speed Slope Coefficient (m)	4.79820	Speed Power Coefficient (p)	0.65724

PF Slope Coefficient (m)	-1.26258	PF Power Coefficient (p)	0.79024
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.3
%Improvement to Percent Followers	5.2	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1823	-	-	58.2

Vehicle Results

Average Speed, mi/h	58.2	Percent Followers, %	46.8
Segment Travel Time, minutes	0.36	Adj. Follower Density, followers/mi/ln	3.2
Vehicle LOS	B		

Segment 14

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	530
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	58.4
Speed Slope Coefficient (m)	3.29560	Speed Power Coefficient (p)	0.43410
PF Slope Coefficient (m)	-1.51491	PF Power Coefficient (p)	0.71874
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	4.1
%Improvement to Percent Followers	5.1	%Improvement to Speed	0.0

Subsegment Data

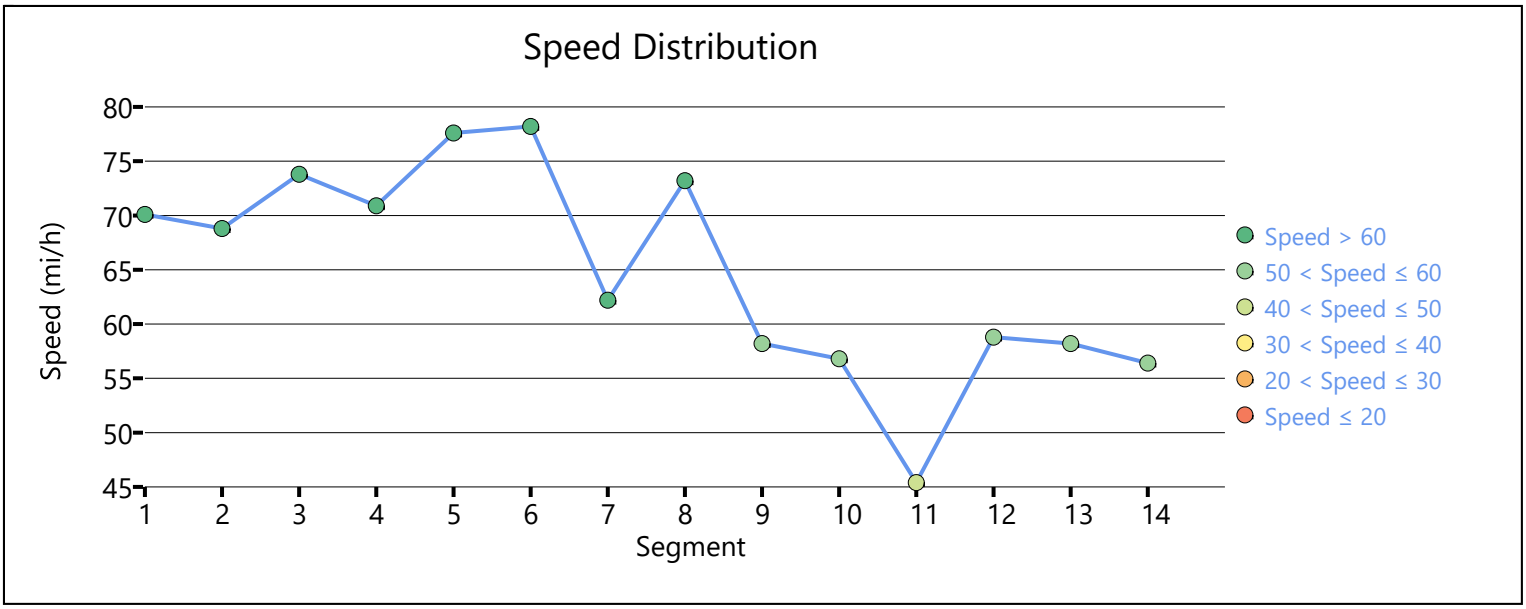
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	530	-	-	56.4

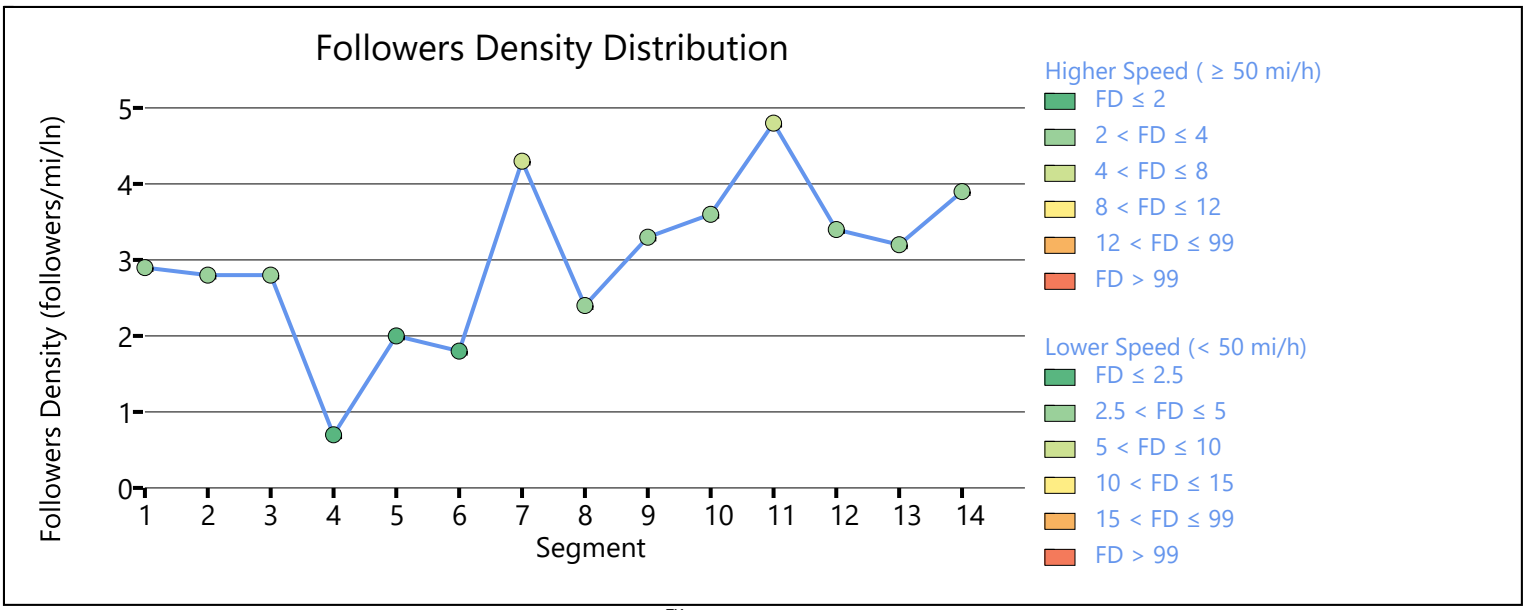
Vehicle Results

Average Speed, mi/h	56.4	Percent Followers, %	55.3
Segment Travel Time, minutes	0.11	Adj. Follower Density, followers/mi/ln	3.9
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	1039	1.85	3.5	B





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 1 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2544
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	2.1

Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	59.8
Speed Slope Coefficient (m)	5.83436	Speed Power Coefficient (p)	0.56650
PF Slope Coefficient (m)	-1.39486	PF Power Coefficient (p)	0.74588
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2544	-	-	56.8

Vehicle Results			
Average Speed, mi/h	56.8	Percent Followers, %	51.5
Segment Travel Time, minutes	0.51	Adj. Follower Density, followers/mi/ln	3.8
Vehicle LOS	B		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2089
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	7.6

Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	47.5
Speed Slope Coefficient (m)	3.47435	Speed Power Coefficient (p)	0.44833

PF Slope Coefficient (m)		-1.50819		PF Power Coefficient (p)	0.70114
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	5.1
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2089	-	-	45.4
Vehicle Results					
Average Speed, mi/h		45.4		Percent Followers, %	55.7
Segment Travel Time, minutes		0.52		Adj. Follower Density, followers/mi/ln	5.1
Vehicle LOS		C			

Segment 3

Vehicle Inputs					
Segment Type		Passing Constrained		Length, ft	2955
Lane Width, ft		12		Shoulder Width, ft	4
Speed Limit, mi/h		55		Access Point Density, pts/mi	3.6
Demand and Capacity					
Directional Demand Flow Rate, veh/h		415		Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor		0.92		Total Trucks, %	5.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.24
Intermediate Results					
Segment Vertical Class		3		Free-Flow Speed, mi/h	59.5
Speed Slope Coefficient (m)		5.93324		Speed Power Coefficient (p)	0.56753
PF Slope Coefficient (m)		-1.38345		PF Power Coefficient (p)	0.74565
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	3.8
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2955	-	-	56.4
Vehicle Results					
Average Speed, mi/h		56.4		Percent Followers, %	51.2
Segment Travel Time, minutes		0.60		Adj. Follower Density, followers/mi/ln	3.8
Vehicle LOS		B			

Segment 4

Vehicle Inputs					
Segment Type		Passing Zone		Length, ft	1853
Lane Width, ft		12		Shoulder Width, ft	4
Speed Limit, mi/h		70		Access Point Density, pts/mi	2.9
Demand and Capacity					
Directional Demand Flow Rate, veh/h		415		Opposing Demand Flow Rate, veh/h	277
Peak Hour Factor		0.92		Total Trucks, %	5.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.24
Intermediate Results					

Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	7.40876	Speed Power Coefficient (p)	0.80201
PF Slope Coefficient (m)	-1.26162	PF Power Coefficient (p)	0.83625
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1853	-	-	73.3

Vehicle Results

Average Speed, mi/h	73.3	Percent Followers, %	45.4
Segment Travel Time, minutes	0.29	Adj. Follower Density, followers/mi/ln	2.6
Vehicle LOS	B		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	13196
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.4

Demand and Capacity

Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	74.7
Speed Slope Coefficient (m)	17.95555	Speed Power Coefficient (p)	0.41997
PF Slope Coefficient (m)	-2.00246	PF Power Coefficient (p)	0.72698
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	13196	-	-	63.6

Vehicle Results

Average Speed, mi/h	63.6	Percent Followers, %	65.2
Segment Travel Time, minutes	2.36	Adj. Follower Density, followers/mi/ln	4.3
Vehicle LOS	C		

Segment 6

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	11602
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00

Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.28
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	76.5
Speed Slope Coefficient (m)	11.77956	Speed Power Coefficient (p)	1.26861
PF Slope Coefficient (m)	-1.04916	PF Power Coefficient (p)	1.02110
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8476	-	-	73.7
2	Horizontal Curve	1455	1763	8.0	73.7
3	Horizontal Curve	1671	1763	8.0	73.7

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	254	161
Percentage of Heavy Vehicles (HV%), %	2.00	9.75
Initial Average Speed (Sint), mi/h	76.7	74.2
Average Speed at Midpoint (SPLmid), mi/h	78.3	72.6
Percent Followers at Midpoint (PFPLmid), %	25.0	12.5

Vehicle Results			
Average Speed, mi/h	73.7	Percent Followers, %	34.8
Segment Travel Time, minutes	1.79	Adj. Follower Density, followers/mi/ln	2.0
Follower Density Mid-Point, followers/mi/ln	0.5	Vehicle LOS	A

Segment 7

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5285
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	74.9
Speed Slope Coefficient (m)	13.75956	Speed Power Coefficient (p)	0.61615
PF Slope Coefficient (m)	-1.63539	PF Power Coefficient (p)	0.75209
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.5
%Improvement to Percent Followers	19.0	%Improvement to Speed	3.5

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5285	-	-	68.1

Vehicle Results			
Average Speed, mi/h	70.5	Percent Followers, %	57.0
Segment Travel Time, minutes	0.85	Adj. Follower Density, followers/mi/ln	2.7
Vehicle LOS	B		

Segment 8

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1542
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	277
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	78.8
Speed Slope Coefficient (m)	5.62896	Speed Power Coefficient (p)	0.67877
PF Slope Coefficient (m)	-1.18324	PF Power Coefficient (p)	0.82632
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	2.4
%Improvement to Percent Followers	18.2	%Improvement to Speed	3.3

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1542	-	-	76.2

Vehicle Results			
Average Speed, mi/h	78.7	Percent Followers, %	43.6
Segment Travel Time, minutes	0.22	Adj. Follower Density, followers/mi/ln	1.9
Vehicle LOS	A		

Segment 9

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	8270
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.9

Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	73.5
Speed Slope Coefficient (m)	14.99356	Speed Power Coefficient (p)	0.53495
PF Slope Coefficient (m)	-1.76316	PF Power Coefficient (p)	0.76337
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.8
%Improvement to Percent Followers	14.9	%Improvement to Speed	2.1

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8270	-	-	65.4

Vehicle Results			
Average Speed, mi/h	66.7	Percent Followers, %	59.4
Segment Travel Time, minutes	1.41	Adj. Follower Density, followers/mi/ln	3.1
Vehicle LOS	B		

Segment 10

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	4482
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	3.5
Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	277
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	74.0
Speed Slope Coefficient (m)	11.60715	Speed Power Coefficient (p)	0.79533
PF Slope Coefficient (m)	-1.32156	PF Power Coefficient (p)	0.84659
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	2.8
%Improvement to Percent Followers	13.6	%Improvement to Speed	1.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4482	-	-	69.4

Vehicle Results			
Average Speed, mi/h	70.3	Percent Followers, %	46.6
Segment Travel Time, minutes	0.72	Adj. Follower Density, followers/mi/ln	2.4
Vehicle LOS	B		

Segment 11

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	3048
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	5.2
Demand and Capacity			
Directional Demand Flow Rate, veh/h	415	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	74.1
Speed Slope Coefficient (m)	9.00707	Speed Power Coefficient (p)	0.70293
PF Slope Coefficient (m)	-1.32839	PF Power Coefficient (p)	0.78480
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	2.9

%Improvement to Percent Followers	12.8	%Improvement to Speed	0.9

Subsegment Data

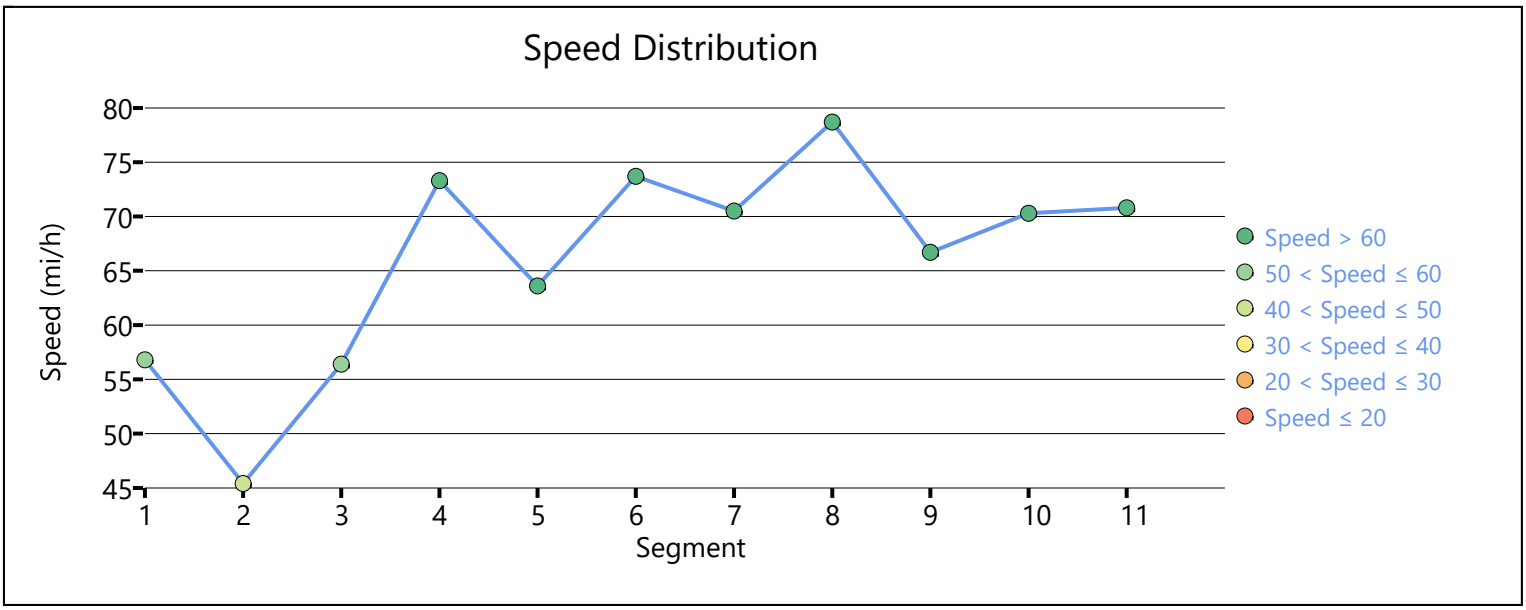
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3048	-	-	70.1

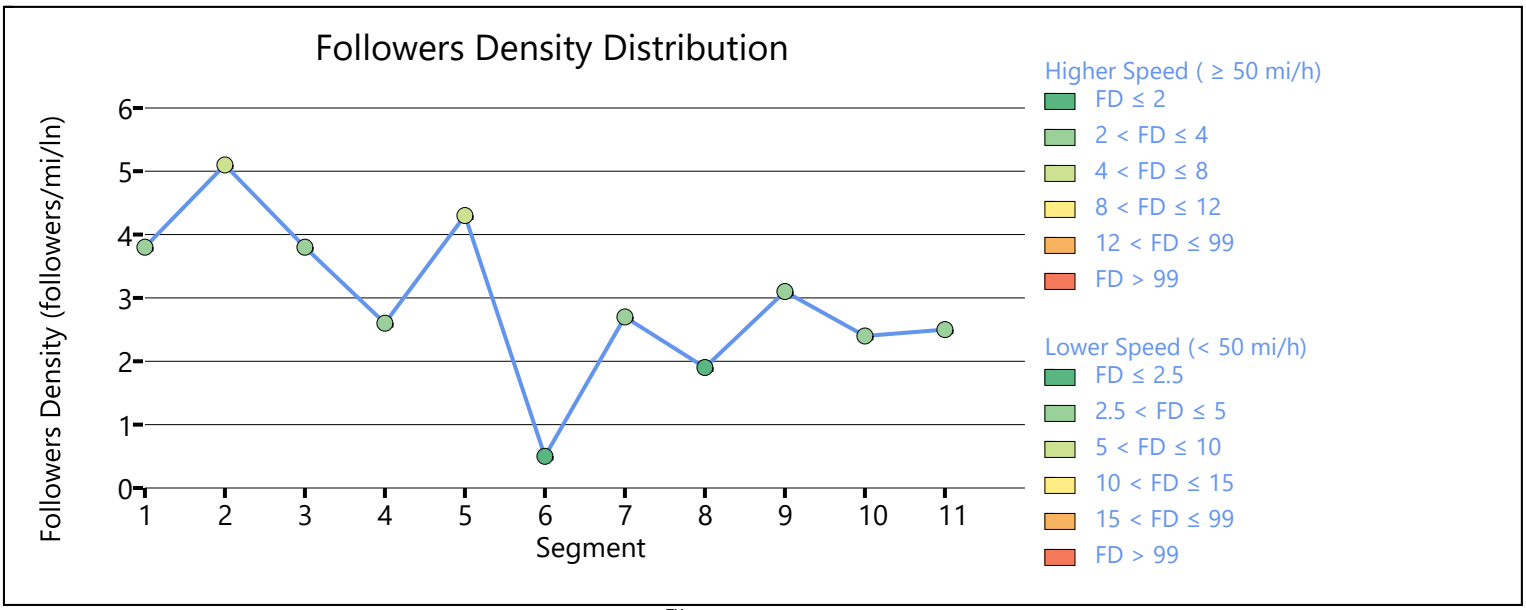
Vehicle Results

Average Speed, mi/h	70.8	Percent Followers, %	48.6
Segment Travel Time, minutes	0.49	Adj. Follower Density, followers/mi/ln	2.5
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	1029	1.18	2.8	B





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polso to Somers Corridor Study - Section 2 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1548
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	364	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	75.4
Speed Slope Coefficient (m)	6.17159	Speed Power Coefficient (p)	0.54190
PF Slope Coefficient (m)	-1.32013	PF Power Coefficient (p)	0.75767
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Horizontal Curve	1548	1146	8.0	66.1

Vehicle Results			
Average Speed, mi/h	66.1	Percent Followers, %	45.9
Segment Travel Time, minutes	0.27	Adj. Follower Density, followers/mi/ln	2.5
Vehicle LOS	B		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2791
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.9

Demand and Capacity			
Directional Demand Flow Rate, veh/h	364	Opposing Demand Flow Rate, veh/h	243
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	74.4
Speed Slope Coefficient (m)	9.07974	Speed Power Coefficient (p)	0.82638

PF Slope Coefficient (m)	-1.20733	PF Power Coefficient (p)	0.84511
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2791	-	-	71.4

Vehicle Results

Average Speed, mi/h	71.4	Percent Followers, %	40.2
Segment Travel Time, minutes	0.44	Adj. Follower Density, followers/mi/ln	2.0
Vehicle LOS	B		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2547
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	364	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	10.07540	Speed Power Coefficient (p)	0.73576
PF Slope Coefficient (m)	-1.33434	PF Power Coefficient (p)	0.79087
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1086	-	-	72.4
2	Horizontal Curve	1461	1433	8.0	66.1

Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	45.1
Segment Travel Time, minutes	0.42	Adj. Follower Density, followers/mi/ln	2.4
Vehicle LOS	B		

Segment 4

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	3832
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	5.5

Demand and Capacity

Directional Demand Flow Rate, veh/h	364	Opposing Demand Flow Rate, veh/h	243
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	74.1
Speed Slope Coefficient (m)	12.89217	Speed Power Coefficient (p)	0.84080
PF Slope Coefficient (m)	-1.28808	PF Power Coefficient (p)	0.84599
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3832	-	-	69.9

Vehicle Results			
Average Speed, mi/h	69.9	Percent Followers, %	42.2
Segment Travel Time, minutes	0.62	Adj. Follower Density, followers/mi/ln	2.2
Vehicle LOS	B		

Segment 5

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2016
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	5.2

Demand and Capacity			
Directional Demand Flow Rate, veh/h	364	Opposing Demand Flow Rate, veh/h	243
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	58.8
Speed Slope Coefficient (m)	5.11535	Speed Power Coefficient (p)	0.67461
PF Slope Coefficient (m)	-1.23934	PF Power Coefficient (p)	0.79202
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2016	-	-	56.7

Vehicle Results			
Average Speed, mi/h	56.7	Percent Followers, %	42.7
Segment Travel Time, minutes	0.40	Adj. Follower Density, followers/mi/ln	2.7
Vehicle LOS	B		

Segment 6

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	848
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	364	Opposing Demand Flow Rate, veh/h	-

Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21
Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	60.7
Speed Slope Coefficient (m)	3.84270	Speed Power Coefficient (p)	0.45403
PF Slope Coefficient (m)	-1.49071	PF Power Coefficient (p)	0.72501
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	848	-	-	58.6

Vehicle Results			
Average Speed, mi/h	58.6	Percent Followers, %	51.2
Segment Travel Time, minutes	0.16	Adj. Follower Density, followers/mi/ln	3.2
Vehicle LOS	B		

Segment 7

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5889
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	4.5
Demand and Capacity			
Directional Demand Flow Rate, veh/h	364	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	47.7
Speed Slope Coefficient (m)	3.95802	Speed Power Coefficient (p)	0.47121
PF Slope Coefficient (m)	-1.74102	PF Power Coefficient (p)	0.72766
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

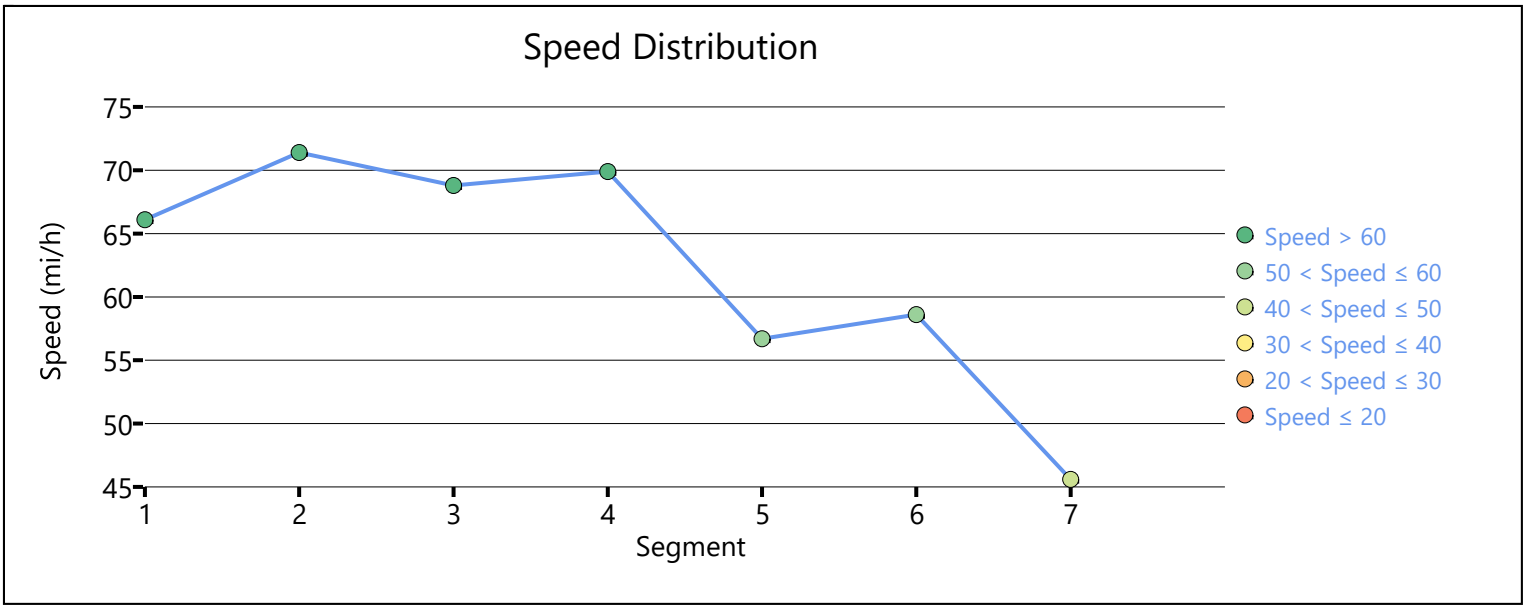
Subsegment Data

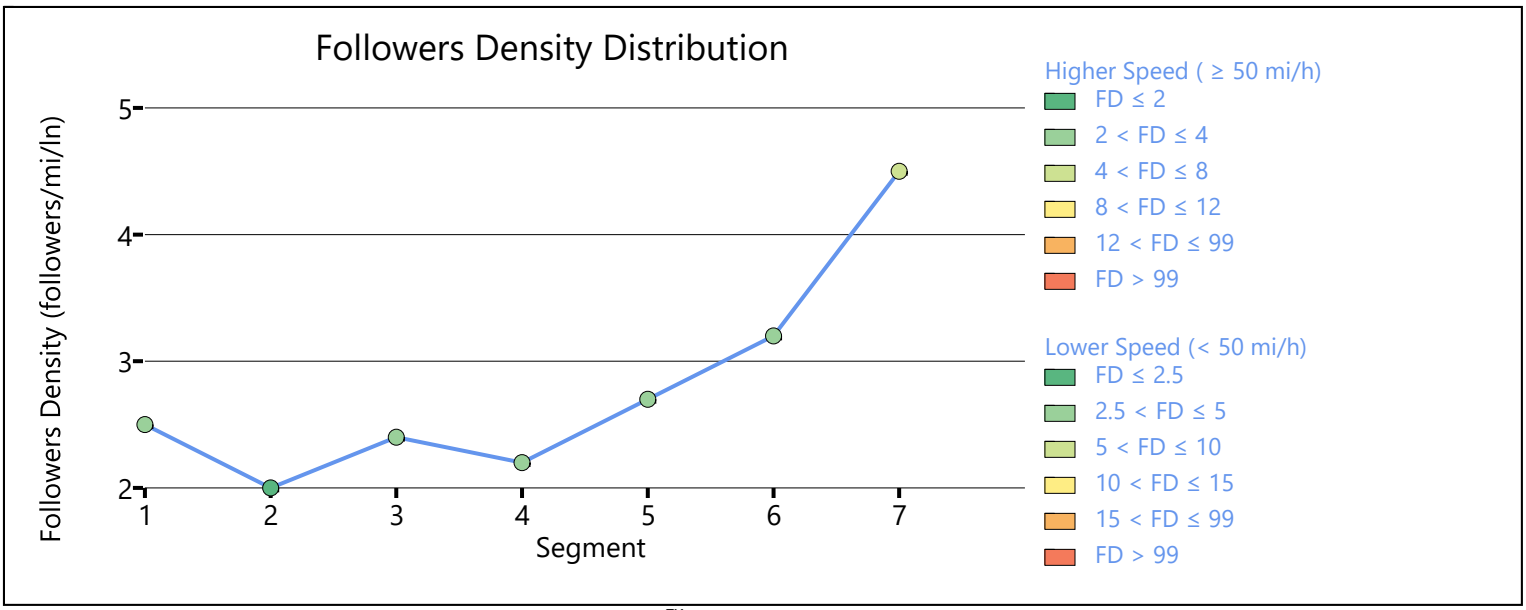
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4128	-	-	45.6
2	Horizontal Curve	1761	1433	8.0	45.6

Vehicle Results			
Average Speed, mi/h	45.6	Percent Followers, %	56.6
Segment Travel Time, minutes	1.47	Adj. Follower Density, followers/mi/ln	4.5
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	309	0.30	3.0	B





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead Country	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 2 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2989
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	386	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	47.8
Speed Slope Coefficient (m)	3.72383	Speed Power Coefficient (p)	0.48063
PF Slope Coefficient (m)	-1.46053	PF Power Coefficient (p)	0.70703
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2989	-	-	45.8

Vehicle Results			
Average Speed, mi/h	45.8	Percent Followers, %	52.5
Segment Travel Time, minutes	0.74	Adj. Follower Density, followers/mi/ln	4.4
Vehicle LOS	B		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1071
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	386	Opposing Demand Flow Rate, veh/h	243
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	49.7
Speed Slope Coefficient (m)	3.11550	Speed Power Coefficient (p)	0.52160

PF Slope Coefficient (m)	-1.37828	PF Power Coefficient (p)	0.73755
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1071	-	-	48.0

Vehicle Results

Average Speed, mi/h	48.0	Percent Followers, %	49.5
Segment Travel Time, minutes	0.25	Adj. Follower Density, followers/mi/ln	4.0
Vehicle LOS	B		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1829
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	2.9

Demand and Capacity

Directional Demand Flow Rate, veh/h	386	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	48.4
Speed Slope Coefficient (m)	3.81133	Speed Power Coefficient (p)	0.47364
PF Slope Coefficient (m)	-1.51051	PF Power Coefficient (p)	0.70645
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	69	-	-	46.3
2	Horizontal Curve	1760	1433	8.0	46.3

Vehicle Results

Average Speed, mi/h	46.3	Percent Followers, %	53.7
Segment Travel Time, minutes	0.45	Adj. Follower Density, followers/mi/ln	4.5
Vehicle LOS	B		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	424
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	386	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	61.1
Speed Slope Coefficient (m)	3.81855	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.38615	PF Power Coefficient (p)	0.73937
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	424	-	-	58.8

Vehicle Results			
Average Speed, mi/h	58.8	Percent Followers, %	49.6
Segment Travel Time, minutes	0.08	Adj. Follower Density, followers/mi/ln	3.3
Vehicle LOS	B		

Segment 5

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2440
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	386	Opposing Demand Flow Rate, veh/h	243
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	60.1
Speed Slope Coefficient (m)	5.58634	Speed Power Coefficient (p)	0.69111
PF Slope Coefficient (m)	-1.21940	PF Power Coefficient (p)	0.80045
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2440	-	-	57.7

Vehicle Results			
Average Speed, mi/h	57.7	Percent Followers, %	43.4
Segment Travel Time, minutes	0.48	Adj. Follower Density, followers/mi/ln	2.9
Vehicle LOS	B		

Segment 6

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1722
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	3.1

Demand and Capacity			
Directional Demand Flow Rate, veh/h	386	Opposing Demand Flow Rate, veh/h	243

Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	75.5
Speed Slope Coefficient (m)	8.20944	Speed Power Coefficient (p)	0.82498
PF Slope Coefficient (m)	-1.25430	PF Power Coefficient (p)	0.83862
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1722	-	-	72.6

Vehicle Results			
Average Speed, mi/h	72.6	Percent Followers, %	43.1
Segment Travel Time, minutes	0.27	Adj. Follower Density, followers/mi/ln	2.3
Vehicle LOS	B		

Segment 7

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	4084
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.6
Demand and Capacity			
Directional Demand Flow Rate, veh/h	386	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	73.5
Speed Slope Coefficient (m)	14.17492	Speed Power Coefficient (p)	0.65344
PF Slope Coefficient (m)	-1.59162	PF Power Coefficient (p)	0.74058
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2624	-	-	67.3
2	Horizontal Curve	1460	1433	8.0	66.1

Vehicle Results			
Average Speed, mi/h	66.8	Percent Followers, %	54.4
Segment Travel Time, minutes	0.69	Adj. Follower Density, followers/mi/ln	3.1
Vehicle LOS	B		

Segment 8

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	3021
Lane Width, ft	12	Shoulder Width, ft	4

Speed Limit, mi/h	70	Access Point Density, pts/mi	1.8
Demand and Capacity			
Directional Demand Flow Rate, veh/h	386	Opposing Demand Flow Rate, veh/h	243
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	75.9
Speed Slope Coefficient (m)	9.62824	Speed Power Coefficient (p)	0.84202
PF Slope Coefficient (m)	-1.20364	PF Power Coefficient (p)	0.84939
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3021	-	-	72.5

Vehicle Results			
Average Speed, mi/h	72.5	Percent Followers, %	41.5
Segment Travel Time, minutes	0.47	Adj. Follower Density, followers/mi/ln	2.2
Vehicle LOS	B		

Segment 9

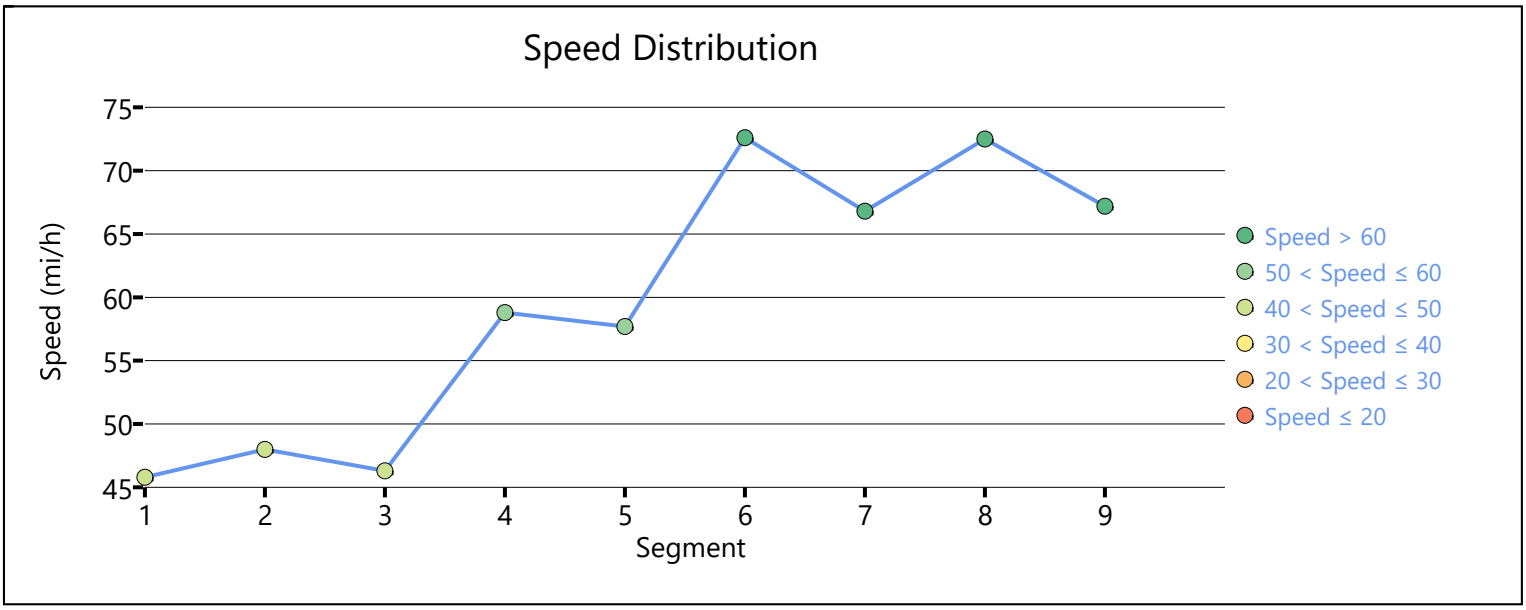
Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1891
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	386	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	9.36460	Speed Power Coefficient (p)	0.72869
PF Slope Coefficient (m)	-1.36613	PF Power Coefficient (p)	0.78697
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

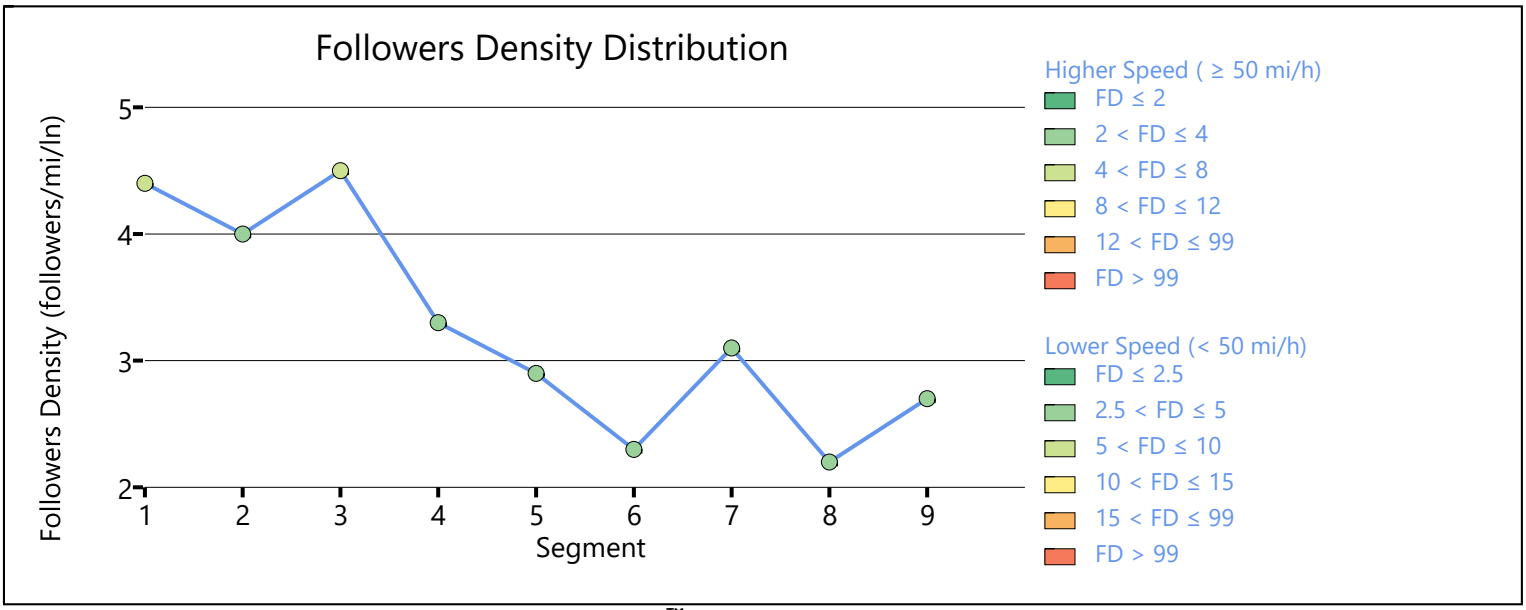
Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	326	-	-	72.4
2	Horizontal Curve	1565	1146	8.0	66.1

Vehicle Results			
Average Speed, mi/h	67.2	Percent Followers, %	47.6
Segment Travel Time, minutes	0.32	Adj. Follower Density, followers/mi/ln	2.7
Vehicle LOS	B		
Facility Results			

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	327	0.32	3.2	B





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 3 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	997
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient (m)	3.12531	Speed Power Coefficient (p)	0.41622
PF Slope Coefficient (m)	-1.59046	PF Power Coefficient (p)	0.69659
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	997	-	-	46.1

Vehicle Results			
Average Speed, mi/h	46.1	Percent Followers, %	60.0
Segment Travel Time, minutes	0.25	Adj. Follower Density, followers/mi/ln	5.9
Vehicle LOS	C		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	222
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	60.9
Speed Slope Coefficient (m)	3.80952	Speed Power Coefficient (p)	0.41674

PF Slope Coefficient (m)	-1.38711	PF Power Coefficient (p)	0.73972
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	222	-	-	58.4

Vehicle Results

Average Speed, mi/h	58.4	Percent Followers, %	53.8
Segment Travel Time, minutes	0.04	Adj. Follower Density, followers/mi/ln	4.2
Vehicle LOS	C		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1229
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	4.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	302
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	59.4
Speed Slope Coefficient (m)	3.60611	Speed Power Coefficient (p)	0.57268
PF Slope Coefficient (m)	-1.34041	PF Power Coefficient (p)	0.77068
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1229	-	-	57.4

Vehicle Results

Average Speed, mi/h	57.4	Percent Followers, %	51.7
Segment Travel Time, minutes	0.24	Adj. Follower Density, followers/mi/ln	4.1
Vehicle LOS	C		

Segment 4

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2411
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.2

Demand and Capacity

Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	302
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	74.2
Speed Slope Coefficient (m)	10.85492	Speed Power Coefficient (p)	0.83128
PF Slope Coefficient (m)	-1.22370	PF Power Coefficient (p)	0.84639
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2411	-	-	69.7

Vehicle Results

Average Speed, mi/h	69.7	Percent Followers, %	46.5
Segment Travel Time, minutes	0.39	Adj. Follower Density, followers/mi/ln	3.0
Vehicle LOS	B		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1809
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	74.6
Speed Slope Coefficient (m)	11.09122	Speed Power Coefficient (p)	0.74258
PF Slope Coefficient (m)	-1.36172	PF Power Coefficient (p)	0.79037
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1809	-	-	69.5

Vehicle Results

Average Speed, mi/h	69.5	Percent Followers, %	51.7
Segment Travel Time, minutes	0.30	Adj. Follower Density, followers/mi/ln	3.4
Vehicle LOS	B		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2433
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	302
Peak Hour Factor	0.92	Total Trucks, %	12.00

Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	74.8
Speed Slope Coefficient (m)	11.03459	Speed Power Coefficient (p)	0.83656
PF Slope Coefficient (m)	-1.22348	PF Power Coefficient (p)	0.84788
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2433	-	-	70.2

Vehicle Results			
Average Speed, mi/h	70.2	Percent Followers, %	46.5
Segment Travel Time, minutes	0.39	Adj. Follower Density, followers/mi/ln	3.0
Vehicle LOS	B		

Segment 7

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	3199
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	3.3
Demand and Capacity			
Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	71.7
Speed Slope Coefficient (m)	16.13242	Speed Power Coefficient (p)	0.68827
PF Slope Coefficient (m)	-1.55680	PF Power Coefficient (p)	0.73059
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3199	-	-	63.8

Vehicle Results			
Average Speed, mi/h	63.8	Percent Followers, %	58.2
Segment Travel Time, minutes	0.57	Adj. Follower Density, followers/mi/ln	4.1
Vehicle LOS	C		

Segment 8

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2583
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0
Demand and Capacity			

Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	302
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	11.59000	Speed Power Coefficient (p)	0.85101
PF Slope Coefficient (m)	-1.22009	PF Power Coefficient (p)	0.85213
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2583	-	-	71.4

Vehicle Results

Average Speed, mi/h	71.4	Percent Followers, %	46.3
Segment Travel Time, minutes	0.41	Adj. Follower Density, followers/mi/ln	2.9
Vehicle LOS	B		

Segment 9

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2809
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	76.0
Speed Slope Coefficient (m)	12.52036	Speed Power Coefficient (p)	0.76621
PF Slope Coefficient (m)	-1.31379	PF Power Coefficient (p)	0.79903
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Horizontal Curve	1765	1432	8.0	65.8
2	Tangent	1044	-	-	70.4

Vehicle Results

Average Speed, mi/h	67.5	Percent Followers, %	50.2
Segment Travel Time, minutes	0.47	Adj. Follower Density, followers/mi/ln	3.4
Vehicle LOS	B		

Segment 10

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	3140

Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.32
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	74.8
Speed Slope Coefficient (m)	10.31439	Speed Power Coefficient (p)	0.94232
PF Slope Coefficient (m)	-1.06215	PF Power Coefficient (p)	0.74743
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3140	-	-	71.0

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	271	182
Percentage of Heavy Vehicles (HV%), %	4.80	22.73
Initial Average Speed (Sint), mi/h	75.2	70.7
Average Speed at Midpoint (SPLmid), mi/h	76.9	69.0
Percent Followers at Midpoint (PFPLmid), %	36.7	24.3

Vehicle Results			
Average Speed, mi/h	71.0	Percent Followers, %	44.5
Segment Travel Time, minutes	0.50	Adj. Follower Density, followers/mi/ln	2.8
Follower Density Mid-Point, followers/mi/ln	1.0	Vehicle LOS	A

Segment 11

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2269
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.3
Demand and Capacity			
Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	75.4
Speed Slope Coefficient (m)	11.81478	Speed Power Coefficient (p)	0.75511
PF Slope Coefficient (m)	-1.33469	PF Power Coefficient (p)	0.79548
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.3
%Improvement to Percent Followers	22.5	%Improvement to Speed	2.4

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2269	-	-	70.1

Vehicle Results			
Average Speed, mi/h	71.7	Percent Followers, %	50.9
Segment Travel Time, minutes	0.36	Adj. Follower Density, followers/mi/ln	2.5
Vehicle LOS	B		

Segment 12

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	3092
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	302
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	12.07728	Speed Power Coefficient (p)	0.85651
PF Slope Coefficient (m)	-1.20695	PF Power Coefficient (p)	0.85426
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	2.9
%Improvement to Percent Followers	18.5	%Improvement to Speed	1.9

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3092	-	-	71.2

Vehicle Results			
Average Speed, mi/h	72.6	Percent Followers, %	45.9
Segment Travel Time, minutes	0.48	Adj. Follower Density, followers/mi/ln	2.3
Vehicle LOS	B		

Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1793
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.9

Demand and Capacity			
Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	75.3
Speed Slope Coefficient (m)	11.25105	Speed Power Coefficient (p)	0.74860
PF Slope Coefficient (m)	-1.36142	PF Power Coefficient (p)	0.79166

In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.3
%Improvement to Percent Followers	16.8	%Improvement to Speed	1.6

