

Central Montana Transportation Study

Access Management Plan

Great Falls - 57th St (RP 7.5-8.4) and US 87/89 (RP 87.4-90.4)



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DRAFT



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1.0 INTRODUCTION

The *Central Montana Transportation Study* aims to develop a comprehensive long-term transportation management plan in response to potential impacts from anticipated development and military activities. Through a collaborative process with MDT, FHWA, the military, local jurisdictions, resource agencies, and the public, the plan will identify transportation needs and solutions. Adhering to the *Montana Business Process to Link Planning Studies and NEPA/MEPA Reviews*, the study will include an environmental scan, existing and projected conditions evaluation, needs assessments, short-, mid-, and long-term recommendations for transportation improvements, a prioritized implementation plan, and extensive military, agency, and public engagement.

This *Access Management Plan* was developed to address congestion, capacity, and safety concerns as a component of the overall study. The plan will guide the management of access points and spacing along the following routes in Great Falls, Montana (see **Figure 1** for vicinity map):

- 57th St S: 2nd Ave North to US Highway 87/89 (RP 7.5 to RP 8.4)
- US Highway 87/89: 57th St South to Secondary 227/228 (RP 87.4 to RP 90.4)

MDT, along with the City of Great Falls and Cascade County partners, created this plan to guide public agencies, landowners, and developers in land use and access planning when development, redevelopment, or construction projects occur. Planned facility improvement or private subdivision projects may partially implement access management recommendations as applicable to the individual project; however, there are no associated programmed construction projects with the sole purpose of implementing the modifications recommended by this plan. This planning-level document does not determine or define legal access to parcels and is only intended as a guide for future development.

Both 57th St S and US-87/89 are classified as principal arterials in the National Highway System as authorized in CFR 470.107(b). MDT defines principal arterials as roadways providing the highest level of mobility, at the highest speed, for long uninterrupted travel. Urban principal arterials serve major metropolitan centers, corridors with the highest traffic volume, and those with the longest trip lengths¹. As such, the primary purpose of an arterial is the movement of through traffic. Access management effectively maintains the function and character of arterials by **facilitating the flow of traffic by preserving function and mobility, improving safety, and managing existing and future access in a consistent manner**. The access control guidelines describe methods such as eliminating or consolidating accesses, reducing curb cut openings or limiting travel movements to and from properties, adding turn lanes, implementing turning restrictions, and adding additional traffic control measures. This plan outlines access management needs and objectives, summarizes short-, mid-, and long-term impacts, and provides corresponding access management recommendations. The plan recommendations align with MDT's access control guidelines. Analysis of crash data, traffic patterns, and existing and future land use used in development of the guidelines and plan are included herein.

¹ Montana Department of Transportation; *A Guide to Functional Classification, Highway Systems and Other Route Designations in Montana*, Updated March 2017, <https://www.mdt.mt.gov/publications/docs/manuals/route-designations.pdf>

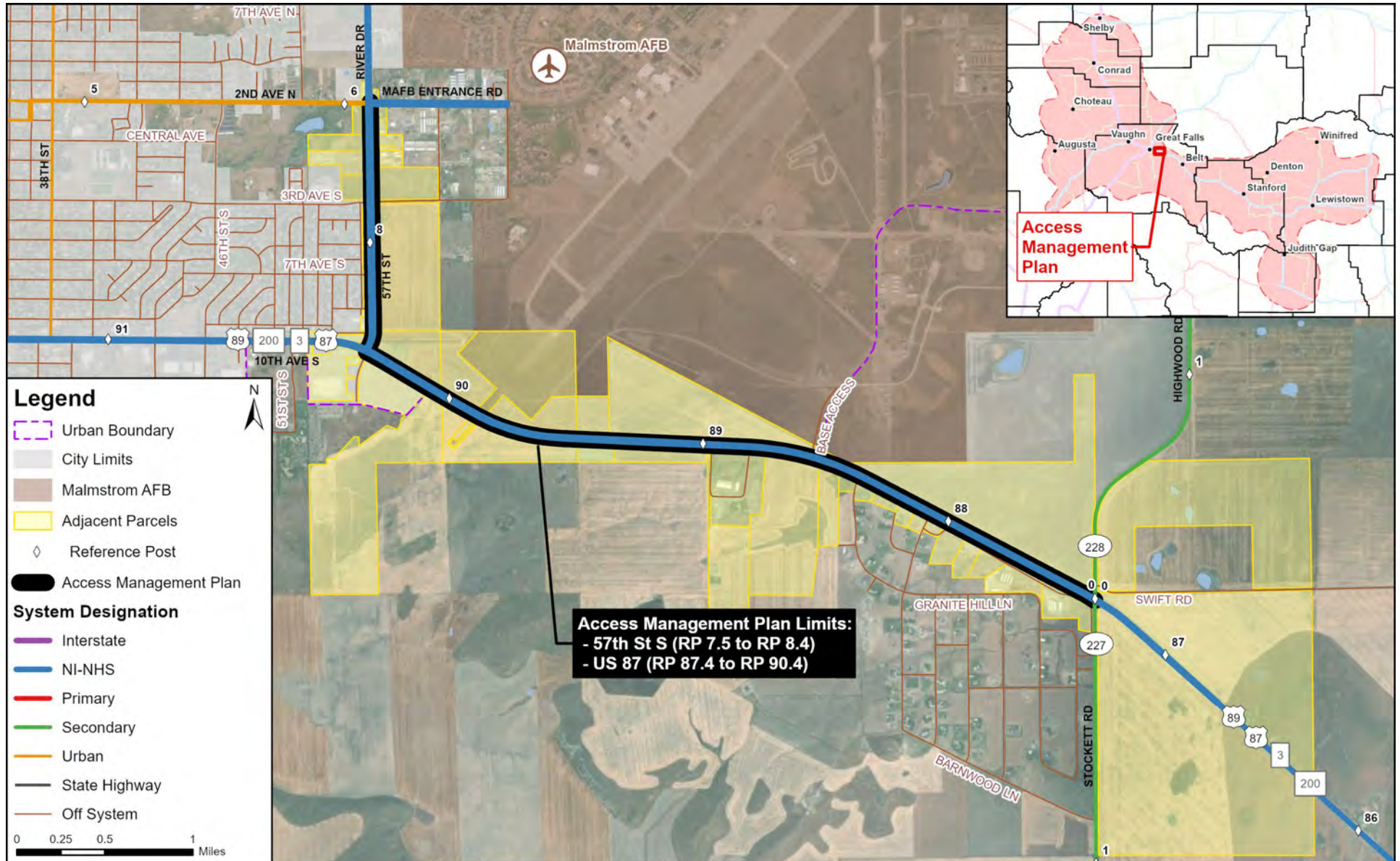


Figure 1: Access Management Plan Study Area



2.0 PLAN GUIDELINES

Access management is the coordinated planning, regulation, and design of access between roadways and land development. An effective access management program can reduce crashes by 50 percent, increase roadway capacity by 23 to 45 percent, and reduce travel time and delay by 40 to 60 percent.² Access management also can have an overall positive economic impact on businesses in access-controlled corridors. The purpose, therefore, of this *Access Management Plan* is to provide for and manage access to land development, while preserving the flow of traffic in terms of safety, capacity, and speed. The guidelines recognize both the right of reasonable access to private property and the right of users to safe and efficient travel.

2.1 Authority

In Montana, those authorities of the state, counties, and municipalities authorized to participate in construction and maintenance of highways may plan, designate, establish, regulate, vacate, alter, improve, maintain, and provide controlled-access facilities for public use. Each authority shall by resolution make the findings and determinations provided for in Montana Code Annotated (MCA)³ 60-5-103 in order to designate a highway as a controlled-access facility. *[MCA 60-5-104(1)]*

Each authority shall, by resolution, follow the findings and determinations of the MCA to designate a highway as a controlled-access facility. The MCA states “A portion of any interstate highway, throughway or throughway intersection, or other commission-designated highway system or state highway may not be designated as a controlled-access highway unless the commission adopts a resolution so designating it.” *[MCA 60-5-103(1)]*

Each highway authority may so design any controlled-access facility and so regulate, restrict, or prohibit access as to best serve the traffic for which the facility is intended. In so doing, it may divide and separate any controlled-access facility into separate roadways by the construction of raised curbs, central dividing sections, or other physical separations or by designating the separate roadways by signs, markers, stripes, and other devices. *[MCA 60-5-105(1)]*

Upon completion of these Guidelines and the Access Management Plan, MDT shall submit an Access Control Resolution to the Transportation Commission for their approval. The resolution must contain a statement of the reasons for its adoption and set forth the location, distance, and termini of the portion of the highway designated as a controlled-access highway. *[MCA 60-5-103(2)]*

Once approved, the resolution will be recorded in the office of the Clerk and Recorder of Cascade County.

² Transportation Research Board; *Access Management Manual*, 2nd Edition; 2014, <https://www.trb.org/Publications/AMM14.aspx>

³ Montana Code Annotated, 2023 Edition, <https://leg.mt.gov/bills/mca/index.html>



2.2 Police Power

The following is MDT's position for police power for controlling access within this corridor:

Frontage property owners have some right of reasonable access to a public highway and highway users have a right of safety and freedom of movement. The Department must consider the needs and rights of both the property owner and the highway user. When the needs of the individual property owner and the public highway user conflict, the needs of the highway user control.⁴ Highway access is a property right that is subject to the state's police power. Access Control is considered a governmental police power; therefore, it is not considered a "taking" or a property owner right that requires just compensation to the landowner.⁵

It is the intent of the Access Management Plan to provide reasonable access to all properties adjacent to the subject roadways. The plan defines specific access locations and modifications consistent with the guidelines, goals, and objectives. Ultimately, "reasonable" access must be provided to all existing properties/parcels. "Reasonable" access may be from a frontage road or side street, not directly from the subject roadways. If, as a result of a construction project, reasonable access cannot be provided to a specific parcel, compensation will be made available to the parcel owner.

2.3 Access Management Principles & Terms

Access management is an important means of maintaining the mobility of a roadway by limiting the number of access points along a corridor that interrupt traffic flow. A conflict point occurs when the path of a vehicle intersects with the path of another vehicle, pedestrian, or bicycle. The guidelines and recommendations set forth in this document are based on the following strategies related to the elimination or improvement of conflict points:

- Limit the number of conflict points
- Separate conflict areas
- Reduce interference with through traffic
- Provide sufficient spacing between at-grade intersections
- Reduce conflicting volumes
- Improve roadway operations
- Improve driveway operations

⁴ Montana Department of Transportation; *Approach Manual for Landowners and Developers*; December 2013;
<https://www.mdt.mt.gov/publications/docs/manuals/approach-manual.pdf>

⁵ Montana Department of Transportation; *Right of Way Operations Manual* 4-5.15; August 2024;
https://www.mdt.mt.gov/other/webdata/external/ROW/manual/chapter_4.pdf



The following words are used to describe specific conditions and in order to clarify their meanings, the following definitions apply:⁶

- Shall: A mandatory condition. Where certain requirements in the design or application of the device are described with the “shall” stipulation, it is mandatory when an installation is made that these requirements be met.
- Should: An advisory condition. Where the word “should” is used, it is considered to be advisable usage, recommended but not mandatory.
- May: A permissive condition. No requirement for design or application is intended.

Highway/roadway categories should be considered when establishing the level of access for a highway segment based on the intended function of that segment:

- Rural: These areas will continue to be primarily undeveloped and will exhibit principally an agricultural or natural character. Typically, parcels of land are relatively large and primarily vacant, accesses are infrequent, and the public road system is widely spaced.
- Intermediate: These areas are typically located on the fringe of a community or development activity centers. They usually represent somewhat less dense development patterns, larger parcels, and local street/road systems at less frequent spacing.
- Developed: These are highly developed areas, typically through communities, which have historically and traditionally relied on the highway for access. These areas are typified by smaller lots with independent access to the highway and by the public street intersections as city block spacing. These areas require a higher degree of access.

Within the *Access Management Plan*, approved accesses will be classified according to their existing land use, level of use, and associated traffic volumes as defined by the current edition of the *Institute of Transportation Engineers Trip Generation Manual*⁷ as:

- Field: An approach used for access to and/or from agricultural or vacant lands and for no other purpose.
- Private: An approach used for access to and/or from commercial, agricultural, industrial, or residential property based on the use of the property served.
- Public: An entrance to and/or from a highway, street, road, alley, or other dedicated right-of-way that the appropriate jurisdiction has acknowledged authority over.

The following additional access conditions apply:

- Shared: An access point that provides highway access for a frontage road, serving multiple properties or parcels through a common connection to the highway.
- Joint-Use: An approach shared by two adjacent property owners for access to and/or from the highway.⁸

⁶ Montana Department of Transportation; *Approach Manual for Landowners and Developers*; December 2013;

<https://www.mdt.mt.gov/publications/docs/manuals/approach-manual.pdf>

⁷ Institute of Transportation Engineers, *Trip Generation Manual*, <https://www.ite.org/technical-resources/topics/trip-and-parking-generation/#TripGen11>

⁸ Montana Department of Transportation, *Approach Manual for Landowners and Developers*, December 2013,

<https://www.mdt.mt.gov/publications/docs/manuals/approach-manual.pdf>



2.3.1 Existing Access

Existing accesses become subject to this plan when land use changes, with development or redevelopment of a parcel, when access change is initiated by the landowner, or through right-of-way negotiations for development of capital improvement projects. The aim of these guidelines is to ensure “reasonable” access to all existing properties and parcels. Significant efforts should be made to reduce the number of access points and increase the spacing between accesses when development/redevelopment occurs. By reducing and separating access points, safety and roadway operations will be enhanced. The following guidelines shall apply to existing accesses:

- Existing accesses should be eliminated if reasonable alternative access to other state highways, county roads, city streets or other public roads is available or can be provided. “Reasonable” does not mean direct access to the subject roadways.
- Only one access to 57th St S or US-87/89 shall be allowed for each parcel/property that has no other reasonable access available, unless one or both of the following conditions apply:
 - o Multiple access points are vital to the current operation of the property. This condition may require the development of a traffic study and shall be considered on a case-by-case basis.
 - o Additional access provides a significant benefit to the safe operation of the highway. This condition may require the development of a traffic study and shall be considered on a case-by-case basis.
- Whenever feasible and reasonable:
 - o Existing accesses to adjacent properties should be combined into a single, shared access.
 - o Existing accesses should be relocated to meet the minimum spacing criteria set forth in these guidelines.
 - o Existing accesses should be relocated to align with accesses directly opposite, especially in the case of high-volume commercial use.
 - o Existing accesses should be brought into compliance with MDT and local agency approach standards, with local agency coordination and/or approval, as appropriate.

2.3.2 New Access

Any request for new access will be evaluated on its own merit and will be subject to the same criteria as outlined in the existing access guidelines herein. New accesses may be subject to MDT’s Systems Impact Action Process (SIAP)⁹ administered by MDT’s Planning Division, with coordination or approval from local jurisdictions. Any property further subdivided after imposition of access control shall provide internal circulation to existing established access points. Exceptions may be made in developed or intermediate areas if they are within identified areas of growth where additional access may be tolerated.

If additional new access is necessary for a change in land use, such as subdivision requirements, access control will be used to support land use decisions. All approval or denial of access shall be made by MDT after close coordination with local officials and land use planners.

⁹ Montana Department of Transportation, *System Impact Action Process*, <https://www.mdt.mt.gov/business/siap.aspx>



2.3.3 Land Use Changes

The intent of the *Access Management Plan* is to preserve the function and operation of the highway through the application of access control policies. The type of land use and level of use (volume of vehicles) accessing the highway has a direct impact on the operation of the highway. For this reason, it is necessary to review the effect of land use changes on highway operations. Changes are likely to require mitigation measures to ensure that safety and traffic flow are not compromised, as determined by a traffic study through the SIAP. The following guidelines shall apply to land use changes after implementation of the plan:

- Any change in land use shall require that the access be re-evaluated as though it were a new access and shall require a new approach permit. Based on this re-evaluation, mitigation measures may be required to maintain a safe and efficient highway.
- Re-evaluation of an access may result in the relocation of the access or possible elimination of the access or other accesses if other reasonable access is available or can be provided.
- Any change in level of use (volume of use) of 20 percent or greater, as defined by the current edition of the *ITE Trip Generation Manual*, shall require that the access be re-evaluated as though it were a new access and shall require a new approach permit. Based on this re-evaluation, mitigation measures may be required to maintain a safe and efficient highway.
- Parcels subdivided or consolidated after the Access Management Plan is implemented shall require re-evaluation of the existing access. Requests for additional access shall not be granted unless necessary for local approval of the land use change. These shall be subject to joint review by MDT and the local authority as identified in this document, and mitigation measures may be required to maintain a safe and efficient highway.
- Changes within agricultural land use from one type of agricultural product to another shall not be considered land use changes under these guidelines.