Subsegment Data

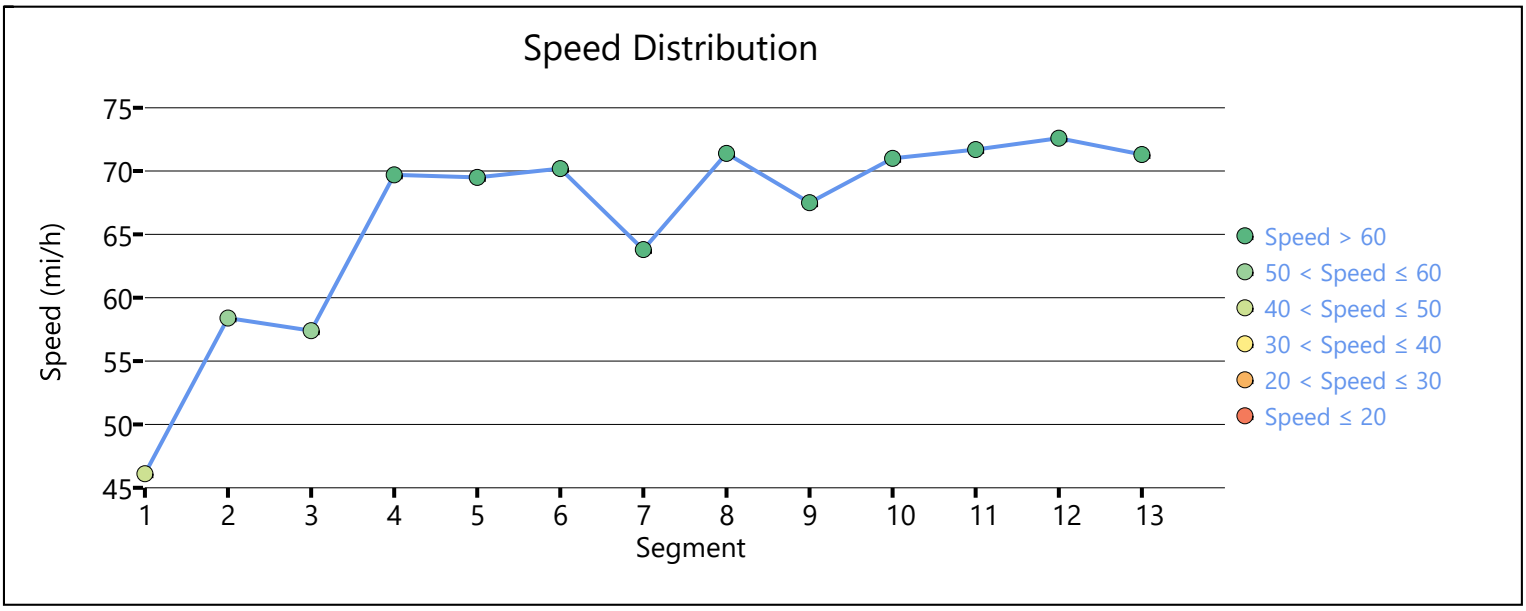
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1793	-	-	70.1

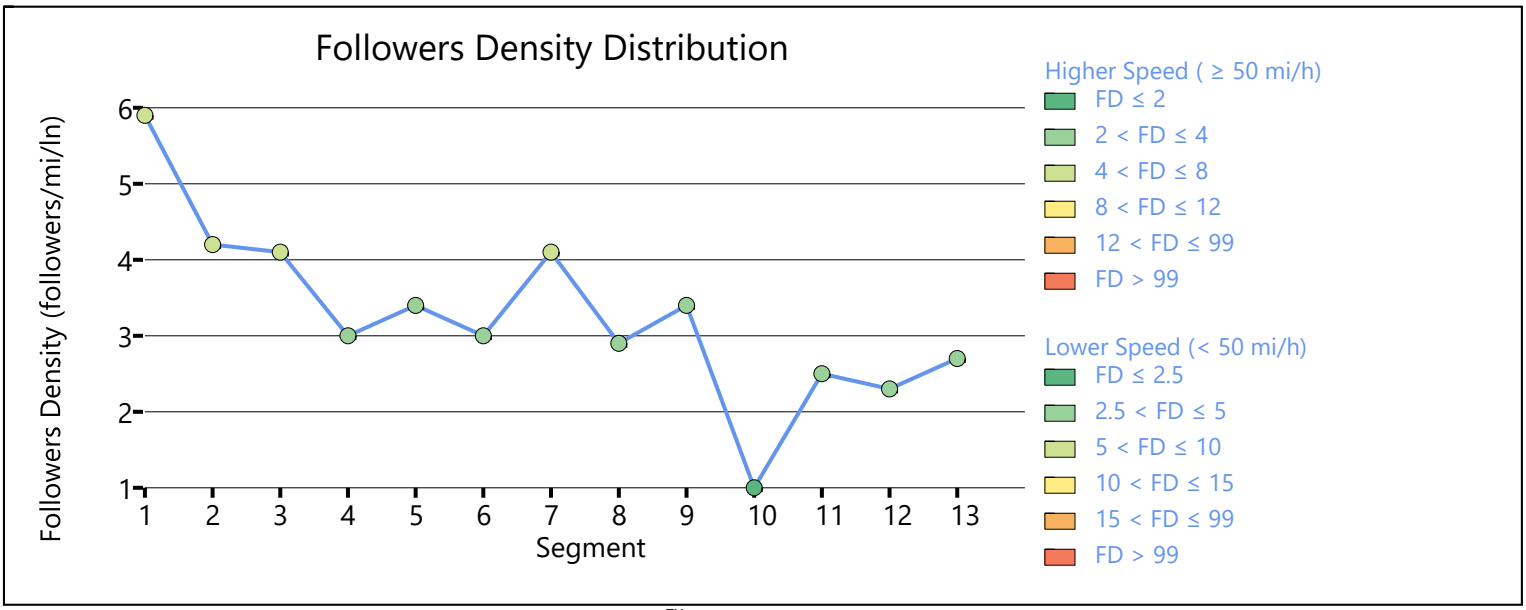
Vehicle Results

Average Speed, mi/h	71.3	Percent Followers, %	51.7
Segment Travel Time, minutes	0.29	Adj. Follower Density, followers/mi/ln	2.7
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	553	0.54	3.0	B





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers - Section 3 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	965
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	77.1
Speed Slope Coefficient (m)	7.24391	Speed Power Coefficient (p)	0.56039
PF Slope Coefficient (m)	-1.31589	PF Power Coefficient (p)	0.75989
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	965	-	-	73.1

Vehicle Results			
Average Speed, mi/h	73.1	Percent Followers, %	51.4
Segment Travel Time, minutes	0.15	Adj. Follower Density, followers/mi/ln	3.2
Vehicle LOS	B		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	3921
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	302
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	74.7
Speed Slope Coefficient (m)	16.97312	Speed Power Coefficient (p)	0.84094

PF Slope Coefficient (m)		-1.30404		PF Power Coefficient (p)	0.84917
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	3.3
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3921	-	-	67.7
Vehicle Results					
Average Speed, mi/h		67.7		Percent Followers, %	48.6
Segment Travel Time, minutes		0.66		Adj. Follower Density, followers/mi/ln	3.3
Vehicle LOS		B			
Segment 3					
Vehicle Inputs					
Segment Type		Passing Constrained		Length, ft	950
Lane Width, ft		12		Shoulder Width, ft	6
Speed Limit, mi/h		70		Access Point Density, pts/mi	5.6
Demand and Capacity					
Directional Demand Flow Rate, veh/h		453		Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor		0.92		Total Trucks, %	12.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.27
Intermediate Results					
Segment Vertical Class		2		Free-Flow Speed, mi/h	75.7
Speed Slope Coefficient (m)		6.99761		Speed Power Coefficient (p)	0.55218
PF Slope Coefficient (m)		-1.33077		PF Power Coefficient (p)	0.75725
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	3.3
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	950	-	-	71.8
Vehicle Results					
Average Speed, mi/h		71.8		Percent Followers, %	51.9
Segment Travel Time, minutes		0.15		Adj. Follower Density, followers/mi/ln	3.3
Vehicle LOS		B			
Segment 4					
Vehicle Inputs					
Segment Type		Passing Lanes		Length, ft	3040
Lane Width, ft		12		Shoulder Width, ft	4
Speed Limit, mi/h		70		Access Point Density, pts/mi	0.0
Demand and Capacity					
Directional Demand Flow Rate, veh/h		453		Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor		0.92		Total Trucks, %	12.00
Segment Capacity, veh/h		1400		Demand/Capacity (D/C)	0.32
Intermediate Results					

Segment Vertical Class	3	Free-Flow Speed, mi/h	74.8
Speed Slope Coefficient (m)	10.31439	Speed Power Coefficient (p)	0.93405
PF Slope Coefficient (m)	-1.06621	PF Power Coefficient (p)	0.74396
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3040	-	-	70.9

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	271	182
Percentage of Heavy Vehicles (HV%), %	4.80	22.73
Initial Average Speed (Sint), mi/h	75.1	70.7
Average Speed at Midpoint (SPLmid), mi/h	76.9	69.0
Percent Followers at Midpoint (PFPLmid), %	36.9	24.6

Vehicle Results

Average Speed, mi/h	70.9	Percent Followers, %	44.7
Segment Travel Time, minutes	0.49	Adj. Follower Density, followers/mi/ln	2.9
Follower Density Mid-Point, followers/mi/ln	1.0	Vehicle LOS	A

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5278
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	72.5
Speed Slope Coefficient (m)	18.00739	Speed Power Coefficient (p)	0.64115
PF Slope Coefficient (m)	-1.62729	PF Power Coefficient (p)	0.76618
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	4.2
%Improvement to Percent Followers	18.7	%Improvement to Speed	2.1

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3513	-	-	63.3
2	Horizontal Curve	1765	1432	8.0	63.3

Vehicle Results

Average Speed, mi/h	64.6	Percent Followers, %	58.8
Segment Travel Time, minutes	0.93	Adj. Follower Density, followers/mi/ln	3.4

Vehicle LOS	B		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2112
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	302
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	11.09462	Speed Power Coefficient (p)	0.84593
PF Slope Coefficient (m)	-1.23846	PF Power Coefficient (p)	0.84859
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.0
%Improvement to Percent Followers	16.8	%Improvement to Speed	1.8

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2112	-	-	71.6

Vehicle Results

Average Speed, mi/h	72.9	Percent Followers, %	46.9
Segment Travel Time, minutes	0.33	Adj. Follower Density, followers/mi/ln	2.4
Vehicle LOS	B		

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3501
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	72.5
Speed Slope Coefficient (m)	16.77092	Speed Power Coefficient (p)	0.68519
PF Slope Coefficient (m)	-1.56424	PF Power Coefficient (p)	0.73768
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	4.1
%Improvement to Percent Followers	14.2	%Improvement to Speed	1.2

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3501	-	-	64.3

Vehicle Results

Average Speed, mi/h	65.1	Percent Followers, %	58.2
Segment Travel Time, minutes	0.61	Adj. Follower Density, followers/mi/ln	3.5
Vehicle LOS	B		

Segment 8

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2160
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	302
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	74.8
Speed Slope Coefficient (m)	10.75845	Speed Power Coefficient (p)	0.83361
PF Slope Coefficient (m)	-1.23450	PF Power Coefficient (p)	0.84571
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.0
%Improvement to Percent Followers	13.0	%Improvement to Speed	0.9

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2160	-	-	70.3

Vehicle Results

Average Speed, mi/h	70.9	Percent Followers, %	46.9
Segment Travel Time, minutes	0.35	Adj. Follower Density, followers/mi/ln	2.6
Vehicle LOS	B		

Segment 9

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	955
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	75.7
Speed Slope Coefficient (m)	6.99584	Speed Power Coefficient (p)	0.55212
PF Slope Coefficient (m)	-1.33088	PF Power Coefficient (p)	0.75723
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.3
%Improvement to Percent Followers	12.5	%Improvement to Speed	0.8

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h

1	Tangent	955	-	-	71.8

Vehicle Results			
Average Speed, mi/h	72.3	Percent Followers, %	51.9
Segment Travel Time, minutes	0.15	Adj. Follower Density, followers/mi/ln	2.8
Vehicle LOS	B		

Segment 10

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	3068
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.7

Demand and Capacity			
Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	302
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	74.4
Speed Slope Coefficient (m)	11.48881	Speed Power Coefficient (p)	0.83946
PF Slope Coefficient (m)	-1.20536	PF Power Coefficient (p)	0.84987
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.0
%Improvement to Percent Followers	11.0	%Improvement to Speed	0.3

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3068	-	-	69.6

Vehicle Results			
Average Speed, mi/h	69.8	Percent Followers, %	45.9
Segment Travel Time, minutes	0.50	Adj. Follower Density, followers/mi/ln	2.7
Vehicle LOS	B		

Segment 11

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1041
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	5.1

Demand and Capacity			
Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	59.0
Speed Slope Coefficient (m)	4.03722	Speed Power Coefficient (p)	0.45344
PF Slope Coefficient (m)	-1.50137	PF Power Coefficient (p)	0.72462
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	4.6
%Improvement to Percent Followers	10.6	%Improvement to Speed	0.1

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1041	-	-	56.5

Vehicle Results			
Average Speed, mi/h	56.6	Percent Followers, %	57.1
Segment Travel Time, minutes	0.21	Adj. Follower Density, followers/mi/ln	4.1
Vehicle LOS	C		

Segment 12

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	997
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.3

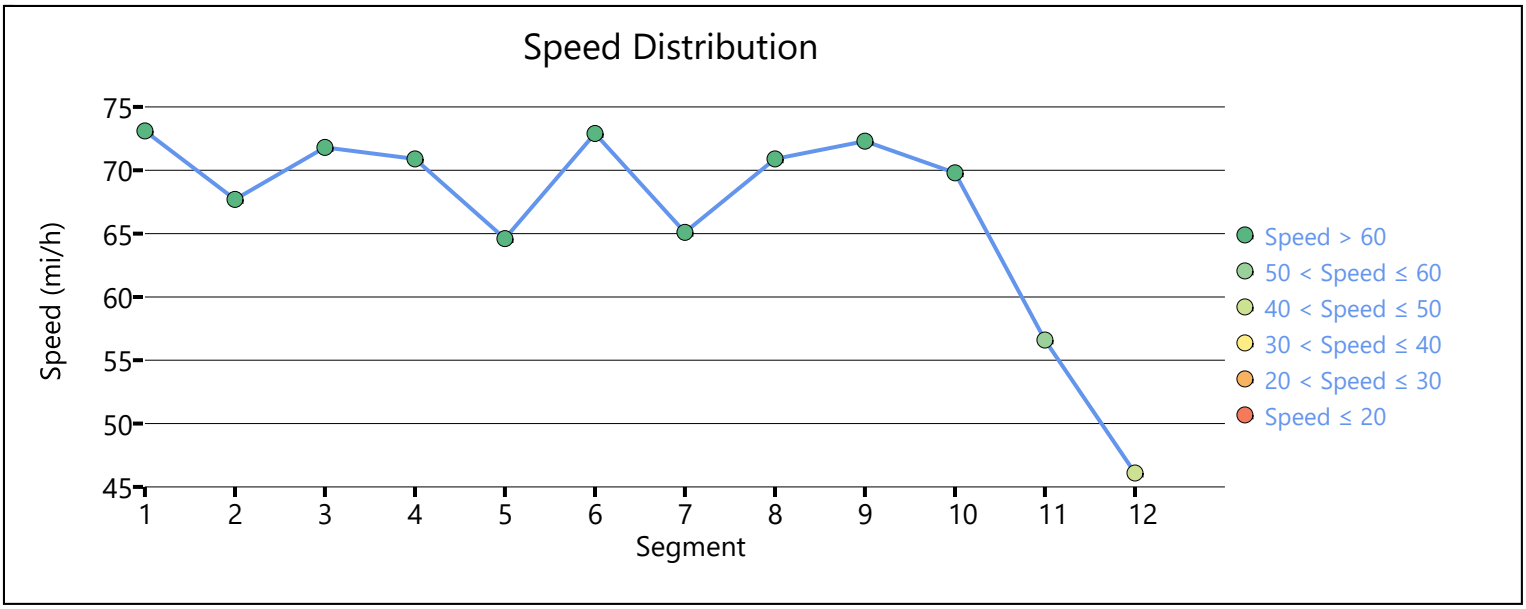
Demand and Capacity			
Directional Demand Flow Rate, veh/h	453	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

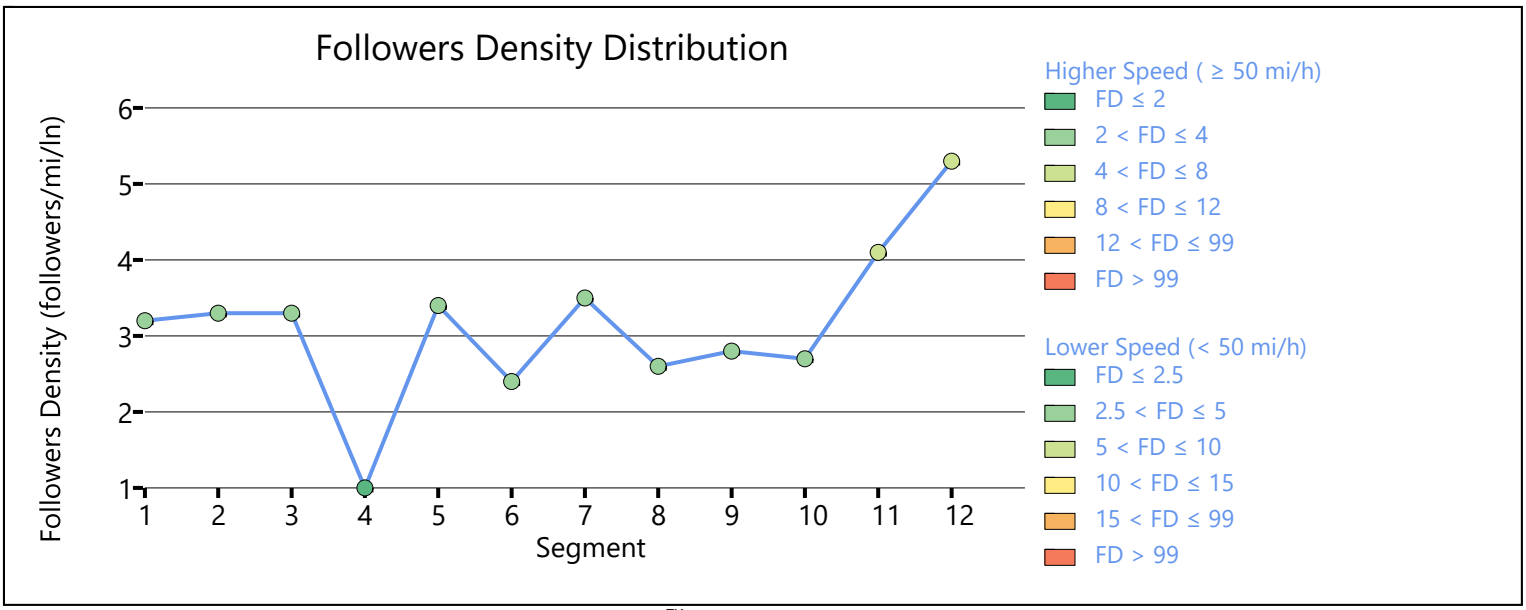
Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient (m)	3.12531	Speed Power Coefficient (p)	0.41622
PF Slope Coefficient (m)	-1.59046	PF Power Coefficient (p)	0.69659
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	5.9
%Improvement to Percent Followers	10.2	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	997	-	-	46.1

Vehicle Results			
Average Speed, mi/h	46.1	Percent Followers, %	60.0
Segment Travel Time, minutes	0.25	Adj. Follower Density, followers/mi/ln	5.3
Vehicle LOS	C		

Facility Results				
T	**VMT veh-mi/AP**	**VHD veh-h/p**	**Follower Density, followers/ mi/ln**	**LOS**
1	553	0.62	3.0	B





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 4 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	579
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	77.6
Speed Slope Coefficient (m)	6.94156	Speed Power Coefficient (p)	0.56003
PF Slope Coefficient (m)	-1.31294	PF Power Coefficient (p)	0.75932
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	579	-	-	73.8

Vehicle Results			
Average Speed, mi/h	73.8	Percent Followers, %	50.6
Segment Travel Time, minutes	0.09	Adj. Follower Density, followers/mi/ln	3.0
Vehicle LOS	B		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	3981
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	293
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	75.3
Speed Slope Coefficient (m)	15.89628	Speed Power Coefficient (p)	0.83826

PF Slope Coefficient (m)	-1.30519	PF Power Coefficient (p)	0.84748
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3981	-	-	68.8

Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	47.9
Segment Travel Time, minutes	0.66	Adj. Follower Density, followers/mi/ln	3.1
Vehicle LOS	B		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1081
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	4.9

Demand and Capacity

Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	76.3
Speed Slope Coefficient (m)	6.73941	Speed Power Coefficient (p)	0.55280
PF Slope Coefficient (m)	-1.32606	PF Power Coefficient (p)	0.75700
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1081	-	-	72.6

Vehicle Results

Average Speed, mi/h	72.6	Percent Followers, %	51.0
Segment Travel Time, minutes	0.17	Adj. Follower Density, followers/mi/ln	3.1
Vehicle LOS	B		

Segment 4

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	3375
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.6

Demand and Capacity

Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1300	Demand/Capacity (D/C)	0.34

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	75.7
Speed Slope Coefficient (m)	13.56358	Speed Power Coefficient (p)	0.84442
PF Slope Coefficient (m)	-1.34337	PF Power Coefficient (p)	0.86946
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3375	-	-	70.2

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	266	175
Percentage of Heavy Vehicles (HV%), %	4.00	19.10
Initial Average Speed (Sint), mi/h	75.5	70.7
Average Speed at Midpoint (SPLmid), mi/h	77.1	69.0
Percent Followers at Midpoint (PFPLmid), %	33.4	18.8

Vehicle Results

Average Speed, mi/h	70.2	Percent Followers, %	48.3
Segment Travel Time, minutes	0.55	Adj. Follower Density, followers/mi/ln	3.0
Follower Density Mid-Point, followers/mi/ln	0.8	Vehicle LOS	A

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1068
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	4.9

Demand and Capacity

Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	76.3
Speed Slope Coefficient (m)	6.73734	Speed Power Coefficient (p)	0.55273
PF Slope Coefficient (m)	-1.32619	PF Power Coefficient (p)	0.75698
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.8
%Improvement to Percent Followers	24.6	%Improvement to Speed	2.7

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Horizontal Curve	1068	1146	0.0	59.5

Vehicle Results

Average Speed, mi/h	61.1	Percent Followers, %	51.0
Segment Travel Time, minutes	0.20	Adj. Follower Density, followers/mi/ln	2.8
Vehicle LOS	B		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2186
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.4

Demand and Capacity

Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	293
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	10.34032	Speed Power Coefficient (p)	0.83987
PF Slope Coefficient (m)	-1.23743	PF Power Coefficient (p)	0.84659
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	2.8
%Improvement to Percent Followers	21.1	%Improvement to Speed	2.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2186	-	-	72.0

Vehicle Results

Average Speed, mi/h	73.7	Percent Followers, %	46.2
Segment Travel Time, minutes	0.34	Adj. Follower Density, followers/mi/ln	2.2
Vehicle LOS	B		

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	903
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	77.6
Speed Slope Coefficient (m)	6.94156	Speed Power Coefficient (p)	0.56003
PF Slope Coefficient (m)	-1.31294	PF Power Coefficient (p)	0.75932
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.0
%Improvement to Percent Followers	20.0	%Improvement to Speed	2.2

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	903	-	-	73.8

Vehicle Results

Average Speed, mi/h	75.4	Percent Followers, %	50.6

Segment Travel Time, minutes	0.14	Adj. Follower Density, followers/mi/ln	2.4
Vehicle LOS	B		

Segment 8

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1221
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	293
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	77.7
Speed Slope Coefficient (m)	6.46296	Speed Power Coefficient (p)	0.68014
PF Slope Coefficient (m)	-1.20666	PF Power Coefficient (p)	0.82054
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	2.7
%Improvement to Percent Followers	18.7	%Improvement to Speed	2.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1221	-	-	74.6

Vehicle Results

Average Speed, mi/h	76.1	Percent Followers, %	46.0
Segment Travel Time, minutes	0.18	Adj. Follower Density, followers/mi/ln	2.2
Vehicle LOS	B		

Segment 9

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1542
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	3.4

Demand and Capacity

Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	76.7
Speed Slope Coefficient (m)	6.99957	Speed Power Coefficient (p)	0.55579
PF Slope Coefficient (m)	-1.30440	PF Power Coefficient (p)	0.76221
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	3.0
%Improvement to Percent Followers	17.3	%Improvement to Speed	1.8

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1542	-	-	72.9

Vehicle Results			
Average Speed, mi/h	74.2	Percent Followers, %	50.3
Segment Travel Time, minutes	0.24	Adj. Follower Density, followers/mi/ln	2.5
Vehicle LOS	B		

Segment 10

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2423
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.2

Demand and Capacity			
Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	293
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	10.60744	Speed Power Coefficient (p)	0.84298
PF Slope Coefficient (m)	-1.22797	PF Power Coefficient (p)	0.84857
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	2.8
%Improvement to Percent Followers	15.4	%Improvement to Speed	1.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2423	-	-	72.0

Vehicle Results			
Average Speed, mi/h	73.0	Percent Followers, %	45.8
Segment Travel Time, minutes	0.38	Adj. Follower Density, followers/mi/ln	2.3
Vehicle LOS	B		

Segment 11

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	375
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	79.5
Speed Slope Coefficient (m)	4.81583	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.18363	PF Power Coefficient (p)	0.78088
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	2.7
%Improvement to Percent Followers	15.2	%Improvement to Speed	1.4

Subsegment Data

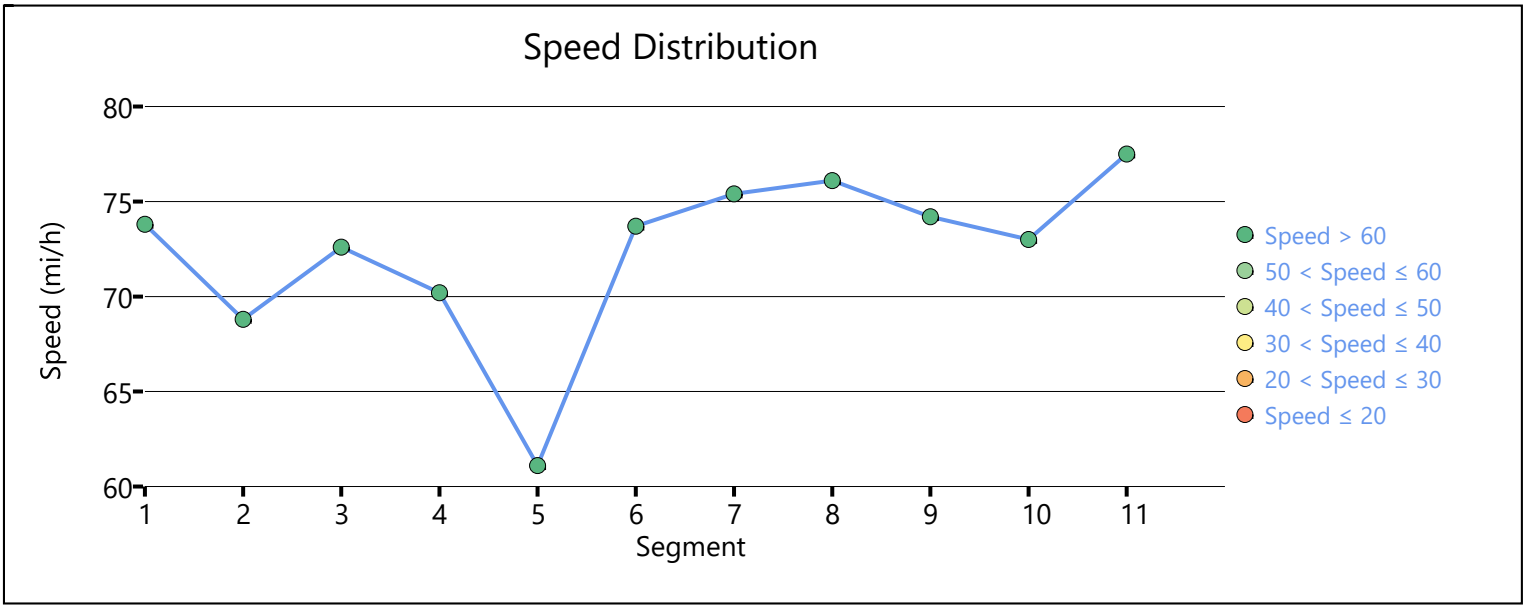
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	375	-	-	76.4

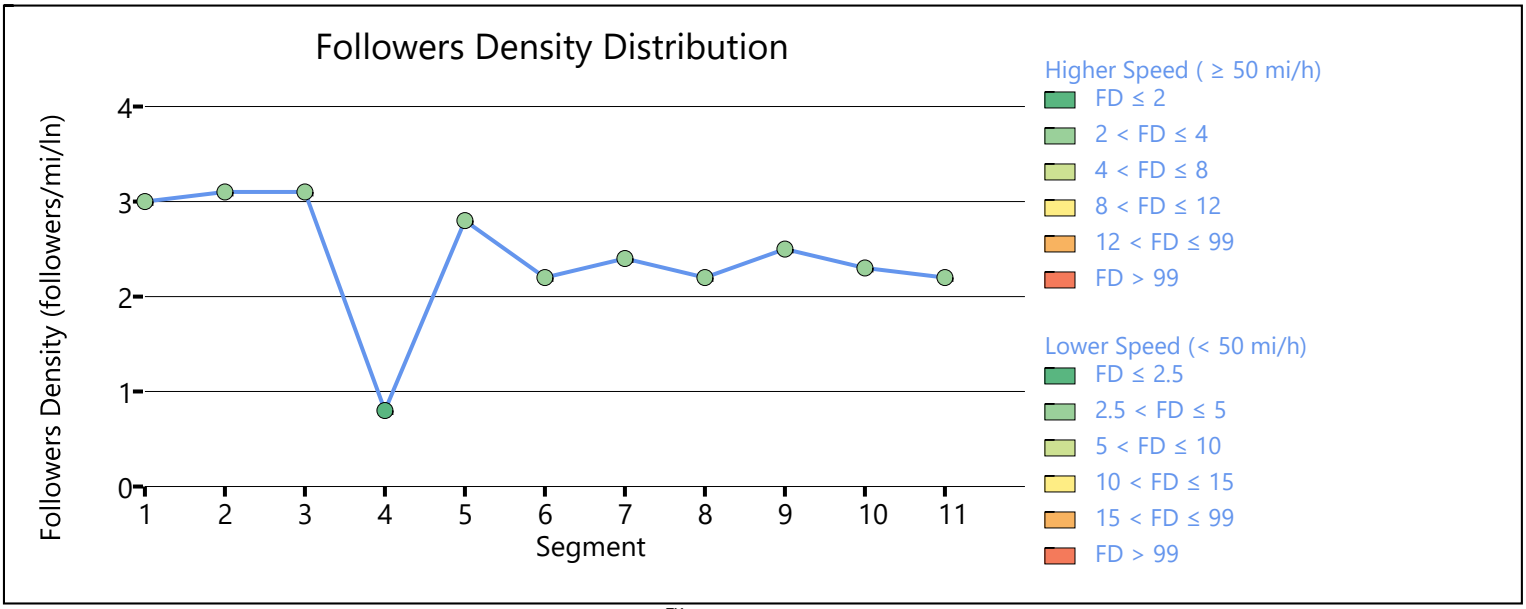
Vehicle Results

Average Speed, mi/h	77.5	Percent Followers, %	46.5
Segment Travel Time, minutes	0.05	Adj. Follower Density, followers/mi/ln	2.2
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	360	0.32	2.3	B





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 4 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1896
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.8

Demand and Capacity			
Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	293
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.1
Speed Slope Coefficient (m)	9.99024	Speed Power Coefficient (p)	0.83589
PF Slope Coefficient (m)	-1.25180	PF Power Coefficient (p)	0.84348
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1896	-	-	72.0

Vehicle Results			
Average Speed, mi/h	72.0	Percent Followers, %	46.6
Segment Travel Time, minutes	0.30	Adj. Follower Density, followers/mi/ln	2.9
Vehicle LOS	B		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	3434
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.5

Demand and Capacity			
Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	73.4
Speed Slope Coefficient (m)	15.82641	Speed Power Coefficient (p)	0.68405

PF Slope Coefficient (m)	-1.56388	PF Power Coefficient (p)	0.73197
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2069	-	-	65.8
2	Horizontal Curve	1365	1146	8.0	65.8

Vehicle Results

Average Speed, mi/h	65.8	Percent Followers, %	57.7
Segment Travel Time, minutes	0.59	Adj. Follower Density, followers/mi/ln	3.9
Vehicle LOS	B		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1136
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	293
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	77.7
Speed Slope Coefficient (m)	6.46296	Speed Power Coefficient (p)	0.68014
PF Slope Coefficient (m)	-1.20666	PF Power Coefficient (p)	0.82054
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1136	-	-	74.6

Vehicle Results

Average Speed, mi/h	74.6	Percent Followers, %	46.0
Segment Travel Time, minutes	0.17	Adj. Follower Density, followers/mi/ln	2.7
Vehicle LOS	B		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	916
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	5.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	76.1
Speed Slope Coefficient (m)	6.70303	Speed Power Coefficient (p)	0.55150
PF Slope Coefficient (m)	-1.32842	PF Power Coefficient (p)	0.75659
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	916	-	-	72.4

Vehicle Results			
Average Speed, mi/h	72.4	Percent Followers, %	51.1
Segment Travel Time, minutes	0.14	Adj. Follower Density, followers/mi/ln	3.1
Vehicle LOS	B		

Segment 5

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1587
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	293
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.8
Speed Slope Coefficient (m)	9.77507	Speed Power Coefficient (p)	0.83895
PF Slope Coefficient (m)	-1.27249	PF Power Coefficient (p)	0.84117
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1587	-	-	72.8

Vehicle Results			
Average Speed, mi/h	72.8	Percent Followers, %	47.2
Segment Travel Time, minutes	0.25	Adj. Follower Density, followers/mi/ln	2.9
Vehicle LOS	B		

Segment 6

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	4718
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.2

Demand and Capacity			
Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	-

Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	73.2
Speed Slope Coefficient (m)	16.70053	Speed Power Coefficient (p)	0.65132
PF Slope Coefficient (m)	-1.60877	PF Power Coefficient (p)	0.75580
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4718	-	-	64.9

Vehicle Results			
Average Speed, mi/h	64.9	Percent Followers, %	58.0
Segment Travel Time, minutes	0.83	Adj. Follower Density, followers/mi/ln	3.9
Vehicle LOS	B		

Segment 7

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2540
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.1
Demand and Capacity			
Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	293
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.3
Speed Slope Coefficient (m)	10.73320	Speed Power Coefficient (p)	0.84446
PF Slope Coefficient (m)	-1.22395	PF Power Coefficient (p)	0.84938
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2540	-	-	71.9

Vehicle Results			
Average Speed, mi/h	71.9	Percent Followers, %	45.7
Segment Travel Time, minutes	0.40	Adj. Follower Density, followers/mi/ln	2.8
Vehicle LOS	B		

Segment 8

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2510
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.1

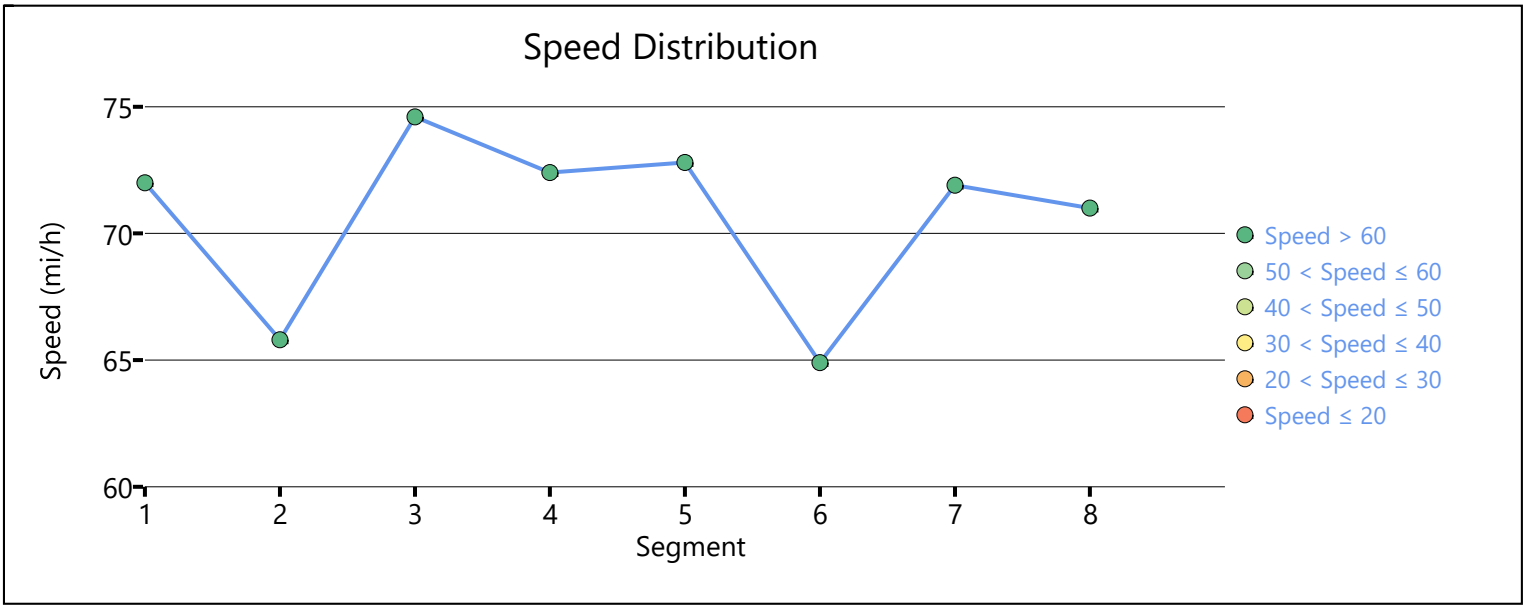
Demand and Capacity			
Directional Demand Flow Rate, veh/h	441	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

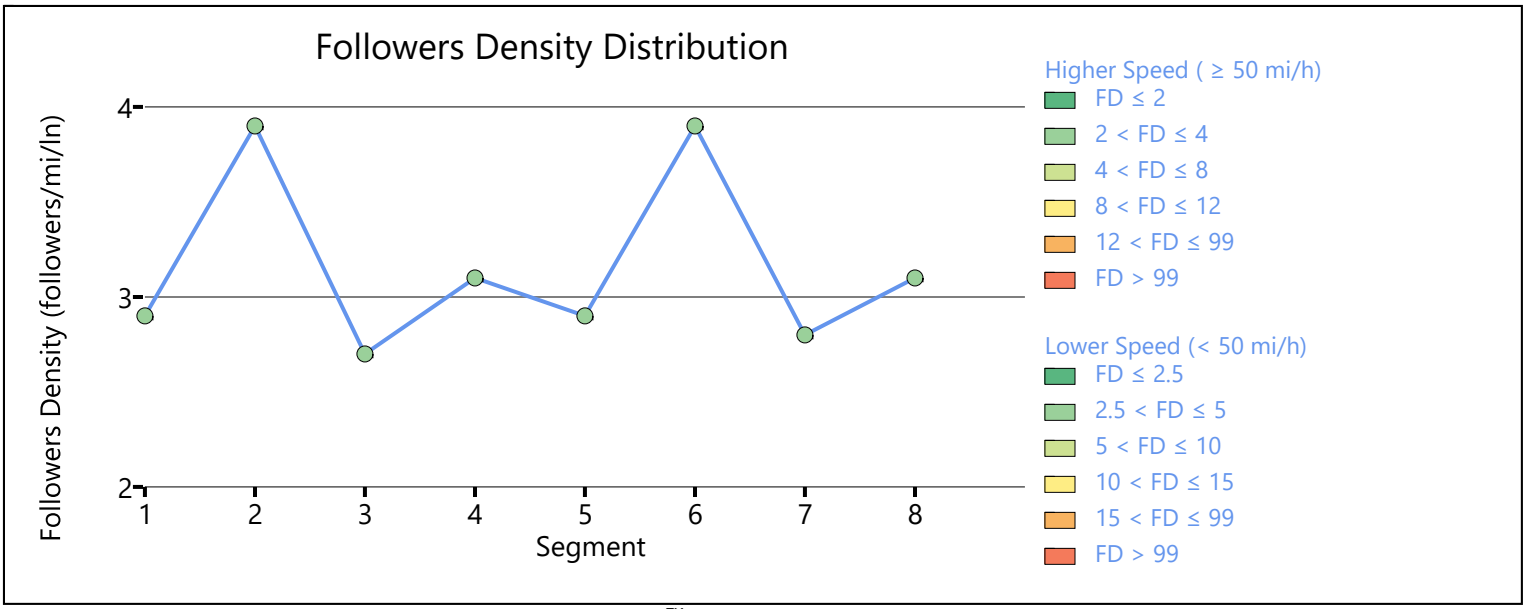
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.1
Speed Slope Coefficient (m)	11.43359	Speed Power Coefficient (p)	0.75461
PF Slope Coefficient (m)	-1.32838	PF Power Coefficient (p)	0.79511
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2510	-	-	71.0

Vehicle Results			
Average Speed, mi/h	71.0	Percent Followers, %	50.0
Segment Travel Time, minutes	0.40	Adj. Follower Density, followers/mi/ln	3.1
Vehicle LOS	B		

Facility Results				
T	**VMT veh-mi/AP**	**VHD veh-h/p**	**Follower Density, followers/ mi/ln**	**LOS**
1	360	0.42	3.3	B





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 5 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2916
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	3.6

Demand and Capacity			
Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	71.0
Speed Slope Coefficient (m)	9.62969	Speed Power Coefficient (p)	0.69983
PF Slope Coefficient (m)	-1.33171	PF Power Coefficient (p)	0.78197
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1561	-	-	65.8
2	Horizontal Curve	1355	1146	8.0	63.5

Vehicle Results			
Average Speed, mi/h	64.7	Percent Followers, %	54.9
Segment Travel Time, minutes	0.51	Adj. Follower Density, followers/mi/ln	4.4
Vehicle LOS	C		

Segment 2

Vehicle Inputs			
Segment Type	Passing Lanes	Length, ft	5078
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.35

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	71.5

Speed Slope Coefficient (m)	11.35419	Speed Power Coefficient (p)	0.94841
PF Slope Coefficient (m)	-1.07320	PF Power Coefficient (p)	0.94808
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5078	-	-	66.6

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	309	210
Percentage of Heavy Vehicles (HV%), %	3.20	15.07
Initial Average Speed (Sint), mi/h	71.0	67.7
Average Speed at Midpoint (SPLmid), mi/h	72.6	66.0
Percent Followers at Midpoint (PFPLmid), %	33.1	21.0

Vehicle Results

Average Speed, mi/h	66.6	Percent Followers, %	43.8
Segment Travel Time, minutes	0.87	Adj. Follower Density, followers/mi/ln	3.4
Follower Density Mid-Point, followers/mi/ln	1.0	Vehicle LOS	A

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	20765
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	2.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	69.3
Speed Slope Coefficient (m)	18.19522	Speed Power Coefficient (p)	0.34642
PF Slope Coefficient (m)	-2.18086	PF Power Coefficient (p)	0.70939
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.9
%Improvement to Percent Followers	10.3	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	13917	-	-	55.8
2	Horizontal Curve	1562	1432	8.0	55.8
3	Horizontal Curve	623	1146	8.0	55.8
4	Horizontal Curve	1273	1146	8.0	55.8
5	Horizontal Curve	1402	1637	8.0	55.8
6	Horizontal Curve	371	1432	8.0	55.8

7	Horizontal Curve	445	1273	8.0	55.8
8	Horizontal Curve	1172	1273	8.0	55.8

Vehicle Results			
Average Speed, mi/h	55.8	Percent Followers, %	74.6
Segment Travel Time, minutes	4.23	Adj. Follower Density, followers/mi/ln	6.2
Vehicle LOS	C		

Segment 4

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1166
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	4.5
Demand and Capacity			
Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	346
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30
Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	71.7
Speed Slope Coefficient (m)	5.15130	Speed Power Coefficient (p)	0.62798
PF Slope Coefficient (m)	-1.26705	PF Power Coefficient (p)	0.79947
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	4.0
%Improvement to Percent Followers	9.9	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1166	-	-	68.7

Vehicle Results			
Average Speed, mi/h	68.7	Percent Followers, %	52.7
Segment Travel Time, minutes	0.19	Adj. Follower Density, followers/mi/ln	3.6
Vehicle LOS	B		

Segment 5

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	4582
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	2.3
Demand and Capacity			
Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	69.4
Speed Slope Coefficient (m)	13.53717	Speed Power Coefficient (p)	0.62508
PF Slope Coefficient (m)	-1.61960	PF Power Coefficient (p)	0.75328
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	5.3

%Improvement to Percent Followers	8.5	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3681	-	-	61.6
2	Horizontal Curve	901	1432	8.0	61.6

Vehicle Results

Average Speed, mi/h	61.6	Percent Followers, %	62.7
Segment Travel Time, minutes	0.85	Adj. Follower Density, followers/mi/ln	4.8
Vehicle LOS	C		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2207
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	4.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	346
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.8
Speed Slope Coefficient (m)	8.28332	Speed Power Coefficient (p)	0.76457
PF Slope Coefficient (m)	-1.24911	PF Power Coefficient (p)	0.82670
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	4.0
%Improvement to Percent Followers	7.9	%Improvement to Speed	0.0

Subsegment Data

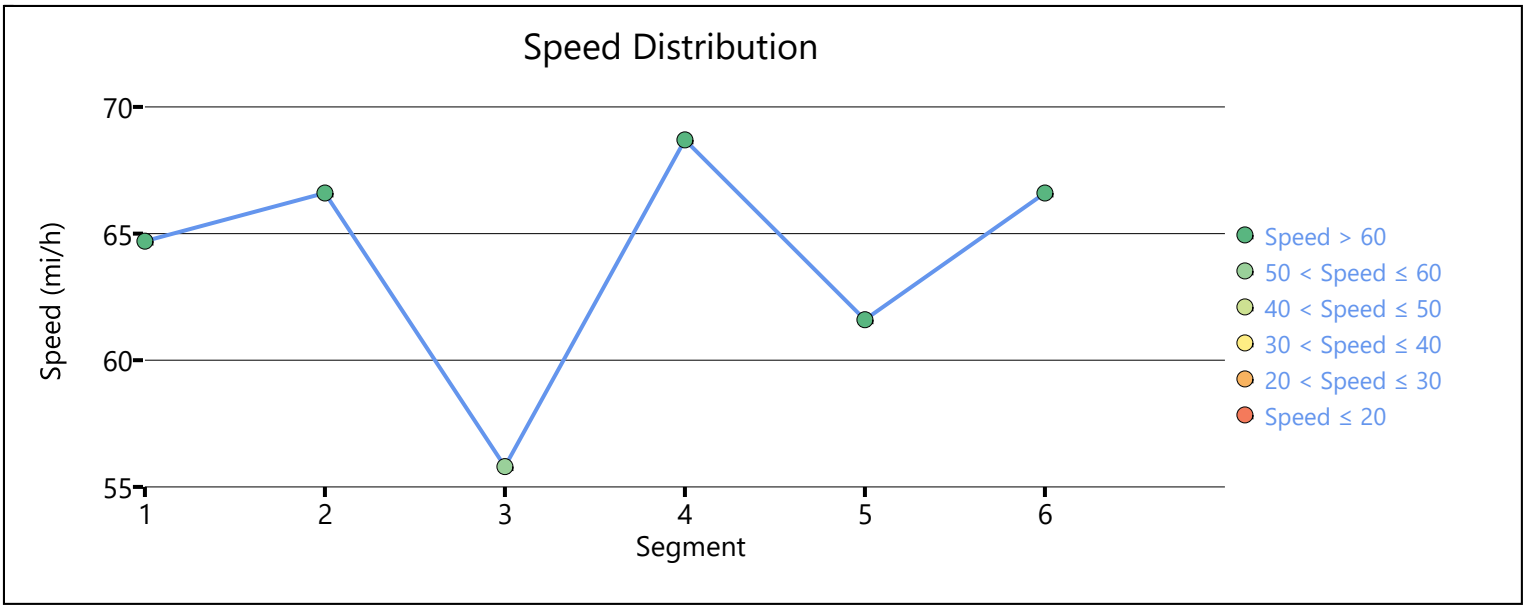
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2207	-	-	66.6

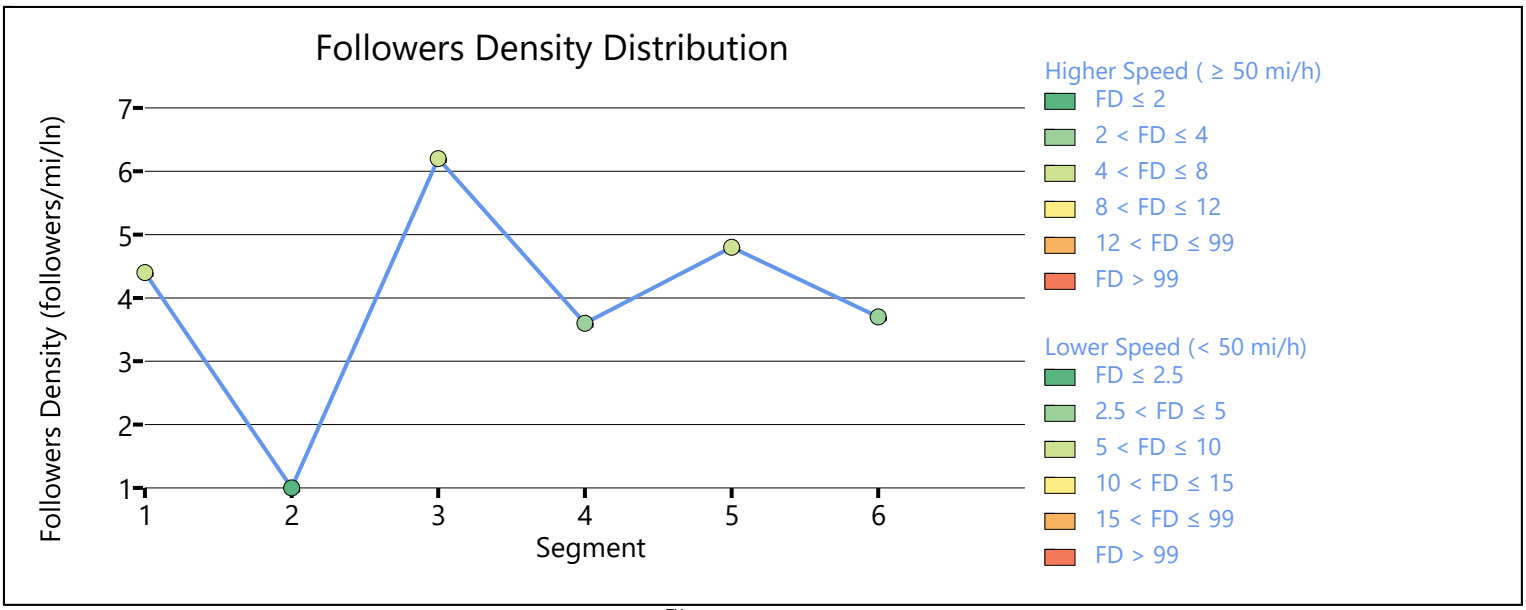
Vehicle Results

Average Speed, mi/h	66.6	Percent Followers, %	51.6
Segment Travel Time, minutes	0.38	Adj. Follower Density, followers/mi/ln	3.7
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	829	2.09	4.9	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 5 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1322
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	4.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	346
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	71.8
Speed Slope Coefficient (m)	5.17261	Speed Power Coefficient (p)	0.62877
PF Slope Coefficient (m)	-1.26588	PF Power Coefficient (p)	0.79985
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1322	-	-	68.8

Vehicle Results			
Average Speed, mi/h	68.8	Percent Followers, %	52.7
Segment Travel Time, minutes	0.22	Adj. Follower Density, followers/mi/ln	4.0
Vehicle LOS	B		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	4580
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	1.2

Demand and Capacity			
Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	69.7
Speed Slope Coefficient (m)	13.66123	Speed Power Coefficient (p)	0.62667

PF Slope Coefficient (m)	-1.61864	PF Power Coefficient (p)	0.75313
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3679	-	-	61.8
2	Horizontal Curve	901	1432	8.0	61.8

Vehicle Results

Average Speed, mi/h	61.8	Percent Followers, %	62.7
Segment Travel Time, minutes	0.84	Adj. Follower Density, followers/mi/ln	5.3
Vehicle LOS	C		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2063
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	7.7

Demand and Capacity

Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	346
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.1
Speed Slope Coefficient (m)	7.99298	Speed Power Coefficient (p)	0.75637
PF Slope Coefficient (m)	-1.25558	PF Power Coefficient (p)	0.82345
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	891	-	-	66.0
2	Horizontal Curve	1172	1273	8.0	63.5

Vehicle Results

Average Speed, mi/h	64.6	Percent Followers, %	51.9
Segment Travel Time, minutes	0.36	Adj. Follower Density, followers/mi/ln	4.2
Vehicle LOS	C		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	4561
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	2.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00

Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	69.4
Speed Slope Coefficient (m)	13.52238	Speed Power Coefficient (p)	0.62557
PF Slope Coefficient (m)	-1.61884	PF Power Coefficient (p)	0.75298
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3744	-	-	61.6
2	Horizontal Curve	371	1432	8.0	61.6
3	Horizontal Curve	446	1273	8.0	61.6

Vehicle Results			
Average Speed, mi/h	61.6	Percent Followers, %	62.7
Segment Travel Time, minutes	0.84	Adj. Follower Density, followers/mi/ln	5.3
Vehicle LOS	C		

Segment 5

Vehicle Inputs			
Segment Type	Passing Lanes	Length, ft	5591
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	1.9
Demand and Capacity			
Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.35
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	71.1
Speed Slope Coefficient (m)	11.31102	Speed Power Coefficient (p)	0.97901
PF Slope Coefficient (m)	-1.05342	PF Power Coefficient (p)	0.95848
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5591	-	-	66.2

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	309	210
Percentage of Heavy Vehicles (HV%), %	3.20	15.07
Initial Average Speed (Sint), mi/h	70.6	67.3
Average Speed at Midpoint (SPLmid), mi/h	72.3	65.6
Percent Followers at Midpoint (PFPLmid), %	32.3	20.2

Vehicle Results

Average Speed, mi/h	66.2	Percent Followers, %	43.0
Segment Travel Time, minutes	0.96	Adj. Follower Density, followers/mi/ln	3.4
Follower Density Mid-Point, followers/mi/ln	1.0	Vehicle LOS	A

Segment 6

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	18492
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	3.1

Demand and Capacity

Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	69.1
Speed Slope Coefficient (m)	18.06055	Speed Power Coefficient (p)	0.34531
PF Slope Coefficient (m)	-2.18208	PF Power Coefficient (p)	0.70966
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.9
%Improvement to Percent Followers	12.0	%Improvement to Speed	0.8

Subsegment Data

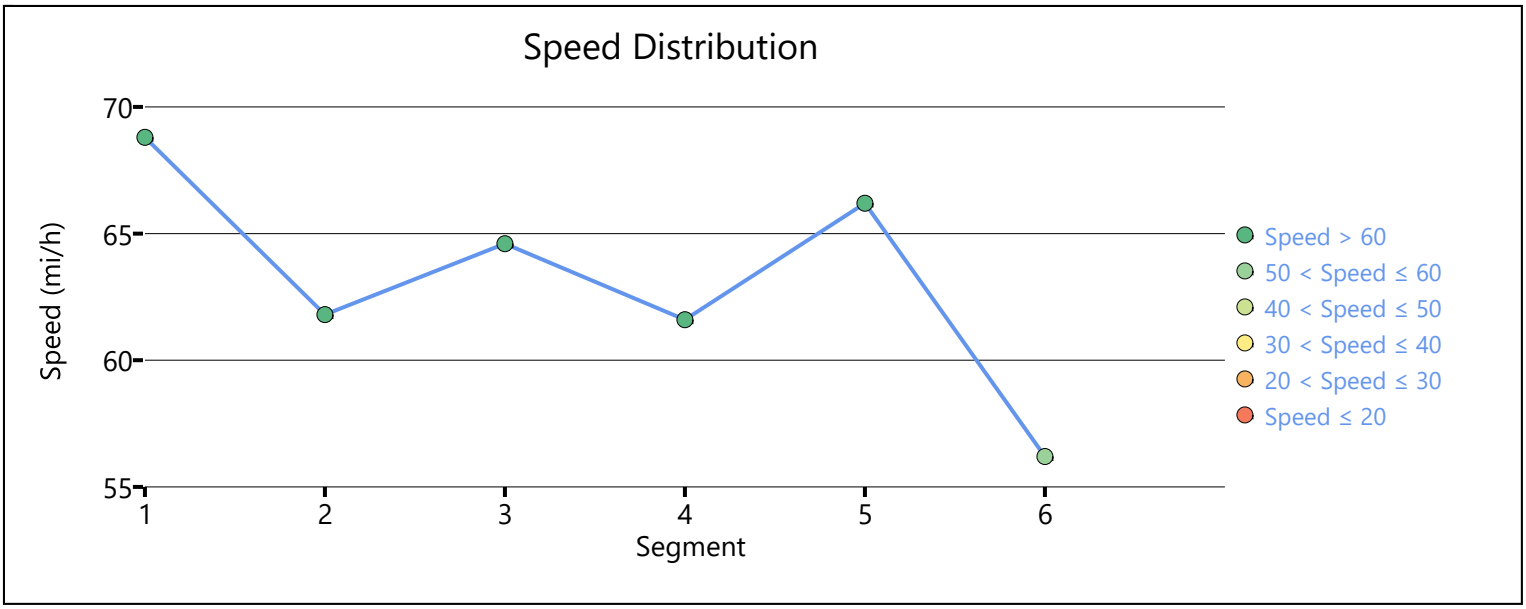
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	12277	-	-	55.7
2	Horizontal Curve	1355	1146	8.0	55.7
3	Horizontal Curve	1562	1432	8.0	55.7
4	Horizontal Curve	623	1146	0.0	55.7
5	Horizontal Curve	1273	1146	8.0	55.7
6	Horizontal Curve	1402	1637	8.0	55.7

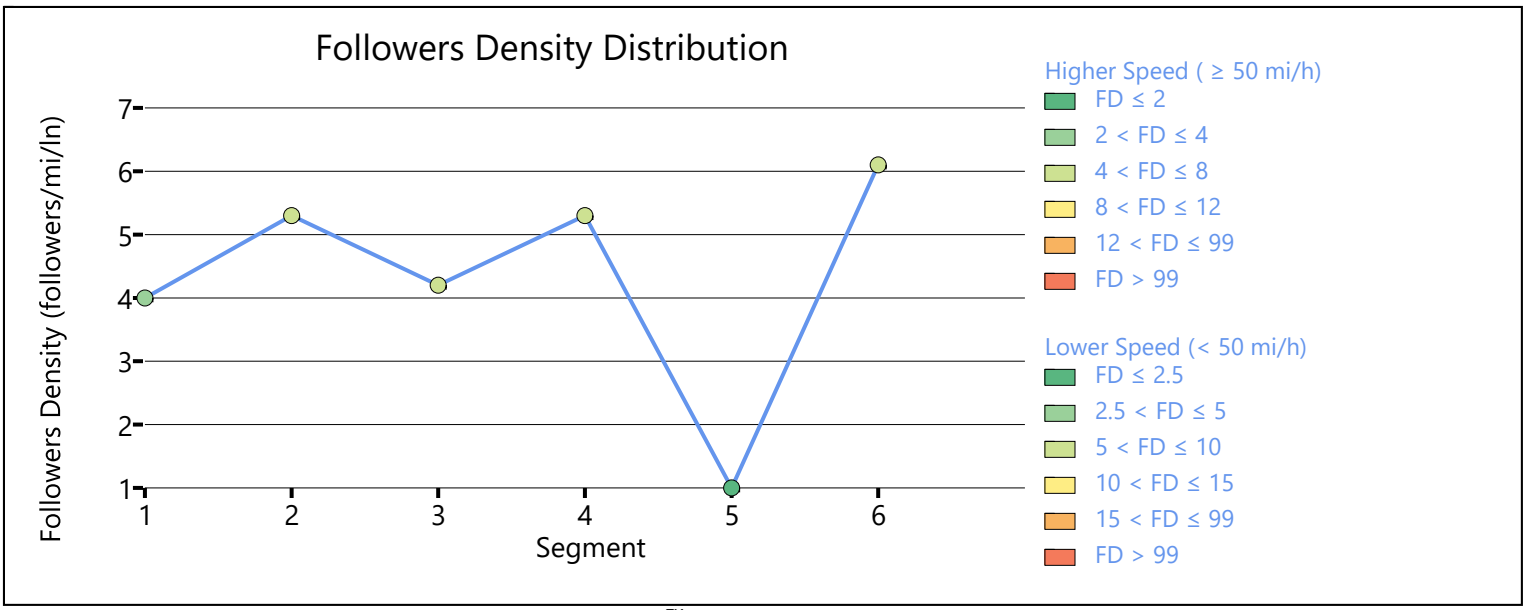
Vehicle Results

Average Speed, mi/h	56.2	Percent Followers, %	74.6
Segment Travel Time, minutes	3.74	Adj. Follower Density, followers/mi/ln	6.1
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	827	1.97	4.9	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 6 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	6061
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.7

Demand and Capacity			
Directional Demand Flow Rate, veh/h	447	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	71.9
Speed Slope Coefficient (m)	16.90164	Speed Power Coefficient (p)	0.61124
PF Slope Coefficient (m)	-1.66409	PF Power Coefficient (p)	0.76956
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6061	-	-	63.0

Vehicle Results			
Average Speed, mi/h	63.0	Percent Followers, %	59.1
Segment Travel Time, minutes	1.09	Adj. Follower Density, followers/mi/ln	4.2
Vehicle LOS	C		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1521
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	3.5

Demand and Capacity			
Directional Demand Flow Rate, veh/h	447	Opposing Demand Flow Rate, veh/h	298
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	75.5
Speed Slope Coefficient (m)	6.26074	Speed Power Coefficient (p)	0.66637

PF Slope Coefficient (m)		-1.21090		PF Power Coefficient (p)	0.81906
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	2.9
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1521	-	-	72.4
Vehicle Results					
Average Speed, mi/h		72.4		Percent Followers, %	46.5
Segment Travel Time, minutes		0.24		Adj. Follower Density, followers/mi/ln	2.9
Vehicle LOS		B			

Segment 3

Vehicle Inputs					
Segment Type		Passing Constrained		Length, ft	5169
Lane Width, ft		12		Shoulder Width, ft	4
Speed Limit, mi/h		70		Access Point Density, pts/mi	2.0
Demand and Capacity					
Directional Demand Flow Rate, veh/h		447		Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor		0.92		Total Trucks, %	10.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.26
Intermediate Results					
Segment Vertical Class		4		Free-Flow Speed, mi/h	71.8
Speed Slope Coefficient (m)		16.33141		Speed Power Coefficient (p)	0.63293
PF Slope Coefficient (m)		-1.62969		PF Power Coefficient (p)	0.76240
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	4.1
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5169	-	-	63.5
Vehicle Results					
Average Speed, mi/h		63.5		Percent Followers, %	58.6
Segment Travel Time, minutes		0.93		Adj. Follower Density, followers/mi/ln	4.1
Vehicle LOS		C			

Segment 4

Vehicle Inputs					
Segment Type		Passing Zone		Length, ft	1637
Lane Width, ft		12		Shoulder Width, ft	2
Speed Limit, mi/h		70		Access Point Density, pts/mi	3.2
Demand and Capacity					
Directional Demand Flow Rate, veh/h		447		Opposing Demand Flow Rate, veh/h	298
Peak Hour Factor		0.92		Total Trucks, %	10.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.26
Intermediate Results					

Segment Vertical Class	3	Free-Flow Speed, mi/h	73.2
Speed Slope Coefficient (m)	9.00647	Speed Power Coefficient (p)	0.80513
PF Slope Coefficient (m)	-1.26565	PF Power Coefficient (p)	0.83281
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1637	-	-	69.3

Vehicle Results

Average Speed, mi/h	69.3	Percent Followers, %	47.6
Segment Travel Time, minutes	0.27	Adj. Follower Density, followers/mi/ln	3.1
Vehicle LOS	B		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1349
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	447	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	74.8
Speed Slope Coefficient (m)	6.50307	Speed Power Coefficient (p)	0.54359
PF Slope Coefficient (m)	-1.34040	PF Power Coefficient (p)	0.75464
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1349	-	-	71.1

Vehicle Results

Average Speed, mi/h	71.1	Percent Followers, %	51.8
Segment Travel Time, minutes	0.22	Adj. Follower Density, followers/mi/ln	3.3
Vehicle LOS	B		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4422
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.4

Demand and Capacity

Directional Demand Flow Rate, veh/h	447	Opposing Demand Flow Rate, veh/h	298
Peak Hour Factor	0.92	Total Trucks, %	10.00

Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	72.2
Speed Slope Coefficient (m)	14.78318	Speed Power Coefficient (p)	0.80931
PF Slope Coefficient (m)	-1.32131	PF Power Coefficient (p)	0.85206
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4422	-	-	65.9

Vehicle Results

Average Speed, mi/h	65.9	Percent Followers, %	48.6
Segment Travel Time, minutes	0.76	Adj. Follower Density, followers/mi/ln	3.3
Vehicle LOS	B		

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1739
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	3.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	447	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	73.1
Speed Slope Coefficient (m)	9.86214	Speed Power Coefficient (p)	0.71845
PF Slope Coefficient (m)	-1.37507	PF Power Coefficient (p)	0.78345
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

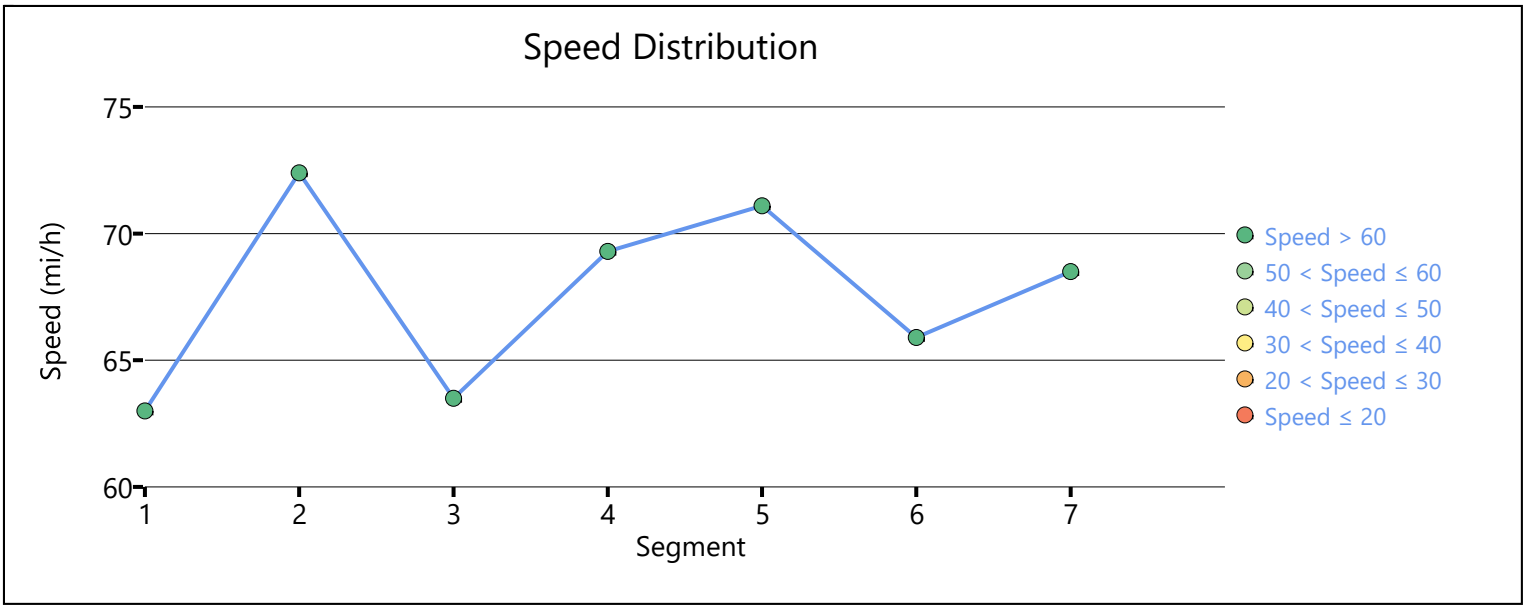
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1739	-	-	68.5

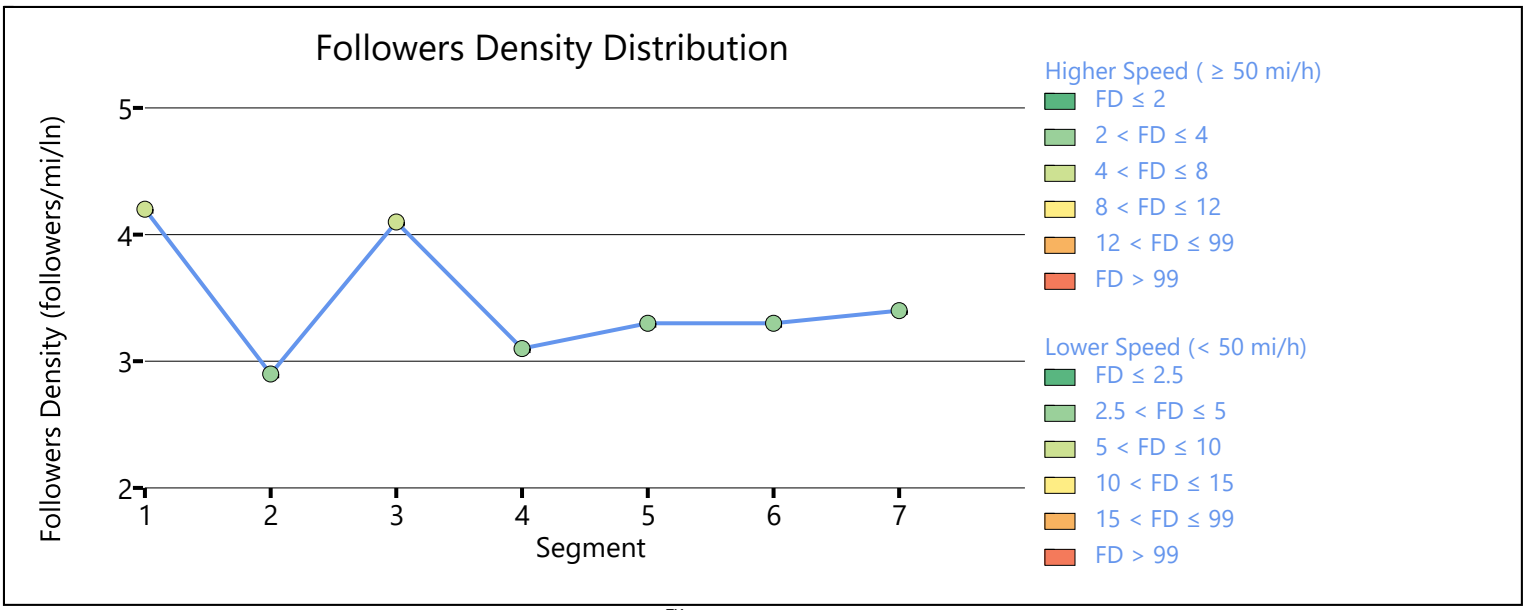
Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	51.9
Segment Travel Time, minutes	0.29	Adj. Follower Density, followers/mi/ln	3.4
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	426	0.62	3.7	B





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 6 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1015
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	5.2

Demand and Capacity			
Directional Demand Flow Rate, veh/h	447	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	73.5
Speed Slope Coefficient (m)	6.26358	Speed Power Coefficient (p)	0.53580
PF Slope Coefficient (m)	-1.35682	PF Power Coefficient (p)	0.75161
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1015	-	-	69.9

Vehicle Results			
Average Speed, mi/h	69.9	Percent Followers, %	52.3
Segment Travel Time, minutes	0.16	Adj. Follower Density, followers/mi/ln	3.3
Vehicle LOS	B		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	4357
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.4

Demand and Capacity			
Directional Demand Flow Rate, veh/h	447	Opposing Demand Flow Rate, veh/h	298
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	72.2
Speed Slope Coefficient (m)	14.73529	Speed Power Coefficient (p)	0.81087

PF Slope Coefficient (m)		-1.31961		PF Power Coefficient (p)	0.85130
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	3.3
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4357	-	-	65.9
Vehicle Results					
Average Speed, mi/h		65.9		Percent Followers, %	48.6
Segment Travel Time, minutes		0.75		Adj. Follower Density, followers/mi/ln	3.3
Vehicle LOS		B			
Segment 3					
Vehicle Inputs					
Segment Type		Passing Constrained		Length, ft	1674
Lane Width, ft		12		Shoulder Width, ft	2
Speed Limit, mi/h		70		Access Point Density, pts/mi	0.0
Demand and Capacity					
Directional Demand Flow Rate, veh/h		447		Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor		0.92		Total Trucks, %	10.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.26
Intermediate Results					
Segment Vertical Class		3		Free-Flow Speed, mi/h	73.8
Speed Slope Coefficient (m)		9.96822		Speed Power Coefficient (p)	0.72471
PF Slope Coefficient (m)		-1.37804		PF Power Coefficient (p)	0.78451
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	3.4
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1674	-	-	69.2
Vehicle Results					
Average Speed, mi/h		69.2		Percent Followers, %	51.9
Segment Travel Time, minutes		0.27		Adj. Follower Density, followers/mi/ln	3.4
Vehicle LOS		B			
Segment 4					
Vehicle Inputs					
Segment Type		Passing Zone		Length, ft	1371
Lane Width, ft		12		Shoulder Width, ft	2
Speed Limit, mi/h		70		Access Point Density, pts/mi	0.0
Demand and Capacity					
Directional Demand Flow Rate, veh/h		447		Opposing Demand Flow Rate, veh/h	298
Peak Hour Factor		0.92		Total Trucks, %	10.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.26
Intermediate Results					

Segment Vertical Class	2	Free-Flow Speed, mi/h	74.9
Speed Slope Coefficient (m)	6.04567	Speed Power Coefficient (p)	0.66268
PF Slope Coefficient (m)	-1.22598	PF Power Coefficient (p)	0.81409
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1371	-	-	71.9

Vehicle Results

Average Speed, mi/h	71.9	Percent Followers, %	47.1
Segment Travel Time, minutes	0.22	Adj. Follower Density, followers/mi/ln	2.9
Vehicle LOS	B		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	12329
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.9

Demand and Capacity

Directional Demand Flow Rate, veh/h	447	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	72.0
Speed Slope Coefficient (m)	19.98891	Speed Power Coefficient (p)	0.45716
PF Slope Coefficient (m)	-1.95413	PF Power Coefficient (p)	0.74772
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	12329	-	-	59.7

Vehicle Results

Average Speed, mi/h	59.7	Percent Followers, %	65.7
Segment Travel Time, minutes	2.35	Adj. Follower Density, followers/mi/ln	4.9
Vehicle LOS	C		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1154
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	447	Opposing Demand Flow Rate, veh/h	298
Peak Hour Factor	0.92	Total Trucks, %	10.00

Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26
Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	76.3
Speed Slope Coefficient (m)	6.23431	Speed Power Coefficient (p)	0.67076
PF Slope Coefficient (m)	-1.21881	PF Power Coefficient (p)	0.81651
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

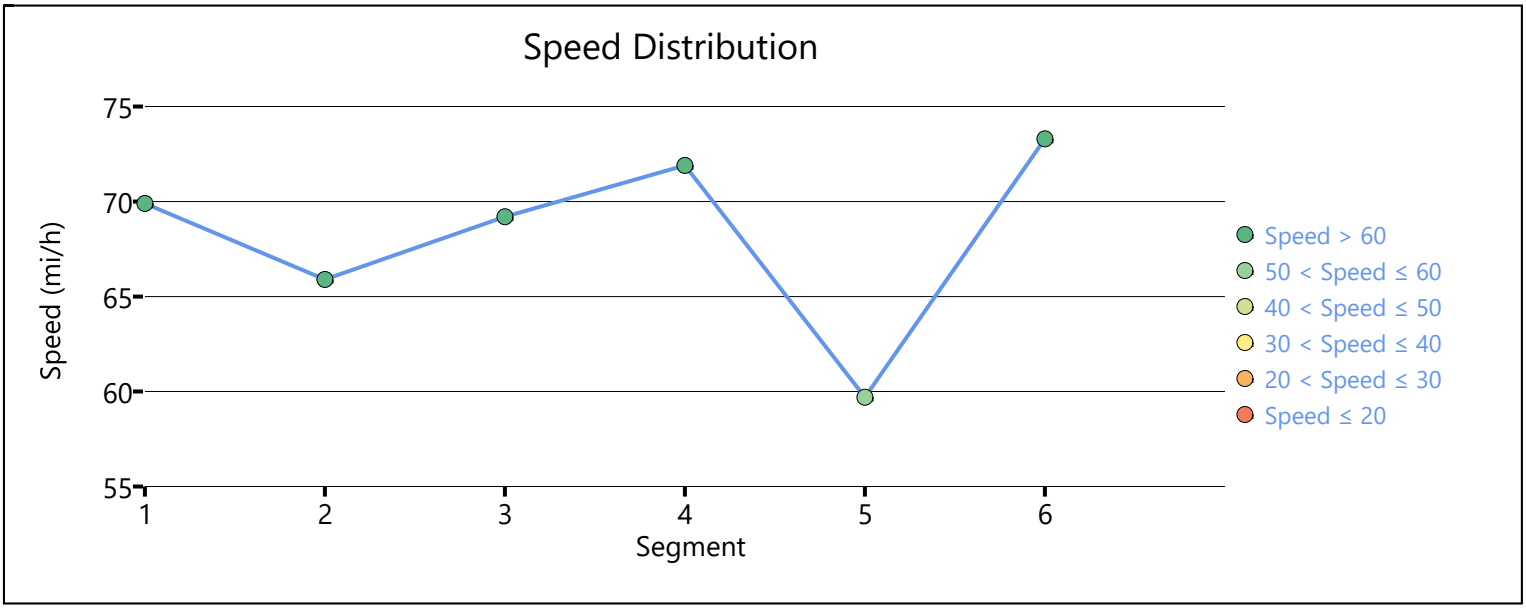
Subsegment Data

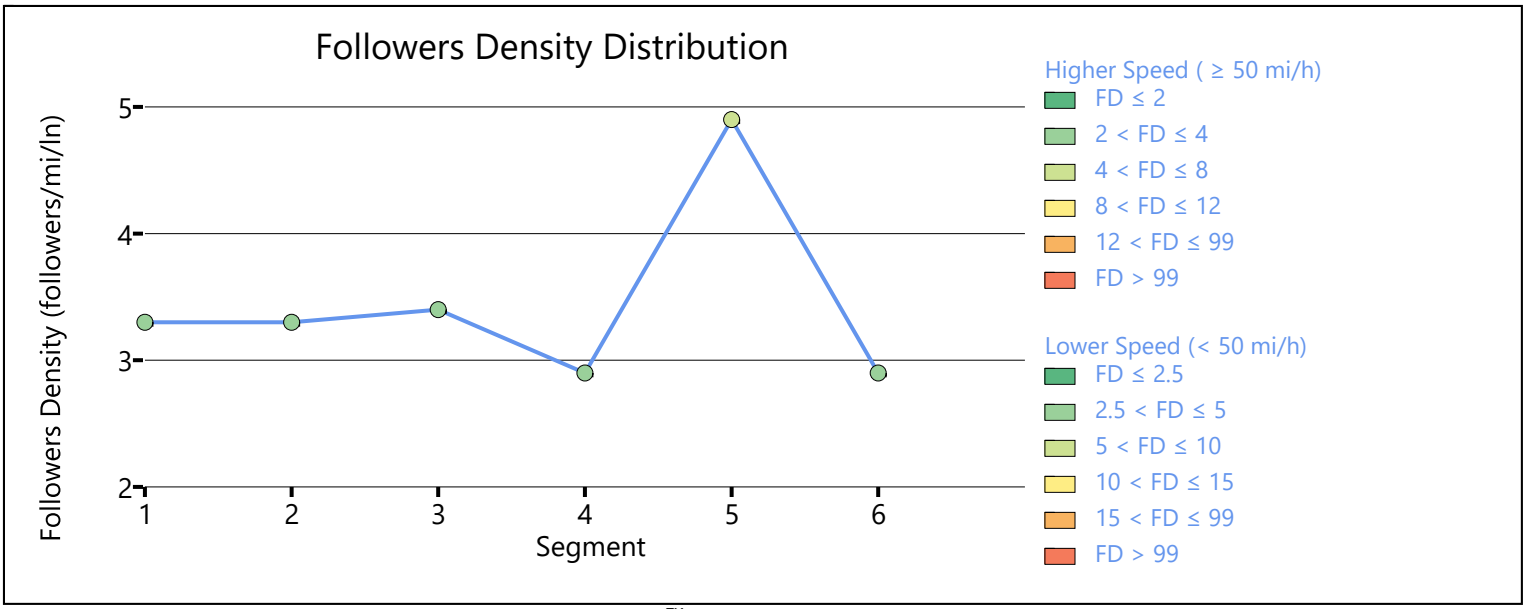
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1154	-	-	73.3

Vehicle Results			
Average Speed, mi/h	73.3	Percent Followers, %	46.8
Segment Travel Time, minutes	0.18	Adj. Follower Density, followers/mi/ln	2.9
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	426	0.87	4.2	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 7 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2648
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	2.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	565	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.33

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	58.1
Speed Slope Coefficient (m)	6.04839	Speed Power Coefficient (p)	0.57080
PF Slope Coefficient (m)	-1.39542	PF Power Coefficient (p)	0.74353
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2648	-	-	54.2

Vehicle Results			
Average Speed, mi/h	54.2	Percent Followers, %	59.9
Segment Travel Time, minutes	0.56	Adj. Follower Density, followers/mi/ln	6.2
Vehicle LOS	C		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	773
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	13.7

Demand and Capacity			
Directional Demand Flow Rate, veh/h	565	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.33

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	44.9
Speed Slope Coefficient (m)	2.93969	Speed Power Coefficient (p)	0.41674

PF Slope Coefficient (m)		-1.49635		PF Power Coefficient (p)	0.69609
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	8.4
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	773	-	-	42.7
Vehicle Results					
Average Speed, mi/h		42.7		Percent Followers, %	63.4
Segment Travel Time, minutes		0.21		Adj. Follower Density, followers/mi/ln	8.4
Vehicle LOS		C			

Segment 3

Vehicle Inputs					
Segment Type		Passing Constrained		Length, ft	2684
Lane Width, ft		12		Shoulder Width, ft	6
Speed Limit, mi/h		35		Access Point Density, pts/mi	41.3
Demand and Capacity					
Directional Demand Flow Rate, veh/h		565		Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor		0.92		Total Trucks, %	7.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.33
Intermediate Results					
Segment Vertical Class		1		Free-Flow Speed, mi/h	29.7
Speed Slope Coefficient (m)		2.13858		Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)		-1.40507		PF Power Coefficient (p)	0.64397
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	12.5
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2684	-	-	28.1
Vehicle Results					
Average Speed, mi/h		28.1		Percent Followers, %	62.2
Segment Travel Time, minutes		1.08		Adj. Follower Density, followers/mi/ln	12.5
Vehicle LOS		D			

Segment 4

Vehicle Inputs					
Segment Type		Passing Constrained		Length, ft	1279
Lane Width, ft		12		Shoulder Width, ft	2
Speed Limit, mi/h		45		Access Point Density, pts/mi	12.4
Demand and Capacity					
Directional Demand Flow Rate, veh/h		565		Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor		0.92		Total Trucks, %	7.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.33
Intermediate Results					

Segment Vertical Class	2	Free-Flow Speed, mi/h	45.2
Speed Slope Coefficient (m)	3.11550	Speed Power Coefficient (p)	0.41622
PF Slope Coefficient (m)	-1.61530	PF Power Coefficient (p)	0.68370
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	8.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

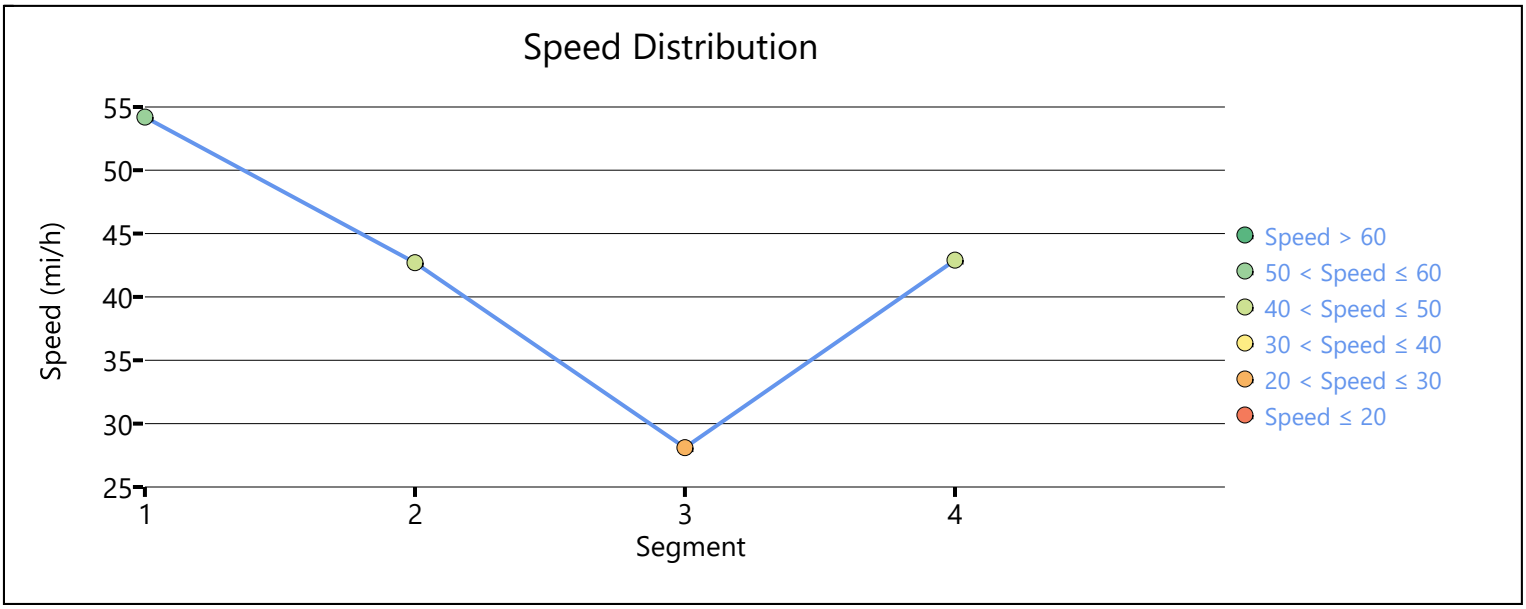
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	898	-	-	42.9
2	Horizontal Curve	381	1146	8.0	42.9

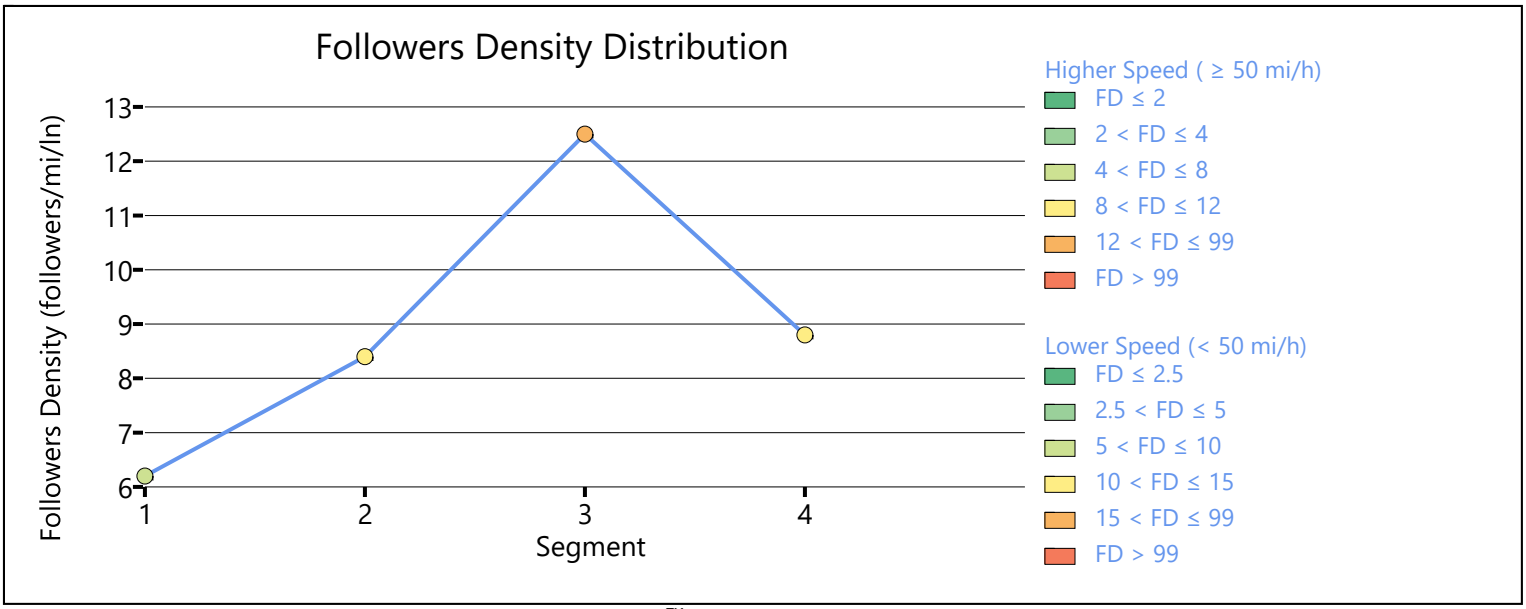
Vehicle Results

Average Speed, mi/h	42.9	Percent Followers, %	66.5
Segment Travel Time, minutes	0.34	Adj. Follower Density, followers/mi/ln	8.8
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	182	0.26	9.2	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 7 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1279
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	12.4

Demand and Capacity			
Directional Demand Flow Rate, veh/h	565	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	9.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.33

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	45.1
Speed Slope Coefficient (m)	3.11550	Speed Power Coefficient (p)	0.41622
PF Slope Coefficient (m)	-1.61329	PF Power Coefficient (p)	0.68468
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	8.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	898	-	-	42.8
2	Horizontal Curve	381	1146	8.0	42.8

Vehicle Results			
Average Speed, mi/h	42.8	Percent Followers, %	66.4
Segment Travel Time, minutes	0.34	Adj. Follower Density, followers/mi/ln	8.8
Vehicle LOS	C		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2684
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	35	Access Point Density, pts/mi	41.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	565	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	9.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.33

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	29.6

Speed Slope Coefficient (m)	2.13497	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.40431	PF Power Coefficient (p)	0.64388
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	12.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2684	-	-	28.0

Vehicle Results

Average Speed, mi/h	28.0	Percent Followers, %	62.2
Segment Travel Time, minutes	1.09	Adj. Follower Density, followers/mi/ln	12.5
Vehicle LOS	D		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	773
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	13.7

Demand and Capacity

Directional Demand Flow Rate, veh/h	565	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	9.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.33

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	44.8
Speed Slope Coefficient (m)	2.93608	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.49628	PF Power Coefficient (p)	0.69613
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	8.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	773	-	-	42.7

Vehicle Results

Average Speed, mi/h	42.7	Percent Followers, %	63.4
Segment Travel Time, minutes	0.21	Adj. Follower Density, followers/mi/ln	8.4
Vehicle LOS	C		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2648
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	2.0

Demand and Capacity

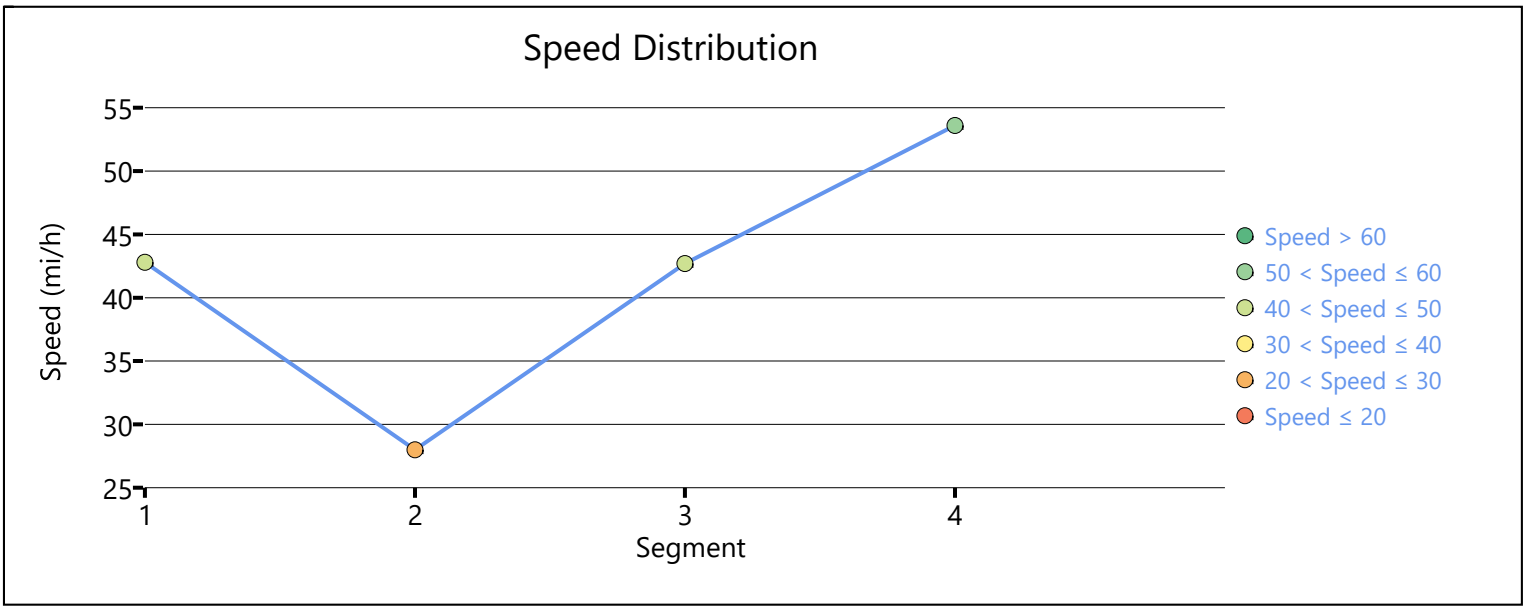
Directional Demand Flow Rate, veh/h	565	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	9.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.33