2.3.4 Frontage and/or Access Roads

The following shall apply to frontage or access roads:

- Direct existing access to 57th St. S or US-87/89 shall be eliminated if reasonable and cost-effective access is provided via frontage or access roads.
- Approaches to frontage or access roads within the MDT right-of-way shall be controlled by road approach permit issued in accordance with MDT approach standards.
- Construction and maintenance of frontage or access roads for future development shall be the responsibility of the developer.

2.3.5 Auxiliary Lanes

The following shall apply to auxiliary lanes:

- Right-turn and left-turn auxiliary lanes may be provided at each major public road on a case-by-case basis according to MDT road design standards.



2.3.6 Access Spacing

Table 1 outlines minimum access spacing guidelines for signalized and unsignalized access points across the three access categories: Rural, Intermediate, and Developed. These guidelines, established in consultation with MDT staff, represent preferred minimum spacing standards. Actual access spacing may vary depending on operational needs, safety considerations, site-specific conditions, and other influencing factors.

Table 1: Minimum Access Spacing Guidelines

Type	Rural	Intermediate	Developed
Signalized Access Spacing	1 mile	½ to 1 mile	¼ mile
Unsignalized Access Spacing	425 ft	660 ft (desirable) 330 ft (minimum)	330 ft

3.0 GOALS AND OBJECTIVES

3.1 Access Management Goals

The following goals are generated from Montana Law (MCA 60-1-101):

- Facilitate the free flow of traffic on an integrated transportation system.
- Promote safe and convenient transportation for both motorized and non-motorized users in support of Vision Zero.
- Provide reasonable access to adjacent properties.
- Support preservation of property values and do not impede the economic progress of the citizens.
- Reduce the costs of motor vehicle operations.
- Contribute to national defense.

3.2 Access Management Objectives

I. Facilitate the free flow of traffic on an integrated transportation system.

A. Implement approach design standards

1. Apply MDT design standards for each public and private approach within the study area. Define driveways to provide clear identification of entrance and exit movements.

B. Eliminate congestion.

1. Remove turning vehicles from through traffic through addition of turn lanes.
2. Reduce conflict points.
 - a). Accesses: Consider the following in priority order:
 - (1). Remove/relocate/consolidate adjoining accesses (shared use).



- (2). Relocate to a side street or alley.
- (3). Provide frontage or access road, promote circulation between properties.
- (4). Relocate to align with accesses directly across or to remove adverse turning paths.
- (5). Restrict movements in and out of approaches (e.g., right-in/right-out only).
- (6). Upgrade to meet approach standards.

b). Cross Streets: Provide adequate storage at cross-streets by shifting accesses away from intersections.

II. Promote safe and convenient transportation for both motorized and non-motorized users in support of Vision Zero.

A. Hazard mitigation.

1. Remove turning vehicles from through traffic through addition of turn lanes.
2. Reduce conflict points, see I.B.2.a).
3. Maintain MDT and AASHTO sidewalk and pedestrian crossing standards.

III. Provide reasonable access to existing parcels along the study corridor.

A. Provide site-specific access solutions that accommodate appropriate land usage, see I.B.2.a).

IV. Support preservation of property values and do not impede the economic progress of the citizens.

- A. Locate approaches to facilitate internal property traffic movements.
- B. Provide site-specific access solutions that accommodate appropriate land usage.

V. Reduce the costs of motor vehicle operations.

- A. Eliminate congestion, see I.B.
- B. Consistently implement Access Management Guidelines on the study corridor for future projects and for future approach requests.
 1. Continue process for review of future development and approach requests.

VI. Contribute to national defense.

- A. Eliminate congestion, see I.B.

4.0 EXISTING CONDITIONS

Access control was established along US-87/89 from RP 81.6 to 90.8 in 1985 and amended in 1988 through project F 60-2(18)81. No existing access control covers 57th St S within the study boundary; however, in 2003 project NH-5205(20) designated the Northeast Bypass as a controlled access facility, including 57th St S to the 2nd Ave N intersection. Existing access locations are shown in **Appendix A** and summarized in **Table 2**.



Table 2: Existing Access Points

Access Type	Number of Accesses	
	57 th St S (RP 7.5 to 8.4)	US-87/89 (RP 87.4 to 90.4)
Public	6	2
Private	10	8
Field	3	12
Total	19	22
Density (# per mile)	21.1	7.3

4.1 Land Use and Zoning

Existing land uses along the study corridor are a mixture of residential, commercial, agricultural, and mixed-use. The west side of 57th St S is generally residential and commercial land within the Great Falls city limits.¹⁰ The adjacent east side land is zoned as commercial or agricultural within Cascade County. US-87/89 is primarily mixed-use within the county,¹¹ except for the south side of the 57th St S and US-87/89 intersection which is within Great Falls. Malmstrom Air Force Base also spans the northeast portion of the study area but with limited direct access/frontage onto the study corridor. The Great Falls Metropolitan Planning Organization relies on their Long Range Transportation Plan (LRTP) to serve as a guide for development of and investment in the community's transportation system. The 2024 LRTP plan provides areas expected to see residential and job growth over the 20-year planning horizon. In the plan, the area along US-87/89 is shown as an area expected to experience significant residential and job growth.¹²

¹⁰ Great Falls City Planning & Zoning, <https://greatfallsmt.net/planning/city-planning>

¹¹ Cascade County Zoning Information, <https://www.cascadecountymt.gov/271/Zoning-Information>

¹² 2024 Great Falls Area Long Range Transportation Plan, <https://greatfallsmt.net/planning/transportation-planningmpo>



5.0 TRAFFIC CONDITIONS

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

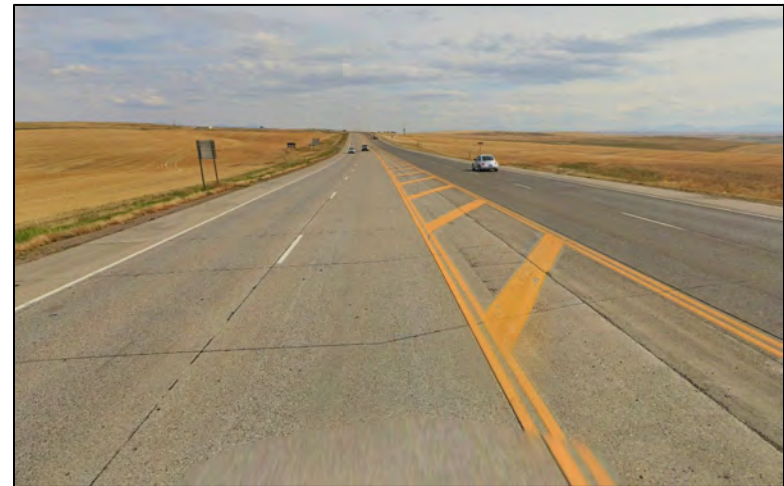
5.1 Physical Features and Characteristics

The study corridor includes segments of 57th St S and US-87/89 in and around Great Falls. The corridor begins at the intersection of 57th St S and 2nd St N, continues south to the intersection of 57th St S and US-87/89, then east to the intersection of US-87/89 and S-227/228. The entire corridor consists of two travel lanes in each direction. 57th St S has a raised center median with left-turn lanes at major intersections. US-87/89 has a center striped median and dedicated turn lanes at major intersections east of the 57th St S intersection.

Both 57th St S and US-87/89 are functionally classified as principal arterials on the Non-Interstate National Highway System (NHS). The corridor is mainly located within Cascade County jurisdiction, with some portions falling within the City of Great Falls. The speed limit of 57th St S is posted at 45 miles per hour (mph). US-87/89 is posted at 45 mph within Great Falls, with a transition to standard highway speed (70/65 mph) east of 57th St S.

5.2 Traffic Volumes

Traffic volumes along the study corridor are typically collected annually as part of MDT's traffic data collection program. A total of four data collection sites are located along the study corridor. The data collected at these sites are considered short-term count sites and are typically completed annually, or adjusted from previous year counts, to determine an annual average daily traffic (AADT) volume.



57th St S (top) includes a center raised median with turn lanes at major intersections. US-87/89 (bottom) includes a painted center median and turn lanes at major intersections.



Figure 2 plots the AADTs for the count sites along the study corridor over the past 20 years. As shown in the figure, traffic volumes are highest along 57th St S, with volumes decreasing along US-87/89 further to the east. Existing volumes range from a low of just over 6,400 vehicles per day (vpd) on the east end of the US-87/89 study corridor up to 11,000 vpd along 57th St S. When averaged together, traffic volumes have increased at an annual rate of approximately 1.3 percent per year since 2004.

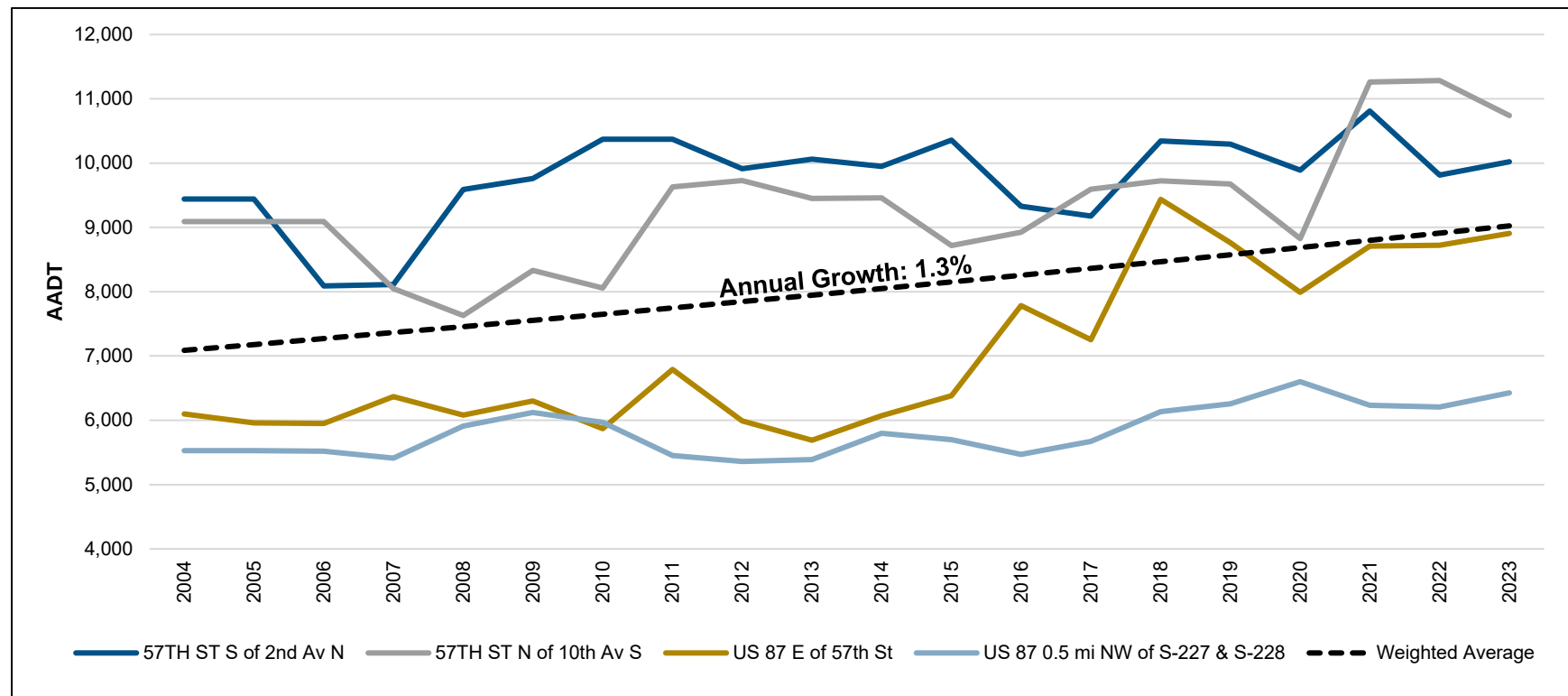


Figure 2: Historic Traffic Volumes

The 2024 Great Falls LRTP included development of a travel demand model (TDM) to forecast traffic growth based on anticipated changes in land use and the transportation system. The base TDM was calibrated to 2019 data, with projections extending to 2045. This future model included potential for job growth at Malmstrom Air Force Base, along with residential and employment growth south of US-87/89. **Table 3** compares projected growth rates for the 57th St S and US-87/89 corridors, showing that traffic has historically grown at a weighted average rate of 1.3 percent per year. The TDM forecasts a slightly lower weighted average growth rate of 1.1 percent per year.



Table 3: Traffic Volume Growth Rates

Site ID	Description	Historic Growth			Travel Demand Model		
		2004 AADT*	2023 AADT*	Annual Growth	2019 TDM**	2045 TDM**	Annual Growth
07-2A-064	57 th St S of 2 nd Ave N	9,440	10,019	0.7%	11,000	14,000	0.9%
07-2A-065	57 th St N of 10 th Ave S	9,090	10,741	1.2%	11,900	14,900	0.9%
07-2A-019	US 87 E of 57 th St S	6,100	8,907	2.5%	9,300	14,100	1.6%
07-2-005	US 87 0.5 mi NW of S-227 & S-228	5,530	6,428	0.7%	8,100	10,100	0.9%
Weighted Average Growth		1.3%			1.1%		

* MDT Traffic Count Data System (TCDS).

** Great Falls Area Long Range Transportation Plan, 2024.

Taking both historical and TDM-projected growth into account for the study corridor, a growth rate of 1.3 percent was selected to evaluate future conditions. This rate is considered a conservative estimate based on historical trends and projected volumes, serving as the basis for estimating 2045 conditions. Projected AADT volumes are detailed in **Table 4**.

Table 4: Projected Traffic Volumes

Site ID	Description	2023 AADT	2045 AADT*
07-2A-064	57 th St S of 2 nd Ave N	10,019	13,250
07-2A-065	57 th St N of 10 th Ave S	10,741	14,205
07-2A-019	US 87 E of 57 th St S	8,907	11,779
07-2-005	US 87 0.5 mi NW of S-227 & S-228	6,428	8,501

* Projected based on a compound annual growth rate of 1.3 percent.

5.3 Intersection Operations

To supplement the existing AADT data, intersection turning movement counts (TMCs) were performed at eight intersections along the corridor. Vehicle turning movement data was collected at each intersection for a 24-hour period to represent an average weekday. Data was collected on August 13 and 14, 2024 (see **Appendix B**). The data was used to evaluate intersection operations during peak hour conditions.

The operational conditions of the intersections are characterized by level of service (LOS), which is based on an alphabetic scale representing 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 eight intersections during the AM and PM peak hours. Six of the eight intersections are stop-controlled on the minor approach leg(s), while two are signalized. For the stop-controlled intersections, the LOS is determined based on the delay of the worst-performing movement, typically a left-turn movement from the minor approach. For the signalized intersection, the LOS is based on the intersection average delay.

Table 5 and **Figures 3** and **4** present the results of the peak hour intersection operational analysis under existing (2024) and projected (2045) conditions. For the projected conditions year, existing traffic volumes were increased at a rate of 1.3 percent per year as discussed in the previous section. No changes were made to intersection traffic control or geometrics. Further detailed operational analysis results are provided in **Appendix C**.

Table 5: Intersection Operations

ID	Intersection	Traffic Control	2024 AM		2024 PM		2045 AM		2045 PM	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
01	57 th St S / 2 nd Ave N	Signal*	18.2	B	20.4	C	20.2	C	26.4	C
02	57 th St S / 3 rd Ave S	Minor Road Stop**	15.7	C	22.0	C	21.5	C	39.8	E
03	57 th St S / 7 th Ave S	Minor Road Stop**	12.3	B	15.5	C	14.6	B	21.5	C
04	57 th St S / 8 th Ave S	Minor Road Stop**	12.1	B	14.6	B	14.1	B	19.4	C
05	57 th St S / 10 th Ave S	Signal*	21.5	C	22.7	C	27.1	C	29.4	C
06	US-87/89 / Malmstrom Entrance	Minor Road Stop**	9.5	A	9.8	A	9.9	A	10.4	B
07	US-87/89 / Stone Mill Ln	Minor Road Stop**	11.5	B	13.3	B	13.0	B	16.2	C
08	US-87/89 / S-227 & S-228	Minor Road Stop**	12.9	B	14.7	B	16.1	C	19.3	C

* Assumed existing traffic signal phasing with optimized timing plan.