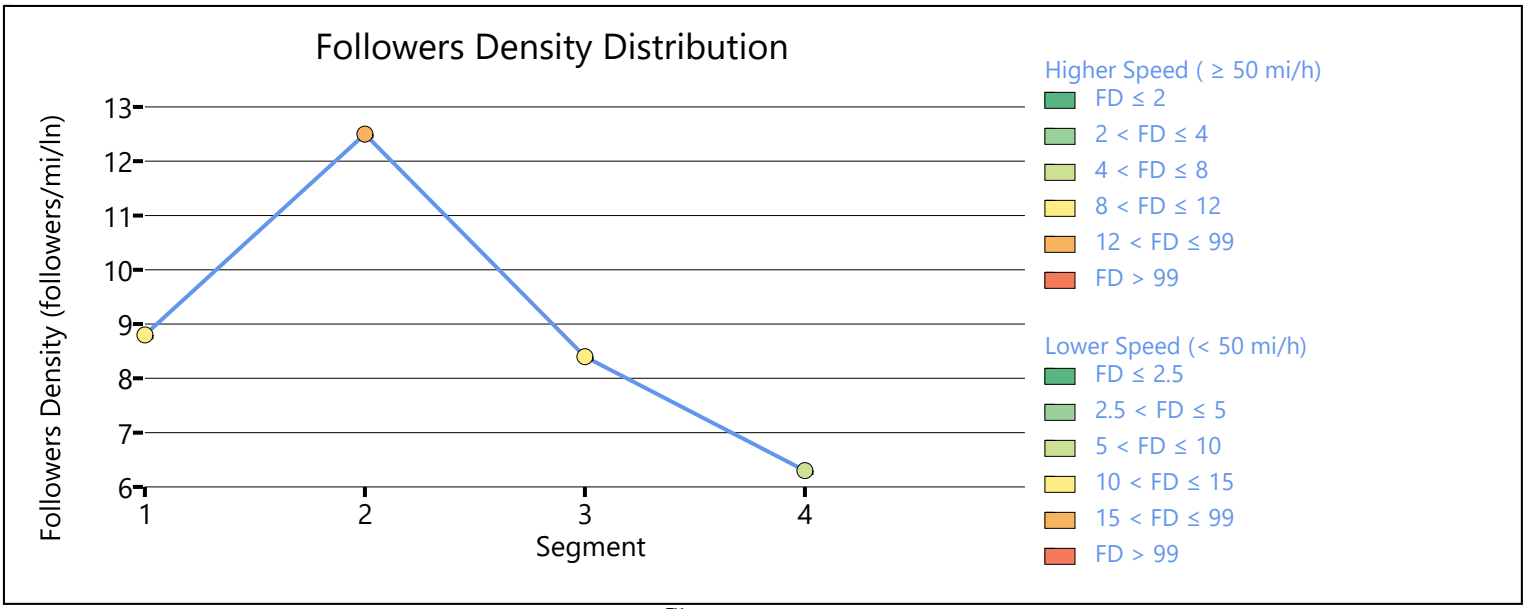
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	57.7
Speed Slope Coefficient (m)	6.39145	Speed Power Coefficient (p)	0.58152
PF Slope Coefficient (m)	-1.39236	PF Power Coefficient (p)	0.74520
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2648	-	-	53.6

Vehicle Results			
Average Speed, mi/h	53.6	Percent Followers, %	59.8
Segment Travel Time, minutes	0.56	Adj. Follower Density, followers/mi/ln	6.3
Vehicle LOS	C		

Facility Results				
T	**VMT veh-mi/AP**	**VHD veh-h/p**	**Follower Density, followers/ mi/ln**	**LOS**
1	182	0.27	9.2	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 8 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	17650
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.6

Demand and Capacity			
Directional Demand Flow Rate, veh/h	684	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.40

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	55.8
Speed Slope Coefficient (m)	9.11733	Speed Power Coefficient (p)	0.33950
PF Slope Coefficient (m)	-2.25828	PF Power Coefficient (p)	0.70609
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	11.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	15154	-	-	48.2
2	Horizontal Curve	794	1273	8.0	48.2
3	Horizontal Curve	618	1500	8.0	48.2
4	Horizontal Curve	1084	1146	8.0	48.2

Vehicle Results			
Average Speed, mi/h	48.2	Percent Followers, %	82.2
Segment Travel Time, minutes	4.16	Adj. Follower Density, followers/mi/ln	11.7
Vehicle LOS	D		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	526	1.48	11.7	D

Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 8 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	17650
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.6

Demand and Capacity			
Directional Demand Flow Rate, veh/h	684	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.40

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	55.8
Speed Slope Coefficient (m)	9.11733	Speed Power Coefficient (p)	0.33950
PF Slope Coefficient (m)	-2.25828	PF Power Coefficient (p)	0.70609
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	11.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	15154	-	-	48.2
2	Horizontal Curve	794	1273	8.0	48.2
3	Horizontal Curve	618	1500	8.0	48.2
4	Horizontal Curve	1084	1146	8.0	48.2

Vehicle Results			
Average Speed, mi/h	48.2	Percent Followers, %	82.2
Segment Travel Time, minutes	4.16	Adj. Follower Density, followers/mi/ln	11.7
Vehicle LOS	D		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	526	1.48	11.7	D

Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forysthe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers - Section 9 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	8096
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	7.2

Demand and Capacity			
Directional Demand Flow Rate, veh/h	921	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.54

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	47.3
Speed Slope Coefficient (m)	3.50056	Speed Power Coefficient (p)	0.39979
PF Slope Coefficient (m)	-1.84701	PF Power Coefficient (p)	0.73026
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	17.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5839	-	-	44.1
2	Horizontal Curve	1333	809	8.0	44.1
3	Horizontal Curve	924	1146	8.0	44.1

Vehicle Results			
Average Speed, mi/h	44.1	Percent Followers, %	82.4
Segment Travel Time, minutes	2.09	Adj. Follower Density, followers/mi/ln	17.2
Vehicle LOS	E		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	4241
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	3.7

Demand and Capacity			
Directional Demand Flow Rate, veh/h	921	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.54

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	60.1
Speed Slope Coefficient (m)	7.89319	Speed Power Coefficient (p)	0.56316
PF Slope Coefficient (m)	-1.64184	PF Power Coefficient (p)	0.73879
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	13.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

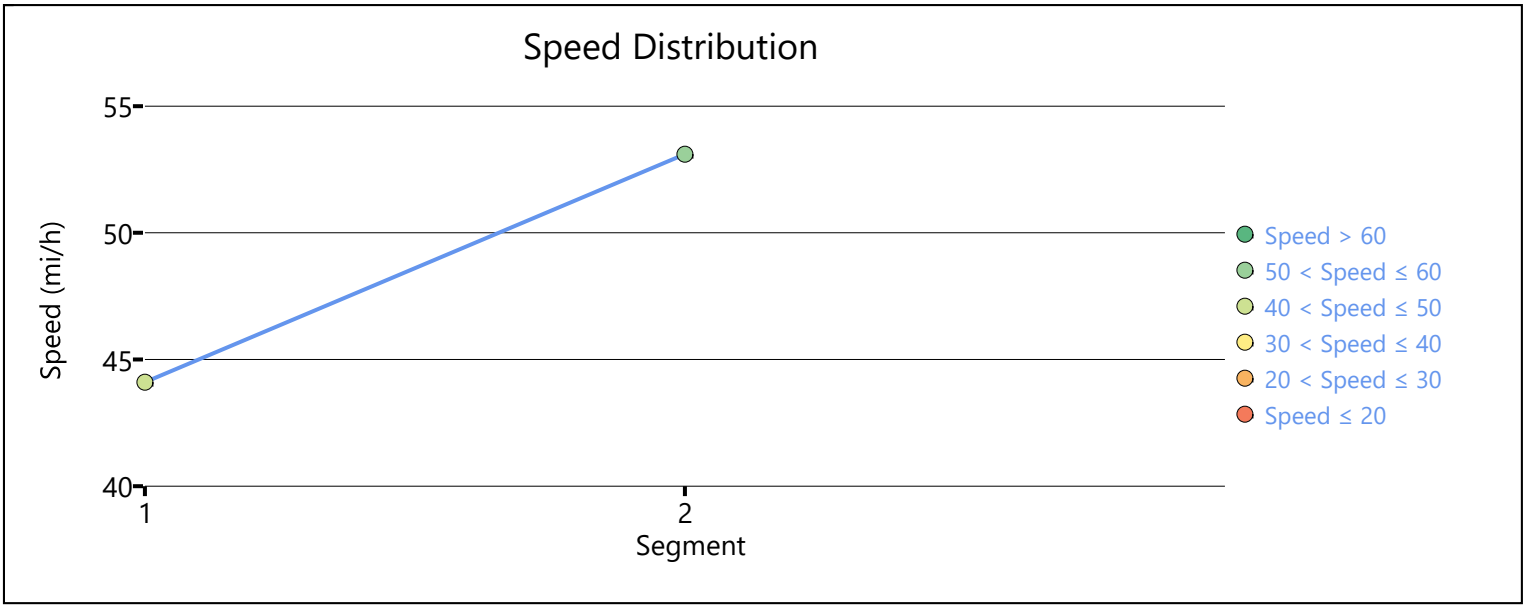
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4241	-	-	53.1

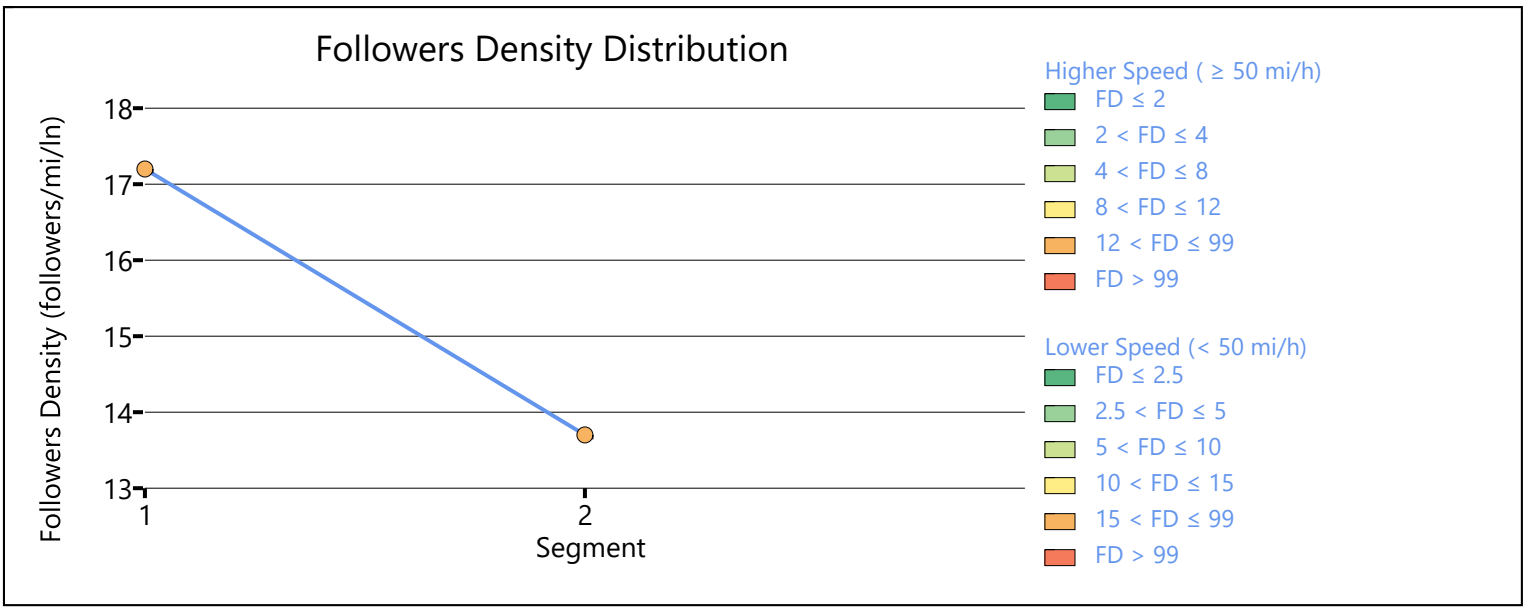
Vehicle Results

Average Speed, mi/h	53.1	Percent Followers, %	78.7
Segment Travel Time, minutes	0.91	Adj. Follower Density, followers/mi/ln	13.7
Vehicle LOS	E		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	495	0.88	16.0	E





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe	Date	7/18/2024
Agency	MDT	Analysis Year	2024
Jurisdiction	Lake/Flathead County	Time Analyzed	Existing Peak
Project Description	Polson to Somers Corridor Study - Section 9 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Lanes	Length, ft	4241
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	3.7

Demand and Capacity			
Directional Demand Flow Rate, veh/h	921	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.61

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	60.7
Speed Slope Coefficient (m)	6.20317	Speed Power Coefficient (p)	0.96920
PF Slope Coefficient (m)	-1.09839	PF Power Coefficient (p)	0.85920
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	10.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4241	-	-	55.6

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	520	400
Percentage of Heavy Vehicles (HV%), %	2.00	8.90
Initial Average Speed (Sint), mi/h	59.1	57.7
Average Speed at Midpoint (SPLmid), mi/h	60.8	55.9
Percent Followers at Midpoint (PFPLmid), %	48.8	36.9

Vehicle Results			
Average Speed, mi/h	55.6	Percent Followers, %	64.1
Segment Travel Time, minutes	0.87	Adj. Follower Density, followers/mi/ln	10.6
Follower Density Mid-Point, followers/mi/ln	3.4	Vehicle LOS	B

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	8096
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	7.2

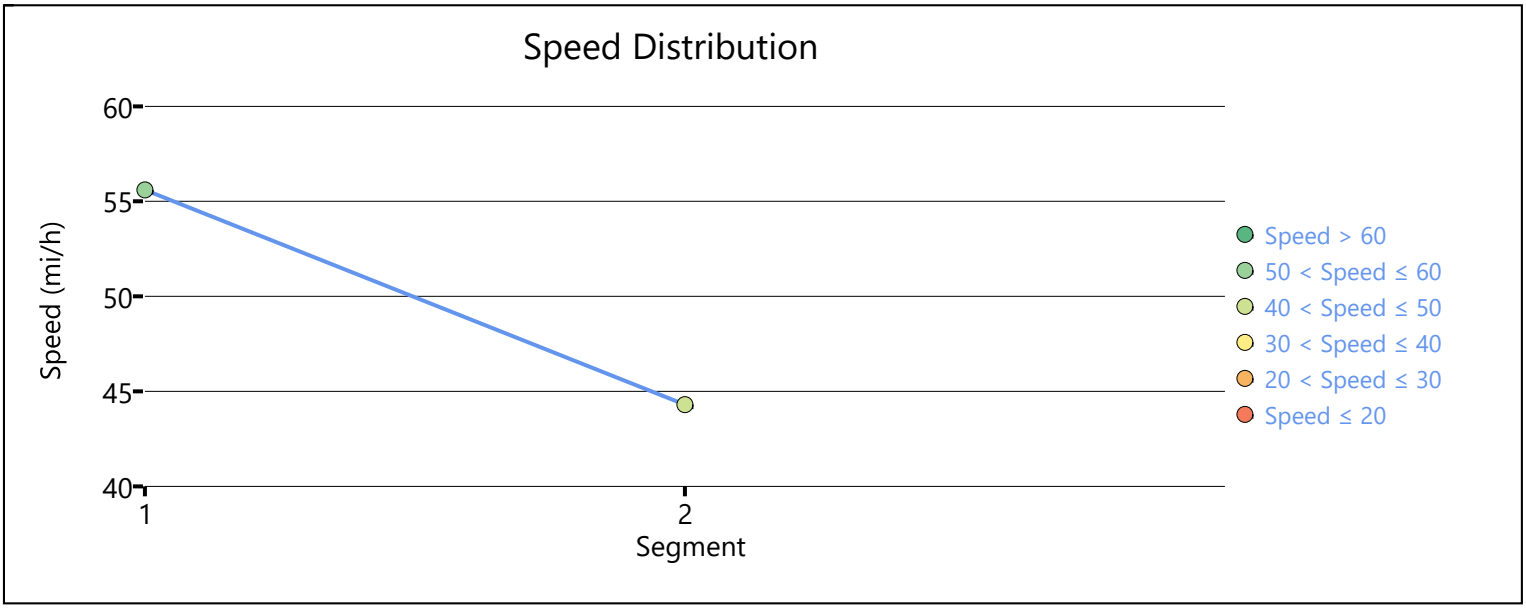
Demand and Capacity			
Directional Demand Flow Rate, veh/h	921	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.54

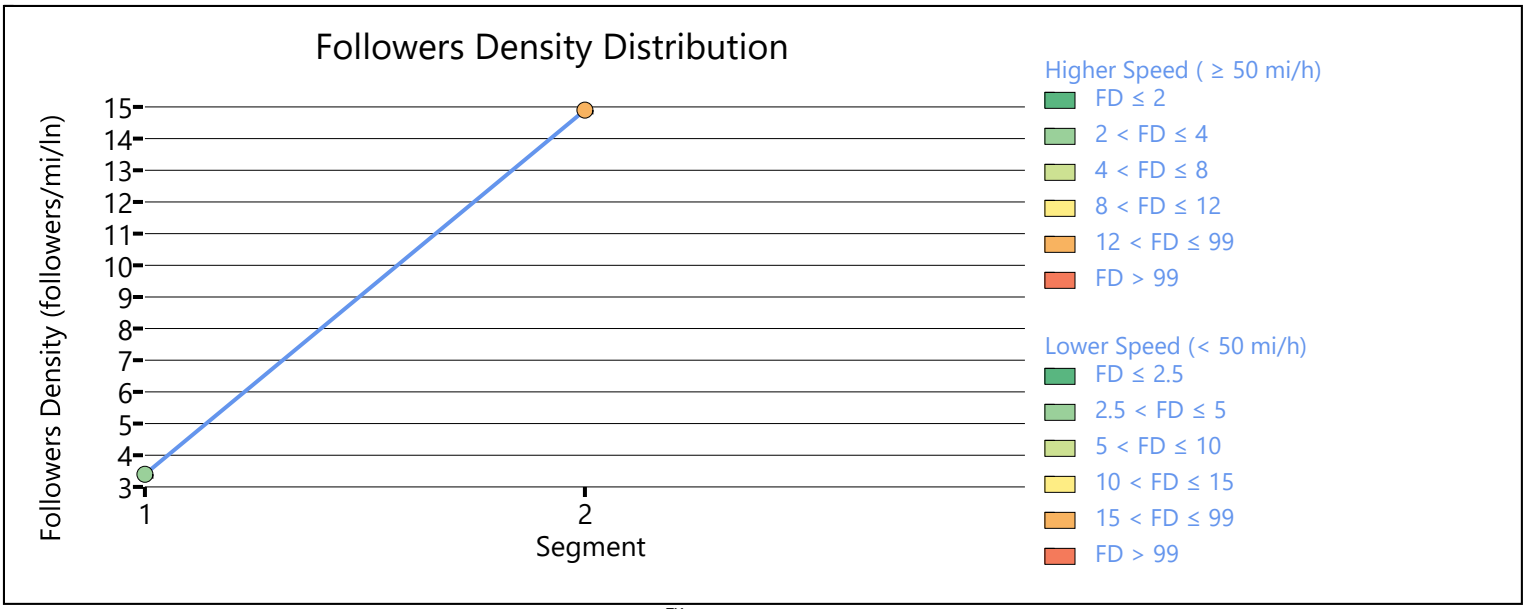
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	47.3
Speed Slope Coefficient (m)	3.50056	Speed Power Coefficient (p)	0.39980
PF Slope Coefficient (m)	-1.84699	PF Power Coefficient (p)	0.73026
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	17.2
%Improvement to Percent Followers	13.0	%Improvement to Speed	0.5

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5839	-	-	44.1
2	Horizontal Curve	1333	809	8.0	44.1
3	Horizontal Curve	924	1146	8.0	44.1

Vehicle Results			
Average Speed, mi/h	44.3	Percent Followers, %	82.4
Segment Travel Time, minutes	2.07	Adj. Follower Density, followers/mi/ln	14.9
Vehicle LOS	D		

Facility Results				
T	**VMT veh-mi/AP**	**VHD veh-h/p**	**Follower Density, followers/ mi/ln**	**LOS**
1	495	0.72	10.9	D





Copyright © 2024 University of Florida. All Rights Reserved.

US 93 POLSON-SOMERS CORRIDOR STUDY

APPENDIX D:

Projected Conditions Operations Analysis

Polson to Somers Corridor Study

Vistro File: F:\...\PolsonSomers.vistro
Report File: F:\...\2045 Weekday AM.pdf

Scenario 5 2045 Weekday AM
7/19/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	US 93 & Rocky Point Rd	Two-way stop	HCM 7th Edition	WB Left	1.045	131.2	F
2	US 93 & Hwy 28	Two-way stop	HCM 7th Edition	EB Left	0.267	20.2	C
3	US 93 & Lake Mary Ronan Rd	Two-way stop	HCM 7th Edition	WB Left	0.042	23.1	C
4	US 93 & Rimrock Rd/Rollins Lakeshore Dr	Two-way stop	HCM 7th Edition	EB Left	0.019	19.3	C
5	US 93 & Adams St	Two-way stop	HCM 7th Edition	EB Left	0.258	83.3	F
6	US 93 & Hwy 82/Forest Hill Rd	Signalized	HCM 7th Edition	SB Left	0.851	43.7	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: US 93 & Rocky Point Rd

Control Type:	Two-way stop	Delay (sec / veh):	131.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.045

Intersection Setup

Name	US 93		US 93		Rocky Point Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00		70.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Rocky Point Rd	
Base Volume Input [veh/h]	335	89	2	355	119	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	7.80	1.10	0.00	7.00	2.50	33.30
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	519	138	3	550	184	5
Peak Hour Factor	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	141	37	1	149	50	1
Total Analysis Volume [veh/h]	564	150	3	597	200	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	1.04	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	9.02	0.00	131.24	120.92
Movement LOS	A	A	A	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.01	0.01	9.48	9.48
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.13	0.13	236.95	236.95
d_A, Approach Delay [s/veh]	0.00		0.05		130.99	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	17.70					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: US 93 & Hwy 28

Control Type:	Two-way stop	Delay (sec / veh):	20.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.267

Intersection Setup

Name	US 93		US 93		Hwy 28	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		70.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Hwy 28	
Base Volume Input [veh/h]	18	210	188	100	54	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	16.70	10.60	13.00	18.50	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	326	291	155	84	33
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	86	76	41	22	9
Total Analysis Volume [veh/h]	29	342	305	163	88	35
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.27	0.05
d_M, Delay for Movement [s/veh]	8.35	0.00	0.00	0.00	20.25	14.74
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.08	0.00	0.00	0.00	1.35	1.35
95th-Percentile Queue Length [ft/ln]	2.02	0.00	0.00	0.00	33.82	33.82
d_A, Approach Delay [s/veh]	0.65		0.00		18.68	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.64					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: US 93 & Lake Mary Ronan Rd

Control Type:	Two-way stop	Delay (sec / veh):	23.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			70.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			No		

Volumes

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Base Volume Input [veh/h]	16	219	10	10	242	20	19	9	29	6	8	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	20.50	0.00	10.00	12.40	5.00	0.00	0.00	6.90	16.70	0.00	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	339	16	16	375	31	29	14	45	9	12	8
Peak Hour Factor	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	89	4	4	98	8	8	4	12	2	3	2
Total Analysis Volume [veh/h]	26	355	17	17	392	32	30	15	47	9	13	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.01	0.00	0.00	0.12	0.05	0.07	0.04	0.05	0.01
d_M, Delay for Movement [s/veh]	8.21	0.00	0.00	8.19	0.00	0.00	22.03	20.46	13.56	23.14	19.04	11.51
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.07	0.00	0.00	0.05	0.00	0.00	0.93	0.93	0.93	0.33	0.33	0.33
95th-Percentile Queue Length [ft/ln]	1.74	0.00	0.00	1.13	0.00	0.00	23.31	23.31	23.31	8.21	8.21	8.21
d_A, Approach Delay [s/veh]	0.54			0.32			17.45			18.26		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	2.61											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 4: US 93 & Rimrock Rd/Rollins Lakeshore Dr

Note: Intersection is rotated to keep NB/SB on US 93

Control Type:	Two-way stop	Delay (sec / veh):	19.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.019

Intersection Setup

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Base Volume Input [veh/h]	0	251	1	3	284	4	3	1	0	2	0	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	18.70	0.00	0.00	11.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	389	2	5	440	6	5	2	0	3	0	8
Peak Hour Factor	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420	0.9420
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	103	1	1	117	2	1	1	0	1	0	2
Total Analysis Volume [veh/h]	0	413	2	5	467	6	5	2	0	3	0	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.01	0.00	0.01
d_M, Delay for Movement [s/veh]	8.27	0.00	0.00	8.13	0.00	0.00	19.32	18.18	11.39	19.01	18.04	10.79
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.00	0.00	0.08	0.08	0.08	0.07	0.07	0.07
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.33	0.00	0.00	2.04	2.04	2.04	1.84	1.84	1.84
d_A, Approach Delay [s/veh]	0.00			0.09			19.00			13.03		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	0.35											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: US 93 & Adams St

Control Type:	Two-way stop	Delay (sec / veh):	83.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.258

Intersection Setup

Name	US 93			US 93			Adams St			Adams St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Adams St			Adams St		
Base Volume Input [veh/h]	12	462	23	32	441	10	9	2	11	11	3	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.30	13.40	0.00	0.00	10.70	0.00	0.00	0.00	9.10	0.00	0.00	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	716	36	50	684	16	14	3	17	17	5	31
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	186	9	13	178	4	4	1	4	4	1	8
Total Analysis Volume [veh/h]	20	744	37	52	710	17	15	3	18	18	5	32
Pedestrian Volume [ped/h]	0			19			18			10		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.06	0.01	0.00	0.26	0.03	0.04	0.27	0.06	0.08
d_M, Delay for Movement [s/veh]	9.50	0.00	0.00	9.63	0.00	0.00	83.26	63.10	30.33	75.88	63.53	31.78
Movement LOS	A	A	A	A	A	A	F	F	D	F	F	D
95th-Percentile Queue Length [veh/ln]	0.07	0.00	0.00	0.20	0.00	0.00	1.33	1.33	1.33	1.76	1.76	1.76
95th-Percentile Queue Length [ft/ln]	1.87	0.00	0.00	5.00	0.00	0.00	33.25	33.25	33.25	44.03	44.03	44.03
d_A, Approach Delay [s/veh]	0.24			0.64			55.12			49.10		
Approach LOS	A			A			F			E		
d_I, Intersection Delay [s/veh]	3.22											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 6: US 93 & Hwy 82/Forest Hill Rd

Control Type:	Signalized	Delay (sec / veh):	43.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.851

Intersection Setup

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00			55.00			60.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Base Volume Input [veh/h]	17	463	97	296	454	82	41	40	53	107	29	426
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.90	7.30	14.40	7.80	8.10	13.40	7.30	15.00	3.80	14.00	3.40	4.70
Proportion of CAVs [%]	0.00											
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	26	718	150	459	704	127	64	62	82	166	45	660
Peak Hour Factor	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	189	40	121	186	33	17	16	22	44	12	174
Total Analysis Volume [veh/h]	27	757	158	484	743	134	68	65	86	175	47	696
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal Group	0	6	0	5	2	0	0	8	0	0	4	5
Auxiliary Signal Groups												4,5
Maximum Green [s]	0	18	0	3	26	0	0	18	0	0	18	3
Amber [s]	0.0	5.0	0.0	5.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	5.0
All red [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	7	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	6.0	0.0	6.0	6.0	0.0	0.0	6.0	0.0	0.0	6.0	6.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Phasing & Timing: Pattern 1

Split [s]	0	46	0	31	77	0	0	43	0	0	43	31
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	10	5
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Minimum Recall		No		No	No			No			No	No
Maximum Recall		No		No	No			No			No	No
Pedestrian Recall		No		No	No			No			No	No

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C	R
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	6.00	6.00	6.00	0.00	6.00	6.00	6.00	6.00	6.00	0.00
g_i, Effective Green Time [s]	38	38	38	69	69	69	35	35	35	66
g / C, Green / Cycle	0.32	0.32	0.32	0.58	0.58	0.58	0.29	0.29	0.29	0.55
(v / s)_i Volume / Saturation Flow Rate	0.04	0.29	0.29	0.49	0.27	0.28	0.20	0.16	0.03	0.49
s, saturation flow rate [veh/h]	612	1649	1552	995	1638	1552	1077	1117	1703	1432
c, Capacity [veh/h]	147	522	491	503	942	893	353	189	497	788
d1, Uniform Delay [s]	46.17	39.23	39.23	32.59	14.92	14.97	36.91	45.46	30.96	23.64
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.18	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.73	21.47	22.48	31.79	1.72	1.85	2.98	16.82	0.08	13.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.90	0.90	0.96	0.48	0.48	0.62	0.92	0.09	0.88
d, Delay for Lane Group [s/veh]	48.90	60.70	61.71	64.37	16.65	16.82	39.89	62.28	31.04	37.37
Lane Group LOS	D	E	E	E	B	B	D	E	C	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.81	15.50	14.72	11.55	6.72	6.46	5.55	6.02	1.02	19.72
50th-Percentile Queue Length [ft/ln]	20.14	387.41	367.97	288.80	167.90	161.61	138.68	150.58	25.60	492.88
95th-Percentile Queue Length [veh/ln]	1.45	21.95	21.01	17.13	10.97	10.63	9.41	10.05	1.84	27.00
95th-Percentile Queue Length [ft/ln]	36.24	548.81	525.27	428.16	274.16	265.85	235.25	251.21	46.08	674.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.90	61.08	61.71	64.37	16.71	16.82	39.89	39.89	39.89	62.28	31.04	37.37
Movement LOS	D	E	E	E	B	B	D	D	D	E	C	D
d_A, Approach Delay [s/veh]	60.84			33.67			39.89			41.79		
Approach LOS	E			C			D			D		
d_I, Intersection Delay [s/veh]	43.67											
Intersection LOS	D											
Intersection V/C	0.851											

Emissions

Vehicle Miles Traveled [mph]	0.63	11.08	10.42	11.37	10.54	10.07	5.16	4.12	1.11	16.40
Stops [stops/h]	24.16	464.89	441.57	346.57	201.49	193.93	166.42	180.70	30.72	591.46
Fuel consumption [US gal/h]	0.74	14.83	14.12	13.16	5.61	5.41	5.63	3.10	0.46	8.30
CO [g/h]	51.63	1036.50	987.02	919.67	392.43	377.86	393.73	216.42	32.47	580.11
NOx [g/h]	10.05	201.67	192.04	178.93	76.35	73.52	76.61	42.11	6.32	112.87
VOC [g/h]	11.97	240.22	228.75	213.14	90.95	87.57	91.25	50.16	7.53	134.45

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersectio	3.260	3.442	2.185	2.706
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	1150	583	583
d_b, Bicycle Delay [s]	28.02	10.84	30.10	30.10
l_b,int, Bicycle LOS Score for Intersection	2.337	2.682	1.921	3.074
Bicycle LOS	B	B	A	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Polson to Somers Corridor Study

Vistro File: F:\...\PolsonSomers.vistro
Report File: F:\...\2045 Weekday PM.pdf

Scenario 6 2045 Weekday PM
7/19/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	US 93 & Rocky Point Rd	Two-way stop	HCM 7th Edition	WB Left	1.228	203.6	F
2	US 93 & Hwy 28	Two-way stop	HCM 7th Edition	EB Left	0.435	26.2	D
3	US 93 & Lake Mary Ronan Rd	Two-way stop	HCM 7th Edition	EB Left	0.266	37.7	E
4	US 93 & Rimrock Rd/Rollins Lakeshore Dr	Two-way stop	HCM 7th Edition	EB Left	0.030	23.5	C
5	US 93 & Adams St	Two-way stop	HCM 7th Edition	WB Left	0.474	153.5	F
6	US 93 & Hwy 82/Forest Hill Rd	Signalized	HCM 7th Edition	SB Left	1.005	106.4	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: US 93 & Rocky Point Rd

Control Type:	Two-way stop	Delay (sec / veh):	203.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.228

Intersection Setup

Name	US 93		US 93		Rocky Point Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00		70.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Rocky Point Rd	
Base Volume Input [veh/h]	375	105	1	376	126	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.50	1.00	0.00	4.30	2.40	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	581	163	2	583	195	8
Peak Hour Factor	0.9390	0.9390	0.9390	0.9390	0.9390	0.9390
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	155	43	1	155	52	2
Total Analysis Volume [veh/h]	619	174	2	621	208	9
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	1.23	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	9.30	0.00	203.55	190.50
Movement LOS	A	A	A	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	12.11	12.11
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.08	0.08	302.81	302.81
d_A, Approach Delay [s/veh]	0.00		0.03		203.01	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	26.99					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: US 93 & Hwy 28

Control Type:	Two-way stop	Delay (sec / veh):	26.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.435

Intersection Setup

Name	US 93		US 93		Hwy 28	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		70.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Hwy 28	
Base Volume Input [veh/h]	21	238	198	85	81	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	8.40	6.60	17.60	13.60	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	369	307	132	126	29
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	97	81	35	33	8
Total Analysis Volume [veh/h]	35	388	323	139	133	31
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.43	0.05
d_M, Delay for Movement [s/veh]	8.35	0.00	0.00	0.00	26.22	19.90
Movement LOS	A	A	A	A	D	C
95th-Percentile Queue Length [veh/ln]	0.10	0.00	0.00	0.00	2.51	2.51
95th-Percentile Queue Length [ft/ln]	2.44	0.00	0.00	0.00	62.63	62.63
d_A, Approach Delay [s/veh]	0.69		0.00		25.03	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	4.19					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 3: US 93 & Lake Mary Ronan Rd

Control Type:	Two-way stop	Delay (sec / veh):	37.7
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.266

Intersection Setup

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			70.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			No		

Volumes

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Base Volume Input [veh/h]	19	283	7	8	263	31	23	8	25	4	7	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	7.40	0.00	0.00	11.00	3.20	13.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	439	11	12	408	48	36	12	39	6	11	6
Peak Hour Factor	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530	0.8530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	129	3	4	120	14	11	4	11	2	3	2
Total Analysis Volume [veh/h]	34	515	13	14	478	56	42	14	46	7	13	7
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.00	0.01	0.00	0.00	0.27	0.07	0.08	0.05	0.07	0.01
d_M, Delay for Movement [s/veh]	8.56	0.00	0.00	8.48	0.00	0.00	37.68	32.54	20.95	32.12	26.23	13.87
Movement LOS	A	A	A	A	A	A	E	D	C	D	D	B
95th-Percentile Queue Length [veh/ln]	0.10	0.00	0.00	0.04	0.00	0.00	1.91	1.91	1.91	0.43	0.43	0.43
95th-Percentile Queue Length [ft/ln]	2.52	0.00	0.00	1.01	0.00	0.00	47.68	47.68	47.68	10.81	10.81	10.81
d_A, Approach Delay [s/veh]	0.52			0.22			29.43			24.55		
Approach LOS	A			A			D			C		
d_I, Intersection Delay [s/veh]	3.29											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 4: US 93 & Rimrock Rd/Rollins Lakeshore Dr

Note: Intersection is rotated to keep NB/SB on US 93

Control Type:	Two-way stop	Delay (sec / veh):	23.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Base Volume Input [veh/h]	0	320	3	6	301	2	4	0	0	1	1	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	5.90	0.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	496	5	9	467	3	6	0	0	2	2	8
Peak Hour Factor	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460	0.9460
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	131	1	2	123	1	2	0	0	1	1	2
Total Analysis Volume [veh/h]	0	524	5	10	494	3	6	0	0	2	2	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.01	0.00	0.00	0.03	0.00	0.00	0.01	0.01	0.02
d_M, Delay for Movement [s/veh]	8.34	0.00	0.00	8.47	0.00	0.00	23.46	21.30	11.78	22.70	21.09	12.31
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.03	0.00	0.00	0.09	0.09	0.09	0.10	0.10	0.10
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.72	0.00	0.00	2.30	2.30	2.30	2.62	2.62	2.62
d_A, Approach Delay [s/veh]	0.00			0.17			23.46			15.50		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	0.39											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: US 93 & Adams St

Control Type:	Two-way stop	Delay (sec / veh):	153.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.474

Intersection Setup

Name	US 93			US 93			Adams St			Adams St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Adams St			Adams St		
Base Volume Input [veh/h]	17	571	15	15	542	13	6	0	18	11	1	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	6.70	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	26	885	23	23	840	20	9	0	28	17	2	43
Peak Hour Factor	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	238	6	6	226	5	2	0	8	5	1	12
Total Analysis Volume [veh/h]	28	951	25	25	902	21	10	0	30	18	2	46
Pedestrian Volume [ped/h]	0			21			20			2		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.00	0.04	0.01	0.00	0.33	0.00	0.09	0.47	0.04	0.16
d_M, Delay for Movement [s/veh]	10.19	0.00	0.00	10.24	0.00	0.00	148.81	97.42	41.66	153.47	125.42	70.73
Movement LOS	B	A	A	B	A	A	F	F	E	F	F	F
95th-Percentile Queue Length [veh/ln]	0.12	0.00	0.00	0.11	0.00	0.00	1.75	1.75	1.75	3.32	3.32	3.32
95th-Percentile Queue Length [ft/ln]	3.02	0.00	0.00	2.72	0.00	0.00	43.73	43.73	43.73	83.08	83.08	83.08
d_A, Approach Delay [s/veh]	0.28			0.27			68.45			94.95		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	4.64											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 6: US 93 & Hwy 82/Forest Hill Rd

Control Type:	Signalized	Delay (sec / veh):	106.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.005

Intersection Setup

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00			55.00			60.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Base Volume Input [veh/h]	10	551	111	513	623	113	48	64	45	117	46	428
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.80	0.90	1.40	2.60	0.00	0.00	0.00	2.20	2.60	2.20	2.80
Proportion of CAVs [%]	0.00											
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	854	172	795	966	175	74	99	70	181	71	663
Peak Hour Factor	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	226	46	210	256	46	20	26	19	48	19	175
Total Analysis Volume [veh/h]	17	904	182	841	1022	185	78	105	74	192	75	702
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal Group	0	6	0	5	2	0	0	8	0	0	4	5
Auxiliary Signal Groups												4,5
Maximum Green [s]	0	18	0	3	26	0	0	18	0	0	18	3
Amber [s]	0.0	5.0	0.0	5.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	5.0
All red [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	7	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	6.0	0.0	6.0	6.0	0.0	0.0	6.0	0.0	0.0	6.0	6.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Phasing & Timing: Pattern 1

Split [s]	0	39	0	40	79	0	0	41	0	0	41	40
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	10	5
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Minimum Recall		No		No	No			No			No	No
Maximum Recall		No		No	No			No			No	No
Pedestrian Recall		No		No	No			No			No	No

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C	R
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	6.00	6.00	6.00	0.00	6.00	6.00	6.00	6.00	6.00	0.00
g_i, Effective Green Time [s]	31	31	31	71	71	71	33	33	33	73
g / C, Green / Cycle	0.26	0.26	0.26	0.59	0.59	0.59	0.28	0.28	0.28	0.61
(v / s)_i Volume / Saturation Flow Rate	0.04	0.33	0.33	0.75	0.35	0.37	0.22	0.16	0.04	0.48
s, saturation flow rate [veh/h]	470	1697	1600	1125	1714	1626	1187	1199	1720	1455
c, Capacity [veh/h]	65	439	413	617	1014	962	366	153	473	885
d1, Uniform Delay [s]	59.84	44.50	44.50	35.88	15.44	15.91	39.81	46.38	32.98	17.79
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.24	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.67	140.20	141.65	173.90	2.57	3.09	5.35	124.58	0.15	7.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	1.27	1.28	1.36	0.60	0.63	0.70	1.25	0.16	0.79
d, Delay for Lane Group [s/veh]	69.52	184.70	186.15	209.78	18.01	19.00	45.16	170.95	33.13	25.03
Lane Group LOS	E	F	F	F	B	B	D	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.67	29.32	27.80	39.24	9.66	10.03	7.06	9.86	1.71	15.89
50th-Percentile Queue Length [ft/ln]	16.80	732.93	695.00	981.12	241.44	250.74	176.38	246.57	42.68	397.19
95th-Percentile Queue Length [veh/ln]	1.21	43.55	41.54	61.04	14.75	15.22	11.41	16.73	3.07	22.42
95th-Percentile Queue Length [ft/ln]	30.23	1088.68	1038.46	1526.02	368.85	380.59	285.28	418.32	76.82	560.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	69.52	185.25	186.15	209.78	18.42	19.00	45.16	45.16	45.16	170.95	33.13	25.03
Movement LOS	E	F	F	F	B	B	D	D	D	F	C	C
d_A, Approach Delay [s/veh]	183.62			97.05			45.16			54.57		
Approach LOS	F			F			D			D		
d_I, Intersection Delay [s/veh]	106.41											
Intersection LOS	F											
Intersection V/C	1.005											

Emissions

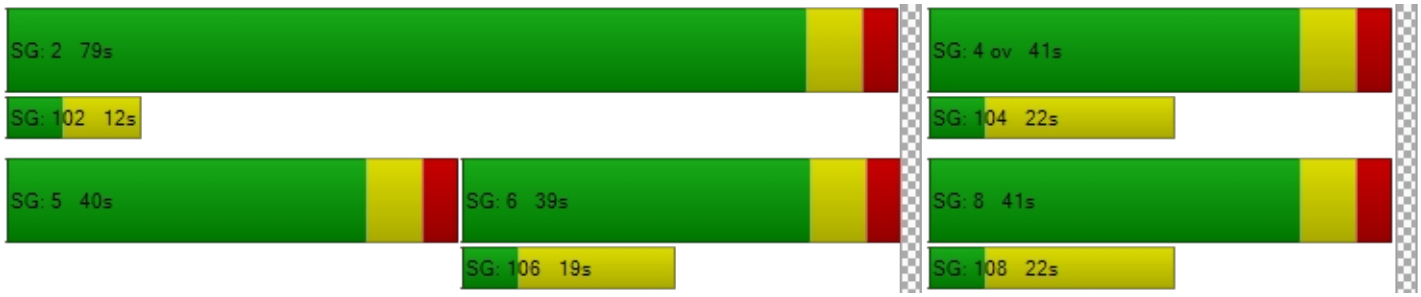
Vehicle Miles Traveled [mph]	0.40	13.13	12.39	19.76	14.18	14.18	6.06	4.52	1.77	16.54
Stops [stops/h]	20.16	879.52	834.00	1177.35	289.73	300.89	211.66	295.89	51.21	476.63
Fuel consumption [US gal/h]	0.63	37.77	35.87	58.42	8.07	8.40	7.25	8.02	0.78	6.15
CO [g/h]	43.91	2640.40	2507.57	4083.85	563.96	586.93	506.60	560.37	54.63	429.78
NOx [g/h]	8.54	513.73	487.88	794.57	109.73	114.20	98.57	109.03	10.63	83.62
VOC [g/h]	10.18	611.94	581.15	946.47	130.70	136.03	117.41	129.87	12.66	99.61

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersectio	3.443	3.760	2.275	2.987
Crosswalk LOS	C	D	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	517	1183	550	550
d_b, Bicycle Delay [s]	33.00	10.00	31.54	31.54
l_b,int, Bicycle LOS Score for Intersection	2.470	3.249	1.984	3.158
Bicycle LOS	B	C	A	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Polson to Somers Corridor Study

Vistro File: F:\...\PolsonSomers.vistro
Report File: F:\...\2045 Weekend AM.pdf

Scenario 7 2045 Weekend AM
7/19/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	US 93 & Rocky Point Rd	Two-way stop	HCM 7th Edition	WB Left	0.970	110.1	F
2	US 93 & Hwy 28	Two-way stop	HCM 7th Edition	EB Left	0.296	20.8	C
3	US 93 & Lake Mary Ronan Rd	Two-way stop	HCM 7th Edition	EB Left	0.268	31.6	D
4	US 93 & Rimrock Rd/Rollins Lakeshore Dr	Two-way stop	HCM 7th Edition	WB Left	0.010	23.6	C
5	US 93 & Adams St	Two-way stop	HCM 7th Edition	WB Left	0.849	372.0	F
6	US 93 & Hwy 82/Forest Hill Rd	Signalized	HCM 7th Edition	WB Left	0.797	36.8	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: US 93 & Rocky Point Rd

Control Type:	Two-way stop	Delay (sec / veh):	110.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.970

Intersection Setup

Name	US 93		US 93		Rocky Point Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00		70.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Rocky Point Rd	
Base Volume Input [veh/h]	335	118	4	357	109	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.80	0.80	0.00	2.20	0.00	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	519	183	6	553	169	2
Peak Hour Factor	0.9310	0.9310	0.9310	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	139	49	2	148	45	1
Total Analysis Volume [veh/h]	557	197	6	594	182	2
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.01	0.97	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	9.17	0.00	110.09	98.56
Movement LOS	A	A	A	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.01	0.01	8.01	8.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.25	0.25	200.29	200.29
d_A, Approach Delay [s/veh]	0.00		0.09		109.96	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	13.19					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: US 93 & Hwy 28

Control Type:	Two-way stop	Delay (sec / veh):	20.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.296

Intersection Setup

Name	US 93		US 93		Hwy 28	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		70.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Hwy 28	
Base Volume Input [veh/h]	19	224	189	64	57	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	7.60	3.20	3.10	0.00	6.20
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	347	293	99	88	25
Peak Hour Factor	0.8950	0.8950	0.8950	0.8950	0.8950	0.8950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	97	82	28	25	7
Total Analysis Volume [veh/h]	32	388	327	111	98	28
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.30	0.04
d_M, Delay for Movement [s/veh]	8.27	0.00	0.00	0.00	20.76	15.37
Movement LOS	A	A	A	A	C	C
95th-Percentile Queue Length [veh/ln]	0.09	0.00	0.00	0.00	1.47	1.47
95th-Percentile Queue Length [ft/ln]	2.18	0.00	0.00	0.00	36.68	36.68
d_A, Approach Delay [s/veh]	0.63		0.00		19.56	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.77					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: US 93 & Lake Mary Ronan Rd

Control Type:	Two-way stop	Delay (sec / veh):	31.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.268

Intersection Setup

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			70.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			No		

Volumes

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Base Volume Input [veh/h]	37	190	8	20	248	26	32	12	17	8	11	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.20	12.50	0.00	4.40	0.00	9.40	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	295	12	31	384	40	50	19	26	12	17	6
Peak Hour Factor	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	79	3	8	103	11	13	5	7	3	5	2
Total Analysis Volume [veh/h]	61	318	13	33	413	43	54	20	28	13	18	6
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.03	0.00	0.00	0.27	0.08	0.04	0.07	0.08	0.01
d_M, Delay for Movement [s/veh]	8.41	0.00	0.00	7.98	0.00	0.00	31.56	28.25	19.28	26.31	22.79	12.57
Movement LOS	A	A	A	A	A	A	D	D	C	D	C	B
95th-Percentile Queue Length [veh/ln]	0.17	0.00	0.00	0.08	0.00	0.00	1.78	1.78	1.78	0.53	0.53	0.53
95th-Percentile Queue Length [ft/ln]	4.33	0.00	0.00	2.05	0.00	0.00	44.48	44.48	44.48	13.13	13.13	13.13
d_A, Approach Delay [s/veh]	1.31			0.54			27.54			22.37		
Approach LOS	A			A			D			C		
d_I, Intersection Delay [s/veh]	4.33											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 4: US 93 & Rimrock Rd/Rollins Lakeshore Dr

Note: Intersection is rotated to keep NB/SB on US 93

Control Type:	Two-way stop	Delay (sec / veh):	23.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Base Volume Input [veh/h]	0	261	35	40	280	1	0	1	0	1	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.10	3.00	2.50	3.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	405	54	62	434	2	0	2	0	2	0	5
Peak Hour Factor	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540	0.9540
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	106	14	16	114	1	0	1	0	1	0	1
Total Analysis Volume [veh/h]	0	425	57	65	455	2	0	2	0	2	0	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01
d_M, Delay for Movement [s/veh]	8.23	0.00	0.00	8.55	0.00	0.00	23.60	22.31	11.08	23.58	21.69	11.07
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.19	0.00	0.00	0.03	0.03	0.03	0.06	0.06	0.06
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	4.81	0.00	0.00	0.72	0.72	0.72	1.41	1.41	1.41
d_A, Approach Delay [s/veh]	0.00			1.07			22.31			14.65		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	0.69											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: US 93 & Adams St

Control Type:	Two-way stop	Delay (sec / veh):	372.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.849

Intersection Setup

Name	US 93			US 93			Adams St			Adams St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Adams St			Adams St		
Base Volume Input [veh/h]	12	634	11	25	438	9	5	1	11	11	1	29
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.90	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	3.40
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	983	17	39	679	14	8	2	17	17	2	45
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	300	5	12	207	4	2	1	5	5	1	14
Total Analysis Volume [veh/h]	23	1199	21	48	828	17	10	2	21	21	2	55
Pedestrian Volume [ped/h]	0			51			25			16		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.00	0.09	0.01	0.00	0.65	0.05	0.06	0.85	0.05	0.29
d_M, Delay for Movement [s/veh]	9.85	0.00	0.00	12.01	0.00	0.00	360.73	226.96	138.49	372.03	324.96	245.51
Movement LOS	A	A	A	B	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	0.09	0.00	0.00	0.28	0.00	0.00	2.93	2.93	2.93	6.26	6.26	6.26
95th-Percentile Queue Length [ft/ln]	2.32	0.00	0.00	6.98	0.00	0.00	73.23	73.23	73.23	156.52	156.52	156.52
d_A, Approach Delay [s/veh]	0.18			0.65			211.20			281.61		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	13.23											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 6: US 93 & Hwy 82/Forest Hill Rd

Control Type:	Signalized	Delay (sec / veh):	36.8
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.797

Intersection Setup

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00			55.00			60.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Base Volume Input [veh/h]	17	478	72	346	466	85	47	54	45	93	35	375
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.70	0.00	2.00	3.00	1.20	0.00	3.70	0.00	3.20	0.00	2.70
Proportion of CAVs [%]	0.00											
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	26	741	112	536	722	132	73	84	70	144	54	581
Peak Hour Factor	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	190	29	137	185	34	19	22	18	37	14	149
Total Analysis Volume [veh/h]	27	760	115	550	741	135	75	86	72	148	55	596
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal Group	0	6	0	5	2	0	0	8	0	0	4	5
Auxiliary Signal Groups												4,5
Maximum Green [s]	0	18	0	3	26	0	0	18	0	0	18	3
Amber [s]	0.0	5.0	0.0	5.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	5.0
All red [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	7	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	6.0	0.0	6.0	6.0	0.0	0.0	6.0	0.0	0.0	6.0	6.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Phasing & Timing: Pattern 1

Split [s]	0	46	0	34	80	0	0	40	0	0	40	34
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	10	5
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Minimum Recall		No		No	No			No			No	No
Maximum Recall		No		No	No			No			No	No
Pedestrian Recall		No		No	No			No			No	No

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C	R
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	6.00	6.00	6.00	0.00	6.00	6.00	6.00	6.00	6.00	0.00
g_i, Effective Green Time [s]	38	38	38	72	72	72	32	32	32	66
g / C, Green / Cycle	0.32	0.32	0.32	0.60	0.60	0.60	0.27	0.27	0.27	0.55
(v / s)_i Volume / Saturation Flow Rate	0.04	0.26	0.26	0.51	0.26	0.26	0.19	0.12	0.03	0.41
s, saturation flow rate [veh/h]	643	1726	1648	1081	1709	1619	1210	1216	1750	1456
c, Capacity [veh/h]	163	547	522	587	1025	971	362	174	467	801
d1, Uniform Delay [s]	44.19	37.82	37.83	28.77	13.00	13.06	39.45	45.27	33.31	20.57
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.19	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.18	12.84	13.39	24.35	1.35	1.46	3.38	11.00	0.11	6.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.82	0.82	0.94	0.44	0.44	0.64	0.85	0.12	0.74
d, Delay for Lane Group [s/veh]	46.38	50.67	51.22	53.12	14.36	14.51	42.82	56.26	33.42	26.78
Lane Group LOS	D	D	D	D	B	B	D	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.77	13.28	12.77	11.68	6.03	5.82	6.13	4.82	1.25	13.84
50th-Percentile Queue Length [ft/ln]	19.37	332.11	319.13	291.98	150.71	145.58	153.37	120.60	31.29	345.90
95th-Percentile Queue Length [veh/ln]	1.39	19.26	18.62	17.28	10.06	9.78	10.20	8.43	2.25	19.94
95th-Percentile Queue Length [ft/ln]	34.86	481.54	465.61	432.10	251.38	244.51	254.92	210.65	56.32	498.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.38	50.89	51.22	53.12	14.42	14.51	42.82	42.82	42.82	56.26	33.42	26.78
Movement LOS	D	D	D	D	B	B	D	D	D	E	C	C
d_A, Approach Delay [s/veh]	50.80			29.36			42.82			32.70		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	36.84											
Intersection LOS	D											
Intersection V/C	0.797											

Emissions

Vehicle Miles Traveled [mph]	0.63	10.52	10.04	12.92	10.51	10.07	5.49	3.49	1.30	14.05
Stops [stops/h]	23.24	398.53	382.95	350.38	180.85	174.69	184.04	144.72	37.55	415.08
Fuel consumption [US gal/h]	0.71	12.37	11.90	12.89	5.02	4.85	6.29	2.41	0.58	5.47
CO [g/h]	49.47	864.58	832.05	900.67	350.75	338.87	439.42	168.20	40.29	382.51
NOx [g/h]	9.62	168.22	161.89	175.24	68.24	65.93	85.50	32.73	7.84	74.42
VOC [g/h]	11.46	200.37	192.84	208.74	81.29	78.54	101.84	38.98	9.34	88.65

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersectio	3.192	3.443	2.207	2.722
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	1200	533	533
d_b, Bicycle Delay [s]	28.02	9.60	32.27	32.27
l_b,int, Bicycle LOS Score for Intersection	2.304	2.736	1.944	2.878
Bicycle LOS	B	B	A	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Polson to Somers Corridor Study

Vistro File: F:\...\PolsonSomers.vistro
Report File: F:\...\2045 Weekend PM.pdf

Scenario 8 2045 Weekend PM
7/19/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	US 93 & Rocky Point Rd	Two-way stop	HCM 7th Edition	WB Left	1.075	154.9	F
2	US 93 & Hwy 28	Two-way stop	HCM 7th Edition	EB Left	0.411	25.5	D
3	US 93 & Lake Mary Ronan Rd	Two-way stop	HCM 7th Edition	EB Left	0.201	32.5	D
4	US 93 & Rimrock Rd/Rollins Lakeshore Dr	Two-way stop	HCM 7th Edition	WB Left	0.237	26.2	D
5	US 93 & Adams St	Two-way stop	HCM 7th Edition	WB Left	0.821	325.3	F
6	US 93 & Hwy 82/Forest Hill Rd	Signalized	HCM 7th Edition	WB Left	0.918	66.2	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: US 93 & Rocky Point Rd

Control Type:	Two-way stop	Delay (sec / veh):	154.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.075

Intersection Setup

Name	US 93		US 93		Rocky Point Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00		70.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Rocky Point Rd	
Base Volume Input [veh/h]	367	123	16	393	105	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.20	0.00	0.00	1.80	0.00	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	569	191	25	609	163	6
Peak Hour Factor	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	147	49	6	157	42	2
Total Analysis Volume [veh/h]	587	197	26	628	168	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.03	0.01	1.08	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	9.30	0.00	154.93	139.87
Movement LOS	A	A	A	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.04	0.04	9.01	9.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.10	1.10	225.31	225.31
d_A, Approach Delay [s/veh]	0.00		0.37		154.41	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	16.82					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: US 93 & Hwy 28

Control Type:	Two-way stop	Delay (sec / veh):	25.5
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.411

Intersection Setup

Name	US 93		US 93		Hwy 28	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		70.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	US 93		US 93		Hwy 28	
Base Volume Input [veh/h]	25	193	252	90	80	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.10	2.80	2.20	1.20	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	299	391	140	124	37
Peak Hour Factor	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	77	101	36	32	10
Total Analysis Volume [veh/h]	40	310	405	145	128	38
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.00	0.00	0.00	0.41	0.06
d_M, Delay for Movement [s/veh]	8.64	0.00	0.00	0.00	25.54	20.07
Movement LOS	A	A	A	A	D	C
95th-Percentile Queue Length [veh/ln]	0.12	0.00	0.00	0.00	2.45	2.45
95th-Percentile Queue Length [ft/ln]	3.03	0.00	0.00	0.00	61.32	61.32
d_A, Approach Delay [s/veh]	0.99		0.00		24.29	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	4.11					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 3: US 93 & Lake Mary Ronan Rd

Control Type:	Two-way stop	Delay (sec / veh):	32.5
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.201

Intersection Setup

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			70.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			No		

Volumes

Name	US 93			US 93			Lake Mary Ronan Rd			Lake Mary Ronan Rd		
Base Volume Input [veh/h]	32	239	6	14	306	23	22	10	20	7	8	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.10	4.20	0.00	0.00	3.30	8.70	0.00	10.00	5.00	0.00	0.00	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	370	9	22	474	36	34	16	31	11	12	0
Peak Hour Factor	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440	0.9440
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	98	2	6	126	10	9	4	8	3	3	0
Total Analysis Volume [veh/h]	53	392	10	23	502	38	36	17	33	12	13	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.02	0.01	0.00	0.20	0.08	0.06	0.08	0.06	0.00
d_M, Delay for Movement [s/veh]	8.71	0.00	0.00	8.15	0.00	0.00	32.50	30.12	18.75	31.25	25.99	13.73
Movement LOS	A	A	A	A	A	A	D	D	C	D	D	B
95th-Percentile Queue Length [veh/ln]	0.16	0.00	0.00	0.06	0.00	0.00	1.47	1.47	1.47	0.48	0.48	0.48
95th-Percentile Queue Length [ft/ln]	4.09	0.00	0.00	1.51	0.00	0.00	36.68	36.68	36.68	11.96	11.96	11.96
d_A, Approach Delay [s/veh]	1.01			0.33			26.75			28.51		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	3.24											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 4: US 93 & Rimrock Rd/Rollins Lakeshore Dr

Note: Intersection is rotated to keep NB/SB on US 93

Control Type:	Two-way stop	Delay (sec / veh):	26.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.237

Intersection Setup

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	70.00			70.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	US 93			US 93			Rimrock Dr			Rollins Lakeshor Dr		
Base Volume Input [veh/h]	2	250	1	2	351	1	0	0	1	32	0	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	0.00	0.00	2.60	0.00	0.00	0.00	0.00	0.00	0.00	2.90
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	388	2	3	544	2	0	0	2	50	0	53
Peak Hour Factor	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520	0.9520
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	102	1	1	143	1	0	0	1	13	0	14
Total Analysis Volume [veh/h]	3	408	2	3	571	2	0	0	2	53	0	56
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.24	0.00	0.09
d_M, Delay for Movement [s/veh]	8.57	0.00	0.00	8.11	0.00	0.00	23.36	19.69	11.90	26.16	24.73	15.68
Movement LOS	A	A	A	A	A	A	C	C	B	D	C	C
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	1.37	1.37	1.37
95th-Percentile Queue Length [ft/ln]	0.13	0.13	0.13	0.19	0.00	0.00	0.29	0.29	0.29	34.36	34.36	34.36
d_A, Approach Delay [s/veh]	0.06			0.04			11.90			20.78		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	2.13											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 5: US 93 & Adams St

Control Type:	Two-way stop	Delay (sec / veh):	325.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.821

Intersection Setup

Name	US 93			US 93			Adams St			Adams St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Adams St			Adams St		
Base Volume Input [veh/h]	7	454	7	25	728	7	3	0	13	10	1	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.90	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	704	11	39	1128	11	5	0	20	16	2	26
Peak Hour Factor	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640	0.8640
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	204	3	11	326	3	1	0	6	5	1	8
Total Analysis Volume [veh/h]	13	815	13	45	1306	13	6	0	23	19	2	30
Pedestrian Volume [ped/h]	0			29			40			5		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.00	0.06	0.01	0.00	0.31	0.00	0.13	0.82	0.06	0.09
d_M, Delay for Movement [s/veh]	12.50	0.00	0.00	9.74	0.00	0.00	229.49	147.61	62.70	325.27	274.72	179.93
Movement LOS	B	A	A	A	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	0.08	0.00	0.00	0.18	0.00	0.00	1.72	1.72	1.72	4.26	4.26	4.26
95th-Percentile Queue Length [ft/ln]	2.03	0.00	0.00	4.43	0.00	0.00	43.01	43.01	43.01	106.55	106.55	106.55
d_A, Approach Delay [s/veh]	0.19			0.32			97.21			237.80		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	6.80											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 6: US 93 & Hwy 82/Forest Hill Rd

Control Type:	Signalized	Delay (sec / veh):	66.2
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.918

Intersection Setup

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00			55.00			60.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	US 93			US 93			Forest Hill Rd			Hwy 82		
Base Volume Input [veh/h]	16	533	114	427	544	101	42	52	40	96	31	395
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.70	0.90	0.90	1.50	0.00	0.00	0.00	0.00	0.00	0.00	1.80
Proportion of CAVs [%]	0.00											
Growth Factor	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500	1.5500
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	826	177	662	843	157	65	81	62	149	48	612
Peak Hour Factor	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	221	47	177	226	42	17	22	17	40	13	164
Total Analysis Volume [veh/h]	27	885	190	710	904	168	70	87	66	160	51	656
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal Group	0	6	0	5	2	0	0	8	0	0	4	5
Auxiliary Signal Groups												4,5
Maximum Green [s]	0	18	0	3	26	0	0	18	0	0	18	3
Amber [s]	0.0	5.0	0.0	5.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	5.0
All red [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	7	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	6.0	0.0	6.0	6.0	0.0	0.0	6.0	0.0	0.0	6.0	6.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Phasing & Timing: Pattern 1

Split [s]	0	43	0	41	84	0	0	36	0	0	36	41
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	10	5
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Minimum Recall		No		No	No			No			No	No
Maximum Recall		No		No	No			No			No	No
Pedestrian Recall		No		No	No			No			No	No

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C	R
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	6.00	6.00	6.00	0.00	6.00	6.00	6.00	6.00	6.00	0.00
g_i, Effective Green Time [s]	35	35	35	76	76	76	28	28	28	69
g / C, Green / Cycle	0.29	0.29	0.29	0.63	0.63	0.63	0.23	0.23	0.23	0.58
(v / s)_i Volume / Saturation Flow Rate	0.05	0.32	0.32	0.64	0.31	0.32	0.18	0.13	0.03	0.45
s, saturation flow rate [veh/h]	535	1726	1622	1107	1729	1638	1248	1254	1750	1466
c, Capacity [veh/h]	116	504	473	636	1095	1037	331	144	408	843
d1, Uniform Delay [s]	50.65	42.50	42.50	35.84	11.74	11.94	42.28	48.40	36.33	19.61
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.21	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.65	70.24	71.82	71.82	1.59	1.81	4.61	68.21	0.14	6.99
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	1.10	1.10	1.12	0.49	0.51	0.67	1.11	0.12	0.78
d, Delay for Lane Group [s/veh]	55.30	112.74	114.32	107.66	13.33	13.75	46.89	116.61	36.46	26.60
Lane Group LOS	E	F	F	F	B	B	D	F	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.88	23.75	22.52	21.18	6.93	6.97	6.17	7.05	1.22	15.30
50th-Percentile Queue Length [ft/ln]	22.10	593.80	563.10	529.41	173.34	174.32	154.20	176.33	30.46	382.48
95th-Percentile Queue Length [veh/ln]	1.59	33.68	32.17	31.26	11.25	11.30	10.24	11.98	2.19	21.71
95th-Percentile Queue Length [ft/ln]	39.78	842.09	804.14	781.61	281.30	282.58	256.03	299.52	54.82	542.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.30	113.33	114.32	107.66	13.50	13.75	46.89	46.89	46.89	116.61	36.46	26.60
Movement LOS	E	F	F	F	B	B	D	D	D	F	D	C
d_A, Approach Delay [s/veh]	112.08			51.04			46.89			43.79		
Approach LOS	F			D			D			D		
d_I, Intersection Delay [s/veh]	66.15											
Intersection LOS	E											
Intersection V/C	0.918											

Emissions

Vehicle Miles Traveled [mph]	0.63	13.02	12.24	16.68	12.70	12.49	5.26	3.77	1.20	15.46
Stops [stops/h]	26.52	712.56	675.72	635.29	208.01	209.18	185.05	211.60	36.55	458.97
Fuel consumption [US gal/h]	0.82	26.38	25.08	27.91	5.75	5.79	6.40	4.78	0.57	6.01
CO [g/h]	57.15	1843.84	1753.13	1950.92	402.24	404.73	447.20	333.94	40.03	419.91
NOx [g/h]	11.12	358.75	341.10	379.58	78.26	78.74	87.01	64.97	7.79	81.70
VOC [g/h]	13.25	427.33	406.31	452.14	93.22	93.80	103.64	77.39	9.28	97.32

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersectio	3.341	3.628	2.226	2.834
Crosswalk LOS	C	D	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	1267	467	467
d_b, Bicycle Delay [s]	30.10	8.07	35.27	35.27
l_b,int, Bicycle LOS Score for Intersection	2.469	3.030	1.928	2.990
Bicycle LOS	B	C	A	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/17/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 1 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	3124
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	5.1

Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	74.1
Speed Slope Coefficient (m)	9.07717	Speed Power Coefficient (p)	0.70398
PF Slope Coefficient (m)	-1.32660	PF Power Coefficient (p)	0.78495
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3124	-	-	68.1

Vehicle Results			
Average Speed, mi/h	68.1	Percent Followers, %	61.5
Segment Travel Time, minutes	0.52	Adj. Follower Density, followers/mi/ln	5.9
Vehicle LOS	C		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	4911
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	5.4

Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	438
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	73.4
Speed Slope Coefficient (m)	11.94630	Speed Power Coefficient (p)	0.73022

PF Slope Coefficient (m)		-1.39059		PF Power Coefficient (p)	0.83293
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	6.2
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4911	-	-	65.6
Vehicle Results					
Average Speed, mi/h		65.6		Percent Followers, %	62.4
Segment Travel Time, minutes		0.85		Adj. Follower Density, followers/mi/ln	6.2
Vehicle LOS		C			
Segment 3					
Vehicle Inputs					
Segment Type		Passing Constrained		Length, ft	1895
Lane Width, ft		12		Shoulder Width, ft	6
Speed Limit, mi/h		70		Access Point Density, pts/mi	2.8
Demand and Capacity					
Directional Demand Flow Rate, veh/h		657		Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor		0.92		Total Trucks, %	5.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.39
Intermediate Results					
Segment Vertical Class		3		Free-Flow Speed, mi/h	77.5
Speed Slope Coefficient (m)		8.46909		Speed Power Coefficient (p)	0.72167
PF Slope Coefficient (m)		-1.36874		PF Power Coefficient (p)	0.78673
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	5.7
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1895	-	-	72.0
Vehicle Results					
Average Speed, mi/h		72.0		Percent Followers, %	62.6
Segment Travel Time, minutes		0.30		Adj. Follower Density, followers/mi/ln	5.7
Vehicle LOS		C			
Segment 4					
Vehicle Inputs					
Segment Type		Passing Lanes		Length, ft	4575
Lane Width, ft		12		Shoulder Width, ft	2
Speed Limit, mi/h		70		Access Point Density, pts/mi	2.3
Demand and Capacity					
Directional Demand Flow Rate, veh/h		657		Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor		0.92		Total Trucks, %	5.00
Segment Capacity, veh/h		1500		Demand/Capacity (D/C)	0.44
Intermediate Results					

Segment Vertical Class	4	Free-Flow Speed, mi/h	74.5
Speed Slope Coefficient (m)	10.18185	Speed Power Coefficient (p)	0.87818
PF Slope Coefficient (m)	-1.16495	PF Power Coefficient (p)	0.91187
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4575	-	-	68.5

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	385	272
Percentage of Heavy Vehicles (HV%), %	2.00	9.25
Initial Average Speed (Sint), mi/h	72.8	70.5
Average Speed at Midpoint (SPLmid), mi/h	74.4	68.8
Percent Followers at Midpoint (PFPLmid), %	41.1	26.9

Vehicle Results

Average Speed, mi/h	68.5	Percent Followers, %	54.8
Segment Travel Time, minutes	0.76	Adj. Follower Density, followers/mi/ln	5.3
Follower Density Mid-Point, followers/mi/ln	1.6	Vehicle LOS	A

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1247
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	78.7
Speed Slope Coefficient (m)	5.91495	Speed Power Coefficient (p)	0.55405
PF Slope Coefficient (m)	-1.30550	PF Power Coefficient (p)	0.75788
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	5.4
%Improvement to Percent Followers	22.3	%Improvement to Speed	2.7

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Horizontal Curve	1247	5770	8.0	74.4

Vehicle Results

Average Speed, mi/h	76.4	Percent Followers, %	61.3
Segment Travel Time, minutes	0.19	Adj. Follower Density, followers/mi/ln	4.1
Vehicle LOS	C		

Segment 6

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1057
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	438
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	78.8
Speed Slope Coefficient (m)	5.50748	Speed Power Coefficient (p)	0.64259
PF Slope Coefficient (m)	-1.22745	PF Power Coefficient (p)	0.80918
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	5.1
%Improvement to Percent Followers	20.9	%Improvement to Speed	2.6

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1057	-	-	75.0

Vehicle Results			
Average Speed, mi/h	76.9	Percent Followers, %	58.2
Segment Travel Time, minutes	0.16	Adj. Follower Density, followers/mi/ln	3.9
Vehicle LOS	B		

Segment 7

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	30469
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.7

Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	74.9
Speed Slope Coefficient (m)	19.14766	Speed Power Coefficient (p)	0.35548
PF Slope Coefficient (m)	-2.15797	PF Power Coefficient (p)	0.69497
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	8.9
%Improvement to Percent Followers	6.1	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	27343	-	-	59.3
2	Horizontal Curve	1455	1763	8.0	59.3
3	Horizontal Curve	1671	1763	8.0	59.3

Vehicle Results			
Average Speed, mi/h	59.3	Percent Followers, %	80.0
Segment Travel Time, minutes	5.84	Adj. Follower Density, followers/mi/ln	8.3
Vehicle LOS	D		

Segment 8

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2536
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.1

Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	438
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.4
Speed Slope Coefficient (m)	8.34092	Speed Power Coefficient (p)	0.77188
PF Slope Coefficient (m)	-1.26619	PF Power Coefficient (p)	0.83251
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	5.5
%Improvement to Percent Followers	5.5	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2536	-	-	71.1

Vehicle Results			
Average Speed, mi/h	71.1	Percent Followers, %	59.0
Segment Travel Time, minutes	0.41	Adj. Follower Density, followers/mi/ln	5.2
Vehicle LOS	C		

Segment 9

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1199
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	4.4

Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	438
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	59.8
Speed Slope Coefficient (m)	3.11550	Speed Power Coefficient (p)	0.53085
PF Slope Coefficient (m)	-1.37509	PF Power Coefficient (p)	0.76003
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	7.2
%Improvement to Percent Followers	5.2	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1199	-	-	57.6

Vehicle Results			
Average Speed, mi/h	57.6	Percent Followers, %	63.2
Segment Travel Time, minutes	0.24	Adj. Follower Density, followers/mi/ln	6.8
Vehicle LOS	C		

Segment 10

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1756
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	3.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	59.6
Speed Slope Coefficient (m)	5.41667	Speed Power Coefficient (p)	0.55587
PF Slope Coefficient (m)	-1.43890	PF Power Coefficient (p)	0.74114
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	7.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1756	-	-	55.7

Vehicle Results			
Average Speed, mi/h	55.7	Percent Followers, %	65.1
Segment Travel Time, minutes	0.36	Adj. Follower Density, followers/mi/ln	7.7
Vehicle LOS	C		

Segment 11

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2115
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	7.5
Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	47.5
Speed Slope Coefficient (m)	3.47869	Speed Power Coefficient (p)	0.44882
PF Slope Coefficient (m)	-1.50635	PF Power Coefficient (p)	0.70132
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	9.9

%Improvement to Percent Followers		0.0	%Improvement to Speed		0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2115	-	-	44.8
Vehicle Results					
Average Speed, mi/h		44.8	Percent Followers, %		67.4
Segment Travel Time, minutes		0.54	Adj. Follower Density, followers/mi/ln		9.9
Vehicle LOS		C			

Segment 12

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	191
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39
Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	61.1
Speed Slope Coefficient (m)	3.82216	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.38577	PF Power Coefficient (p)	0.73923
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	7.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	191	-	-	58.1
Vehicle Results					
Average Speed, mi/h		58.1	Percent Followers, %		63.8
Segment Travel Time, minutes		0.04	Adj. Follower Density, followers/mi/ln		7.2
Vehicle LOS		C			

Segment 13

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1823
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	438
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	60.4
Speed Slope Coefficient (m)	4.94943	Speed Power Coefficient (p)	0.61797

PF Slope Coefficient (m)	-1.30492	PF Power Coefficient (p)	0.78122
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	7.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1823	-	-	57.0

Vehicle Results

Average Speed, mi/h	57.0	Percent Followers, %	60.9
Segment Travel Time, minutes	0.36	Adj. Follower Density, followers/mi/ln	7.0
Vehicle LOS	C		

Segment 14

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	530
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	58.4
Speed Slope Coefficient (m)	3.29560	Speed Power Coefficient (p)	0.43410
PF Slope Coefficient (m)	-1.51491	PF Power Coefficient (p)	0.71874
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	7.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

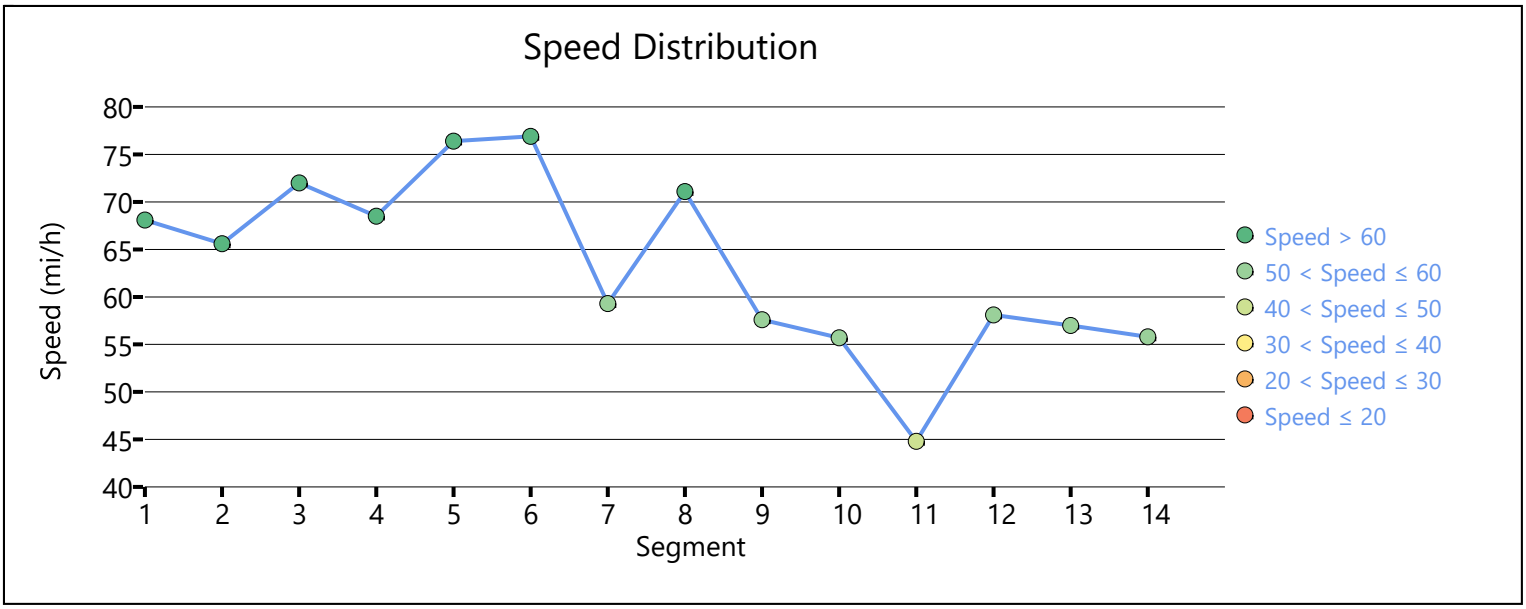
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	530	-	-	55.8

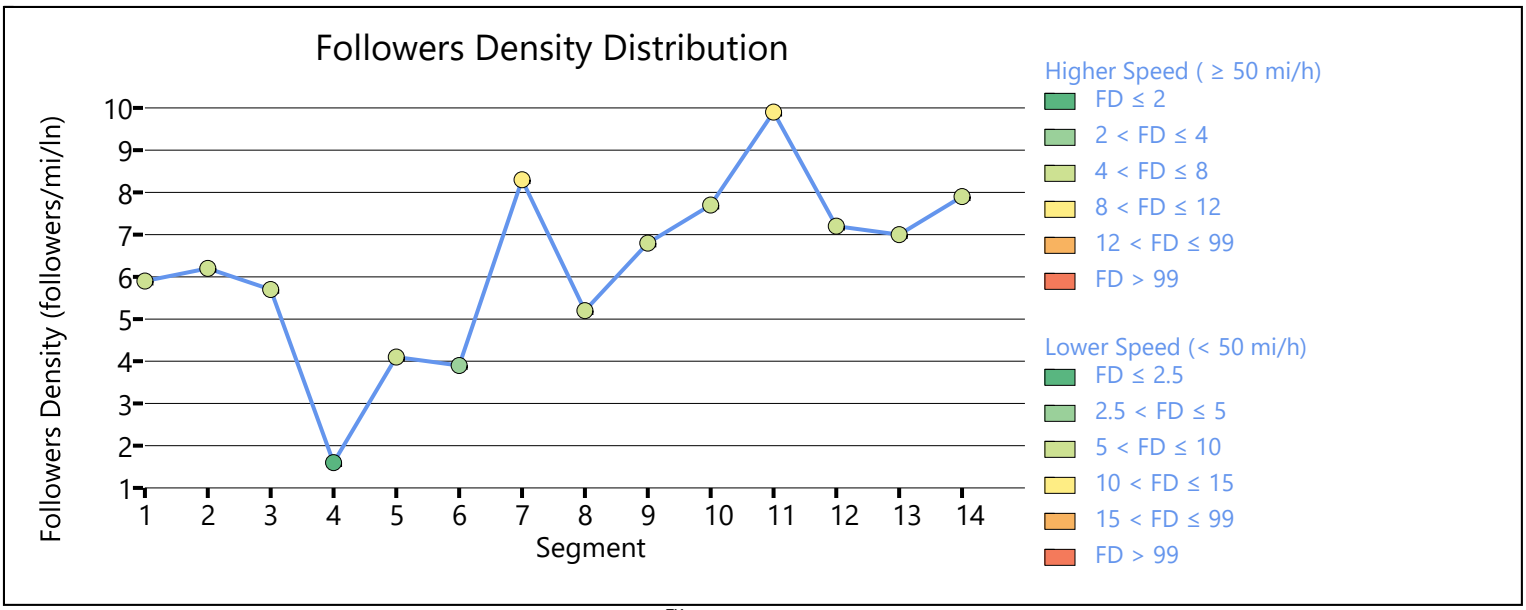
Vehicle Results

Average Speed, mi/h	55.8	Percent Followers, %	67.4
Segment Travel Time, minutes	0.11	Adj. Follower Density, followers/mi/ln	7.9
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	1642	3.91	7.0	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 1 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2544
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	2.1

Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	59.8
Speed Slope Coefficient (m)	5.83436	Speed Power Coefficient (p)	0.56650
PF Slope Coefficient (m)	-1.39486	PF Power Coefficient (p)	0.74588
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	7.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2544	-	-	55.7

Vehicle Results			
Average Speed, mi/h	55.7	Percent Followers, %	63.9
Segment Travel Time, minutes	0.52	Adj. Follower Density, followers/mi/ln	7.5
Vehicle LOS	C		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2089
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	7.6

Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	47.5
Speed Slope Coefficient (m)	3.47435	Speed Power Coefficient (p)	0.44833

PF Slope Coefficient (m)	-1.50819	PF Power Coefficient (p)	0.70114
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	9.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2089	-	-	44.8

Vehicle Results

Average Speed, mi/h	44.8	Percent Followers, %	67.5
Segment Travel Time, minutes	0.53	Adj. Follower Density, followers/mi/ln	9.9
Vehicle LOS	C		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2955
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	3.6

Demand and Capacity

Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	59.5
Speed Slope Coefficient (m)	5.93324	Speed Power Coefficient (p)	0.56753
PF Slope Coefficient (m)	-1.38345	PF Power Coefficient (p)	0.74565
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	7.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2955	-	-	55.2

Vehicle Results

Average Speed, mi/h	55.2	Percent Followers, %	63.6
Segment Travel Time, minutes	0.61	Adj. Follower Density, followers/mi/ln	7.6
Vehicle LOS	C		

Segment 4

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1853
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.9

Demand and Capacity

Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	438
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	7.55998	Speed Power Coefficient (p)	0.76274
PF Slope Coefficient (m)	-1.29771	PF Power Coefficient (p)	0.82683
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1853	-	-	71.3

Vehicle Results

Average Speed, mi/h	71.3	Percent Followers, %	60.0
Segment Travel Time, minutes	0.30	Adj. Follower Density, followers/mi/ln	5.5
Vehicle LOS	C		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	13196
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.4

Demand and Capacity

Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	74.7
Speed Slope Coefficient (m)	17.95555	Speed Power Coefficient (p)	0.41997
PF Slope Coefficient (m)	-2.00246	PF Power Coefficient (p)	0.72698
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	8.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	13196	-	-	60.7

Vehicle Results

Average Speed, mi/h	60.7	Percent Followers, %	77.1
Segment Travel Time, minutes	2.47	Adj. Follower Density, followers/mi/ln	8.3
Vehicle LOS	D		

Segment 6

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	11602
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00

Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.44
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	76.5
Speed Slope Coefficient (m)	11.77956	Speed Power Coefficient (p)	1.26861
PF Slope Coefficient (m)	-1.04916	PF Power Coefficient (p)	1.02110
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8476	-	-	70.9
2	Horizontal Curve	1455	1763	8.0	70.9
3	Horizontal Curve	1671	1763	8.0	70.9

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	385	272
Percentage of Heavy Vehicles (HV%), %	2.00	9.25
Initial Average Speed (Sint), mi/h	75.6	73.3
Average Speed at Midpoint (SPLmid), mi/h	77.3	71.6
Percent Followers at Midpoint (PFPLmid), %	35.1	21.4

Vehicle Results			
Average Speed, mi/h	70.9	Percent Followers, %	49.5
Segment Travel Time, minutes	1.86	Adj. Follower Density, followers/mi/ln	4.6
Follower Density Mid-Point, followers/mi/ln	1.3	Vehicle LOS	A

Segment 7

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5285
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	74.9
Speed Slope Coefficient (m)	13.75956	Speed Power Coefficient (p)	0.61615
PF Slope Coefficient (m)	-1.63539	PF Power Coefficient (p)	0.75209
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	7.0
%Improvement to Percent Followers	17.7	%Improvement to Speed	3.5

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5285	-	-	65.3

Vehicle Results			
Average Speed, mi/h	67.6	Percent Followers, %	69.6
Segment Travel Time, minutes	0.89	Adj. Follower Density, followers/mi/ln	5.6
Vehicle LOS	C		

Segment 8

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1542
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	438
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	78.8
Speed Slope Coefficient (m)	5.72768	Speed Power Coefficient (p)	0.64342
PF Slope Coefficient (m)	-1.21116	PF Power Coefficient (p)	0.81448
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	5.1
%Improvement to Percent Followers	17.0	%Improvement to Speed	3.3

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1542	-	-	74.8

Vehicle Results			
Average Speed, mi/h	77.3	Percent Followers, %	57.7
Segment Travel Time, minutes	0.23	Adj. Follower Density, followers/mi/ln	4.1
Vehicle LOS	C		

Segment 9

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	8270
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.9

Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	73.5
Speed Slope Coefficient (m)	14.99356	Speed Power Coefficient (p)	0.53495
PF Slope Coefficient (m)	-1.76316	PF Power Coefficient (p)	0.76337
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	7.6
%Improvement to Percent Followers	13.7	%Improvement to Speed	2.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	8270	-	-	62.5

Vehicle Results			
Average Speed, mi/h	63.8	Percent Followers, %	72.2
Segment Travel Time, minutes	1.47	Adj. Follower Density, followers/mi/ln	6.4
Vehicle LOS	C		

Segment 10

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	4482
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	3.5
Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	438
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	73.9
Speed Slope Coefficient (m)	11.81062	Speed Power Coefficient (p)	0.74333
PF Slope Coefficient (m)	-1.37775	PF Power Coefficient (p)	0.82864
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.2
%Improvement to Percent Followers	12.4	%Improvement to Speed	1.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4482	-	-	66.3

Vehicle Results			
Average Speed, mi/h	67.2	Percent Followers, %	62.2
Segment Travel Time, minutes	0.76	Adj. Follower Density, followers/mi/ln	5.3
Vehicle LOS	C		

Segment 11

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	3048
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	5.2
Demand and Capacity			
Directional Demand Flow Rate, veh/h	657	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	74.1
Speed Slope Coefficient (m)	9.00707	Speed Power Coefficient (p)	0.70293
PF Slope Coefficient (m)	-1.32839	PF Power Coefficient (p)	0.78480
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	5.9

%Improvement to Percent Followers	11.5	%Improvement to Speed	0.9

Subsegment Data

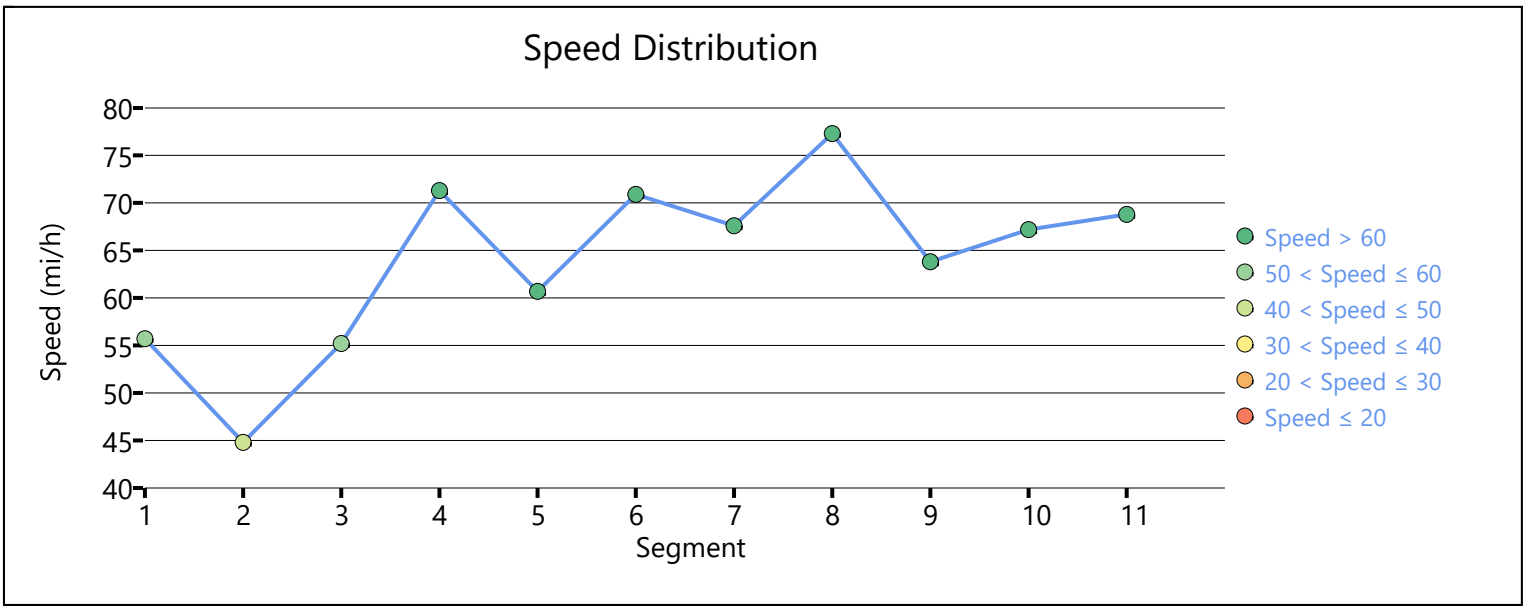
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3048	-	-	68.2

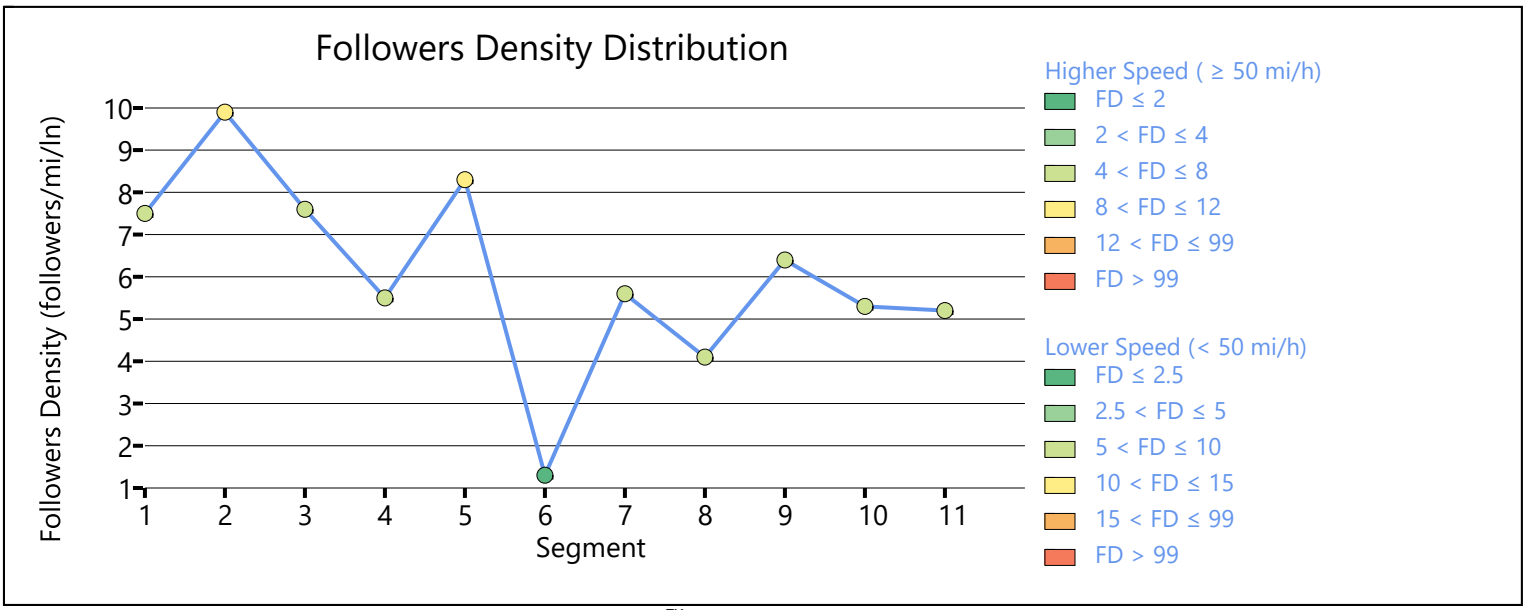
Vehicle Results

Average Speed, mi/h	68.8	Percent Followers, %	61.5
Segment Travel Time, minutes	0.50	Adj. Follower Density, followers/mi/ln	5.2
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	1626	2.82	5.7	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polso to Somers Corridor Study - Section 2 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1548
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	75.4
Speed Slope Coefficient (m)	6.17159	Speed Power Coefficient (p)	0.54190
PF Slope Coefficient (m)	-1.32013	PF Power Coefficient (p)	0.75767
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Horizontal Curve	1548	1146	8.0	65.7

Vehicle Results			
Average Speed, mi/h	65.7	Percent Followers, %	59.6
Segment Travel Time, minutes	0.27	Adj. Follower Density, followers/mi/ln	5.5
Vehicle LOS	C		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2791
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.9

Demand and Capacity			
Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	385
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	74.4
Speed Slope Coefficient (m)	9.22014	Speed Power Coefficient (p)	0.78693

PF Slope Coefficient (m)		-1.24165		PF Power Coefficient (p)	0.83537
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	5.0
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2791	-	-	69.0
Vehicle Results					
Average Speed, mi/h		69.0		Percent Followers, %	56.0
Segment Travel Time, minutes		0.46		Adj. Follower Density, followers/mi/ln	5.0
Vehicle LOS		C			
Segment 3					
Vehicle Inputs					
Segment Type		Passing Constrained		Length, ft	2547
Lane Width, ft		12		Shoulder Width, ft	4
Speed Limit, mi/h		70		Access Point Density, pts/mi	0.0
Demand and Capacity					
Directional Demand Flow Rate, veh/h		610		Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor		0.92		Total Trucks, %	7.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.36
Intermediate Results					
Segment Vertical Class		3		Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)		10.07540		Speed Power Coefficient (p)	0.73576
PF Slope Coefficient (m)		-1.33434		PF Power Coefficient (p)	0.79087
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	5.4
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1086	-	-	70.1
2	Horizontal Curve	1461	1433	8.0	65.7
Vehicle Results					
Average Speed, mi/h		67.6		Percent Followers, %	59.4
Segment Travel Time, minutes		0.43		Adj. Follower Density, followers/mi/ln	5.4
Vehicle LOS		C			
Segment 4					
Vehicle Inputs					
Segment Type		Passing Zone		Length, ft	3832
Lane Width, ft		12		Shoulder Width, ft	4
Speed Limit, mi/h		70		Access Point Density, pts/mi	5.5
Demand and Capacity					
Directional Demand Flow Rate, veh/h		610		Opposing Demand Flow Rate, veh/h	385
Peak Hour Factor		0.92		Total Trucks, %	7.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.36