** Operations based on worst movement, not intersection average.

As shown in **Table 5** and **Figures 3** and **4**, all intersections are anticipated to operate at a LOS of C or better during the existing and projected peak hours, with the exception of 57th St S/3rd Ave S under future PM peak conditions. Both signalized intersections are shown to adequately accommodate both existing and projected traffic volumes.

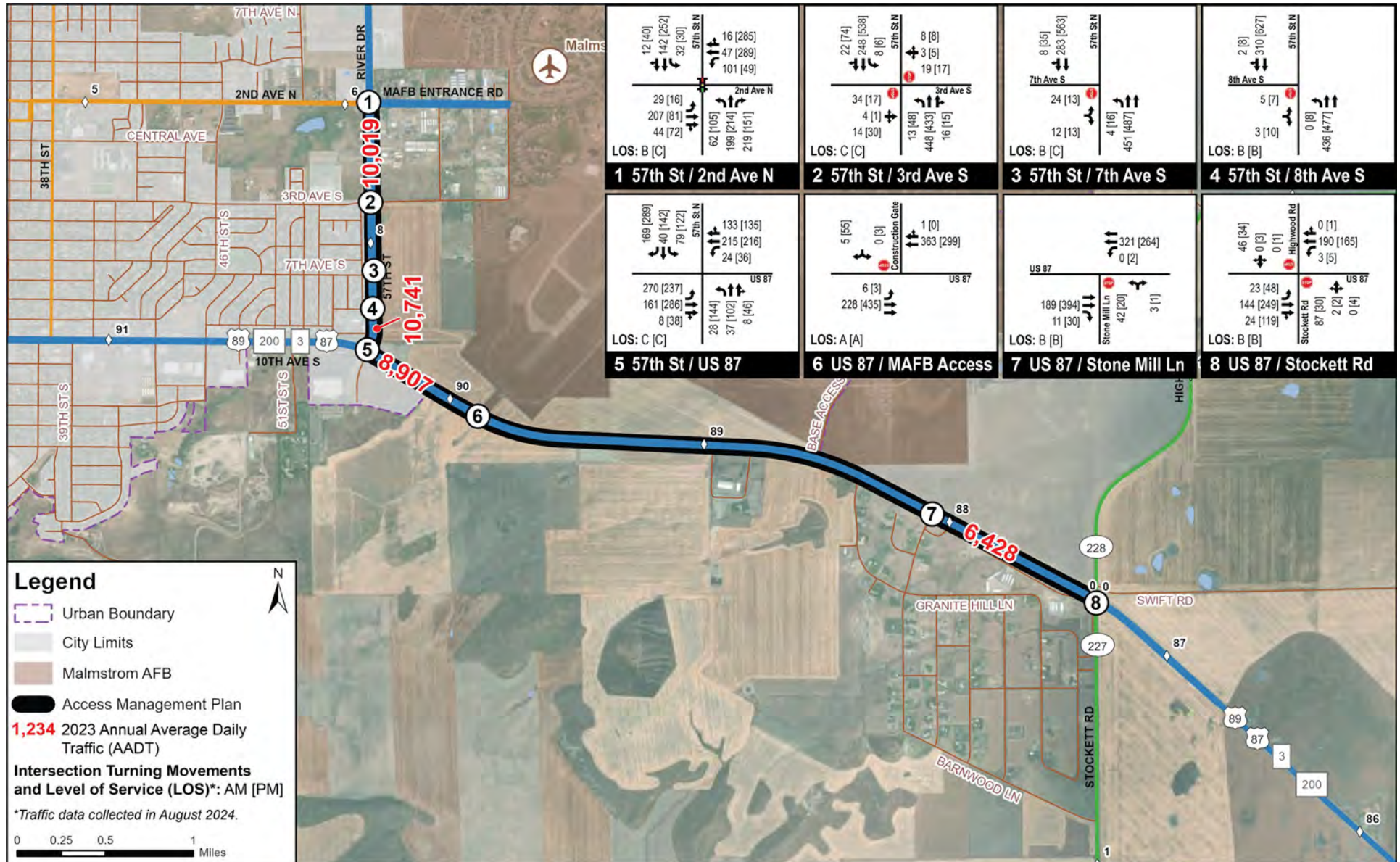
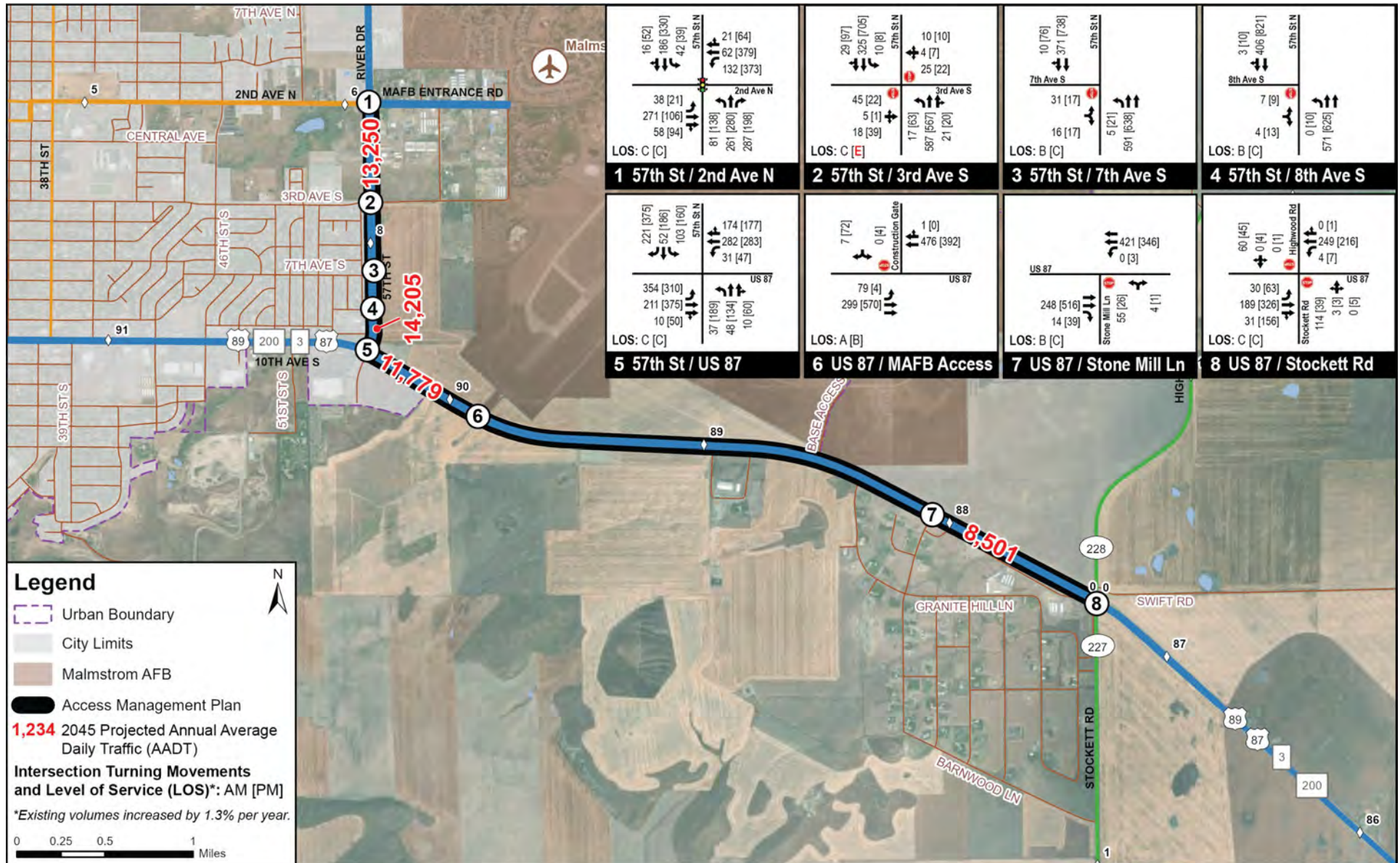


Figure 3: Existing Traffic Conditions (2024)





6.0 SAFETY CONDITIONS

The MDT Traffic and Safety Engineering Bureau provided crash reports for all crashes reported within the corridor over a five-year period beginning January 1, 2019, and ending December 31, 2023. The crash reports are a summation of information from the scene of the crash provided by responding officers. As such, some of the information contained in the crash reports may be subjective. The crash data was reviewed to identify trends in the type, frequency, location, severity, and manner of the crashes.

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.

According to the MDT crash database, a total of 100 crashes were reported within the study corridor during the five-year period. A summary of the location of crashes based on one-half mile intervals is shown in **Figure 5**. In addition, the figure shows the density of crashes based on the coordinates of each crash. Approximately one-third of the crashes occurred on 57th St S, while about 25 percent occurred on US-87/89, and nearly half of the crashes occurred at the 57th St S and US-87/89 intersection. Other high-frequency locations include the 57th St S and 2nd Ave N intersection (14 crashes), US-87/89 and S-227/228 intersection (9 crashes), and 57th St S and 3rd Ave S intersection (5 crashes).

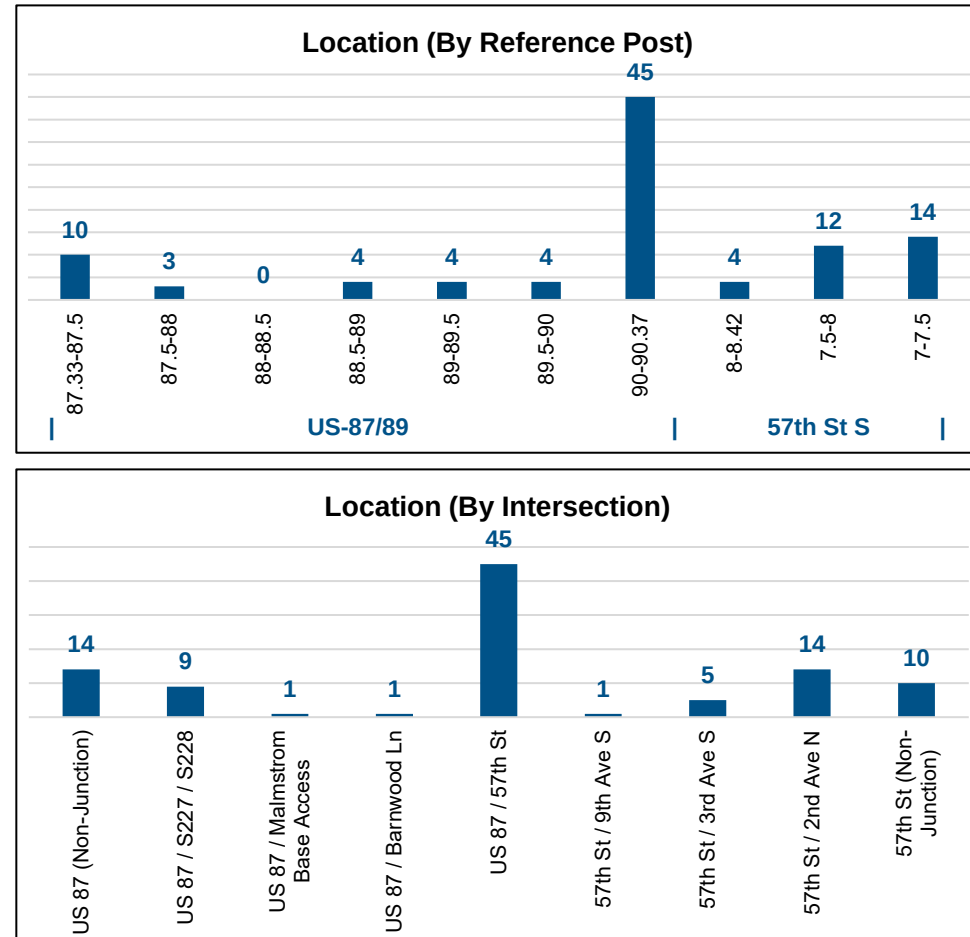


Figure 5: Crash Location Summary



6.1 Severity

When crashes occur, officers indicate the severity of the resulting injuries for each person involved in the crash. Severity types include property damage only (PDO), possible injury, suspected minor injury, suspected serious injury, and fatality. The overall crash severity is categorized based on the most severe injury resulting from the crash. The locations of the severe (suspected serious and fatal injury) crashes are shown in **Figure 6**. A suspected serious injury is defined as an injury, other than a fatality, which prevents the injured individual from walking, driving, or normally continuing the activities they were capable of performing before the injury.

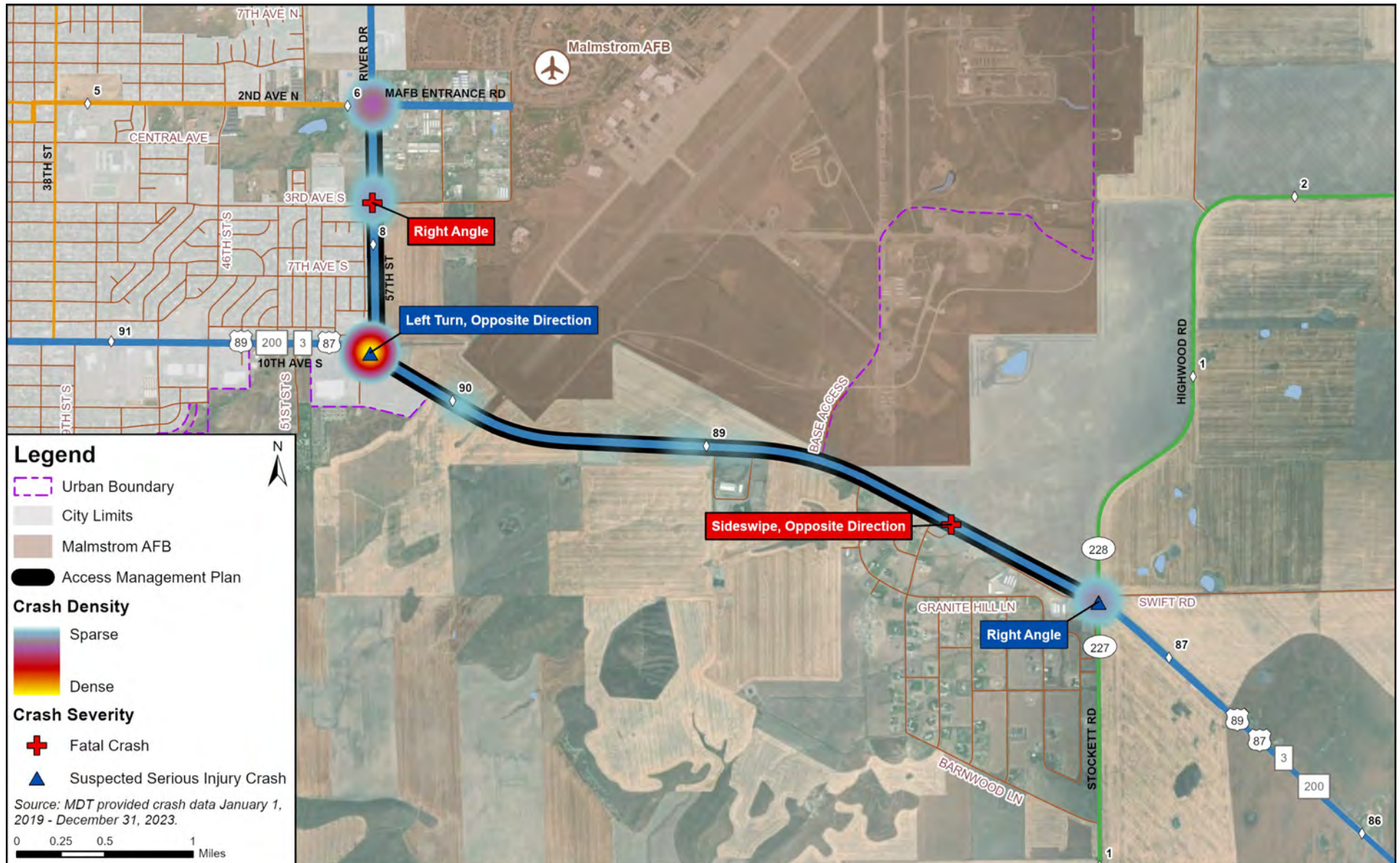


Figure 6: Crash Density



During the five-year analysis period, 30 percent of the crashes resulted in some level of injury (30 crashes), of which about 13 percent were severe (4 crashes). There were two fatal crashes and two suspected serious injury crashes. Poor weather and road conditions were reported to be a contributing factor in one of the fatal crashes which resulted in a sideswipe collision. The other three severe crashes occurred at intersections as a result of turning conflicts. Impairment was not believed to be a factor in any of the four severe crashes.