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	74.0
Speed Slope Coefficient (m)	13.06434	Speed Power Coefficient (p)	0.78944
PF Slope Coefficient (m)	-1.33952	PF Power Coefficient (p)	0.82874
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3832	-	-	66.3

Vehicle Results			
Average Speed, mi/h	66.3	Percent Followers, %	58.9
Segment Travel Time, minutes	0.66	Adj. Follower Density, followers/mi/ln	5.4
Vehicle LOS	C		

Segment 5

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2016
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	5.2

Demand and Capacity			
Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	385
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	58.8
Speed Slope Coefficient (m)	5.25608	Speed Power Coefficient (p)	0.63516
PF Slope Coefficient (m)	-1.28004	PF Power Coefficient (p)	0.78317
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2016	-	-	55.4

Vehicle Results			
Average Speed, mi/h	55.4	Percent Followers, %	58.1
Segment Travel Time, minutes	0.41	Adj. Follower Density, followers/mi/ln	6.4
Vehicle LOS	C		

Segment 6

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	848
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	-

Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36
Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	60.7
Speed Slope Coefficient (m)	3.84270	Speed Power Coefficient (p)	0.45403
PF Slope Coefficient (m)	-1.49071	PF Power Coefficient (p)	0.72501
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	848	-	-	57.9

Vehicle Results			
Average Speed, mi/h	57.9	Percent Followers, %	64.7
Segment Travel Time, minutes	0.17	Adj. Follower Density, followers/mi/ln	6.8
Vehicle LOS	C		

Segment 7

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5889
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	4.5
Demand and Capacity			
Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	47.7
Speed Slope Coefficient (m)	3.95802	Speed Power Coefficient (p)	0.47121
PF Slope Coefficient (m)	-1.74102	PF Power Coefficient (p)	0.72766
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	9.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

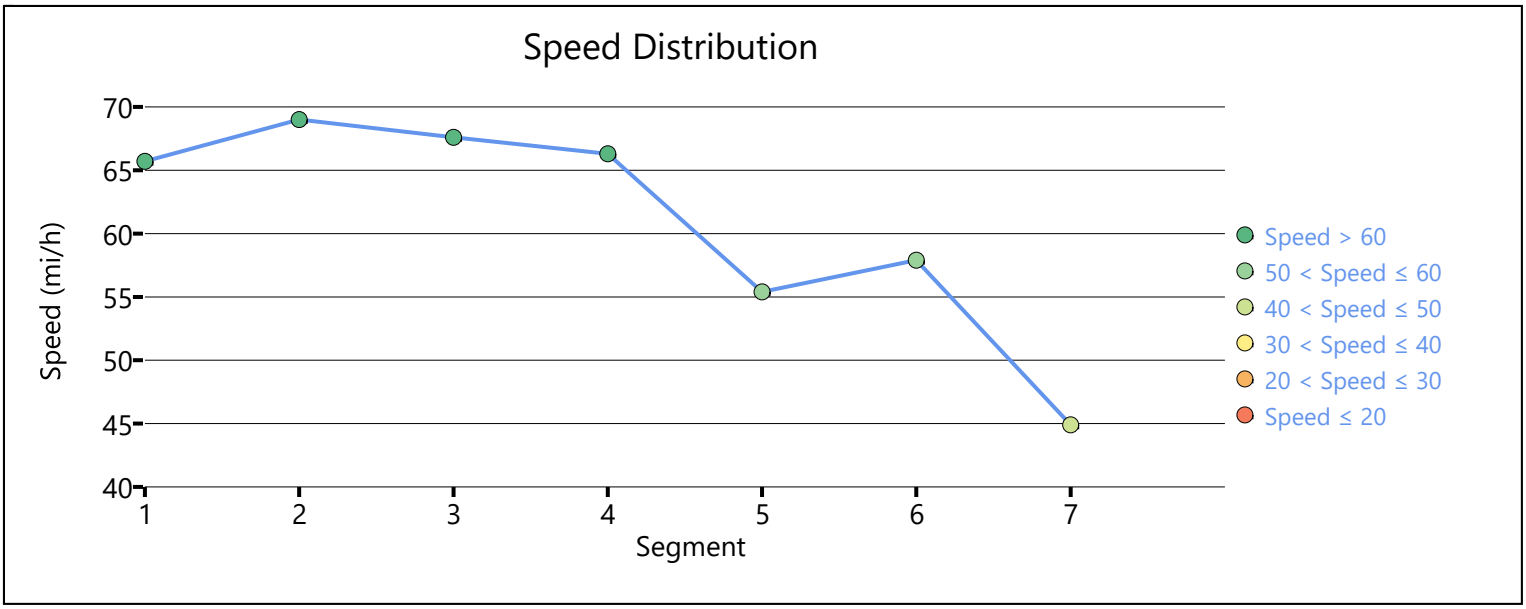
Subsegment Data

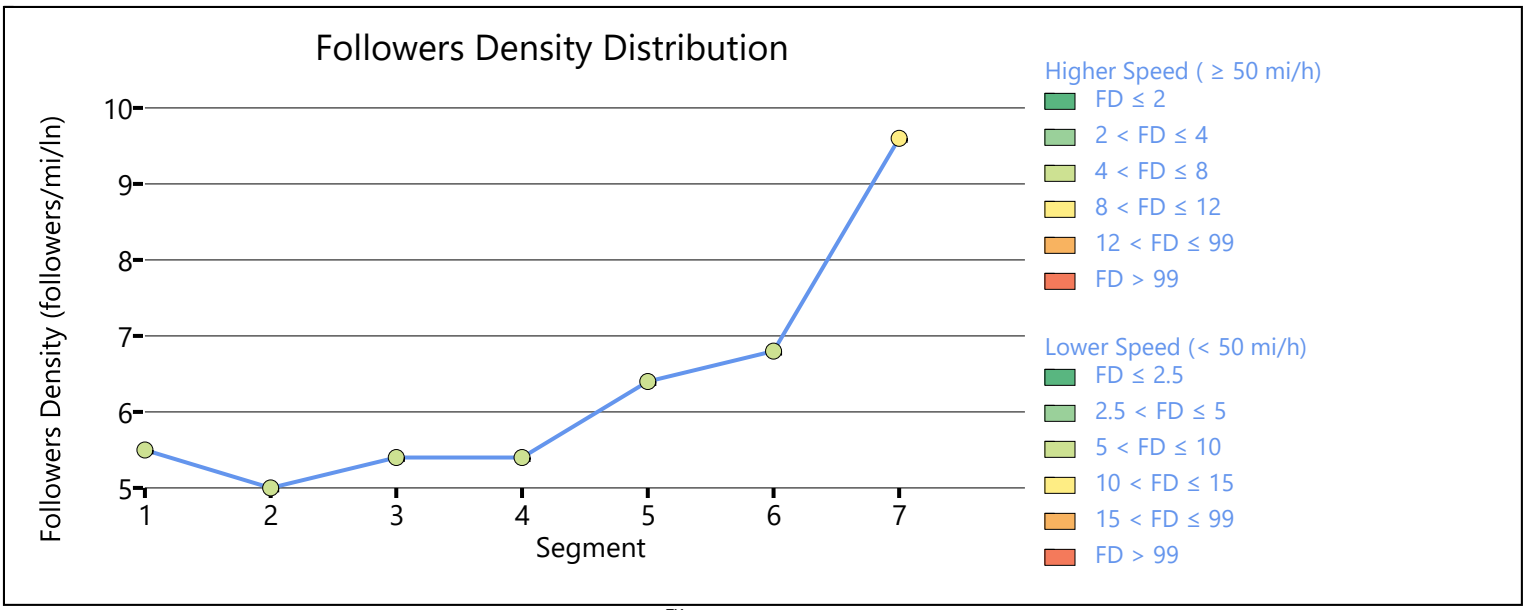
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4128	-	-	44.9
2	Horizontal Curve	1761	1433	8.0	44.9

Vehicle Results			
Average Speed, mi/h	44.9	Percent Followers, %	70.3
Segment Travel Time, minutes	1.49	Adj. Follower Density, followers/mi/ln	9.6
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	517	0.72	6.8	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead Country	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 2 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2989
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	5.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	74.9
Speed Slope Coefficient (m)	10.18607	Speed Power Coefficient (p)	0.72838
PF Slope Coefficient (m)	-1.32336	PF Power Coefficient (p)	0.78936
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2989	-	-	68.6

Vehicle Results			
Average Speed, mi/h	68.6	Percent Followers, %	59.2
Segment Travel Time, minutes	0.49	Adj. Follower Density, followers/mi/ln	5.3
Vehicle LOS	C		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1071
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	385
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	76.9
Speed Slope Coefficient (m)	5.75061	Speed Power Coefficient (p)	0.64831

PF Slope Coefficient (m)	-1.23258	PF Power Coefficient (p)	0.80964
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1071	-	-	73.2

Vehicle Results

Average Speed, mi/h	73.2	Percent Followers, %	56.2
Segment Travel Time, minutes	0.17	Adj. Follower Density, followers/mi/ln	4.7
Vehicle LOS	C		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1829
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.9

Demand and Capacity

Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	75.5
Speed Slope Coefficient (m)	9.14870	Speed Power Coefficient (p)	0.72139
PF Slope Coefficient (m)	-1.37147	PF Power Coefficient (p)	0.78497
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	69	-	-	69.8
2	Horizontal Curve	1760	1433	8.0	65.7

Vehicle Results

Average Speed, mi/h	65.9	Percent Followers, %	60.6
Segment Travel Time, minutes	0.32	Adj. Follower Density, followers/mi/ln	5.6
Vehicle LOS	C		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	424
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36

Intermediate Results					
Segment Vertical Class	1		Free-Flow Speed, mi/h		78.2
Speed Slope Coefficient (m)	4.74537		Speed Power Coefficient (p)		0.41674
PF Slope Coefficient (m)	-1.19926		PF Power Coefficient (p)		0.77718
In Passing Lane Effective Length?	No		Follower Density, followers/mi/ln		4.6
%Improvement to Percent Followers	0.0		%Improvement to Speed		0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	424	-	-	74.6

Vehicle Results			
Average Speed, mi/h	74.6	Percent Followers, %	55.8
Segment Travel Time, minutes	0.06	Adj. Follower Density, followers/mi/ln	4.6
Vehicle LOS	C		

Segment 5

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2440
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	385
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.3
Speed Slope Coefficient (m)	9.30526	Speed Power Coefficient (p)	0.80031
PF Slope Coefficient (m)	-1.25481	PF Power Coefficient (p)	0.83803
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2440	-	-	70.9

Vehicle Results			
Average Speed, mi/h	70.9	Percent Followers, %	56.4
Segment Travel Time, minutes	0.39	Adj. Follower Density, followers/mi/ln	4.8
Vehicle LOS	C		

Segment 6

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1722
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	3.1

Demand and Capacity			
Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	385

Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	75.5
Speed Slope Coefficient (m)	8.35032	Speed Power Coefficient (p)	0.78553
PF Slope Coefficient (m)	-1.28997	PF Power Coefficient (p)	0.82980
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1722	-	-	70.6

Vehicle Results			
Average Speed, mi/h	70.6	Percent Followers, %	57.5
Segment Travel Time, minutes	0.28	Adj. Follower Density, followers/mi/ln	5.0
Vehicle LOS	C		

Segment 7

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	4084
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.6
Demand and Capacity			
Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	73.5
Speed Slope Coefficient (m)	14.17492	Speed Power Coefficient (p)	0.65344
PF Slope Coefficient (m)	-1.59162	PF Power Coefficient (p)	0.74058
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2624	-	-	64.4
2	Horizontal Curve	1460	1433	8.0	64.4

Vehicle Results			
Average Speed, mi/h	64.4	Percent Followers, %	66.8
Segment Travel Time, minutes	0.72	Adj. Follower Density, followers/mi/ln	6.3
Vehicle LOS	C		

Segment 8

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	3021
Lane Width, ft	12	Shoulder Width, ft	4

Speed Limit, mi/h	70	Access Point Density, pts/mi	1.8
Demand and Capacity			
Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	385
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	75.8
Speed Slope Coefficient (m)	9.76854	Speed Power Coefficient (p)	0.80257
PF Slope Coefficient (m)	-1.23735	PF Power Coefficient (p)	0.83956
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3021	-	-	70.2

Vehicle Results			
Average Speed, mi/h	70.2	Percent Followers, %	55.8
Segment Travel Time, minutes	0.49	Adj. Follower Density, followers/mi/ln	4.9
Vehicle LOS	C		

Segment 9

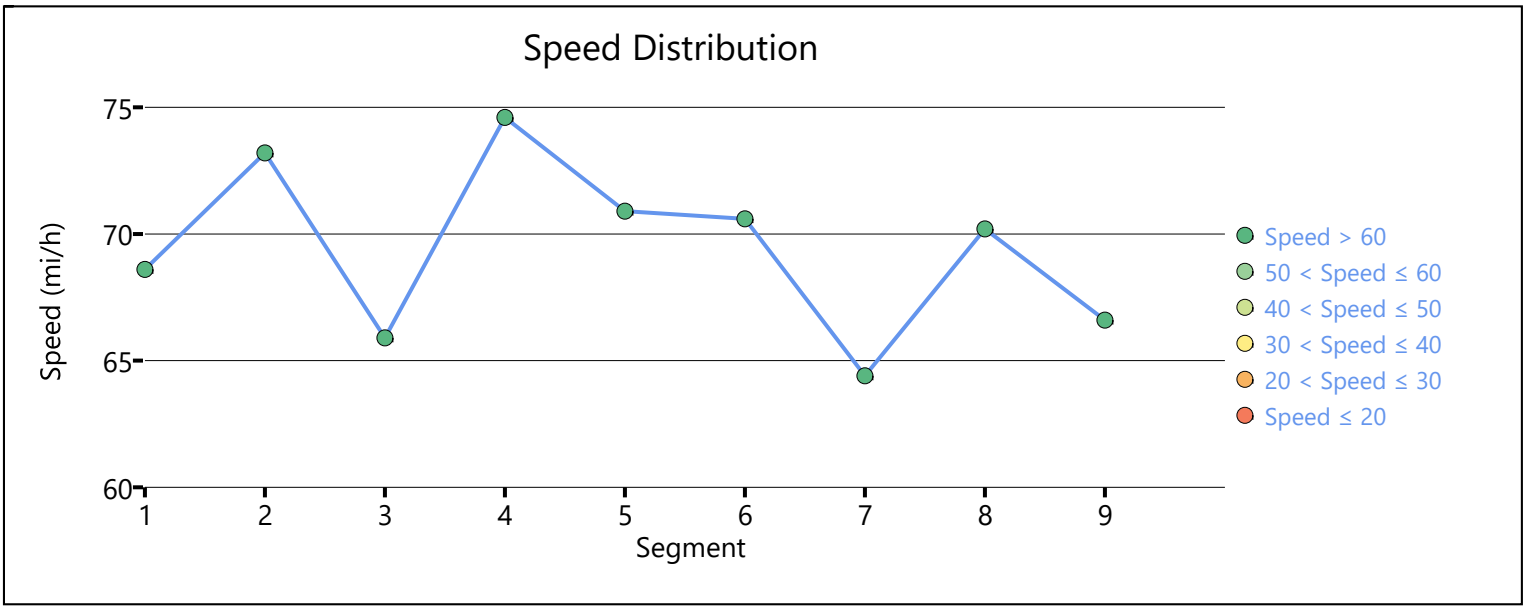
Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1891
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	610	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.36
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	9.36460	Speed Power Coefficient (p)	0.72869
PF Slope Coefficient (m)	-1.36613	PF Power Coefficient (p)	0.78697
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

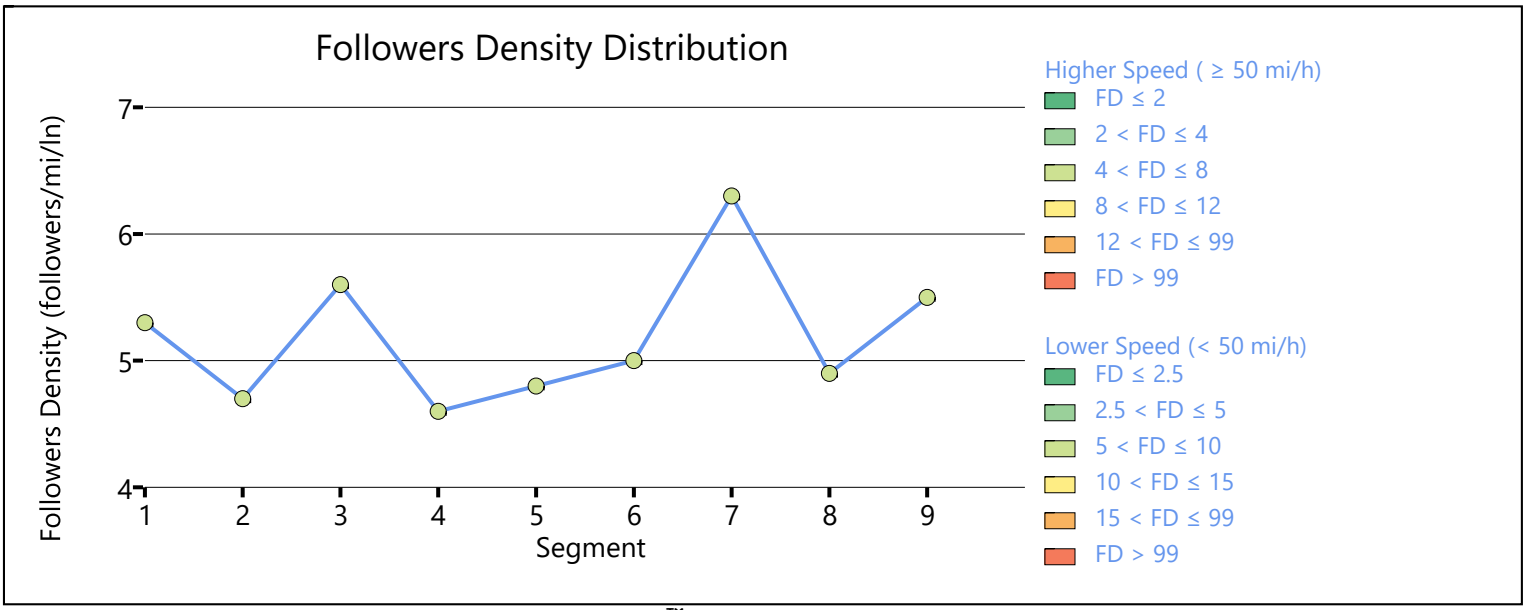
Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	326	-	-	70.5
2	Horizontal Curve	1565	1146	8.0	65.7

Vehicle Results			
Average Speed, mi/h	66.6	Percent Followers, %	60.4
Segment Travel Time, minutes	0.32	Adj. Follower Density, followers/mi/ln	5.5
Vehicle LOS	C		
Facility Results			

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	517	0.71	5.4	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 3 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	997
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient (m)	3.12531	Speed Power Coefficient (p)	0.41622
PF Slope Coefficient (m)	-1.59046	PF Power Coefficient (p)	0.69659
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	11.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	997	-	-	45.6

Vehicle Results			
Average Speed, mi/h	45.6	Percent Followers, %	71.7
Segment Travel Time, minutes	0.25	Adj. Follower Density, followers/mi/ln	11.3
Vehicle LOS	D		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	222
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	60.9
Speed Slope Coefficient (m)	3.80952	Speed Power Coefficient (p)	0.41674

PF Slope Coefficient (m)	-1.38711	PF Power Coefficient (p)	0.73972
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	8.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	222	-	-	57.8

Vehicle Results

Average Speed, mi/h	57.8	Percent Followers, %	66.2
Segment Travel Time, minutes	0.04	Adj. Follower Density, followers/mi/ln	8.2
Vehicle LOS	D		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1229
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	4.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	477
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	59.4
Speed Slope Coefficient (m)	3.70551	Speed Power Coefficient (p)	0.53684
PF Slope Coefficient (m)	-1.37911	PF Power Coefficient (p)	0.76166
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	8.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1229	-	-	56.5

Vehicle Results

Average Speed, mi/h	56.5	Percent Followers, %	65.7
Segment Travel Time, minutes	0.25	Adj. Follower Density, followers/mi/ln	8.3
Vehicle LOS	D		

Segment 4

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2411
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.2

Demand and Capacity

Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	477
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	74.2
Speed Slope Coefficient (m)	11.00670	Speed Power Coefficient (p)	0.79226
PF Slope Coefficient (m)	-1.25933	PF Power Coefficient (p)	0.83572
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2411	-	-	66.7

Vehicle Results

Average Speed, mi/h	66.7	Percent Followers, %	61.4
Segment Travel Time, minutes	0.41	Adj. Follower Density, followers/mi/ln	6.6
Vehicle LOS	C		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1809
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	74.6
Speed Slope Coefficient (m)	11.09122	Speed Power Coefficient (p)	0.74258
PF Slope Coefficient (m)	-1.36172	PF Power Coefficient (p)	0.79037
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1809	-	-	66.9

Vehicle Results

Average Speed, mi/h	66.9	Percent Followers, %	64.9
Segment Travel Time, minutes	0.31	Adj. Follower Density, followers/mi/ln	6.9
Vehicle LOS	C		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2433
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	477
Peak Hour Factor	0.92	Total Trucks, %	12.00

Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	74.8
Speed Slope Coefficient (m)	11.18636	Speed Power Coefficient (p)	0.79754
PF Slope Coefficient (m)	-1.25887	PF Power Coefficient (p)	0.83719
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2433	-	-	67.2

Vehicle Results			
Average Speed, mi/h	67.2	Percent Followers, %	61.4
Segment Travel Time, minutes	0.41	Adj. Follower Density, followers/mi/ln	6.5
Vehicle LOS	C		

Segment 7

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	3199
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	3.3
Demand and Capacity			
Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	71.7
Speed Slope Coefficient (m)	16.13242	Speed Power Coefficient (p)	0.68827
PF Slope Coefficient (m)	-1.55680	PF Power Coefficient (p)	0.73059
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	8.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3199	-	-	60.2

Vehicle Results			
Average Speed, mi/h	60.2	Percent Followers, %	70.5
Segment Travel Time, minutes	0.60	Adj. Follower Density, followers/mi/ln	8.4
Vehicle LOS	D		

Segment 8

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2583
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0
Demand and Capacity			

Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	477
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	11.74163	Speed Power Coefficient (p)	0.81199
PF Slope Coefficient (m)	-1.25476	PF Power Coefficient (p)	0.84135
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2583	-	-	68.2

Vehicle Results			
Average Speed, mi/h	68.2	Percent Followers, %	61.2
Segment Travel Time, minutes	0.43	Adj. Follower Density, followers/mi/ln	6.4
Vehicle LOS	C		

Segment 9

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2809
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.0
Speed Slope Coefficient (m)	12.52036	Speed Power Coefficient (p)	0.76621
PF Slope Coefficient (m)	-1.31379	PF Power Coefficient (p)	0.79903
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Horizontal Curve	1765	1432	8.0	65.5
2	Tangent	1044	-	-	67.4

Vehicle Results			
Average Speed, mi/h	66.2	Percent Followers, %	63.4
Segment Travel Time, minutes	0.48	Adj. Follower Density, followers/mi/ln	6.9
Vehicle LOS	C		

Segment 10

Vehicle Inputs			
Segment Type	Passing Lanes	Length, ft	3140

Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.51
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	74.8
Speed Slope Coefficient (m)	10.31439	Speed Power Coefficient (p)	0.94232
PF Slope Coefficient (m)	-1.06215	PF Power Coefficient (p)	0.74743
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3140	-	-	68.3

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	405	311
Percentage of Heavy Vehicles (HV%), %	4.80	21.39
Initial Average Speed (Sint), mi/h	74.0	69.6
Average Speed at Midpoint (SPLmid), mi/h	75.8	67.8
Percent Followers at Midpoint (PFPLmid), %	46.7	32.7

Vehicle Results			
Average Speed, mi/h	68.3	Percent Followers, %	56.3
Segment Travel Time, minutes	0.52	Adj. Follower Density, followers/mi/ln	5.9
Follower Density Mid-Point, followers/mi/ln	2.0	Vehicle LOS	A

Segment 11

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2269
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.3
Demand and Capacity			
Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	75.4
Speed Slope Coefficient (m)	11.81478	Speed Power Coefficient (p)	0.75511
PF Slope Coefficient (m)	-1.33469	PF Power Coefficient (p)	0.79548
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.8
%Improvement to Percent Followers	21.2	%Improvement to Speed	2.4

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2269	-	-	67.2

Vehicle Results			
Average Speed, mi/h	68.8	Percent Followers, %	64.1
Segment Travel Time, minutes	0.37	Adj. Follower Density, followers/mi/ln	5.3
Vehicle LOS	C		

Segment 12

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	3092
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	477
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	12.22847	Speed Power Coefficient (p)	0.81749
PF Slope Coefficient (m)	-1.24115	PF Power Coefficient (p)	0.84320
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.4
%Improvement to Percent Followers	17.2	%Improvement to Speed	1.9

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3092	-	-	67.9

Vehicle Results			
Average Speed, mi/h	69.2	Percent Followers, %	60.8
Segment Travel Time, minutes	0.51	Adj. Follower Density, followers/mi/ln	5.2
Vehicle LOS	C		

Segment 13

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1793
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.9

Demand and Capacity			
Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	75.3
Speed Slope Coefficient (m)	11.25105	Speed Power Coefficient (p)	0.74860
PF Slope Coefficient (m)	-1.36142	PF Power Coefficient (p)	0.79166

In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.9
%Improvement to Percent Followers	15.5	%Improvement to Speed	1.6

Subsegment Data

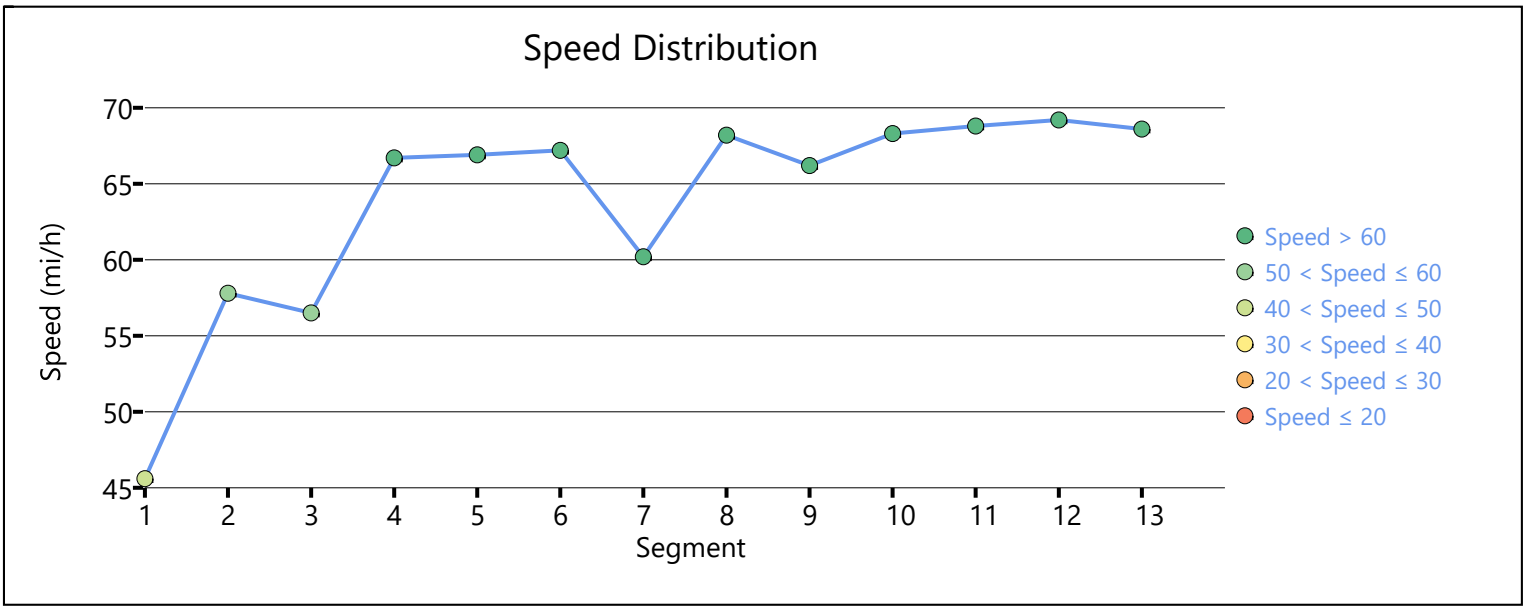
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1793	-	-	67.5

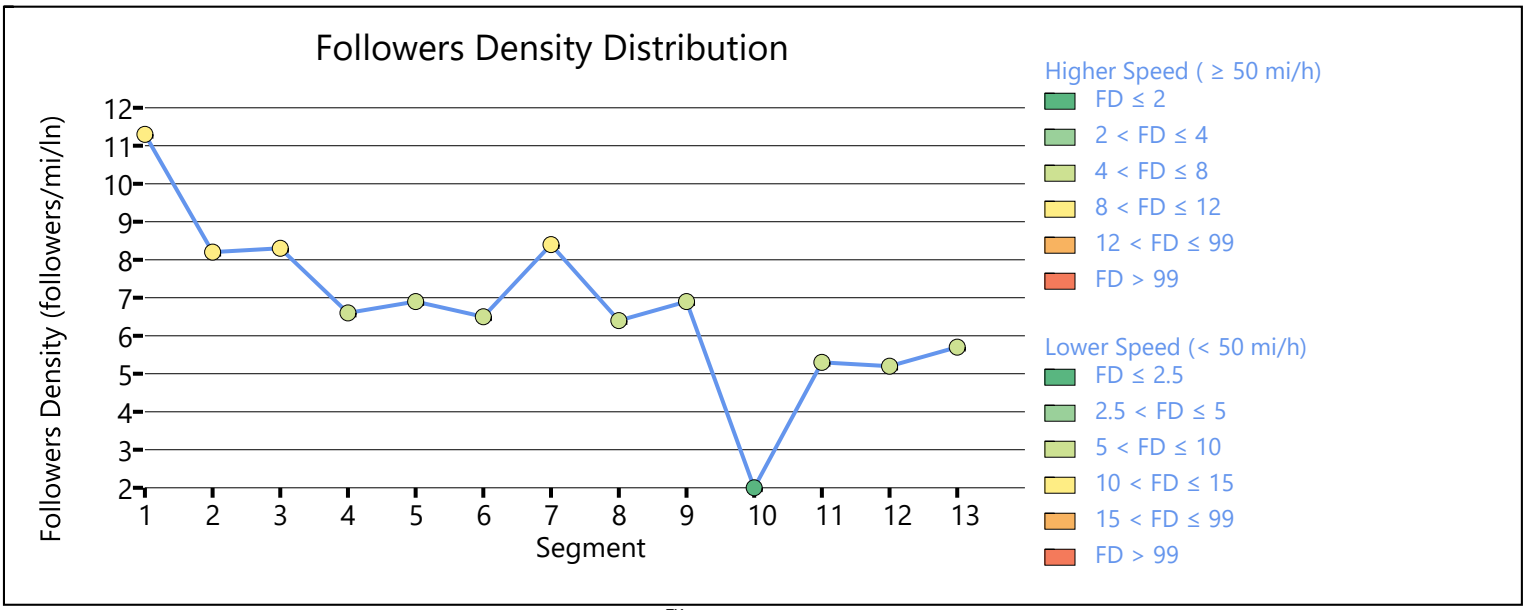
Vehicle Results

Average Speed, mi/h	68.6	Percent Followers, %	64.8
Segment Travel Time, minutes	0.30	Adj. Follower Density, followers/mi/ln	5.7
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	873	1.37	6.3	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers - Section 3 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	965
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	77.1
Speed Slope Coefficient (m)	7.24391	Speed Power Coefficient (p)	0.56039
PF Slope Coefficient (m)	-1.31589	PF Power Coefficient (p)	0.75989
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	965	-	-	71.6

Vehicle Results			
Average Speed, mi/h	71.6	Percent Followers, %	64.0
Segment Travel Time, minutes	0.15	Adj. Follower Density, followers/mi/ln	6.4
Vehicle LOS	C		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	3921
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	477
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	74.4
Speed Slope Coefficient (m)	17.06734	Speed Power Coefficient (p)	0.78760

PF Slope Coefficient (m)	-1.36113	PF Power Coefficient (p)	0.82946
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	7.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3921	-	-	62.8

Vehicle Results

Average Speed, mi/h	62.8	Percent Followers, %	64.4
Segment Travel Time, minutes	0.71	Adj. Follower Density, followers/mi/ln	7.3
Vehicle LOS	C		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	950
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	5.6

Demand and Capacity

Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	75.7
Speed Slope Coefficient (m)	6.99761	Speed Power Coefficient (p)	0.55218
PF Slope Coefficient (m)	-1.33077	PF Power Coefficient (p)	0.75725
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	950	-	-	70.4

Vehicle Results

Average Speed, mi/h	70.4	Percent Followers, %	64.4
Segment Travel Time, minutes	0.15	Adj. Follower Density, followers/mi/ln	6.6
Vehicle LOS	C		

Segment 4

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	3040
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1400	Demand/Capacity (D/C)	0.51

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	74.8
Speed Slope Coefficient (m)	10.31439	Speed Power Coefficient (p)	0.93405
PF Slope Coefficient (m)	-1.06621	PF Power Coefficient (p)	0.74396
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3040	-	-	68.3

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	405	311
Percentage of Heavy Vehicles (HV%), %	4.80	21.39
Initial Average Speed (Sint), mi/h	74.0	69.6
Average Speed at Midpoint (SPLmid), mi/h	75.8	67.7
Percent Followers at Midpoint (PFPLmid), %	46.9	33.0

Vehicle Results

Average Speed, mi/h	68.3	Percent Followers, %	56.5
Segment Travel Time, minutes	0.51	Adj. Follower Density, followers/mi/ln	5.9
Follower Density Mid-Point, followers/mi/ln	2.0	Vehicle LOS	B

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5278
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	72.5
Speed Slope Coefficient (m)	18.00739	Speed Power Coefficient (p)	0.64115
PF Slope Coefficient (m)	-1.62729	PF Power Coefficient (p)	0.76618
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	8.7
%Improvement to Percent Followers	17.4	%Improvement to Speed	2.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3513	-	-	59.3
2	Horizontal Curve	1765	1432	8.0	59.3

Vehicle Results

Average Speed, mi/h	60.5	Percent Followers, %	71.6
Segment Travel Time, minutes	0.99	Adj. Follower Density, followers/mi/ln	7.0

Vehicle LOS	C		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2112
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	477
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	11.24669	Speed Power Coefficient (p)	0.80691
PF Slope Coefficient (m)	-1.27380	PF Power Coefficient (p)	0.83817
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.5
%Improvement to Percent Followers	15.4	%Improvement to Speed	1.7

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2112	-	-	68.6

Vehicle Results

Average Speed, mi/h	69.7	Percent Followers, %	61.8
Segment Travel Time, minutes	0.34	Adj. Follower Density, followers/mi/ln	5.4
Vehicle LOS	C		

Segment 7

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3501
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	72.5
Speed Slope Coefficient (m)	16.77092	Speed Power Coefficient (p)	0.68519
PF Slope Coefficient (m)	-1.56424	PF Power Coefficient (p)	0.73768
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	8.4
%Improvement to Percent Followers	12.9	%Improvement to Speed	1.2

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3501	-	-	60.5

Vehicle Results

Average Speed, mi/h	61.2	Percent Followers, %	70.6
Segment Travel Time, minutes	0.65	Adj. Follower Density, followers/mi/ln	7.2
Vehicle LOS	C		

Segment 8

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2160
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	477
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	74.8
Speed Slope Coefficient (m)	10.91047	Speed Power Coefficient (p)	0.79459
PF Slope Coefficient (m)	-1.27030	PF Power Coefficient (p)	0.83525
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.6
%Improvement to Percent Followers	11.6	%Improvement to Speed	0.9

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2160	-	-	67.3

Vehicle Results

Average Speed, mi/h	67.9	Percent Followers, %	61.8
Segment Travel Time, minutes	0.36	Adj. Follower Density, followers/mi/ln	5.8
Vehicle LOS	C		

Segment 9

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	955
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	75.7
Speed Slope Coefficient (m)	6.99584	Speed Power Coefficient (p)	0.55212
PF Slope Coefficient (m)	-1.33088	PF Power Coefficient (p)	0.75723
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.6
%Improvement to Percent Followers	11.1	%Improvement to Speed	0.7

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h

1	Tangent	955	-	-	70.4

Vehicle Results			
Average Speed, mi/h	70.9	Percent Followers, %	64.4
Segment Travel Time, minutes	0.15	Adj. Follower Density, followers/mi/ln	5.8
Vehicle LOS	C		

Segment 10

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	3068
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.7
Demand and Capacity			
Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	477
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	74.3
Speed Slope Coefficient (m)	11.64002	Speed Power Coefficient (p)	0.80044
PF Slope Coefficient (m)	-1.24027	PF Power Coefficient (p)	0.83882
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.6
%Improvement to Percent Followers	9.6	%Improvement to Speed	0.2

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3068	-	-	66.4

Vehicle Results			
Average Speed, mi/h	66.6	Percent Followers, %	60.8
Segment Travel Time, minutes	0.52	Adj. Follower Density, followers/mi/ln	5.9
Vehicle LOS	C		

Segment 11

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1041
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	55	Access Point Density, pts/mi	5.1
Demand and Capacity			
Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42
Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	59.0
Speed Slope Coefficient (m)	4.03722	Speed Power Coefficient (p)	0.45344
PF Slope Coefficient (m)	-1.50137	PF Power Coefficient (p)	0.72462
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	8.9
%Improvement to Percent Followers	9.2	%Improvement to Speed	0.1

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1041	-	-	55.8

Vehicle Results			
Average Speed, mi/h	55.8	Percent Followers, %	69.2
Segment Travel Time, minutes	0.21	Adj. Follower Density, followers/mi/ln	8.1
Vehicle LOS	D		

Segment 12

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	997
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.3

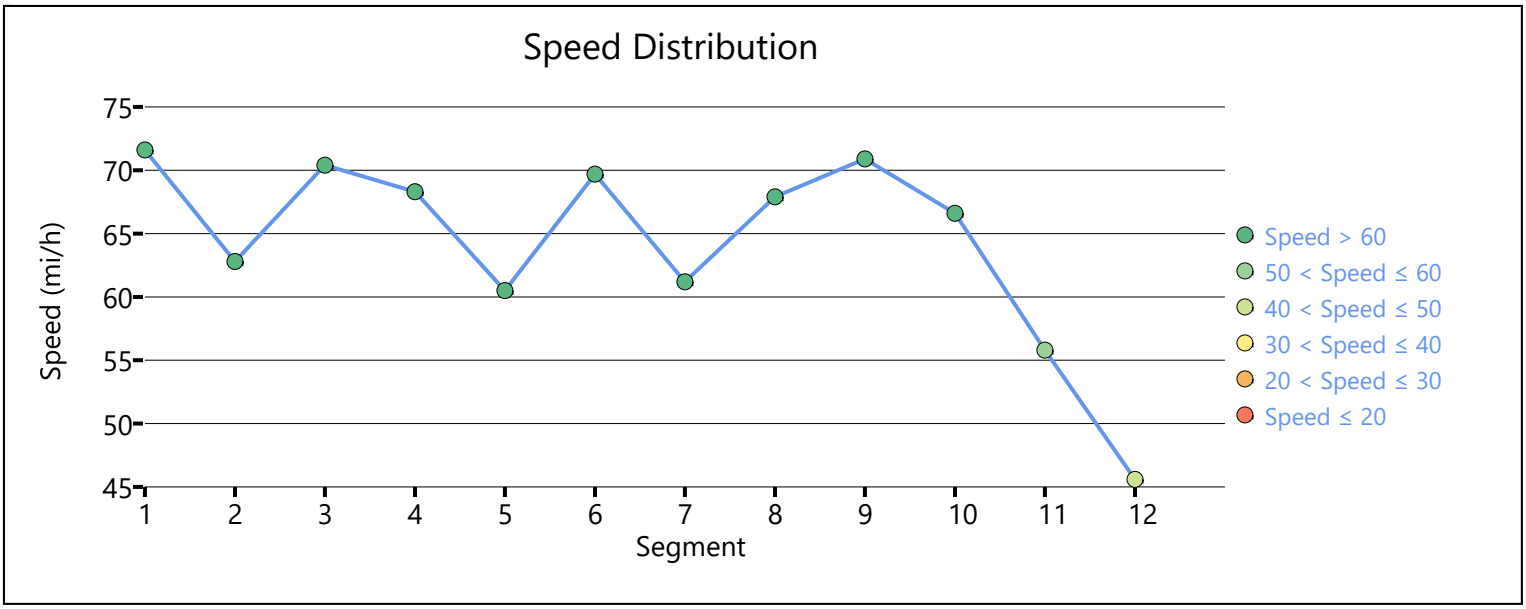
Demand and Capacity			
Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	12.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

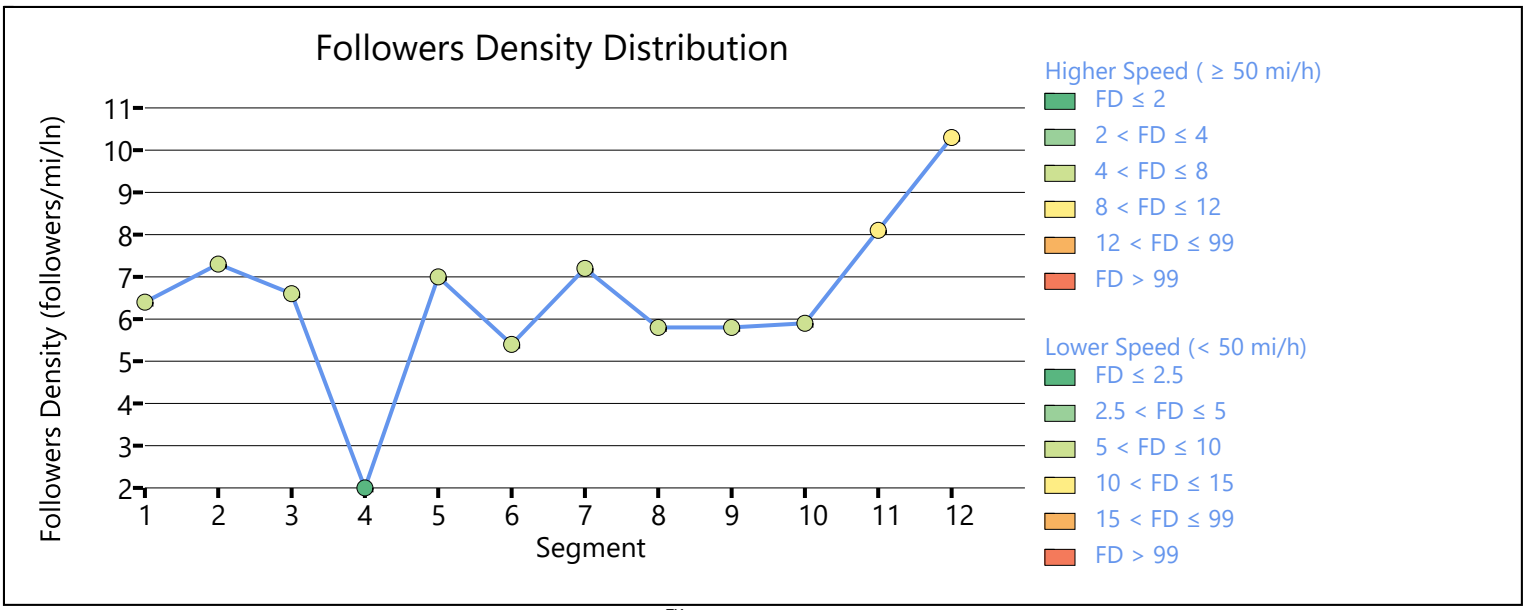
Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient (m)	3.12531	Speed Power Coefficient (p)	0.41622
PF Slope Coefficient (m)	-1.59046	PF Power Coefficient (p)	0.69659
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	11.3
%Improvement to Percent Followers	8.8	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	997	-	-	45.6

Vehicle Results			
Average Speed, mi/h	45.6	Percent Followers, %	71.7
Segment Travel Time, minutes	0.25	Adj. Follower Density, followers/mi/ln	10.3
Vehicle LOS	D		

Facility Results				
T	**VMT veh-mi/AP**	**VHD veh-h/p**	**Follower Density, followers/ mi/ln**	**LOS**
1	873	1.63	6.3	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 4 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	579
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	77.6
Speed Slope Coefficient (m)	6.94156	Speed Power Coefficient (p)	0.56003
PF Slope Coefficient (m)	-1.31294	PF Power Coefficient (p)	0.75932
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	579	-	-	72.4

Vehicle Results			
Average Speed, mi/h	72.4	Percent Followers, %	63.1
Segment Travel Time, minutes	0.09	Adj. Follower Density, followers/mi/ln	6.1
Vehicle LOS	C		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	3981
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	464
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	75.0
Speed Slope Coefficient (m)	16.02844	Speed Power Coefficient (p)	0.78529

PF Slope Coefficient (m)	-1.36158	PF Power Coefficient (p)	0.82814
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3981	-	-	64.3

Vehicle Results

Average Speed, mi/h	64.3	Percent Followers, %	63.6
Segment Travel Time, minutes	0.70	Adj. Follower Density, followers/mi/ln	6.9
Vehicle LOS	C		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1081
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	4.9

Demand and Capacity

Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	76.3
Speed Slope Coefficient (m)	6.73941	Speed Power Coefficient (p)	0.55280
PF Slope Coefficient (m)	-1.32606	PF Power Coefficient (p)	0.75700
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1081	-	-	71.3

Vehicle Results

Average Speed, mi/h	71.3	Percent Followers, %	63.5
Segment Travel Time, minutes	0.17	Adj. Follower Density, followers/mi/ln	6.2
Vehicle LOS	C		

Segment 4

Vehicle Inputs

Segment Type	Passing Lanes	Length, ft	3375
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.6

Demand and Capacity

Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1300	Demand/Capacity (D/C)	0.54

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	75.7
Speed Slope Coefficient (m)	13.56358	Speed Power Coefficient (p)	0.84442
PF Slope Coefficient (m)	-1.34337	PF Power Coefficient (p)	0.86946
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3375	-	-	66.9

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	399	298
Percentage of Heavy Vehicles (HV%), %	4.00	18.02
Initial Average Speed (Sint), mi/h	74.0	68.8
Average Speed at Midpoint (SPLmid), mi/h	75.8	67.0
Percent Followers at Midpoint (PFPLmid), %	43.9	30.5

Vehicle Results

Average Speed, mi/h	66.9	Percent Followers, %	62.5
Segment Travel Time, minutes	0.57	Adj. Follower Density, followers/mi/ln	6.5
Follower Density Mid-Point, followers/mi/ln	1.8	Vehicle LOS	A

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1068
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	4.9