6.2 Crash Type

Crashes can be categorized as either single vehicle or multi-vehicle crashes. Multi-vehicle crashes accounted for 73 percent of all reported crashes with a total of 73 crashes. The most common multi-vehicle crashes were right angle (33 percent), rear-end (30 percent), sideswipe (16 percent) and left-turn crashes (12 percent). Single vehicle crashes represented 27 percent of crashes with 27 total crashes. Wild animal crashes were the most commonly reported single-vehicle crash type accounting for 44 percent of those crashes. The second most common single-vehicle crash type was fixed object crashes (37 percent) with the most common fixed objects were utility poles/sign supports (55 percent). **Figure 7** presents the distribution of both multiple and single vehicle crashes within the study area.

Slightly more than one-third of crashes occurred at non-junction locations (37 percent) while the remaining two-thirds either occurred at an intersection (35 percent) or were intersection-related (28 percent). None of the crashes were reported to have occurred at a driveway or other approach type. In general, the single vehicle crashes occurred at non-junction locations while the multi vehicle crashes occurred at intersections. However, some of the sideswipe and rear-end multi vehicle crashes occurred at non-junction locations.

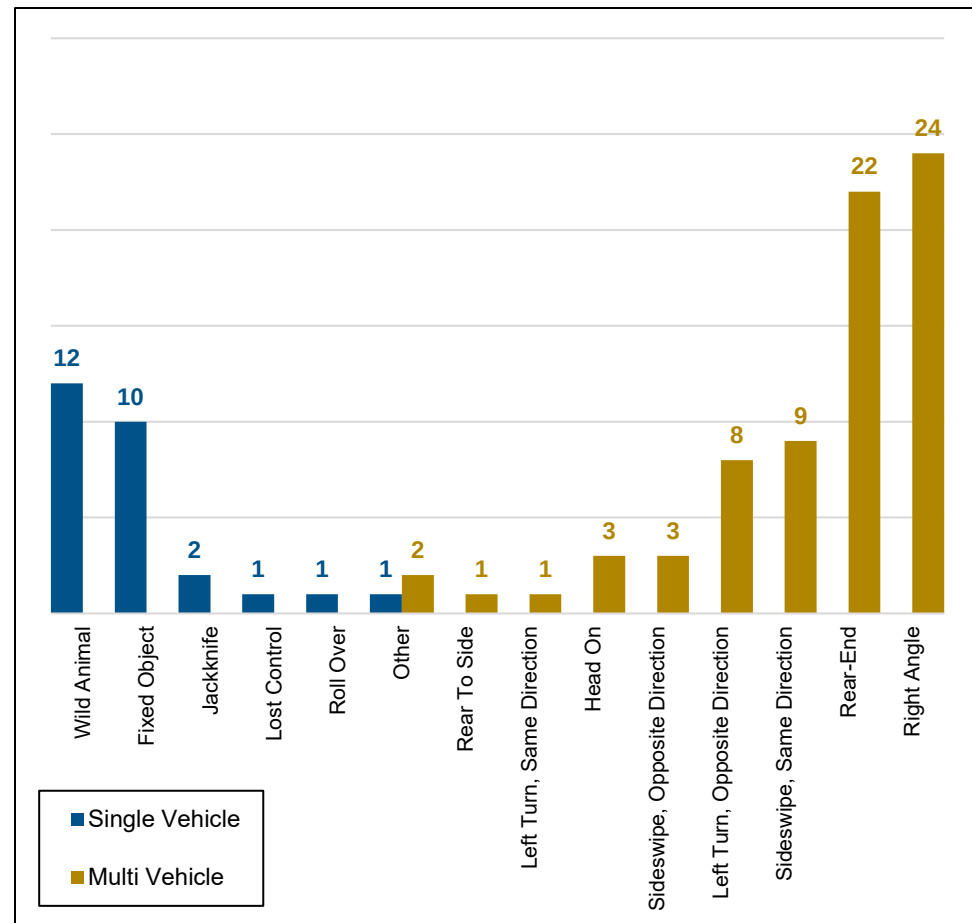


Figure 7: Crash Type



6.3 Environmental Circumstances

Figure 8 presents the distribution of crashes based on environmental conditions including weather, road surface, and lighting conditions. The weather condition was reported as clear or cloudy in 74 percent of crashes. Adverse weather conditions, including snow and rain, were reported in approximately 24 percent of crashes. The “other” category includes fog, smog, or smoke and sleet/hail/freezing rain. Approximately 61 percent of all crashes were reported as having occurred on dry roads, while 35 percent of crashes were reported as having occurred on snowy, slushy, icy, or frost covered roads. About 65 percent of all crashes were reported as having occurred under daylight conditions. An additional 15 percent were reported as occurring at dark with street lighting and 14 percent occurred at night with no street lighting present.

Crashes that occurred under adverse weather conditions (rain or snow) were primarily fixed object (6 crashes) and rear-end crashes (9). Similarly, crashes occurring on adverse road surfaces (snow, slush, ice, or frost covered) were primarily rear-end (12 crashes) and fixed object crashes (9). Adverse weather or road conditions appeared to be a factor in about half of the sideswipe crashes as well as both of the jackknife crashes and the one rollover crash that occurred within the corridor.

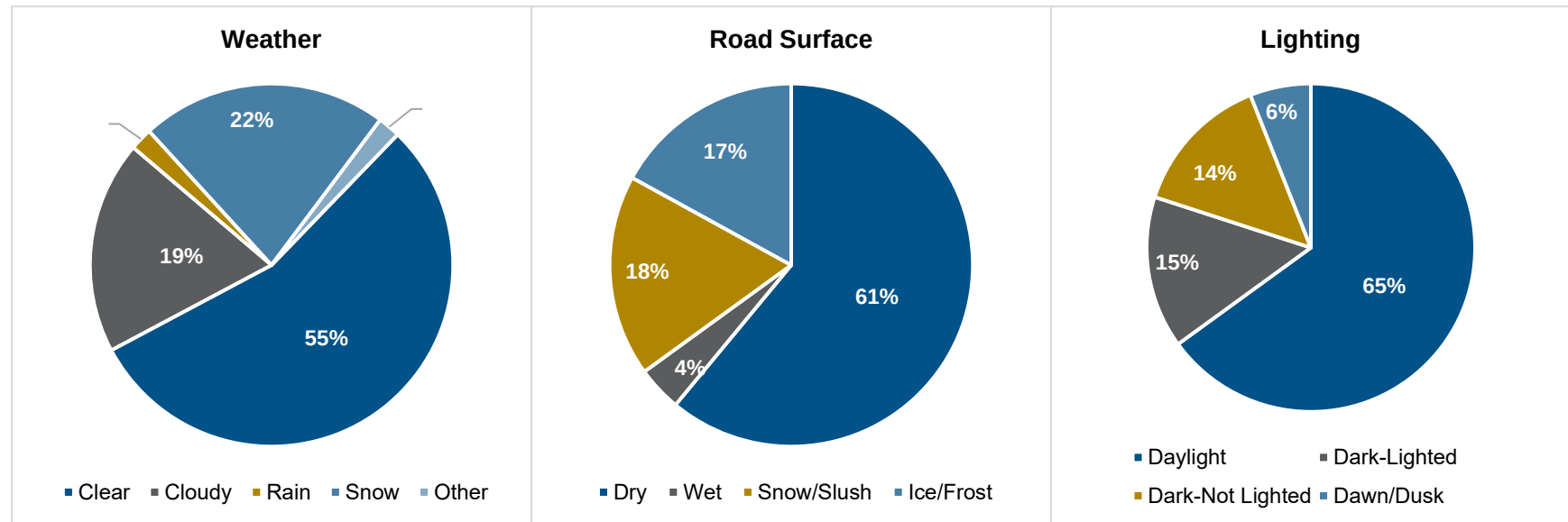


Figure 8: Environmental Conditions



7.0 PLAN RECOMMENDATIONS

Plan recommendations are presented in **Table 6** and the Access Management plan sheets in **Appendix A**. Recommendations are based on the results of the operational analysis, traffic study, and Access Control Guidelines.

All access management principles discussed in previous sections were considered during the development of this plan, however, not all methods were determined to be appropriate for this particular study area and location. Access control methods incorporated are:

- Limit the number of and separate conflict points by removing/relocating/consolidating accesses: All approaches were considered for modification on a case-by-case basis. Moving closely spaced accesses to property lines to provide joint access was the predominant strategy for reducing the number of accesses. Aligned opposing accesses will remove negative offsets that increase conflict points.
- Limit the number of and separate conflict points by limiting new accesses: In general, only one access from 57th St S and US-87/89 was allowed for each lot. Large properties were allowed multiple accesses when spacing requirements allowed. Access from 57th St S or US-87/89 was not provided for parcels with reasonable access from side streets. The future Great Falls street grid was considered when developing new accesses.
- Improve driveway operations by defining approach openings: Approach entrances were identified to be defined and curb cut widths restricted to conform to MDT standards.
- Limit the number of conflict points and improve roadway operations by restricting approach use: Restricted turning movements (right-in/right-out) was implemented or maintained to limit conflicting turning movements, with accompanying raised median modifications.
- Improve roadway operations with intersection control: The development of large traffic generators or expansion of the street/road grid could result in high volume/low level of service intersections warranting higher intersection control to promote mobility. Signalization requires warrants to be met and would need to be determined by a traffic impact study. Additionally, proposed signals would need to meet established signal spacing. Other methods of traffic control, such as roundabouts or restricted crossing U-turn (RCUT) configurations, may be considered that have differing traffic analysis and spacing needs. Consequently, the plan highlights only those intersections with an increased potential for warranting higher intersection control in the future without defining the control method. The intersection at 3rd Ave S. is noted as this intersection is important to the Great Falls street network should expansion occur to the east. Setbacks are recommended for intersections with potential for future higher intersection control to provide space for geometric modifications or signal installations. New accesses in proximity of those intersections are not recommended.

Additional auxiliary left- and right-turn lanes should be considered as development occurs. Each approach volume will need to be analyzed to determine if auxiliary lanes are warranted. There are no planned construction projects or identified funding solely for implementing the access control recommendations contained in this plan. Access changes will occur only when redevelopment or development occurs or when roadway capital improvement projects are implemented. This planning-level document does not determine or define legal access to parcels and is only intended as a guide for future development.



Table 6: Recommendations for Access

Access Number	Parcel or Intersection	RP	Side	Type	Access Description	Recommendation
57th St S (2 nd Ave N to 10 th Ave S)						
1	1	7.5	LT	Private	Wide approach to commercial property, exist. raised median.	RI/RO, define and reduce size of access
2	2/4	7.6	RT	Joint Field	Access to vacant land with development potential, exist. raised median with nearby median break not serving access. May be RI/RO in future if 2nd Ave left-turn bay extended for intersection operations.	Full movement, relocate to property line, relocate median break across from Access 3
3	3/5	7.6	LT	Joint Private	Access to commercial properties, exist. raised median break and left-turn bay. May be RI/RO in future if 2nd Ave left-turn bay extended for intersection operations.	Full movement, relocate to property line, relocate median break across from Access 2
4	6	7.6	LT	Private	Sole access to commercial property, exist. raised median	RI/RO, no change
5	7	7.7	LT	Private	Access to commercial properties, exist. raised median break and left-turn bay	Full movement, no change
6	4/8	7.7	RT	Private	Access to commercial properties, exist. raised median break and left-turn bay. Relocate across from Access 5 and in median break. Serves Parcels 4 and 8 with same owner.	Full movement, align with Access 5
7	7	7.7	LT	Private	Second RI/RO access to commercial property. Main access is full movement. Adjacent Parcel 9 has access from 3rd Ave S.	RI/RO, close
--	9	-	LT	-	Access from 3rd Ave S	No action
--	10	-	RT	-	Vacant land with development potential, access from 3rd Ave S	No action
8	3rd Ave S	7.8	LT	Public	Exist. median break and left turn bay. Align with Access 9 to optimize intersection geometrics. Potential location for future higher intersection control.	Full movement, align with Access 9
9	3rd Ave S	7.9	RT	Public	Exist. mainline raised median break and left-turn bay. Align with Access 8 to optimize intersection geometrics. Potential location for future higher intersection control.	Full movement, align with Access 8
10	12	7.9	RT	Private	Wide access with pin down curb to provide some channelization. Exist. access from 3rd Ave S and 56th St S. Define and narrow to south side of the access.	RI/RO, narrow and define
11	27	8.1	RT	Private	Exist. access from 7th Ave S and 56th St S. Any access on 57th St S granted needs to be narrower and defined.	RI/RO narrow and define
12	7th Ave S	8.1	RT	Public	Exist. median break and left turn bay. Potential location for future higher intersection control.	Full movement, no change
13	11	8.1	LT	Field, Future Public	Future continuation of 7th Ave S, exist. median break with no left turn bay. Potential location for future higher intersection control.	New full movement, field approach, potential future public, modify median break and add left turn bay

PARTIAL IN SYSTEMS IMPACT ACTION PROCESS



Access Number	Parcel or Intersection	RP	Side	Type	Access Description	Recommendation
14	28	8.2	RT	Private	Exist. access from 7th Ave S and 56th St S. Close when parcel is developed. Any access on 57th St S granted needs to be narrower and defined.	RI/RO, close
15	8th Ave S	8.3	RT	Public	Extend raised median and remove median break	RI/RO, remove median break
--	34	-	RT	-	Access from 8th Ave S	No action
16	35	8.3	RT	Private	Secondary access from 9th Ave S, exist. mainline raised median	RI/RO, no change
17	9th Ave S	8.3	RT	Public	Exist. raised median, no raised median break	RI/RO, no change
--	36	-	RT	-	MDT parcel, no access	No action
18	37	8.4	LT	Field	Access to vacant land with development potential, close when parcel is developed, access will be from US-87/89	RI/RO, close
--	38	8.4	RT	-	Drainage basin, no exist. or new access	No action
US-87/89 (57th St S to S-227/228)						
--	36	90.4	LT	-	MDT parcel, no access	No action
--	38	90.4	RT	-	Drainage basin, no exist. or new access	No action
19	39	90.2	RT	Field	Vacant land with development potential. Sole access from US-87/89. Relocate further from 57th St S intersection. Access 18 from 57th St S to be closed.	RI/RO, relocate
20	37	90.2	LT	Field	Relocate further from 57th St S intersection. Access 18 from 57th St S to be closed.	RI/RO, relocate
21	40/42	90.1	RT	Shared	Vacant land with development potential, same owner as Parcel 39. Future access to Parcel 42 with easement.	New, full movement
22	37/41	90.1	LT	Joint Field	Vacant land with development potential, second access for Parcel 37, sole access for Parcel 41	Full movement, no change
23	43	89.9	RT	Shared	USAF, relocate with slope flattening and removal of guardrail. Potential location for future higher intersection control.	Full movement, no change
24	44	89.9	LT	Private	USAF approach with gate and EB left-turn lane. Potential location for future higher intersection control.	Full movement, no change
25	42	89.5	RT	Private	Vacant land with development potential with access to parcel to the south. Storage units on Parcel 45 with gated entrance at Access 27.	Full movement, align with Access 26
26	41/44	89.5	LT	Joint Field	Vacant land with development potential.	Full movement, align with Access 25
27	45/46	89.3	RT	Joint Private	Parcel 46 is vacant land with development potential. Storage units on Parcel 45 with gated entrance at Access 27. Existing WB left-turn lane.	Full movement, realign to property line
28	44/47	89.3	LT	Shared	Vacant land with development potential. Future access for Parcel 44 with easement.	Full movement, align with Access 27



Access Number	Parcel or Intersection	RP	Side	Type	Access Description	Recommendation
29	46/48/49 Barnwood Lane	89.0	RT	Private	Vacant land with development potential, private residence and commercial property. Undeveloped access to Platinum Lane. Sole developed access to Parcel 48. Future access to P46 and P49 with easements.	Full movement, align with Parcel 48 property and Access 30
30	47	89.0	LT	Field	Vacant land with development potential. Second access to Parcel 47.	Full movement, align with Access 29
31	49	88.8	RT	Private	Commercial property with access from Barnwood Lane	Full movement, close
32	49/50	88.7	RT	Joint Field	Sole US-87/89 access to Parcels 49 and 50	New, full movement
33	47	88.6	LT	Private	USAF commercial entry gate. USAF prefers no accesses be placed opposite this access.	Full movement, no change
34	52/53 Granite Hill Lane	88.4	RT	Joint Private	Subdivision access, Parcels 51 & 52 have same owner. Future access to Parcel 51 with easement. Existing WB left-turn lane.	Full movement, no change
35	54A	88.4	LT	Field	USAF recent purchase of a portion of Parcel 54	Full movement, align with Access 34
36	54	88.1	LT	Field	Vacant land with development potential. Potential location for future higher intersection control.	New, full movement, align with Access 37
37	55-58 Stone Mill Lane	88.1	RT	Joint Private	Subdivision access. Exist. WB left- and EB right-turn lanes. Potential location for future higher intersection control.	Full movement, no change
38	54	87.9	LT	Field	Vacant land with development potential. If parcel is developed, relocate to provide desirable spacing between accesses.	Full movement, relocate to provide desirable spacing
--	55		RT	-	Access from Stone Mill Lane, no US-87/89 access	No action
--	56		RT	-	Access from Stone Mill Lane, no US-87/89 access	No action
--	59		RT	-	Access from Sapphire Lane, no US-87/89 access	No action
--	60		RT	-	Access from Sapphire Lane, no US-87/89 access	No action
--	61		RT	-	Access from Sapphire Lane, no US-87/89 access	No action
--	62		RT	-	Access from Sapphire Lane, no US-87/89 access	No action
--	63		RT	-	Access from Sapphire Lane, no US-87/89 access	No action
39	63/65	87.4	RT	Public	Realign for future optimized intersection, existing WB left-turn lane. Potential location for future higher intersection control.	Full movement, realign with Access 40, adjust turn bays
40	54/64/66	87.4	LT	Public	Realign for future optimized intersection, existing EB left-turn lane. Potential location for future higher intersection control.	Full movement, realign with Access 39, adjust turn bays



Appendix A

Access Management Plan Sheets

LEGEND

- # PRIVATE APPROACH
- # PUBLIC APPROACH
- # FIELD APPROACH
- # SHARED APPROACH
- # RIGHT-IN, RIGHT-OUT
- # JOINT-USE
- P# PARCEL NUMBER
- X RELOCATE APPROACH
- X CLOSE APPROACH
- High-level intersection, existing traffic signal
- High-level intersection, potential future higher intersection control
- PROPERTY LINE
- PROPOSED MEDIAN CURB
- ACCESS CONTROL

NOTES:

ALL PROPERTY LINES ARE FROM MONTANA CADASTRAL. PROPERTY LINES ARE APPROXIMATIONS. JOINT-USE APPROACHES TO BE LOCATED ON THE ACTUAL SURVEYED PROPERTY LINES.

APPROACH SIZES AND MEDIAN REVISIONS ARE FOR GRAPHICAL PURPOSES ONLY. ACTUAL FACILITIES SHOULD BE DESIGNED FOR THE APPROPRIATE ROADWAY CLASSIFICATION, TRAFFIC VOLUMES, AND DESIGN VEHICLE.

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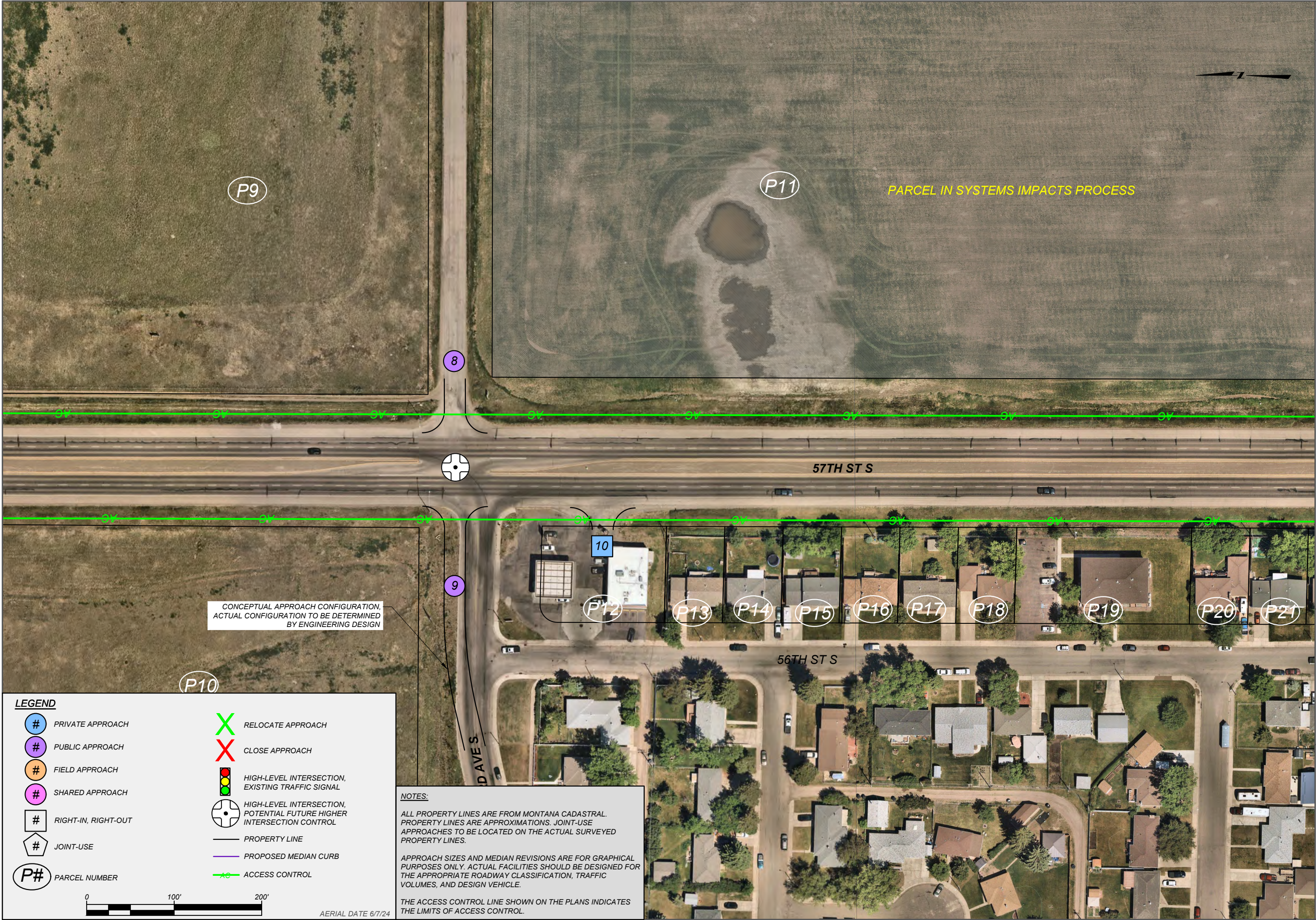


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	FIELD APPROACH		HIGH-LEVEL INTERSECTION, EXISTING TRAFFIC SIGNAL
	SHARED APPROACH		HIGH-LEVEL INTERSECTION, POTENTIAL FUTURE HIGHER INTERSECTION CONTROL
	RIGHT-IN, RIGHT-OUT		PROPERTY LINE
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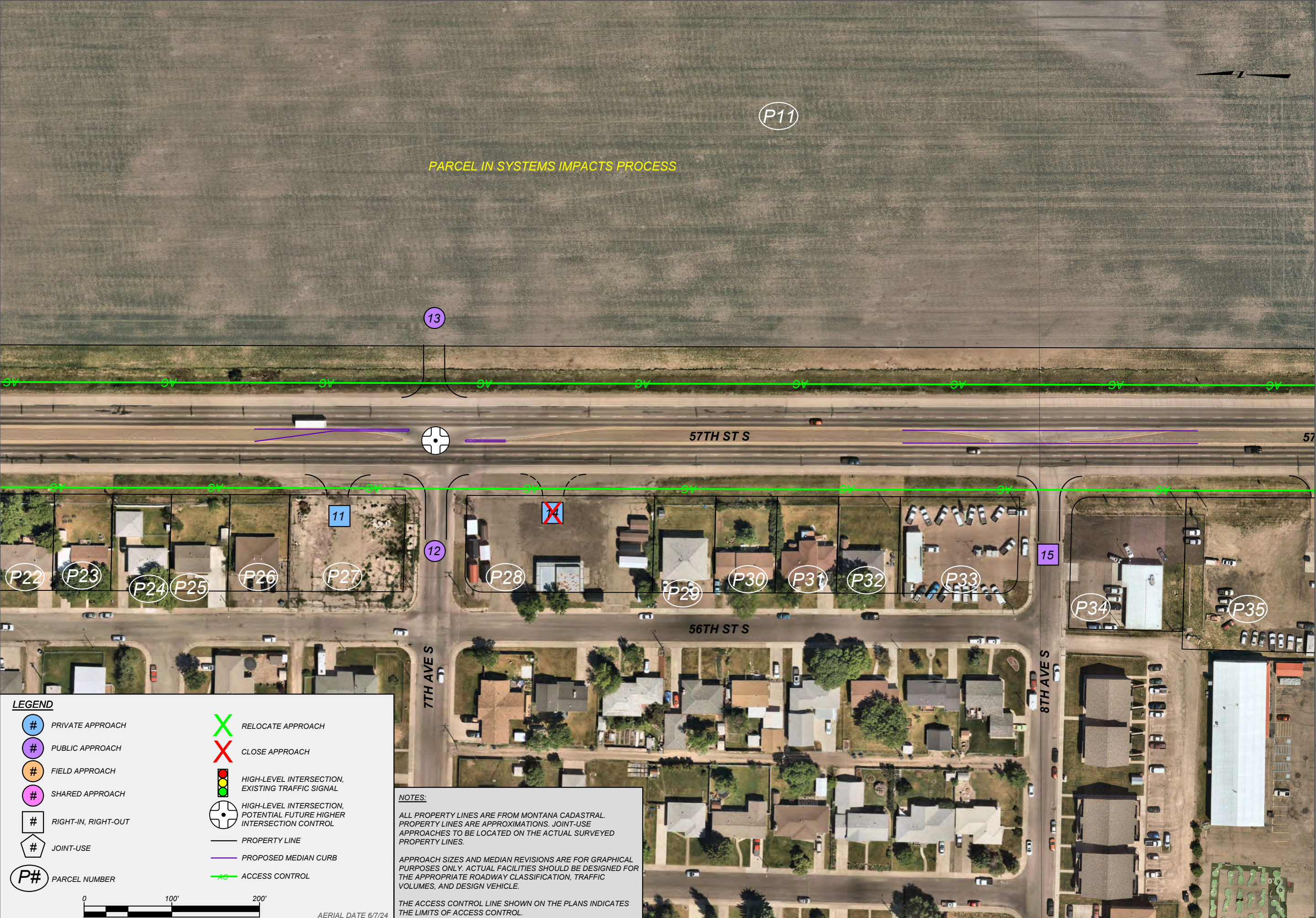
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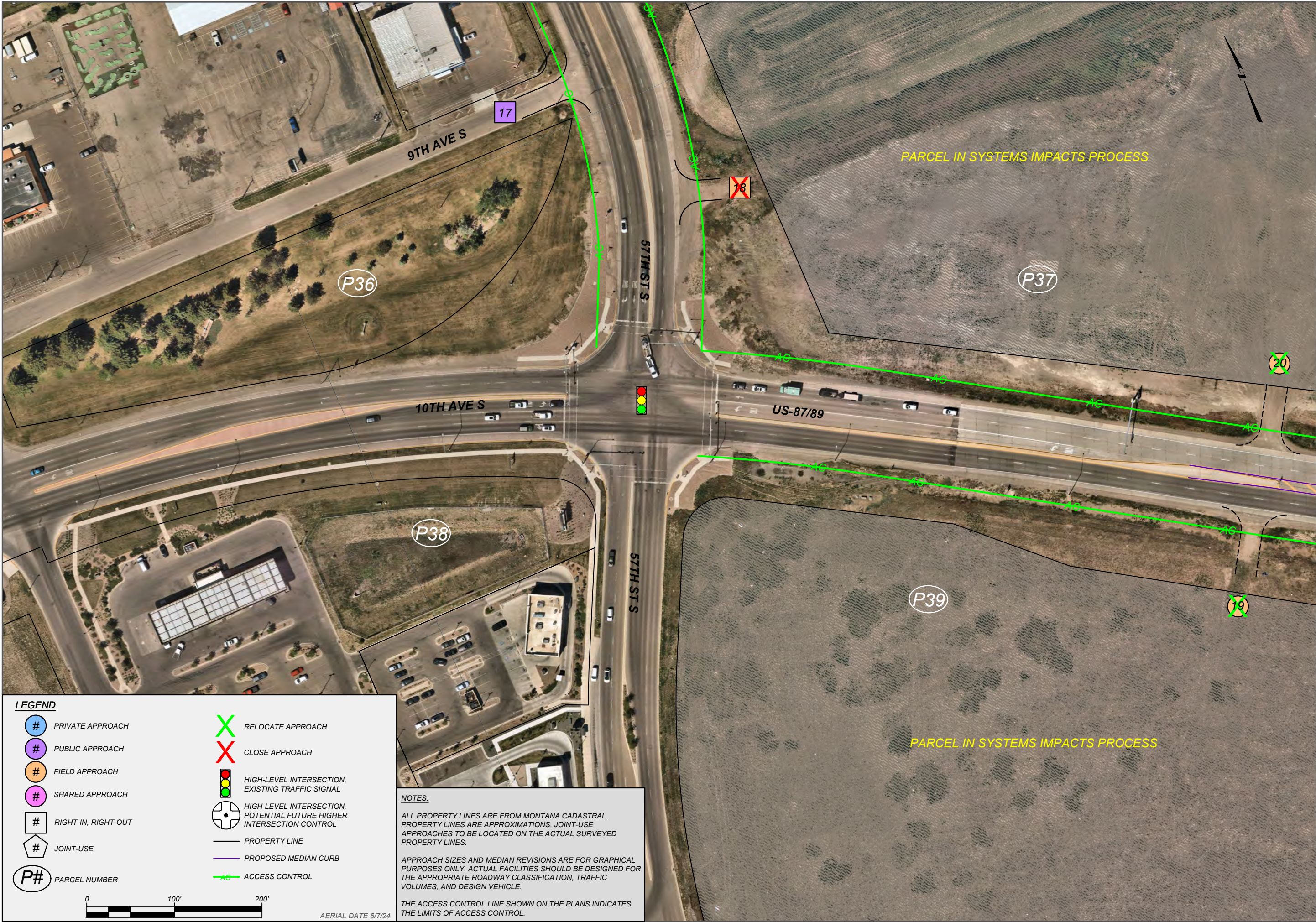
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- # PRIVATE APPROACH
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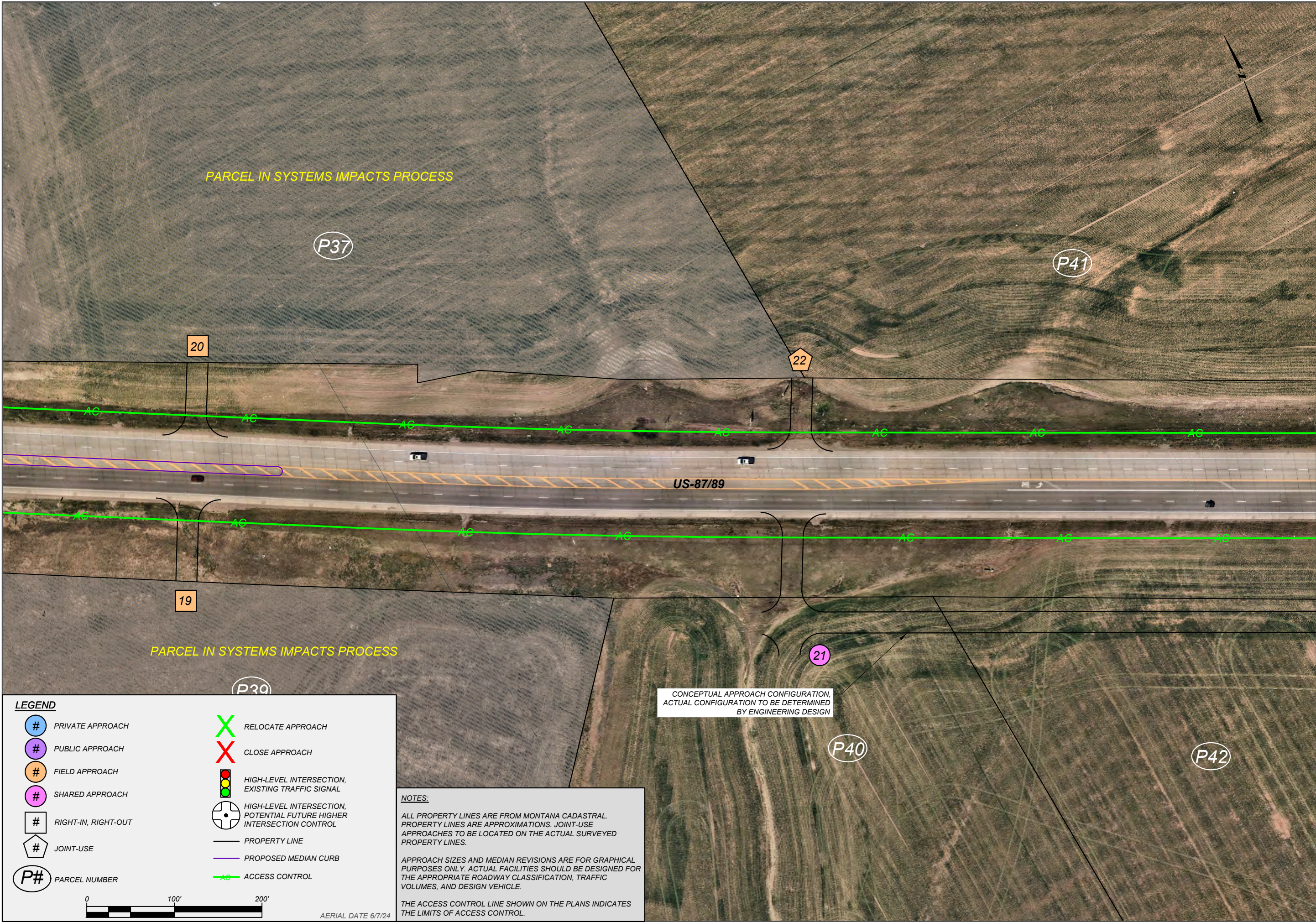
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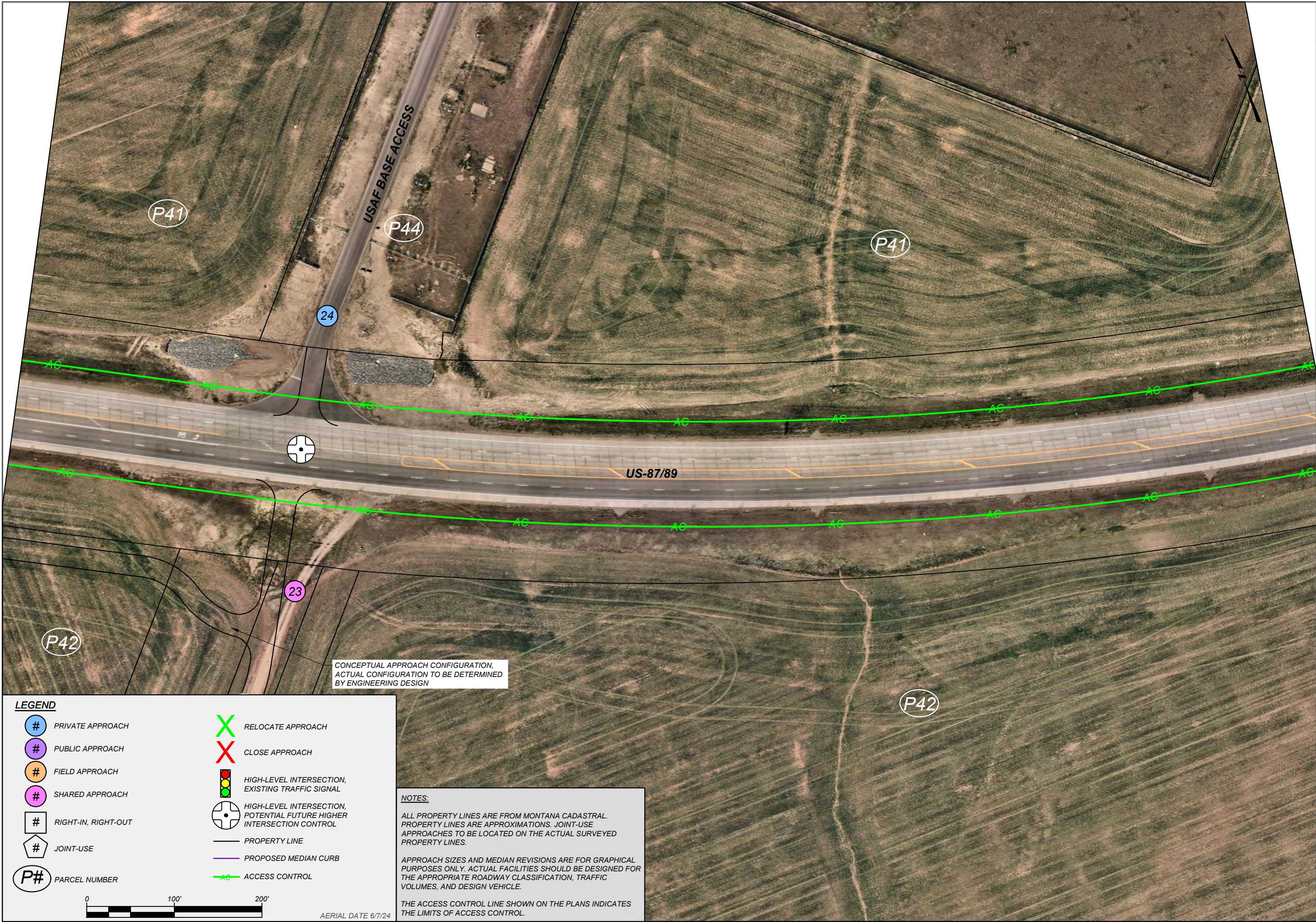
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	PUBLIC APPROACH		CLOSE APPROACH
	FIELD APPROACH		HIGH-LEVEL INTERSECTION, EXISTING TRAFFIC SIGNAL
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	PARCEL NUMBER		ACCESS CONTROL