Demand and Capacity

Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	76.3
Speed Slope Coefficient (m)	6.73734	Speed Power Coefficient (p)	0.55273
PF Slope Coefficient (m)	-1.32619	PF Power Coefficient (p)	0.75698
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	7.5
%Improvement to Percent Followers	23.3	%Improvement to Speed	2.7

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Horizontal Curve	1068	1146	0.0	59.3

Vehicle Results

Average Speed, mi/h	60.9	Percent Followers, %	63.5
Segment Travel Time, minutes	0.20	Adj. Follower Density, followers/mi/ln	5.6
Vehicle LOS	C		

Segment 6

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2186
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.4

Demand and Capacity			
Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	464
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	10.49214	Speed Power Coefficient (p)	0.80072
PF Slope Coefficient (m)	-1.27274	PF Power Coefficient (p)	0.83632
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.1
%Improvement to Percent Followers	19.8	%Improvement to Speed	2.3

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2186	-	-	69.2

Vehicle Results			
Average Speed, mi/h	70.9	Percent Followers, %	61.0
Segment Travel Time, minutes	0.35	Adj. Follower Density, followers/mi/ln	4.8
Vehicle LOS	C		

Segment 7

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	903
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	77.6
Speed Slope Coefficient (m)	6.94156	Speed Power Coefficient (p)	0.56003
PF Slope Coefficient (m)	-1.31294	PF Power Coefficient (p)	0.75932
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.1
%Improvement to Percent Followers	18.7	%Improvement to Speed	2.2

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	903	-	-	72.4

Vehicle Results			
Average Speed, mi/h	74.0	Percent Followers, %	63.1

Segment Travel Time, minutes	0.14	Adj. Follower Density, followers/mi/ln	4.8
Vehicle LOS	C		

Segment 8

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1221
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	464
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	77.7
Speed Slope Coefficient (m)	6.56221	Speed Power Coefficient (p)	0.64443
PF Slope Coefficient (m)	-1.23587	PF Power Coefficient (p)	0.80869
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	5.8
%Improvement to Percent Followers	17.4	%Improvement to Speed	2.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1221	-	-	73.0

Vehicle Results

Average Speed, mi/h	74.5	Percent Followers, %	60.3
Segment Travel Time, minutes	0.19	Adj. Follower Density, followers/mi/ln	4.7
Vehicle LOS	C		

Segment 9

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1542
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	3.4

Demand and Capacity

Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	76.7
Speed Slope Coefficient (m)	6.99957	Speed Power Coefficient (p)	0.55579
PF Slope Coefficient (m)	-1.30440	PF Power Coefficient (p)	0.76221
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.1
%Improvement to Percent Followers	16.0	%Improvement to Speed	1.8

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1542	-	-	71.5

Vehicle Results			
Average Speed, mi/h	72.7	Percent Followers, %	62.9
Segment Travel Time, minutes	0.24	Adj. Follower Density, followers/mi/ln	5.1
Vehicle LOS	C		

Segment 10

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2423
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.2

Demand and Capacity			
Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	464
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.2
Speed Slope Coefficient (m)	10.75907	Speed Power Coefficient (p)	0.80383
PF Slope Coefficient (m)	-1.26290	PF Power Coefficient (p)	0.83812
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.1
%Improvement to Percent Followers	14.1	%Improvement to Speed	1.4

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2423	-	-	69.1

Vehicle Results			
Average Speed, mi/h	70.1	Percent Followers, %	60.7
Segment Travel Time, minutes	0.39	Adj. Follower Density, followers/mi/ln	5.2
Vehicle LOS	C		

Segment 11

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	375
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	79.5
Speed Slope Coefficient (m)	4.81583	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.18363	PF Power Coefficient (p)	0.78088
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	5.4
%Improvement to Percent Followers	13.9	%Improvement to Speed	1.4

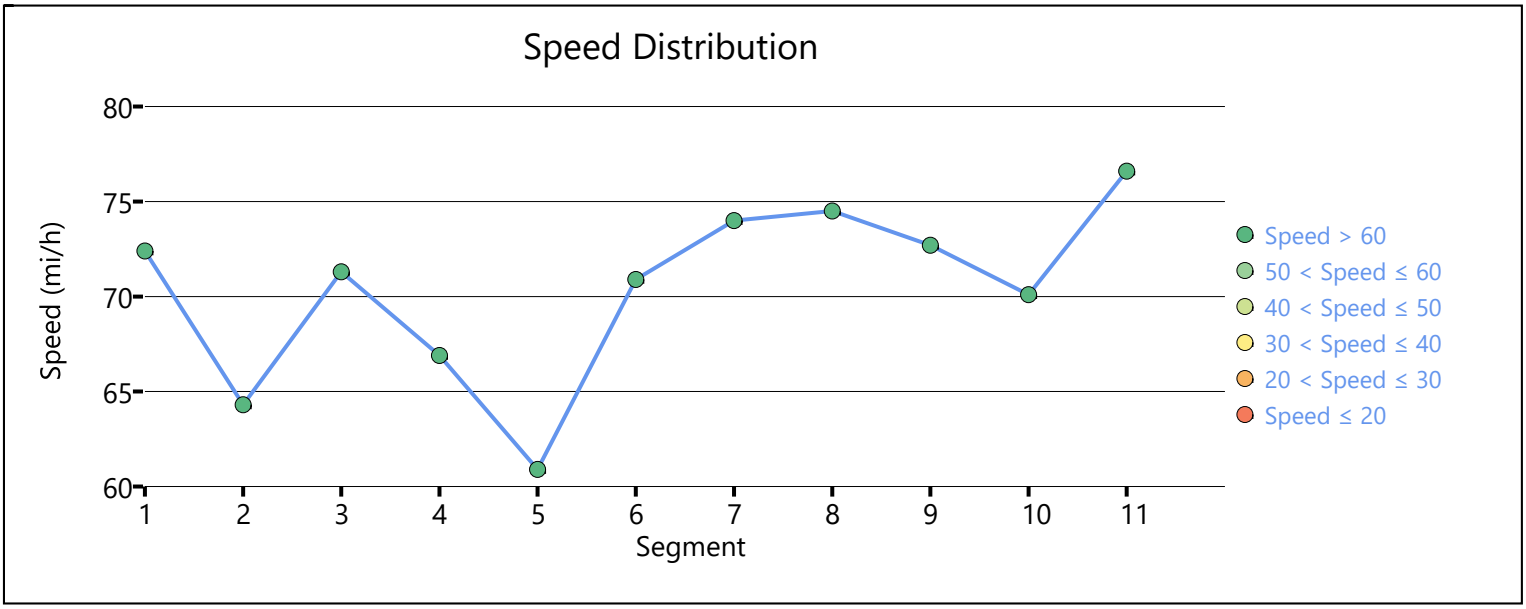
Subsegment Data

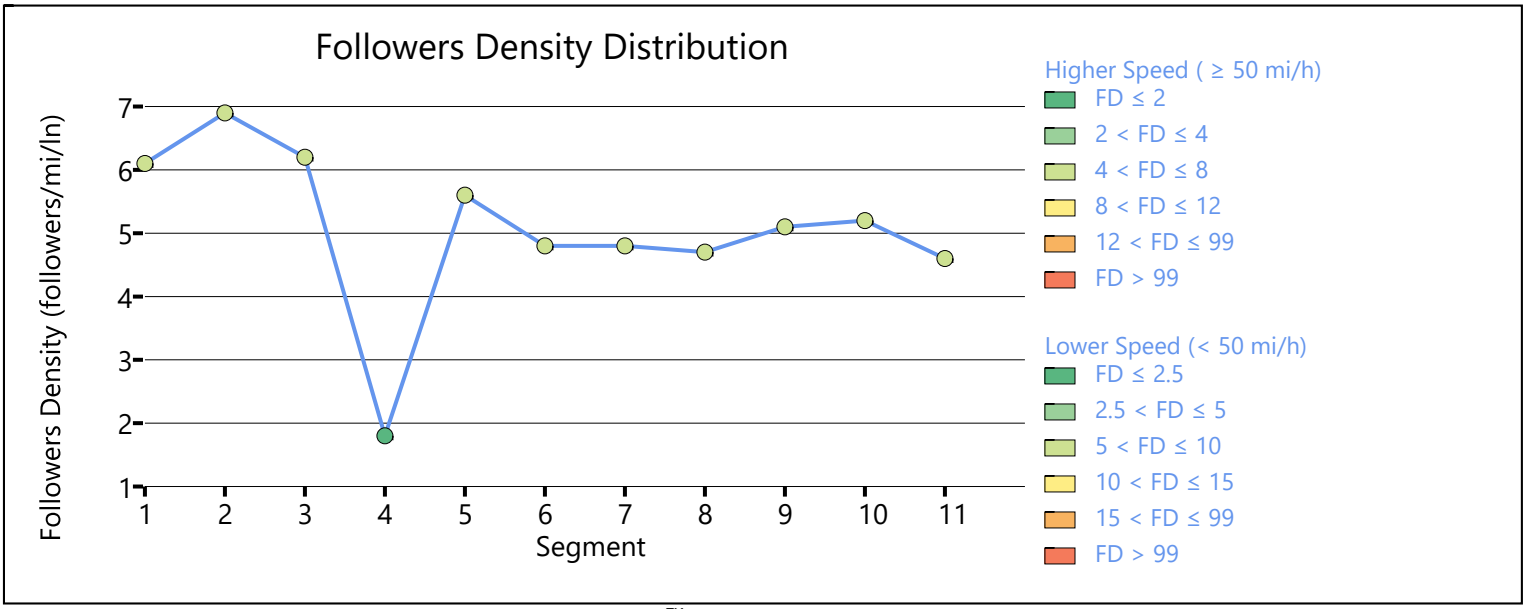
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	375	-	-	75.6

Vehicle Results			
Average Speed, mi/h	76.6	Percent Followers, %	59.0
Segment Travel Time, minutes	0.06	Adj. Follower Density, followers/mi/ln	4.6
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	569	0.83	4.9	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 4 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1896
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.8

Demand and Capacity			
Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	464
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.1
Speed Slope Coefficient (m)	10.14264	Speed Power Coefficient (p)	0.79666
PF Slope Coefficient (m)	-1.28775	PF Power Coefficient (p)	0.83348
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1896	-	-	69.4

Vehicle Results			
Average Speed, mi/h	69.4	Percent Followers, %	61.4
Segment Travel Time, minutes	0.31	Adj. Follower Density, followers/mi/ln	6.2
Vehicle LOS	C		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	3434
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.5

Demand and Capacity			
Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	73.4
Speed Slope Coefficient (m)	15.82641	Speed Power Coefficient (p)	0.68405

PF Slope Coefficient (m)	-1.56388	PF Power Coefficient (p)	0.73197
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	7.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2069	-	-	62.2
2	Horizontal Curve	1365	1146	8.0	62.2

Vehicle Results

Average Speed, mi/h	62.2	Percent Followers, %	69.9
Segment Travel Time, minutes	0.63	Adj. Follower Density, followers/mi/ln	7.8
Vehicle LOS	C		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1136
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	464
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	77.7
Speed Slope Coefficient (m)	6.56244	Speed Power Coefficient (p)	0.64436
PF Slope Coefficient (m)	-1.23594	PF Power Coefficient (p)	0.80866
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1136	-	-	73.0

Vehicle Results

Average Speed, mi/h	73.0	Percent Followers, %	60.3
Segment Travel Time, minutes	0.18	Adj. Follower Density, followers/mi/ln	5.8
Vehicle LOS	C		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	916
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	5.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results					
Segment Vertical Class	2		Free-Flow Speed, mi/h		76.1
Speed Slope Coefficient (m)	6.70303		Speed Power Coefficient (p)		0.55150
PF Slope Coefficient (m)	-1.32842		PF Power Coefficient (p)		0.75659
In Passing Lane Effective Length?	No		Follower Density, followers/mi/ln		6.2
%Improvement to Percent Followers	0.0		%Improvement to Speed		0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	916	-	-	71.1

Vehicle Results			
Average Speed, mi/h	71.1	Percent Followers, %	63.6
Segment Travel Time, minutes	0.15	Adj. Follower Density, followers/mi/ln	6.2
Vehicle LOS	C		

Segment 5

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1587
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	464
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.8
Speed Slope Coefficient (m)	9.92774	Speed Power Coefficient (p)	0.79972
PF Slope Coefficient (m)	-1.30893	PF Power Coefficient (p)	0.83157
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1587	-	-	70.2

Vehicle Results			
Average Speed, mi/h	70.2	Percent Followers, %	62.1
Segment Travel Time, minutes	0.26	Adj. Follower Density, followers/mi/ln	6.2
Vehicle LOS	C		

Segment 6

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	4718
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.2

Demand and Capacity			
Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	-

Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	73.2
Speed Slope Coefficient (m)	16.70053	Speed Power Coefficient (p)	0.65132
PF Slope Coefficient (m)	-1.60877	PF Power Coefficient (p)	0.75580
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	8.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4718	-	-	61.2

Vehicle Results			
Average Speed, mi/h	61.2	Percent Followers, %	70.6
Segment Travel Time, minutes	0.88	Adj. Follower Density, followers/mi/ln	8.0
Vehicle LOS	D		

Segment 7

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	2540
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.1
Demand and Capacity			
Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	464
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.3
Speed Slope Coefficient (m)	10.88509	Speed Power Coefficient (p)	0.80523
PF Slope Coefficient (m)	-1.25880	PF Power Coefficient (p)	0.83882
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2540	-	-	69.1

Vehicle Results			
Average Speed, mi/h	69.1	Percent Followers, %	60.5
Segment Travel Time, minutes	0.42	Adj. Follower Density, followers/mi/ln	6.1
Vehicle LOS	C		

Segment 8

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2510
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.1

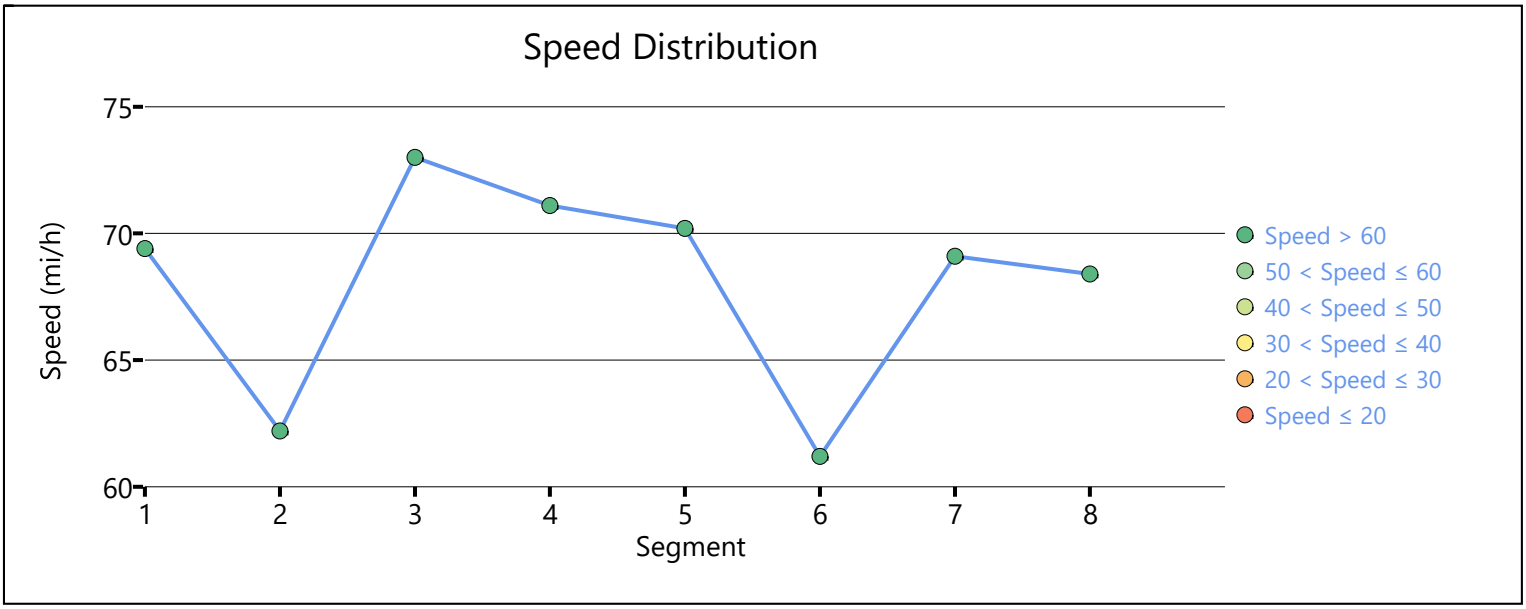
Demand and Capacity			
Directional Demand Flow Rate, veh/h	697	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

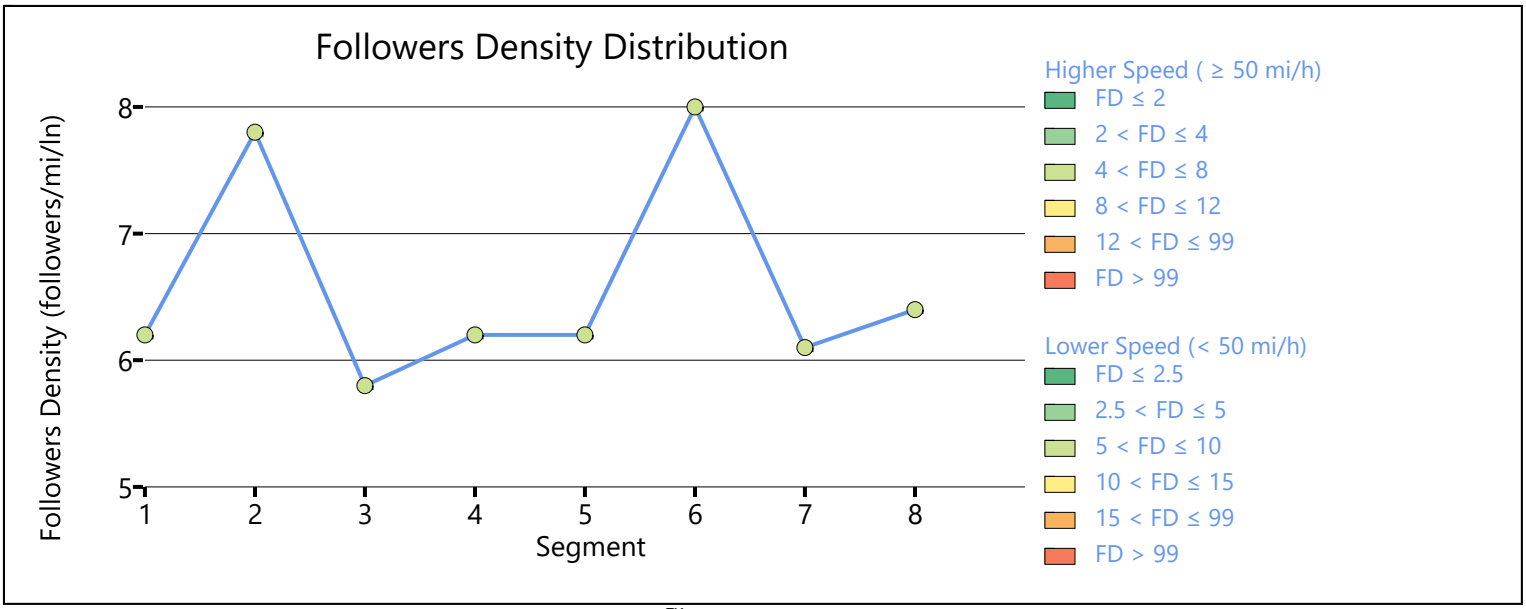
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	76.1
Speed Slope Coefficient (m)	11.43359	Speed Power Coefficient (p)	0.75461
PF Slope Coefficient (m)	-1.32838	PF Power Coefficient (p)	0.79511
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2510	-	-	68.4

Vehicle Results			
Average Speed, mi/h	68.4	Percent Followers, %	63.1
Segment Travel Time, minutes	0.42	Adj. Follower Density, followers/mi/ln	6.4
Vehicle LOS	C		

Facility Results				
T	**VMT veh-mi/AP**	**VHD veh-h/p**	**Follower Density, followers/ mi/ln**	**LOS**
1	569	1.04	6.9	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 5 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2916
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	3.6

Demand and Capacity			
Directional Demand Flow Rate, veh/h	820	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	71.0
Speed Slope Coefficient (m)	9.62969	Speed Power Coefficient (p)	0.69983
PF Slope Coefficient (m)	-1.33171	PF Power Coefficient (p)	0.78197
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	8.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1561	-	-	63.4
2	Horizontal Curve	1355	1146	8.0	63.1

Vehicle Results			
Average Speed, mi/h	63.3	Percent Followers, %	68.0
Segment Travel Time, minutes	0.52	Adj. Follower Density, followers/mi/ln	8.8
Vehicle LOS	D		

Segment 2

Vehicle Inputs			
Segment Type	Passing Lanes	Length, ft	5078
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	820	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.55

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	71.5

Speed Slope Coefficient (m)	11.35419	Speed Power Coefficient (p)	0.94841
PF Slope Coefficient (m)	-1.07320	PF Power Coefficient (p)	0.94808
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	7.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5078	-	-	63.2

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	463	356
Percentage of Heavy Vehicles (HV%), %	3.20	14.24
Initial Average Speed (Sint), mi/h	69.6	65.9
Average Speed at Midpoint (SPLmid), mi/h	71.4	64.1
Percent Followers at Midpoint (PFPLmid), %	44.0	33.5

Vehicle Results

Average Speed, mi/h	63.2	Percent Followers, %	58.9
Segment Travel Time, minutes	0.91	Adj. Follower Density, followers/mi/ln	7.6
Follower Density Mid-Point, followers/mi/ln	2.4	Vehicle LOS	B

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	20765
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	2.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	820	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	69.3
Speed Slope Coefficient (m)	18.19522	Speed Power Coefficient (p)	0.34642
PF Slope Coefficient (m)	-2.18086	PF Power Coefficient (p)	0.70939
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	13.1
%Improvement to Percent Followers	8.6	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	13917	-	-	53.0
2	Horizontal Curve	1562	1432	8.0	53.0
3	Horizontal Curve	623	1146	8.0	53.0
4	Horizontal Curve	1273	1146	8.0	53.0
5	Horizontal Curve	1402	1637	8.0	53.0
6	Horizontal Curve	371	1432	8.0	53.0

7	Horizontal Curve	445	1273	8.0	53.0
8	Horizontal Curve	1172	1273	8.0	53.0

Vehicle Results			
Average Speed, mi/h	53.0	Percent Followers, %	84.9
Segment Travel Time, minutes	4.45	Adj. Follower Density, followers/mi/ln	12.0
Vehicle LOS	E		

Segment 4

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1166
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	4.5
Demand and Capacity			
Directional Demand Flow Rate, veh/h	820	Opposing Demand Flow Rate, veh/h	546
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48
Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	71.7
Speed Slope Coefficient (m)	5.25961	Speed Power Coefficient (p)	0.59166
PF Slope Coefficient (m)	-1.30057	PF Power Coefficient (p)	0.78771
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	8.2
%Improvement to Percent Followers	8.2	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1166	-	-	67.3

Vehicle Results			
Average Speed, mi/h	67.3	Percent Followers, %	67.1
Segment Travel Time, minutes	0.20	Adj. Follower Density, followers/mi/ln	7.5
Vehicle LOS	C		

Segment 5

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	4582
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	2.3
Demand and Capacity			
Directional Demand Flow Rate, veh/h	820	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.48
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	69.4
Speed Slope Coefficient (m)	13.53717	Speed Power Coefficient (p)	0.62508
PF Slope Coefficient (m)	-1.61960	PF Power Coefficient (p)	0.75328
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	10.6

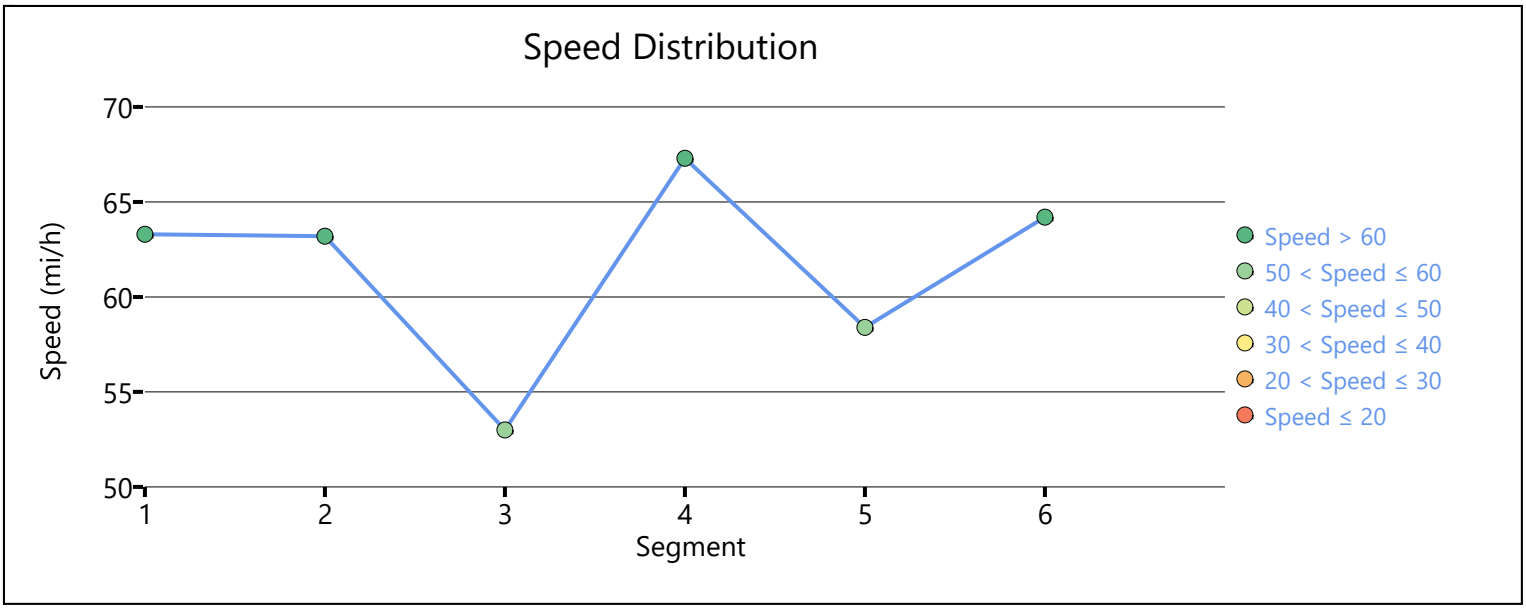
%Improvement to Percent Followers		6.8	%Improvement to Speed		0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3681	-	-	58.4
2	Horizontal Curve	901	1432	8.0	58.4
Vehicle Results					
Average Speed, mi/h		58.4	Percent Followers, %		75.2
Segment Travel Time, minutes		0.89	Adj. Follower Density, followers/mi/ln		9.8
Vehicle LOS		D			

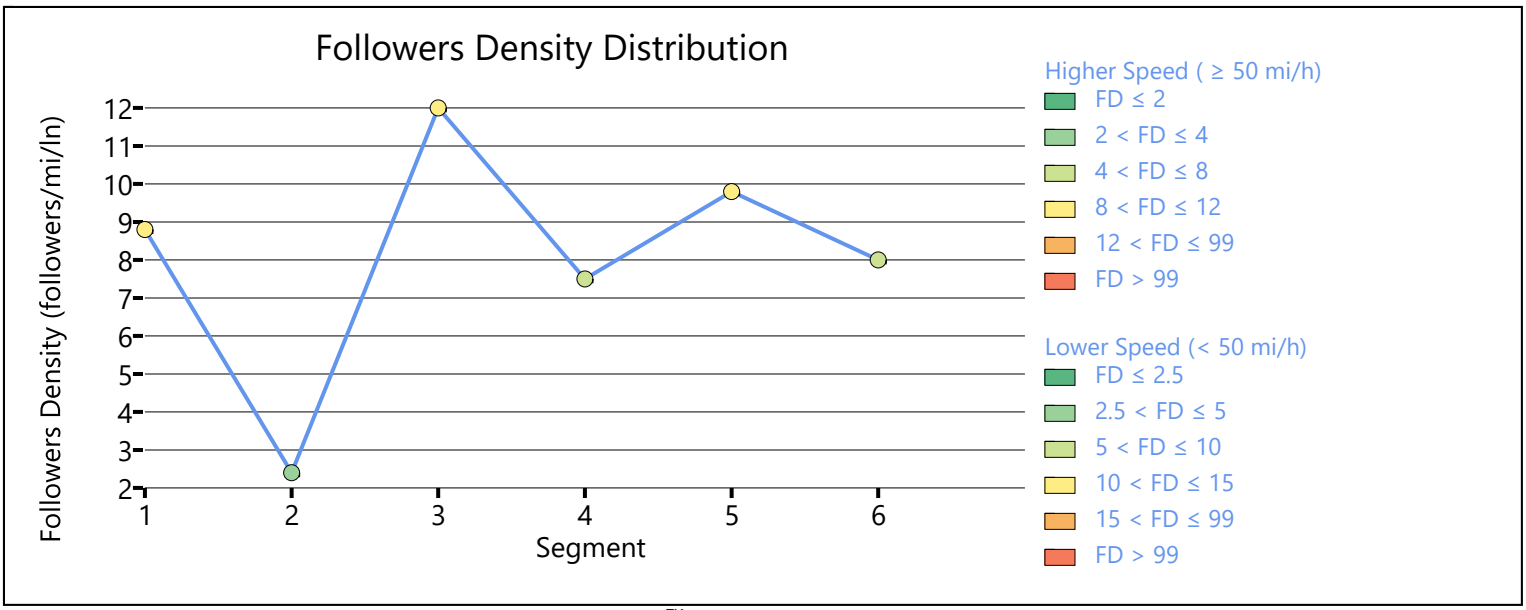
Segment 6

Vehicle Inputs					
Segment Type		Passing Zone	Length, ft		2207
Lane Width, ft		12	Shoulder Width, ft		6
Speed Limit, mi/h		65	Access Point Density, pts/mi		4.8
Demand and Capacity					
Directional Demand Flow Rate, veh/h		820	Opposing Demand Flow Rate, veh/h		546
Peak Hour Factor		0.92	Total Trucks, %		8.00
Segment Capacity, veh/h		1700	Demand/Capacity (D/C)		0.48
Intermediate Results					
Segment Vertical Class		3	Free-Flow Speed, mi/h		70.8
Speed Slope Coefficient (m)		8.44903	Speed Power Coefficient (p)		0.72655
PF Slope Coefficient (m)		-1.28740	PF Power Coefficient (p)		0.81580
In Passing Lane Effective Length?		Yes	Follower Density, followers/mi/ln		8.5
%Improvement to Percent Followers		6.2	%Improvement to Speed		0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2207	-	-	64.2
Vehicle Results					
Average Speed, mi/h		64.2	Percent Followers, %		66.5
Segment Travel Time, minutes		0.39	Adj. Follower Density, followers/mi/ln		8.0
Vehicle LOS		C			

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	1311	4.39	9.8	D





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 5 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1322
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	4.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	346
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	71.8
Speed Slope Coefficient (m)	5.17261	Speed Power Coefficient (p)	0.62877
PF Slope Coefficient (m)	-1.26588	PF Power Coefficient (p)	0.79985
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1322	-	-	68.8

Vehicle Results			
Average Speed, mi/h	68.8	Percent Followers, %	52.7
Segment Travel Time, minutes	0.22	Adj. Follower Density, followers/mi/ln	4.0
Vehicle LOS	B		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	4580
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	1.2

Demand and Capacity			
Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	69.7
Speed Slope Coefficient (m)	13.66123	Speed Power Coefficient (p)	0.62667

PF Slope Coefficient (m)	-1.61864	PF Power Coefficient (p)	0.75313
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3679	-	-	61.8
2	Horizontal Curve	901	1432	8.0	61.8

Vehicle Results

Average Speed, mi/h	61.8	Percent Followers, %	62.7
Segment Travel Time, minutes	0.84	Adj. Follower Density, followers/mi/ln	5.3
Vehicle LOS	C		

Segment 3

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	2063
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	7.7

Demand and Capacity

Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	346
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	70.1
Speed Slope Coefficient (m)	7.99298	Speed Power Coefficient (p)	0.75637
PF Slope Coefficient (m)	-1.25558	PF Power Coefficient (p)	0.82345
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	891	-	-	66.0
2	Horizontal Curve	1172	1273	8.0	63.5

Vehicle Results

Average Speed, mi/h	64.6	Percent Followers, %	51.9
Segment Travel Time, minutes	0.36	Adj. Follower Density, followers/mi/ln	4.2
Vehicle LOS	C		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	4561
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	2.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00

Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	69.4
Speed Slope Coefficient (m)	13.52238	Speed Power Coefficient (p)	0.62557
PF Slope Coefficient (m)	-1.61884	PF Power Coefficient (p)	0.75298
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	3744	-	-	61.6
2	Horizontal Curve	371	1432	8.0	61.6
3	Horizontal Curve	446	1273	8.0	61.6

Vehicle Results			
Average Speed, mi/h	61.6	Percent Followers, %	62.7
Segment Travel Time, minutes	0.84	Adj. Follower Density, followers/mi/ln	5.3
Vehicle LOS	C		

Segment 5

Vehicle Inputs			
Segment Type	Passing Lanes	Length, ft	5591
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	1.9
Demand and Capacity			
Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.35
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	71.1
Speed Slope Coefficient (m)	11.31102	Speed Power Coefficient (p)	0.97901
PF Slope Coefficient (m)	-1.05342	PF Power Coefficient (p)	0.95848
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5591	-	-	66.2

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	309	210
Percentage of Heavy Vehicles (HV%), %	3.20	15.07
Initial Average Speed (Sint), mi/h	70.6	67.3
Average Speed at Midpoint (SPLmid), mi/h	72.3	65.6
Percent Followers at Midpoint (PFPLmid), %	32.3	20.2

Vehicle Results

Average Speed, mi/h	66.2	Percent Followers, %	43.0
Segment Travel Time, minutes	0.96	Adj. Follower Density, followers/mi/ln	3.4
Follower Density Mid-Point, followers/mi/ln	1.0	Vehicle LOS	A

Segment 6

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	18492
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	65	Access Point Density, pts/mi	3.1

Demand and Capacity

Directional Demand Flow Rate, veh/h	518	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	8.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	69.1
Speed Slope Coefficient (m)	18.06055	Speed Power Coefficient (p)	0.34531
PF Slope Coefficient (m)	-2.18208	PF Power Coefficient (p)	0.70966
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	6.9
%Improvement to Percent Followers	12.0	%Improvement to Speed	0.8

Subsegment Data

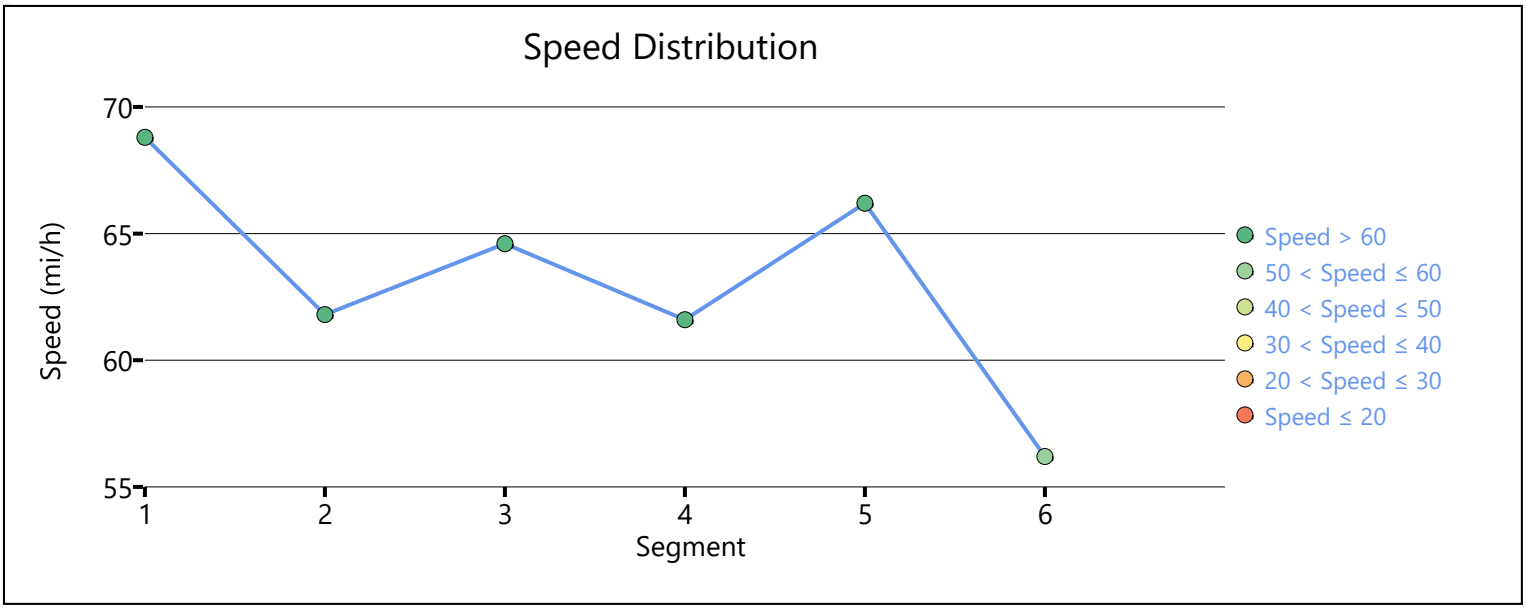
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	12277	-	-	55.7
2	Horizontal Curve	1355	1146	8.0	55.7
3	Horizontal Curve	1562	1432	8.0	55.7
4	Horizontal Curve	623	1146	0.0	55.7
5	Horizontal Curve	1273	1146	8.0	55.7
6	Horizontal Curve	1402	1637	8.0	55.7

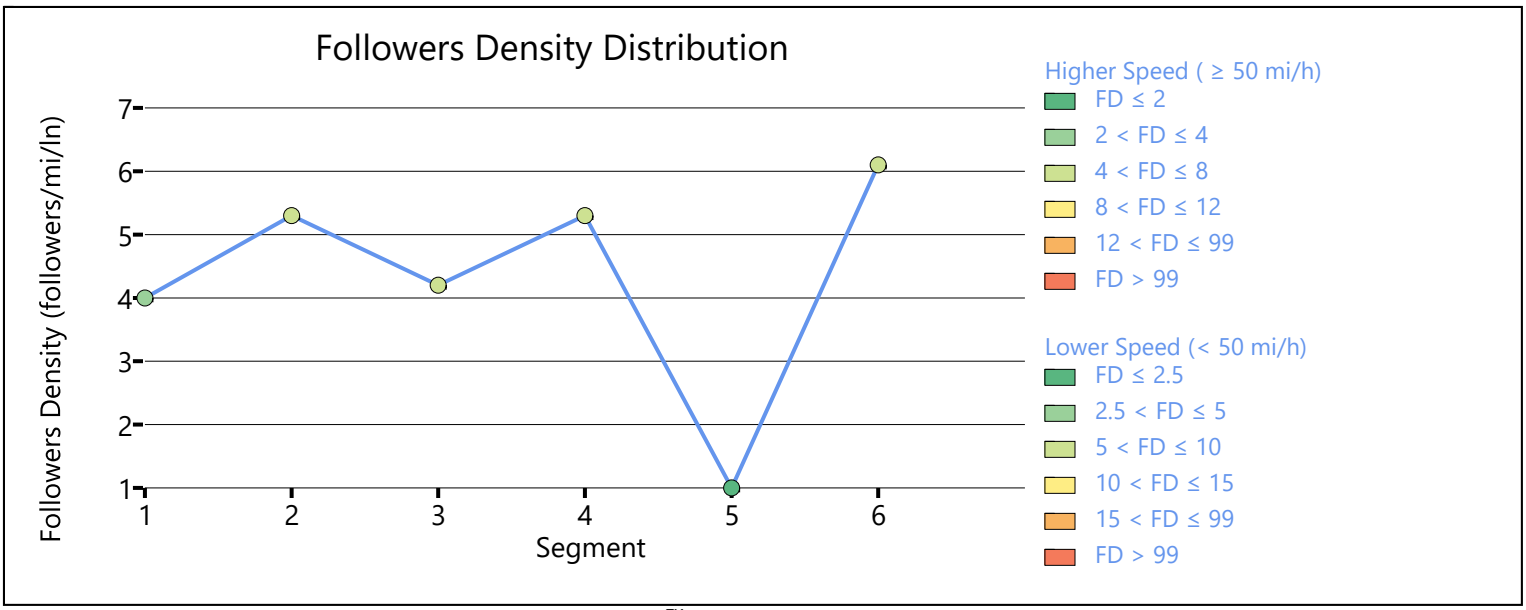
Vehicle Results

Average Speed, mi/h	56.2	Percent Followers, %	74.6
Segment Travel Time, minutes	3.74	Adj. Follower Density, followers/mi/ln	6.1
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	827	1.97	4.9	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 6 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	6061
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	1.7

Demand and Capacity			
Directional Demand Flow Rate, veh/h	705	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	71.9
Speed Slope Coefficient (m)	16.90164	Speed Power Coefficient (p)	0.61124
PF Slope Coefficient (m)	-1.66409	PF Power Coefficient (p)	0.76956
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	8.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	6061	-	-	59.4

Vehicle Results			
Average Speed, mi/h	59.4	Percent Followers, %	72.0
Segment Travel Time, minutes	1.16	Adj. Follower Density, followers/mi/ln	8.5
Vehicle LOS	D		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	1521
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	3.5

Demand and Capacity			
Directional Demand Flow Rate, veh/h	705	Opposing Demand Flow Rate, veh/h	471
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	75.4
Speed Slope Coefficient (m)	6.36048	Speed Power Coefficient (p)	0.63059

PF Slope Coefficient (m)	-1.24087	PF Power Coefficient (p)	0.80725
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1521	-	-	70.8

Vehicle Results

Average Speed, mi/h	70.8	Percent Followers, %	60.8
Segment Travel Time, minutes	0.24	Adj. Follower Density, followers/mi/ln	6.1
Vehicle LOS	C		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5169
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	705	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	71.8
Speed Slope Coefficient (m)	16.33141	Speed Power Coefficient (p)	0.63293
PF Slope Coefficient (m)	-1.62969	PF Power Coefficient (p)	0.76240
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	8.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5169	-	-	59.9

Vehicle Results

Average Speed, mi/h	59.9	Percent Followers, %	71.3
Segment Travel Time, minutes	0.98	Adj. Follower Density, followers/mi/ln	8.4
Vehicle LOS	D		

Segment 4

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1637
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	3.2

Demand and Capacity

Directional Demand Flow Rate, veh/h	705	Opposing Demand Flow Rate, veh/h	471
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	73.2
Speed Slope Coefficient (m)	9.15982	Speed Power Coefficient (p)	0.76605
PF Slope Coefficient (m)	-1.30334	PF Power Coefficient (p)	0.82312
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1637	-	-	66.9

Vehicle Results

Average Speed, mi/h	66.9	Percent Followers, %	62.4
Segment Travel Time, minutes	0.28	Adj. Follower Density, followers/mi/ln	6.6
Vehicle LOS	C		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1349
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	705	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	74.8
Speed Slope Coefficient (m)	6.50307	Speed Power Coefficient (p)	0.54359
PF Slope Coefficient (m)	-1.34040	PF Power Coefficient (p)	0.75464
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1349	-	-	69.8

Vehicle Results

Average Speed, mi/h	69.8	Percent Followers, %	64.3
Segment Travel Time, minutes	0.22	Adj. Follower Density, followers/mi/ln	6.5
Vehicle LOS	C		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	4422
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.4

Demand and Capacity

Directional Demand Flow Rate, veh/h	705	Opposing Demand Flow Rate, veh/h	471
Peak Hour Factor	0.92	Total Trucks, %	10.00

Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41
Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	71.9
Speed Slope Coefficient (m)	14.91209	Speed Power Coefficient (p)	0.75627
PF Slope Coefficient (m)	-1.37967	PF Power Coefficient (p)	0.83332
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	7.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4422	-	-	61.7

Vehicle Results			
Average Speed, mi/h	61.7	Percent Followers, %	64.4
Segment Travel Time, minutes	0.81	Adj. Follower Density, followers/mi/ln	7.4
Vehicle LOS	C		

Segment 7

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1739
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	3.0
Demand and Capacity			
Directional Demand Flow Rate, veh/h	705	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	73.1
Speed Slope Coefficient (m)	9.86214	Speed Power Coefficient (p)	0.71845
PF Slope Coefficient (m)	-1.37507	PF Power Coefficient (p)	0.78345
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