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ACCESS MANAGEMENT PLAN

CENTRAL MT TRANSPORTATION STUDY

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| | PUBLIC APPROACH | | CLOSE APPROACH |
| | FIELD APPROACH | | HIGH-LEVEL INTERSECTION,
EXISTING TRAFFIC SIGNAL |
| | SHARED APPROACH | | HIGH-LEVEL INTERSECTION,
POTENTIAL FUTURE HIGHER
INTERSECTION CONTROL |
| | RIGHT-IN, RIGHT-OUT | | PROPERTY LINE |
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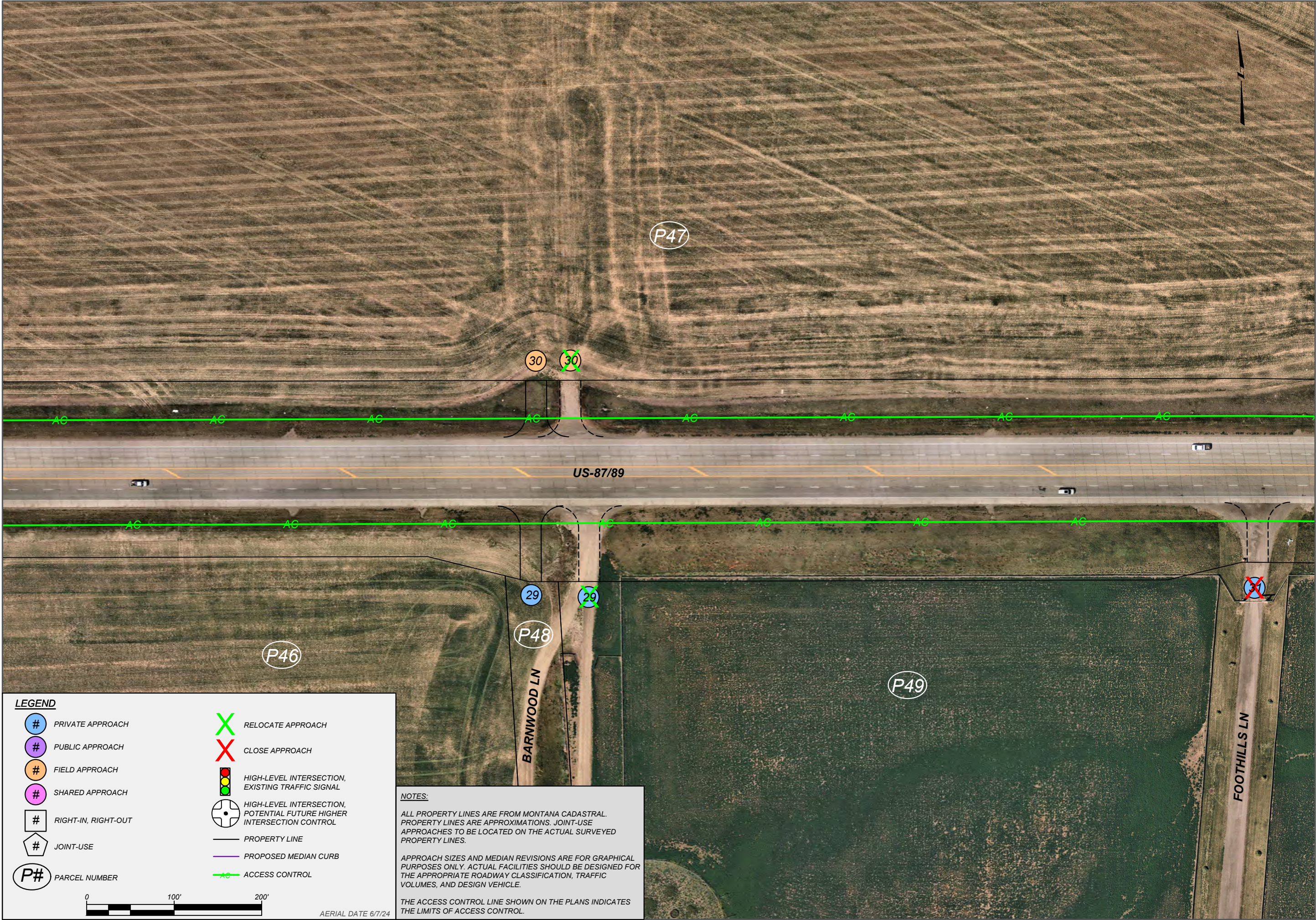
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THE ACCESS CONTROL LINE SHOWN ON THE PLANS INDICATES THE LIMITS OF ACCESS CONTROL.

PRELIMINARY

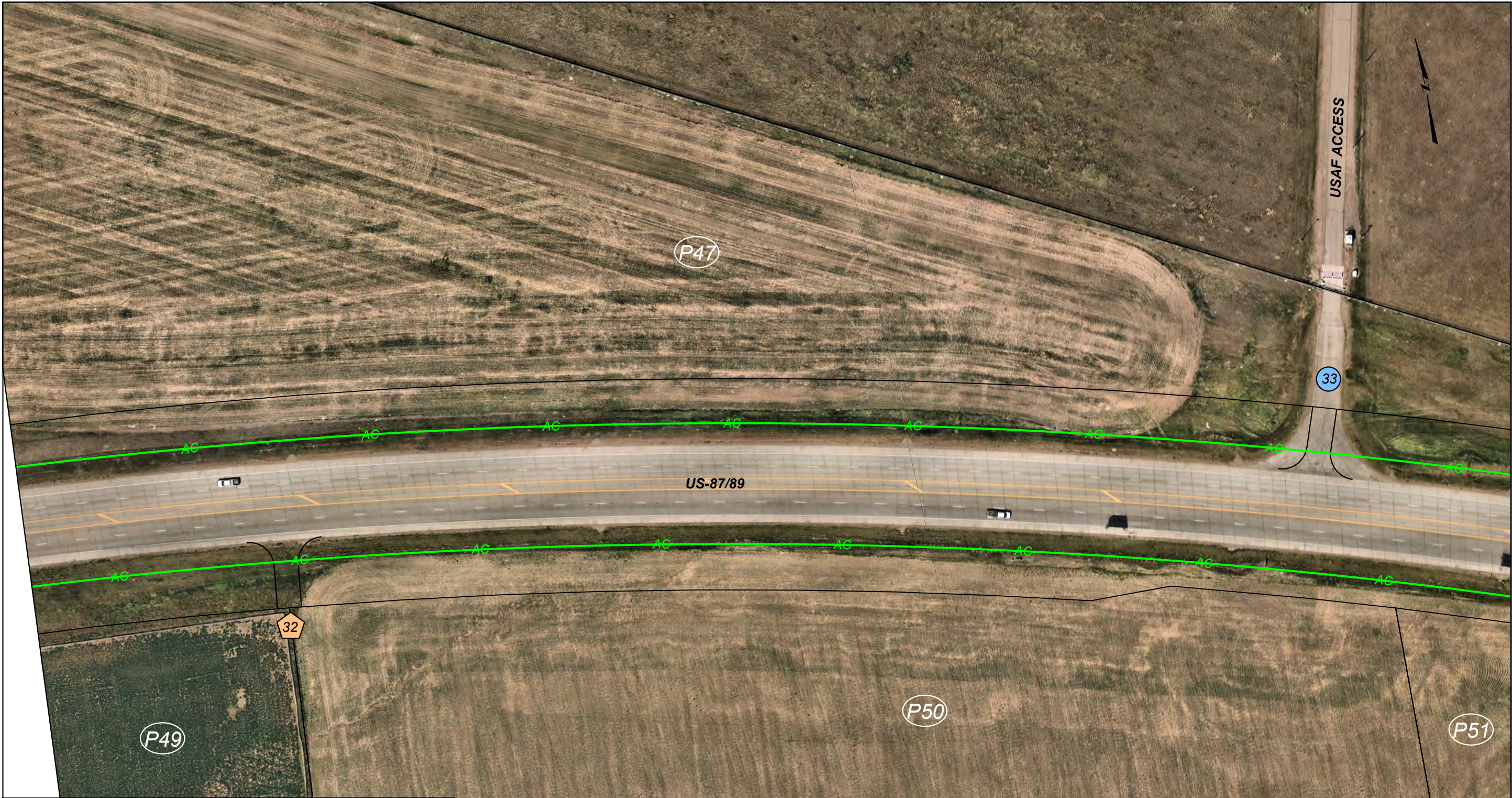


SHEET NO.
10

ACCESS MANAGEMENT
PLAN

PROJECT NAME CENTRAL MT TRANSPORTATION STUDY		COUNTY CASCADE COUNTY		PROJECT ID		UPN	
DESIGNED BY ####	REVIEWED BY ####	CHECKED BY ####	00000000RDMAP202.DWG				
MONTANA Department of Transportation			US-87/89				
			4/28/2025 3:13 PM				

PRELIMINARY



LEGEND

#

PRIVATE APPROACH

#

PUBLIC APPROACH

#

FIELD APPROACH

#

SHARED APPROACH

#

RIGHT-IN, RIGHT-OUT

#

JOINT-USE

P#

PARCEL NUMBER

X

RELOCATE APPROACH

X

CLOSE APPROACH

HIGH-LEVEL INTERSECTION, EXISTING TRAFFIC SIGNAL

HIGH-LEVEL INTERSECTION, POTENTIAL FUTURE HIGHER INTERSECTION CONTROL

PROPERTY LINE

PROPOSED MEDIAN CURB

AC

ACCESS CONTROL

0100200

AERIAL DATE 6/7/24

NOTES:

ALL PROPERTY LINES ARE FROM MONTANA CADASTRAL. PROPERTY LINES ARE APPROXIMATIONS. JOINT-USE APPROACHES TO BE LOCATED ON THE ACTUAL SURVEYED PROPERTY LINES.