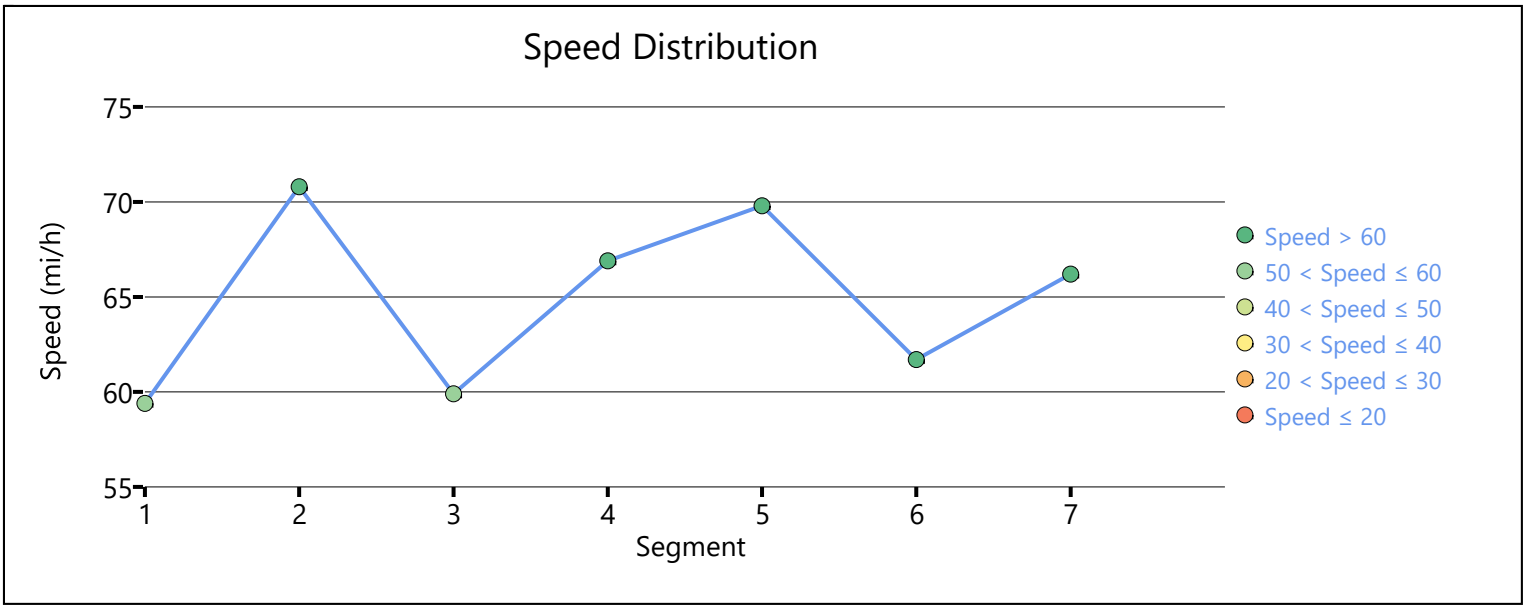
Subsegment Data

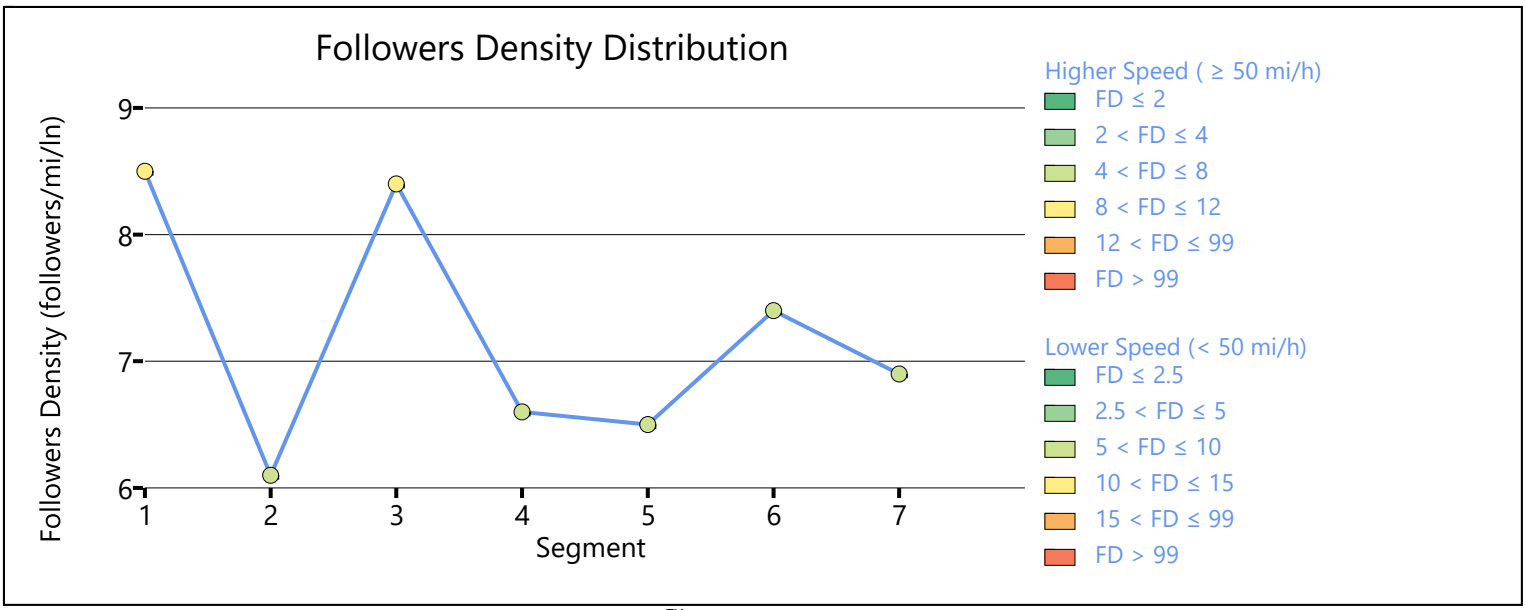
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1739	-	-	66.2

Vehicle Results			
Average Speed, mi/h	66.2	Percent Followers, %	64.9
Segment Travel Time, minutes	0.30	Adj. Follower Density, followers/mi/ln	6.9
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	673	1.51	7.7	C





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 6 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1015
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	5.2

Demand and Capacity			
Directional Demand Flow Rate, veh/h	705	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	73.5
Speed Slope Coefficient (m)	6.26358	Speed Power Coefficient (p)	0.53580
PF Slope Coefficient (m)	-1.35682	PF Power Coefficient (p)	0.75161
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1015	-	-	68.7

Vehicle Results			
Average Speed, mi/h	68.7	Percent Followers, %	64.8
Segment Travel Time, minutes	0.17	Adj. Follower Density, followers/mi/ln	6.7
Vehicle LOS	C		

Segment 2

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	4357
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	2.4

Demand and Capacity			
Directional Demand Flow Rate, veh/h	705	Opposing Demand Flow Rate, veh/h	471
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	71.9
Speed Slope Coefficient (m)	14.86467	Speed Power Coefficient (p)	0.75783

PF Slope Coefficient (m)	-1.37785	PF Power Coefficient (p)	0.83252
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	7.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4357	-	-	61.8

Vehicle Results

Average Speed, mi/h	61.8	Percent Followers, %	64.3
Segment Travel Time, minutes	0.80	Adj. Follower Density, followers/mi/ln	7.3
Vehicle LOS	C		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	1674
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	705	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results

Segment Vertical Class	3	Free-Flow Speed, mi/h	73.8
Speed Slope Coefficient (m)	9.96822	Speed Power Coefficient (p)	0.72471
PF Slope Coefficient (m)	-1.37804	PF Power Coefficient (p)	0.78451
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1674	-	-	66.9

Vehicle Results

Average Speed, mi/h	66.9	Percent Followers, %	64.9
Segment Travel Time, minutes	0.28	Adj. Follower Density, followers/mi/ln	6.8
Vehicle LOS	C		

Segment 4

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1371
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	705	Opposing Demand Flow Rate, veh/h	471
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results

Segment Vertical Class	2	Free-Flow Speed, mi/h	74.9
Speed Slope Coefficient (m)	6.14557	Speed Power Coefficient (p)	0.62689
PF Slope Coefficient (m)	-1.25652	PF Power Coefficient (p)	0.80255
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1371	-	-	70.4

Vehicle Results

Average Speed, mi/h	70.4	Percent Followers, %	61.3
Segment Travel Time, minutes	0.22	Adj. Follower Density, followers/mi/ln	6.1
Vehicle LOS	C		

Segment 5

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	12329
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.9

Demand and Capacity

Directional Demand Flow Rate, veh/h	705	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	10.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	72.0
Speed Slope Coefficient (m)	19.98891	Speed Power Coefficient (p)	0.45716
PF Slope Coefficient (m)	-1.95413	PF Power Coefficient (p)	0.74772
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	9.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	12329	-	-	56.1

Vehicle Results

Average Speed, mi/h	56.1	Percent Followers, %	77.8
Segment Travel Time, minutes	2.50	Adj. Follower Density, followers/mi/ln	9.8
Vehicle LOS	D		

Segment 6

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	1154
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	70	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	705	Opposing Demand Flow Rate, veh/h	471
Peak Hour Factor	0.92	Total Trucks, %	10.00

Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41
Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	76.3
Speed Slope Coefficient (m)	6.33426	Speed Power Coefficient (p)	0.63498
PF Slope Coefficient (m)	-1.24879	PF Power Coefficient (p)	0.80481
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	6.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

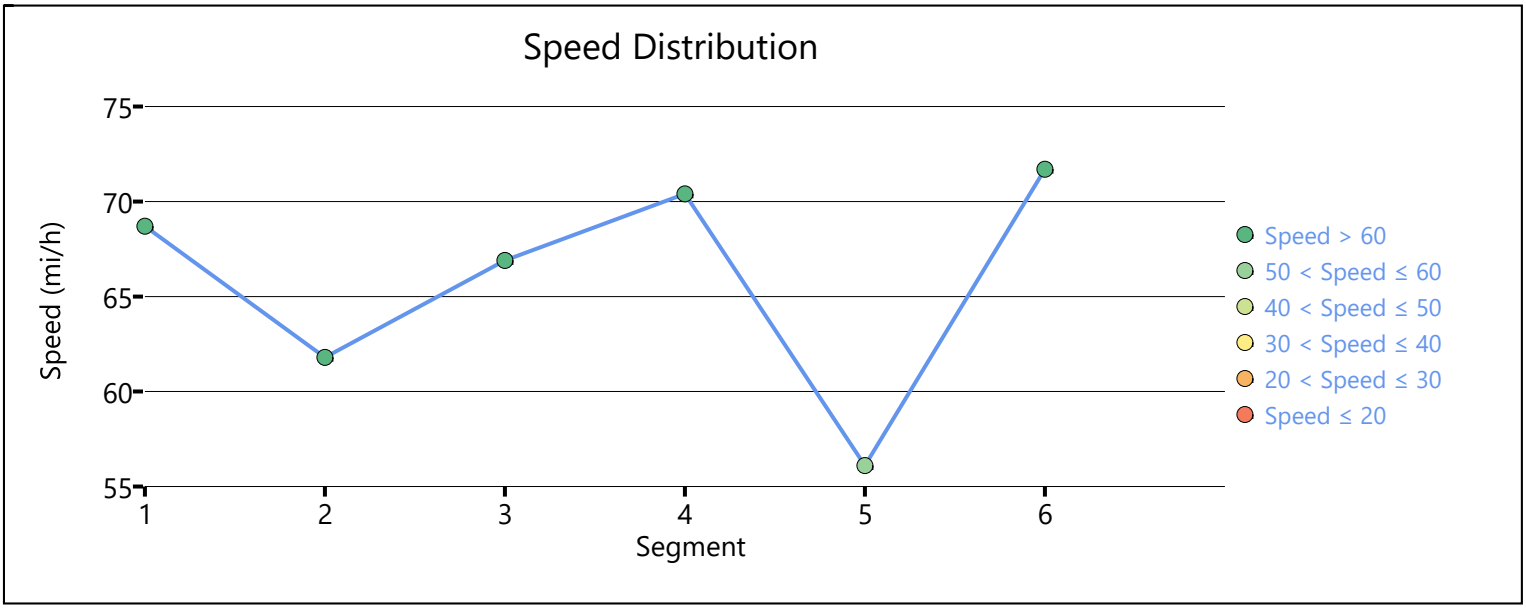
Subsegment Data

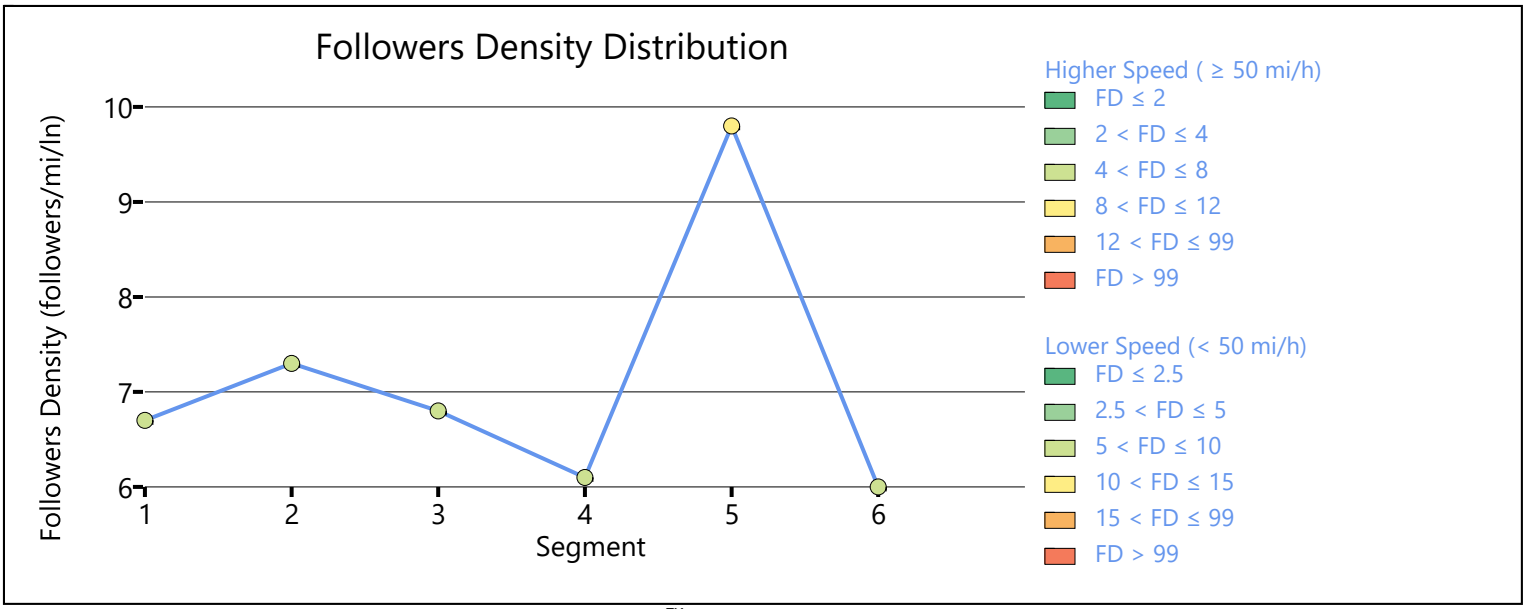
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	1154	-	-	71.7

Vehicle Results			
Average Speed, mi/h	71.7	Percent Followers, %	61.1
Segment Travel Time, minutes	0.18	Adj. Follower Density, followers/mi/ln	6.0
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	673	1.96	8.5	D





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 7 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2648
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	2.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	893	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.53

Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	58.1
Speed Slope Coefficient (m)	6.04839	Speed Power Coefficient (p)	0.57080
PF Slope Coefficient (m)	-1.39542	PF Power Coefficient (p)	0.74353
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	12.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2648	-	-	52.8

Vehicle Results			
Average Speed, mi/h	52.8	Percent Followers, %	72.3
Segment Travel Time, minutes	0.57	Adj. Follower Density, followers/mi/ln	12.2
Vehicle LOS	E		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	773
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	13.7

Demand and Capacity			
Directional Demand Flow Rate, veh/h	893	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.53

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	44.9
Speed Slope Coefficient (m)	2.93969	Speed Power Coefficient (p)	0.41674

PF Slope Coefficient (m)		-1.49635		PF Power Coefficient (p)	0.69609
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	15.9
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	773	-	-	42.2
Vehicle Results					
Average Speed, mi/h		42.2		Percent Followers, %	74.9
Segment Travel Time, minutes		0.21		Adj. Follower Density, followers/mi/ln	15.9
Vehicle LOS		E			

Segment 3

Vehicle Inputs					
Segment Type		Passing Constrained		Length, ft	2684
Lane Width, ft		12		Shoulder Width, ft	6
Speed Limit, mi/h		35		Access Point Density, pts/mi	41.3
Demand and Capacity					
Directional Demand Flow Rate, veh/h		893		Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor		0.92		Total Trucks, %	7.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.53
Intermediate Results					
Segment Vertical Class		1		Free-Flow Speed, mi/h	29.7
Speed Slope Coefficient (m)		2.13858		Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)		-1.40507		PF Power Coefficient (p)	0.64397
In Passing Lane Effective Length?		No		Follower Density, followers/mi/ln	23.5
%Improvement to Percent Followers		0.0		%Improvement to Speed	0.0
Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2684	-	-	27.7
Vehicle Results					
Average Speed, mi/h		27.7		Percent Followers, %	72.9
Segment Travel Time, minutes		1.10		Adj. Follower Density, followers/mi/ln	23.5
Vehicle LOS		E			

Segment 4

Vehicle Inputs					
Segment Type		Passing Constrained		Length, ft	1279
Lane Width, ft		12		Shoulder Width, ft	2
Speed Limit, mi/h		45		Access Point Density, pts/mi	12.4
Demand and Capacity					
Directional Demand Flow Rate, veh/h		893		Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor		0.92		Total Trucks, %	7.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)	0.53
Intermediate Results					

Segment Vertical Class	2	Free-Flow Speed, mi/h	45.2
Speed Slope Coefficient (m)	3.11550	Speed Power Coefficient (p)	0.41622
PF Slope Coefficient (m)	-1.61530	PF Power Coefficient (p)	0.68370
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	16.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

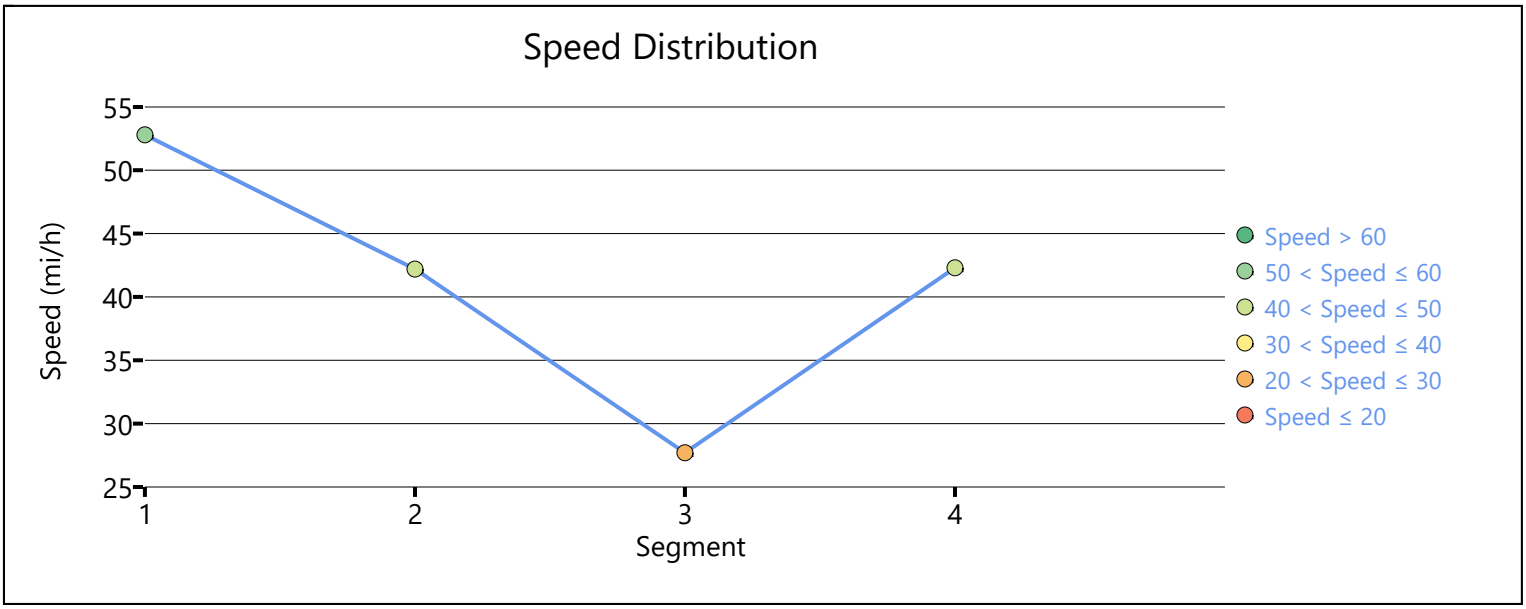
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	898	-	-	42.3
2	Horizontal Curve	381	1146	8.0	42.3

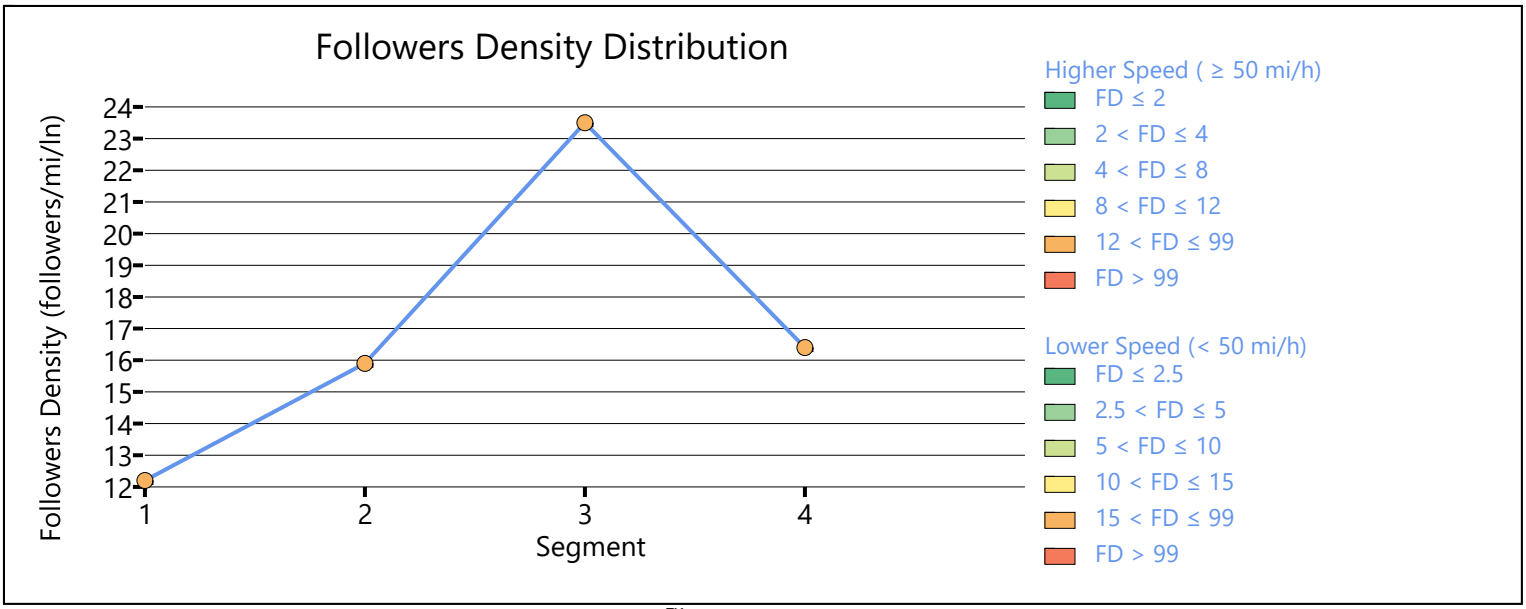
Vehicle Results

Average Speed, mi/h	42.3	Percent Followers, %	77.6
Segment Travel Time, minutes	0.34	Adj. Follower Density, followers/mi/ln	16.4
Vehicle LOS	E		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	287	0.54	17.4	E





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 7 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	1279
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	12.4

Demand and Capacity			
Directional Demand Flow Rate, veh/h	893	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	9.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.53

Intermediate Results			
Segment Vertical Class	2	Free-Flow Speed, mi/h	45.1
Speed Slope Coefficient (m)	3.11550	Speed Power Coefficient (p)	0.41622
PF Slope Coefficient (m)	-1.61329	PF Power Coefficient (p)	0.68468
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	16.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	898	-	-	42.3
2	Horizontal Curve	381	1146	8.0	42.3

Vehicle Results			
Average Speed, mi/h	42.3	Percent Followers, %	77.5
Segment Travel Time, minutes	0.34	Adj. Follower Density, followers/mi/ln	16.4
Vehicle LOS	E		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	2684
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	35	Access Point Density, pts/mi	41.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	893	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	9.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.53

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	29.6

Speed Slope Coefficient (m)	2.13497	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.40431	PF Power Coefficient (p)	0.64388
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	23.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2684	-	-	27.7

Vehicle Results

Average Speed, mi/h	27.7	Percent Followers, %	72.9
Segment Travel Time, minutes	1.10	Adj. Follower Density, followers/mi/ln	23.5
Vehicle LOS	E		

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	773
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	13.7

Demand and Capacity

Directional Demand Flow Rate, veh/h	893	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	9.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.53

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	44.8
Speed Slope Coefficient (m)	2.93608	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.49628	PF Power Coefficient (p)	0.69613
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	15.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	773	-	-	42.1

Vehicle Results

Average Speed, mi/h	42.1	Percent Followers, %	74.9
Segment Travel Time, minutes	0.21	Adj. Follower Density, followers/mi/ln	15.9
Vehicle LOS	E		

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	2648
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	2.0

Demand and Capacity

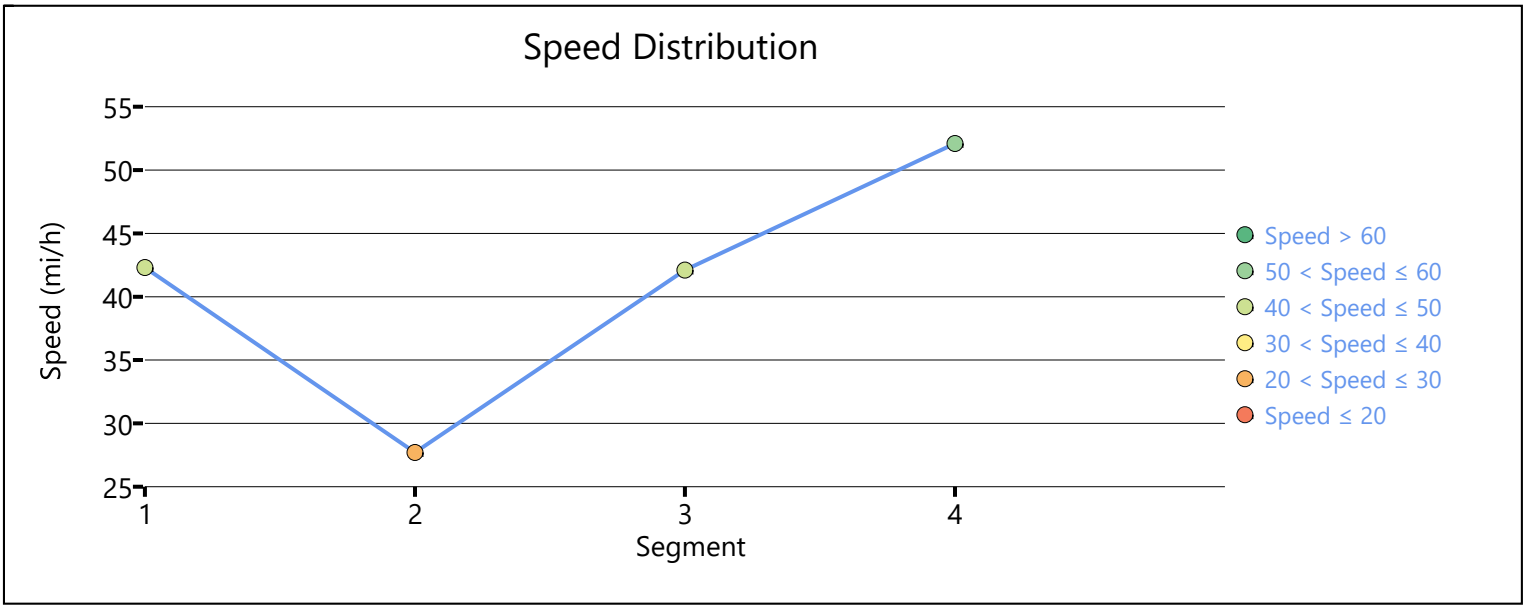
Directional Demand Flow Rate, veh/h	893	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	9.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.53

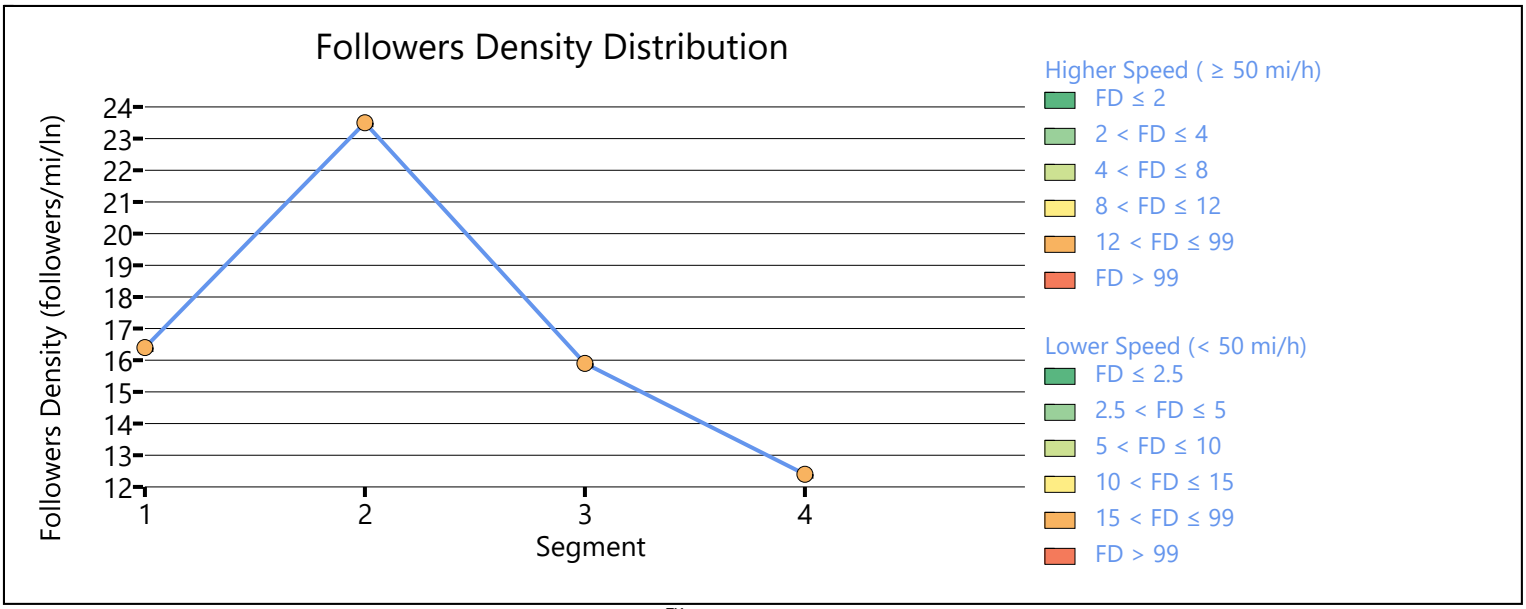
Intermediate Results			
Segment Vertical Class	3	Free-Flow Speed, mi/h	57.7
Speed Slope Coefficient (m)	6.39145	Speed Power Coefficient (p)	0.58152
PF Slope Coefficient (m)	-1.39236	PF Power Coefficient (p)	0.74520
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	12.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	2648	-	-	52.1

Vehicle Results			
Average Speed, mi/h	52.1	Percent Followers, %	72.2
Segment Travel Time, minutes	0.58	Adj. Follower Density, followers/mi/ln	12.4
Vehicle LOS	E		

Facility Results				
T	**VMT veh-mi/AP**	**VHD veh-h/p**	**Follower Density, followers/ mi/ln**	**LOS**
1	287	0.55	17.5	E





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 8 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	17650
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.6

Demand and Capacity			
Directional Demand Flow Rate, veh/h	1080	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.64

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	55.8
Speed Slope Coefficient (m)	9.11733	Speed Power Coefficient (p)	0.33950
PF Slope Coefficient (m)	-2.25828	PF Power Coefficient (p)	0.70609
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	21.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	15154	-	-	46.8
2	Horizontal Curve	794	1273	8.0	46.8
3	Horizontal Curve	618	1500	8.0	46.8
4	Horizontal Curve	1084	1146	8.0	46.8

Vehicle Results			
Average Speed, mi/h	46.8	Percent Followers, %	90.8
Segment Travel Time, minutes	4.29	Adj. Follower Density, followers/mi/ln	21.0
Vehicle LOS	E		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	831	2.88	21.0	E

Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 8 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	17650
Lane Width, ft	12	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.6

Demand and Capacity			
Directional Demand Flow Rate, veh/h	1080	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	7.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.64

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	55.8
Speed Slope Coefficient (m)	9.11733	Speed Power Coefficient (p)	0.33950
PF Slope Coefficient (m)	-2.25828	PF Power Coefficient (p)	0.70609
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	21.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	15154	-	-	46.8
2	Horizontal Curve	794	1273	8.0	46.8
3	Horizontal Curve	618	1500	8.0	46.8
4	Horizontal Curve	1084	1146	8.0	46.8

Vehicle Results			
Average Speed, mi/h	46.8	Percent Followers, %	90.8
Segment Travel Time, minutes	4.29	Adj. Follower Density, followers/mi/ln	21.0
Vehicle LOS	E		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	831	2.88	21.0	E

Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forysthe - RPA	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers - Section 9 - NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	8096
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	7.2

Demand and Capacity			
Directional Demand Flow Rate, veh/h	1454	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.86

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	47.3
Speed Slope Coefficient (m)	3.50056	Speed Power Coefficient (p)	0.39979
PF Slope Coefficient (m)	-1.84701	PF Power Coefficient (p)	0.73026
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	30.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5839	-	-	43.4
2	Horizontal Curve	1333	809	8.0	43.4
3	Horizontal Curve	924	1146	8.0	43.4

Vehicle Results			
Average Speed, mi/h	43.4	Percent Followers, %	91.2
Segment Travel Time, minutes	2.12	Adj. Follower Density, followers/mi/ln	30.6
Vehicle LOS	E		

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	4241
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	3.7

Demand and Capacity			
Directional Demand Flow Rate, veh/h	1454	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.86

Intermediate Results

Segment Vertical Class	4	Free-Flow Speed, mi/h	60.1
Speed Slope Coefficient (m)	7.89319	Speed Power Coefficient (p)	0.56316
PF Slope Coefficient (m)	-1.64184	PF Power Coefficient (p)	0.73879
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	25.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

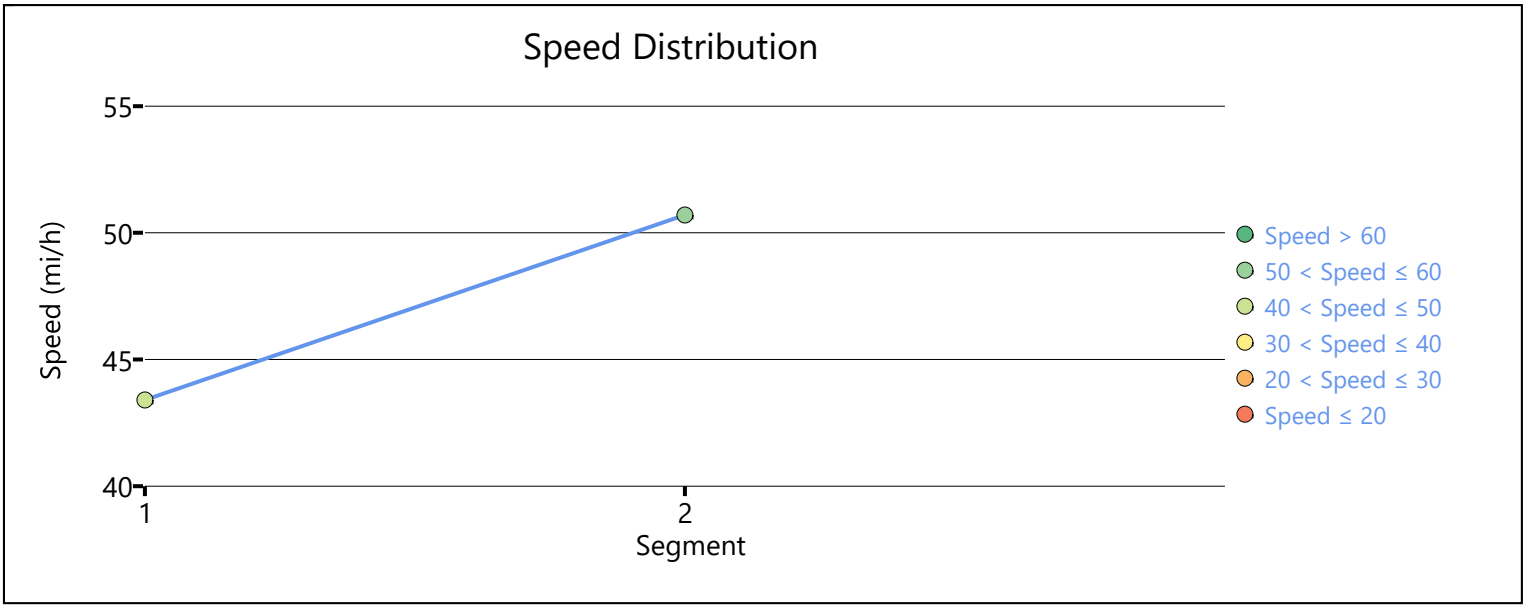
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4241	-	-	50.7

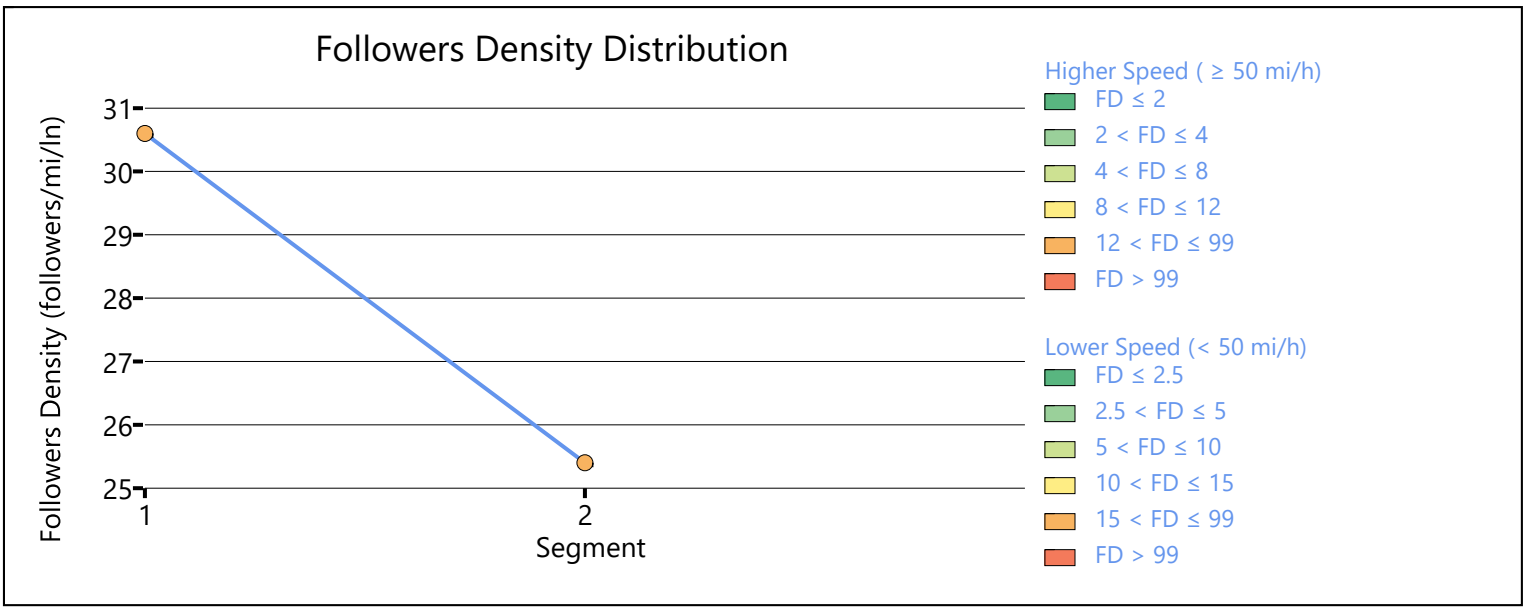
Vehicle Results

Average Speed, mi/h	50.7	Percent Followers, %	88.5
Segment Travel Time, minutes	0.95	Adj. Follower Density, followers/mi/ln	25.4
Vehicle LOS	E		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	782	1.81	28.8	E





Copyright © 2024 University of Florida. All Rights Reserved.

HCS Two-Lane Highway Report

Project Information			
Analyst	Shane Forsythe	Date	7/18/2024
Agency	MDT	Analysis Year	2045
Jurisdiction	Lake/Flathead County	Time Analyzed	Projected Peak
Project Description	Polson to Somers Corridor Study - Section 9 - SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Lanes	Length, ft	4241
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	3.7

Demand and Capacity			
Directional Demand Flow Rate, veh/h	1454	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1500	Demand/Capacity (D/C)	0.97

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	60.7
Speed Slope Coefficient (m)	6.20317	Speed Power Coefficient (p)	0.96920
PF Slope Coefficient (m)	-1.09839	PF Power Coefficient (p)	0.85920
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	21.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	4241	-	-	52.4

Passing Lane Results

	Faster Lane	Slower Lane
Flow Rate, veh/h	777	677
Percentage of Heavy Vehicles (HV%), %	2.00	8.44
Initial Average Speed (Sint), mi/h	57.8	55.7
Average Speed at Midpoint (SPLmid), mi/h	59.7	53.9
Percent Followers at Midpoint (PFPLmid), %	60.9	52.1

Vehicle Results			
Average Speed, mi/h	52.4	Percent Followers, %	78.0
Segment Travel Time, minutes	0.92	Adj. Follower Density, followers/mi/ln	21.7
Follower Density Mid-Point, followers/mi/ln	7.2	Vehicle LOS	C

Segment 2

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	8096
Lane Width, ft	12	Shoulder Width, ft	4
Speed Limit, mi/h	45	Access Point Density, pts/mi	7.2

Demand and Capacity			
Directional Demand Flow Rate, veh/h	1454	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.92	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.86

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	47.3
Speed Slope Coefficient (m)	3.50056	Speed Power Coefficient (p)	0.39980
PF Slope Coefficient (m)	-1.84699	PF Power Coefficient (p)	0.73026
In Passing Lane Effective Length?	Yes	Follower Density, followers/mi/ln	30.6
%Improvement to Percent Followers	9.1	%Improvement to Speed	0.0

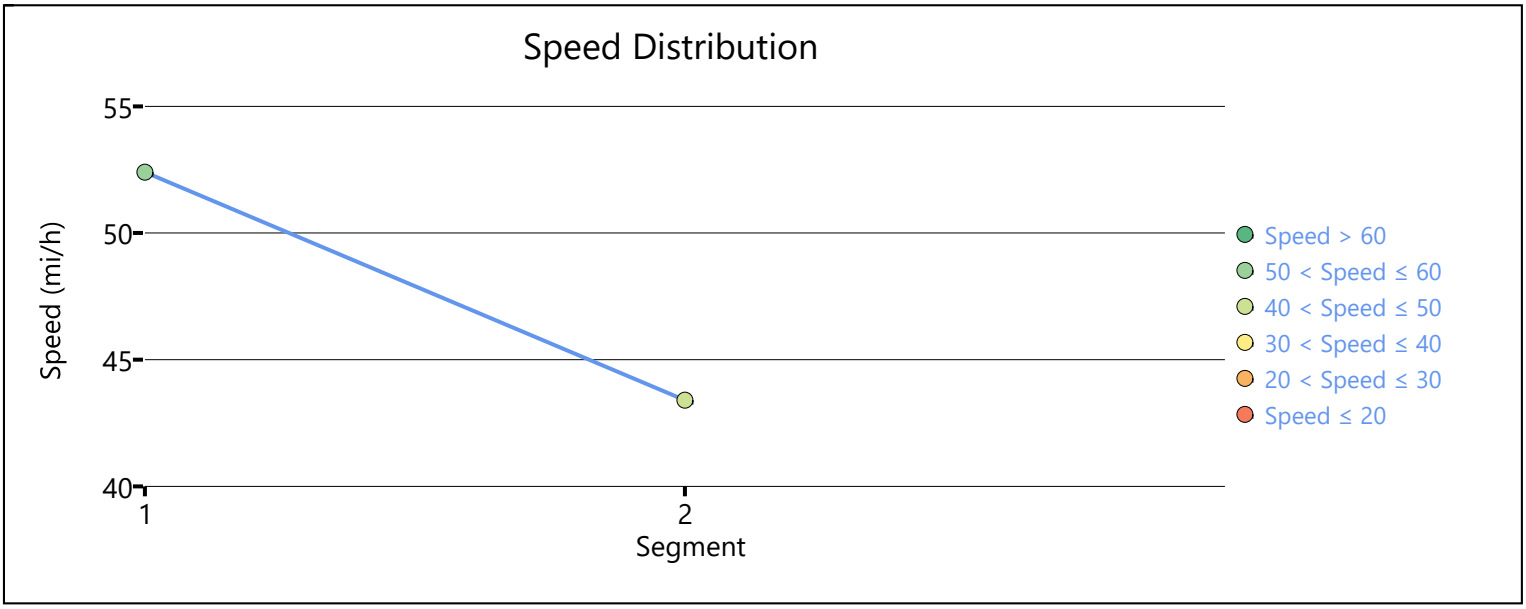
Subsegment Data

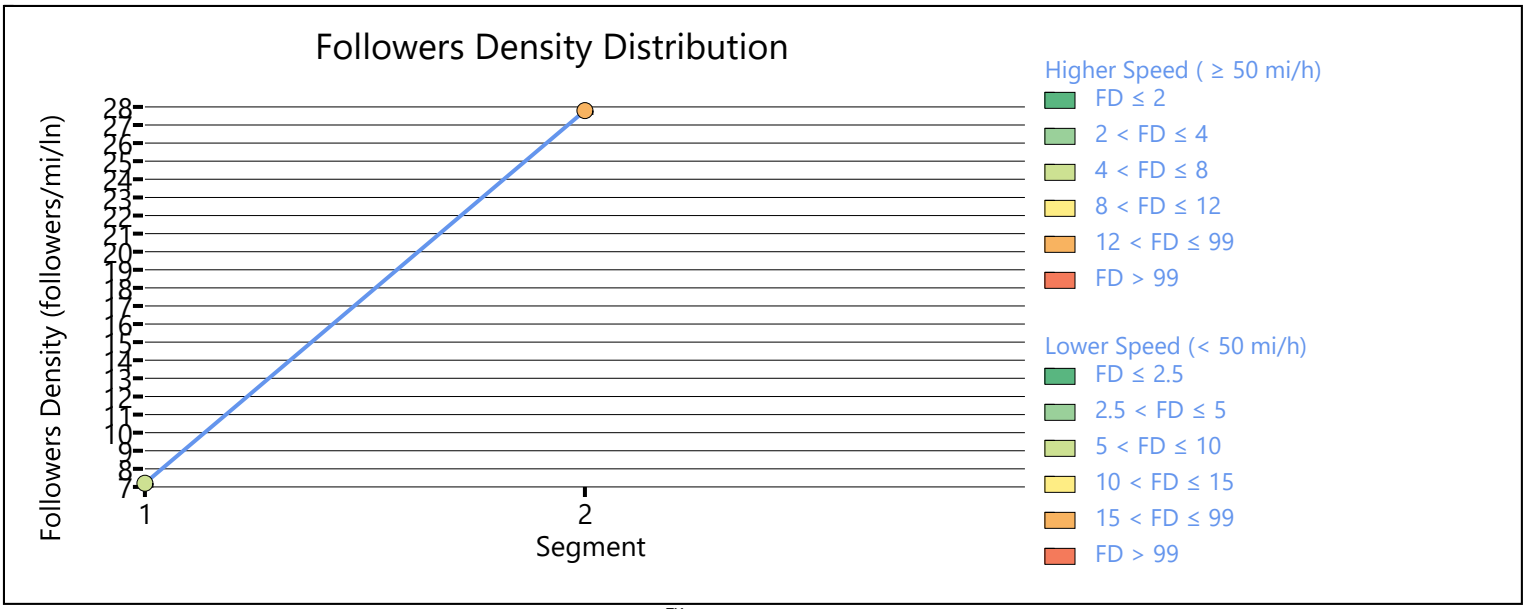
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5839	-	-	43.4
2	Horizontal Curve	1333	809	8.0	43.4
3	Horizontal Curve	924	1146	8.0	43.4

Vehicle Results			
Average Speed, mi/h	43.4	Percent Followers, %	91.2
Segment Travel Time, minutes	2.12	Adj. Follower Density, followers/mi/ln	27.8
Vehicle LOS	E		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	782	1.69	20.7	E





Copyright © 2024 University of Florida. All Rights Reserved.