APPROACH SIZES AND MEDIAN REVISIONS ARE FOR GRAPHICAL PURPOSES ONLY. ACTUAL FACILITIES SHOULD BE DESIGNED FOR THE APPROPRIATE ROADWAY CLASSIFICATION, TRAFFIC VOLUMES, AND DESIGN VEHICLE.

THE ACCESS CONTROL LINE SHOWN ON THE PLANS INDICATES THE LIMITS OF ACCESS CONTROL.

SHEET NO.
11

ACCESS MANAGEMENT
PLAN

CENTRAL MT TRANSPORTATION STUDY

CASCADE COUNTY

PROJECT ID

UPN

DESIGNED BY
###

REVIEWED BY
###

CHECKED BY
###

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MONTANA
Department of Transportation

US-87/89

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PRELIMINARY



SHEET NO.

12

ACCESS MANAGEMENT
PLAN

PROJECT NAME
CENTRAL MT TRANSPORTATION STUDY

COUNTY
CASCADE COUNTY

PROJECT ID

UPN
00000000RDMAP202.DWG

DESIGNED BY
####

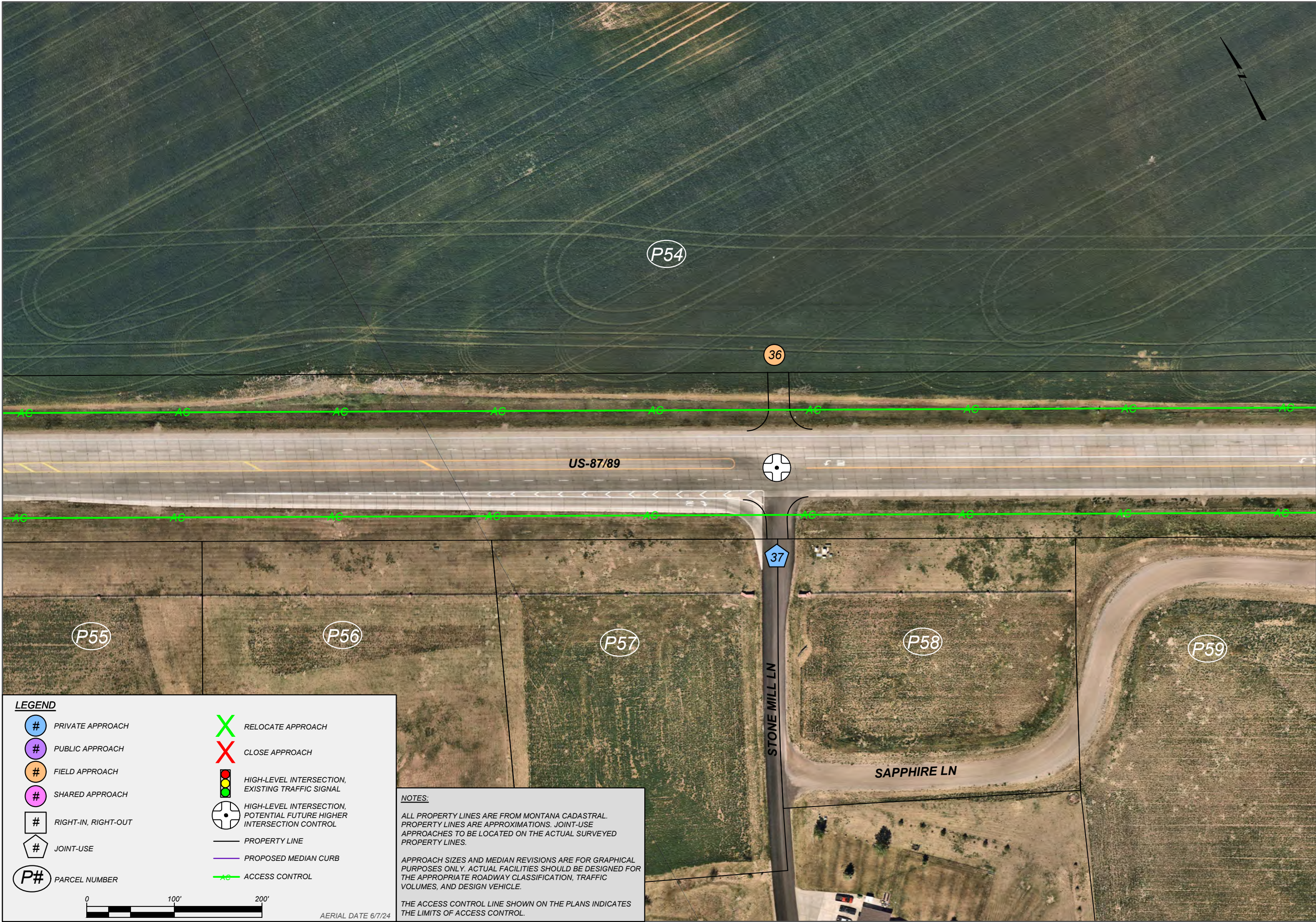
REVIEWED BY
####

CHECKED BY
####



US-87/89
4/28/2025 3:13 PM

PRELIMINARY



LEGEND

- # PRIVATE APPROACH
- # PUBLIC APPROACH
- # FIELD APPROACH
- # SHARED APPROACH
- # RIGHT-IN, RIGHT-OUT
- # JOINT-USE
- P# PARCEL NUMBER
- X RELOCATE APPROACH
- X CLOSE APPROACH
- High-level intersection, existing traffic signal
- High-level intersection, potential future higher intersection control
- PROPERTY LINE
- PROPOSED MEDIAN CURB
- ACCESS CONTROL



AERIAL DATE 6/7/24

NOTES:

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THE ACCESS CONTROL LINE SHOWN ON THE PLANS INDICATES THE LIMITS OF ACCESS CONTROL.

SHEET NO.

13

ACCESS MANAGEMENT
PLAN

PROJECT NAME
CENTRAL MT TRANSPORTATION STUDY

COUNTY
CASCADE COUNTY

PROJECT ID

UPN

DESIGNED BY

REVIEWED BY

CHECKED BY

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4/28/2025 3:13 PM

ACCESS MANAGEMENT PLAN

CENTRAL MT TRANSPORTATION STUDY
COUNTY

CASCADE COUNTY

PROJECT ID

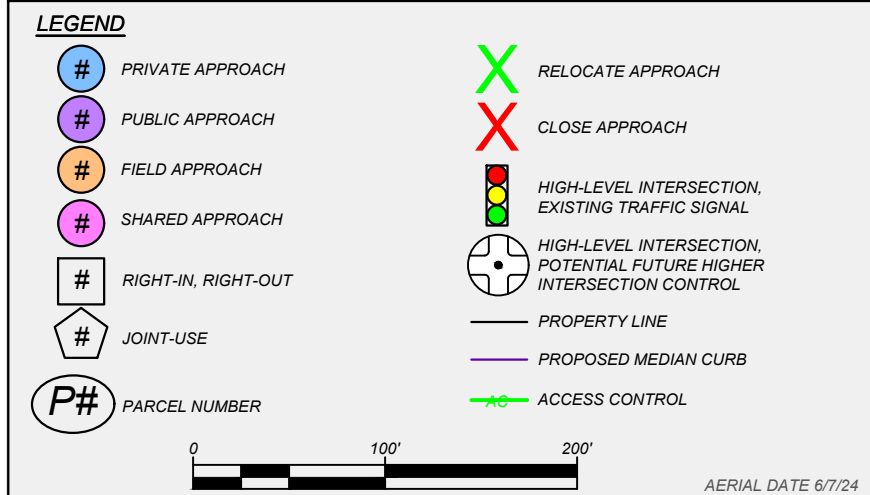
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MONTANA
Department of Transportation

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PRELIMINARY



NOTES:

ALL PROPERTY LINES ARE FROM MONTANA CADASTRAL.
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THE ACCESS CONTROL LINE SHOWN ON THE PLANS INDICATES THE LIMITS OF ACCESS CONTROL.

PRELIMINARY



LEGEND

- #

PRIVATE APPROACH
- #

PUBLIC APPROACH
- #

FIELD APPROACH
- #

SHARED APPROACH
- #

RIGHT-IN, RIGHT-OUT
- #

JOINT-USE
- P#

PARCEL NUMBER
- X

RELOCATE APPROACH
- X

CLOSE APPROACH
- HIGH-LEVEL INTERSECTION, EXISTING TRAFFIC SIGNAL
- HIGH-LEVEL INTERSECTION, POTENTIAL FUTURE HIGHER INTERSECTION CONTROL
- PROPERTY LINE
- PROPOSED MEDIAN CURB
- AC

ACCESS CONTROL



AERIAL DATE 6/7/24

NOTES:

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THE ACCESS CONTROL LINE SHOWN ON THE PLANS INDICATES THE LIMITS OF ACCESS CONTROL.

SHEET NO.

15

ACCESS MANAGEMENT
PLAN

PROJECT NAME
CENTRAL MT TRANSPORTATION STUDY

COUNTY
CASCADE COUNTY

PROJECT ID

UPN

DESIGNED BY

REVIEWED BY

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00000000RDMAP202.DWG



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PRELIMINARY



LEGEND

- #

PRIVATE APPROACH
- #

PUBLIC APPROACH
- #

FIELD APPROACH
- #

SHARED APPROACH
- #

RIGHT-IN, RIGHT-OUT
- #

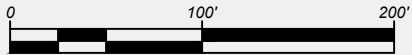
JOINT-USE
- P#

PARCEL NUMBER
- X

RELOCATE APPROACH
- X

CLOSE APPROACH
- HIGH-LEVEL INTERSECTION, EXISTING TRAFFIC SIGNAL
- HIGH-LEVEL INTERSECTION, POTENTIAL FUTURE HIGHER INTERSECTION CONTROL
- PROPERTY LINE
- PROPOSED MEDIAN CURB
- AC

ACCESS CONTROL



AERIAL DATE 6/7/24

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THE ACCESS CONTROL LINE SHOWN ON THE PLANS INDICATES THE LIMITS OF ACCESS CONTROL.

SHEET NO.

16

ACCESS MANAGEMENT
PLAN

PROJECT NAME
CENTRAL MT TRANSPORTATION STUDY

COUNTY
CASCADE COUNTY

PROJECT ID

UPN

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REVIEWED BY

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CHECKED BY

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Appendix B

Intersection Turning Movement Counts



Robert Peccia & Associates
3147 Saddle Drive

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

Count Name: 57th St N & 2nd Ave N
Site Code:
Start Date: 08/13/2024
Page No: 1

Turning Movement Data

Start Time	57th St N Northbound				57th St N Southbound				2nd Ave N Eastbound				2nd Ave N Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
10:30 AM	14	39	24	77	4	43	4	51	2	14	11	27	42	26	6	74	229
10:45 AM	15	39	29	83	8	39	6	53	6	13	13	32	63	34	1	98	266
Hourly Total	29	78	53	160	12	82	10	104	8	27	24	59	105	60	7	172	495
11:00 AM	13	53	44	110	4	38	8	50	3	15	7	25	55	52	13	120	305
11:15 AM	15	44	38	97	8	44	8	60	6	14	6	26	60	49	6	115	298
11:30 AM	18	51	34	103	3	47	2	52	3	29	9	41	55	53	8	116	312
11:45 AM	18	59	47	124	3	50	3	56	9	38	14	61	59	39	5	103	344
Hourly Total	64	207	163	434	18	179	21	218	21	96	36	153	229	193	32	454	1259
12:00 PM	35	43	54	132	8	61	6	75	15	34	13	62	38	33	7	78	347
12:15 PM	20	48	58	126	9	55	3	67	4	43	11	58	38	30	4	72	323
12:30 PM	20	51	56	127	7	51	3	61	7	34	21	62	31	20	6	57	307
12:45 PM	18	47	48	113	8	36	5	49	7	47	15	69	36	16	6	58	289
Hourly Total	93	189	216	498	32	203	17	252	33	158	60	251	143	99	23	265	1266
1:00 PM	19	67	40	126	3	36	2	41	7	32	16	55	34	23	3	60	282
1:15 PM	20	59	29	108	4	49	7	60	8	25	17	50	31	27	6	64	282
1:30 PM	20	55	36	111	7	47	2	56	4	29	14	47	27	15	9	51	265
1:45 PM	16	51	37	104	5	42	1	48	3	24	14	41	32	19	5	56	249
Hourly Total	75	232	142	449	19	174	12	205	22	110	61	193	124	84	23	231	1078
2:00 PM	20	42	30	92	5	23	2	30	3	23	12	38	36	25	8	69	229
2:15 PM	24	41	28	93	4	53	1	58	3	24	18	45	47	27	7	81	277
2:30 PM	16	38	34	88	5	36	3	44	9	17	14	40	36	35	5	76	248
2:45 PM	11	36	28	75	6	42	2	50	5	16	11	32	46	31	7	84	241
Hourly Total	71	157	120	348	20	154	8	182	20	80	55	155	165	118	27	310	995
3:00 PM	14	54	32	100	8	61	10	79	3	12	10	25	52	39	5	96	300
3:15 PM	11	46	30	87	4	40	6	50	5	19	14	38	46	44	9	99	274
3:30 PM	24	53	40	117	11	56	12	79	4	13	14	31	53	57	13	123	350
3:45 PM	20	42	28	90	2	48	3	53	3	17	10	30	60	33	8	101	274
Hourly Total	69	195	130	394	25	205	31	261	15	61	48	124	211	173	35	419	1198
4:00 PM	26	55	44	125	6	54	3	63	7	18	19	44	88	71	22	181	413
4:15 PM	23	44	45	112	2	58	9	69	3	25	20	48	73	66	13	152	381
4:30 PM	25	55	35	115	10	56	13	79	4	25	18	47	76	71	10	157	398
4:45 PM	29	45	36	110	13	58	11	82	3	14	16	33	60	73	10	143	368
Hourly Total	103	199	160	462	31	226	36	293	17	82	73	172	297	281	55	633	1560
5:00 PM	28	70	35	133	5	80	7	92	6	17	18	41	76	79	16	171	437
5:15 PM	24	54	35	113	7	56	11	74	4	28	30	62	53	37	6	96	345
5:30 PM	24	39	40	103	4	58	7	69	2	20	16	38	49	23	11	83	293
5:45 PM	23	34	40	97	6	51	8	65	3	14	19	36	30	21	9	60	258
Hourly Total	99	197	150	446	22	245	33	300	15	79	83	177	208	160	42	410	1333
6:00 PM	14	29	34	77	12	32	10	54	1	24	15	40	55	28	8	91	262
6:15 PM	18	23	45	86	15	34	2	51	1	20	13	34	24	29	14	67	238
6:30 PM	14	18	26	58	11	29	2	42	0	11	13	24	25	11	8	44	168
6:45 PM	14	19	27	60	7	26	1	34	0	18	12	30	22	16	6	44	168
Hourly Total	60	89	132	281	45	121	15	181	2	73	53	128	126	84	36	246	836
7:00 PM	14	17	23	54	7	31	4	42	2	7	18	27	13	13	7	33	156
7:15 PM	12	35	30	77	6	30	1	37	1	7	17	25	29	10	6	45	184
7:30 PM	18	28	26	72	14	20	2	36	1	10	9	20	29	15	4	48	176
7:45 PM	9	13	29	51	5	22	5	32	2	6	9	17	22	22	6	50	150
Hourly Total	53	93	108	254	32	103	12	147	6	30	53	89	93	60	23	176	666
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Hourly Total	39	50	71	160	24	60	5	89	3	38	28	69	66	44	19	129	447
9:00 PM	8	10	9	27	5	6	3	14	0	7	14	21	19	6	5	30	92
9:15 PM	6	9	14	29	4	13	0	17	1	2	5	8	10	12	5	27	81
9:30 PM	7	7	8	22	2	4	1	7	2	6	10	18	18	8	7	33	80
9:45 PM	10	8	13	31	0	5	1	6	0	2	4	6	5	2	2	9	52
Hourly Total	31	34	44	109	11	28	5	44	3	17	33	53	52	28	19	99	305
10:00 PM	6	10	4	20	0	9	2	11	0	2	3	5	9	6	2	17	53
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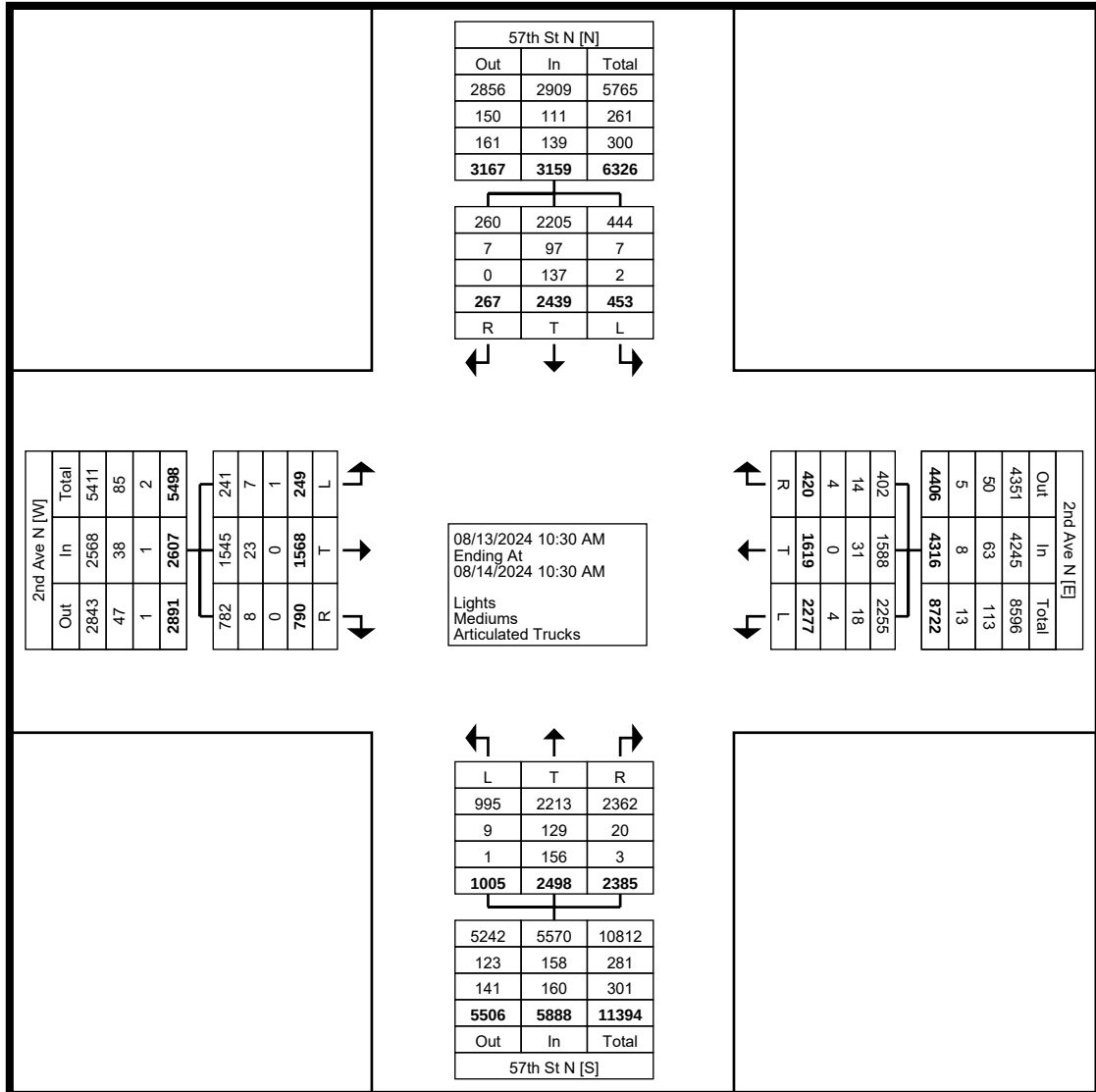
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Hourly Total	17	38	24	79	3	21	4	28	1	9	9	19	27	13	3	43	169
11:00 PM	6	3	4	13	1	2	2	5	0	4	1	5	3	2	1	6	29
11:15 PM	3	5	2	10	0	6	0	6	1	1	1	3	6	2	0	8	27
11:30 PM	3	4	5	12	1	2	0	3	0	1	1	2	2	0	1	3	20
11:45 PM	2	0	3	5	1	3	0	4	0	0	0	0	2	0	0	2	11
Hourly Total	14	12	14	40	3	13	2	18	1	6	3	10	13	4	2	19	87
12:00 AM	1	4	1	6	1	0	0	1	0	1	1	2	4	0	0	4	13
12:15 AM	1	2	3	6	1	2	1	4	0	0	0	0	2	3	0	5	15
12:30 AM	0	1	3	4	0	2	0	2	0	0	1	1	1	1	0	2	9
12:45 AM	1	2	7	10	1	0	0	1	1	1	1	3	1	0	0	1	15
Hourly Total	3	9	14	26	3	4	1	8	1	2	3	6	8	4	0	12	52
1:00 AM	0	1	3	4	0	2	0	2	0	0	1	1	3	1	0	4	11
1:15 AM	0	2	2	4	0	2	0	2	0	1	0	1	2	1	0	3	10
1:30 AM	0	0	6	6	0	1	0	1	1	0	0	1	1	0	0	1	9
1:45 AM	0	1	0	1	0	1	0	1	0	0	1	1	0	2	0	2	5
Hourly Total	0	4	11	15	0	6	0	6	1	1	2	4	6	4	0	10	35
2:00 AM	1	2	2	5	0	0	2	2	0	0	0	0	0	1	1	2	9
2:15 AM	1	0	1	2	0	3	1	4	0	0	1	1	1	0	0	1	8
2:30 AM	0	2	1	3	0	1	0	1	0	0	0	0	0	2	0	2	6
2:45 AM	0	0	0	0	0	2	0	2	0	0	2	2	1	1	0	2	6
Hourly Total	2	4	4	10	0	6	3	9	0	0	3	3	2	4	1	7	29
3:00 AM	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	2
3:15 AM	0	2	0	2	2	0	0	2	0	0	0	0	0	0	0	0	4
3:30 AM	0	0	2	2	0	0	0	0	0	0	0	0	2	0	0	2	4
3:45 AM	0	1	1	2	0	2	0	2	0	3	0	3	1	1	0	2	9
Hourly Total	0	3	3	6	2	3	0	5	0	4	0	4	3	1	0	4	19
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4:15 AM	0	0	6	6	2	1	0	3	0	2	1	3	3	0	1	4	16
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4:45 AM	0	2	6	8	2	3	0	5	1	4	2	7	6	0	0	6	26
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5:30 AM	2	15	22	39	18	5	0	23	1	24	4	29	6	1	0	7	98
5:45 AM	2	14	45	61	21	12	0	33	1	25	1	27	9	1	0	10	131
Hourly Total	4	40	90	134	51	27	0	78	3	70	6	79	21	6	2	29	320
6:00 AM	0	11	28	39	6	20	1	27	0	18	5	23	5	3	4	12	101
6:15 AM	1	35	44	80	5	24	3	32	5	36	2	43	4	6	0	10	165
6:30 AM	2	38	53	93	2	24	3	29	5	59	3	67	10	6	1	17	206
6:45 AM	6	41	74	121	5	30	2	37	6	49	16	71	12	9	0	21	250
Hourly Total	9	125	199	333	18	98	9	125	16	162	26	204	31	24	5	60	722
7:00 AM	9	35	49	93	3	28	1	32	7	41	8	56	10	11	3	24	205
7:15 AM	15	48	61	124	3	38	2	43	11	41	15	67	18	16	3	37	271
7:30 AM	20	52	63	135	8	28	4	40	6	67	11	84	37	11	8	56	315
7:45 AM	17	65	62	144	9	33	1	43	10	62	11	83	29	13	3	45	315
Hourly Total	61	200	235	496	23	127	8	158	34	211	45	290	94	51	17	162	1106
8:00 AM	10	34	33	77	12	43	5	60	2	37	7	46	17	7	2	26	209
8:15 AM	10	27	34	71	5	38	1	44	3	29	7	39	18	11	7	36	190
8:30 AM	12	32	43	87	6	24	4	34	3	29	11	43	21	18	5	44	208
8:45 AM	14	21	48	83	5	39	4	48	4	29	12	45	25	12	5	42	218
Hourly Total	46	114	158	318	28	144	14	186	12	124	37	173	81	48	19	148	825
9:00 AM	7	28	18	53	6	38	2	46	2	18	5	25	23	13	4	40	164
9:15 AM	8	37	19	64	3	41	5	49	2	22	9	33	37	13	8	58	204
9:30 AM	9	31	12	52	1	31	2	34	1	27	3	31	29	16	4	49	166
9:45 AM	21	37	21	79	3	34	5	42	2	19	9	30	27	8	5	40	191
Hourly Total	45	133	70	248	13	144	14	171	7	86	26	119	116	50	21	187	725
10:00 AM	11	43	28	82	3	26	2	31	1	9	8	18	21	19	3	43	174
10:15 AM	7	39	27	73	6	33	5	44	3	15	12	30	21	7	5	33	180
Grand Total	1005	2498	2385	5888	453	2439	267	3159	249	1568	790	2607	2277	1619	420	4316	15970
Approach %	17.1	42.4	40.5	-	14.3	77.2	8.5	-	9.6	60.1	30.3	-	52.8	37.5	9.7	-	-
Total %	6.3	15.6	14.9	36.9	2.8	15.3	1.7	19.8	1.6	9.8	4.9	16.3	14.3	10.1	2.6	27.0	-
Lights	995	2213	2362	5570	444	2205	260	2909	241	1545	782	2568	2255	1588	402	4245	15292
% Lights	99.0	88.6	99.0	94.6	98.0	90.4	97.4	92.1	96.8	98.5	99.0	98.5	99.0	98.1	95.7	98.4	95.8
Mediums	9	129	20	158	7	97	7	111	7	23	8	38	18	31	14	63	370
% Mediums	0.9	5.2	0.8	2.7	1.5	4.0	2.6	3.5	2.8	1.5	1.0	1.5	0.8	1.9	3.3	1.5	2.3
Articulated Trucks	1	156	3	160	2	137	0	139	1	0	0	1	4	0	4	8	308
% Articulated Trucks	0.1	6.2	0.1	2.7	0.4	5.6	0.0	4.4	0.4	0.0	0.0	0.0	0.2	0.0	1.0	0.2	1.9



Robert Peccia & Associates
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Count Name: 57th St N & 2nd Ave N
Site Code:
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Turning Movement Data Plot



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Count Name: 57th St N & 2nd Ave N
Site Code:
Start Date: 08/13/2024
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Turning Movement Peak Hour Data (4:15 PM)

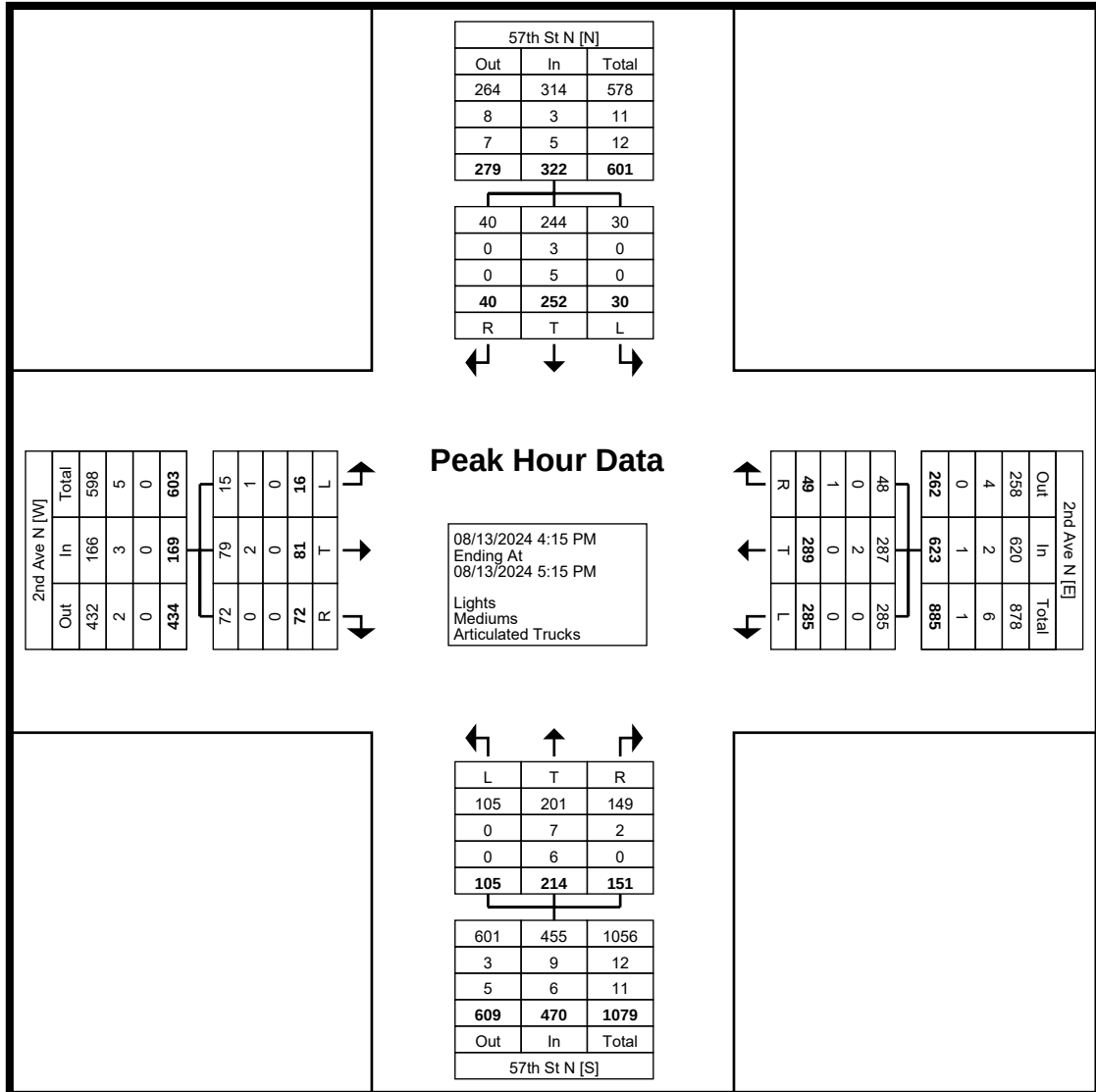
Start Time	57th St N Northbound				57th St N Southbound				2nd Ave N Eastbound				2nd Ave N Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
4:15 PM	23	44	45	112	2	58	9	69	3	25	20	48	73	66	13	152	381
4:30 PM	25	55	35	115	10	56	13	79	4	25	18	47	76	71	10	157	398
4:45 PM	29	45	36	110	13	58	11	82	3	14	16	33	60	73	10	143	368
5:00 PM	28	70	35	133	5	80	7	92	6	17	18	41	76	79	16	171	437
Total	105	214	151	470	30	252	40	322	16	81	72	169	285	289	49	623	1584
Approach %	22.3	45.5	32.1	-	9.3	78.3	12.4	-	9.5	47.9	42.6	-	45.7	46.4	7.9	-	-
Total %	6.6	13.5	9.5	29.7	1.9	15.9	2.5	20.3	1.0	5.1	4.5	10.7	18.0	18.2	3.1	39.3	-
PHF	0.905	0.764	0.839	0.883	0.577	0.788	0.769	0.875	0.667	0.810	0.900	0.880	0.938	0.915	0.766	0.911	0.906
Lights	105	201	149	455	30	244	40	314	15	79	72	166	285	287	48	620	1555
% Lights	100.0	93.9	98.7	96.8	100.0	96.8	100.0	97.5	93.8	97.5	100.0	98.2	100.0	99.3	98.0	99.5	98.2
Mediums	0	7	2	9	0	3	0	3	1	2	0	3	0	2	0	2	17
% Mediums	0.0	3.3	1.3	1.9	0.0	1.2	0.0	0.9	6.3	2.5	0.0	1.8	0.0	0.7	0.0	0.3	1.1
Articulated Trucks	0	6	0	6	0	5	0	5	0	0	0	0	0	0	1	1	12
% Articulated Trucks	0.0	2.8	0.0	1.3	0.0	2.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.2	0.8



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Count Name: 57th St N & 2nd Ave N
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Turning Movement Peak Hour Data Plot (4:15 PM)

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Count Name: 57th St N & 2nd Ave N
Site Code:
Start Date: 08/13/2024
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Turning Movement Peak Hour Data (7:15 AM)

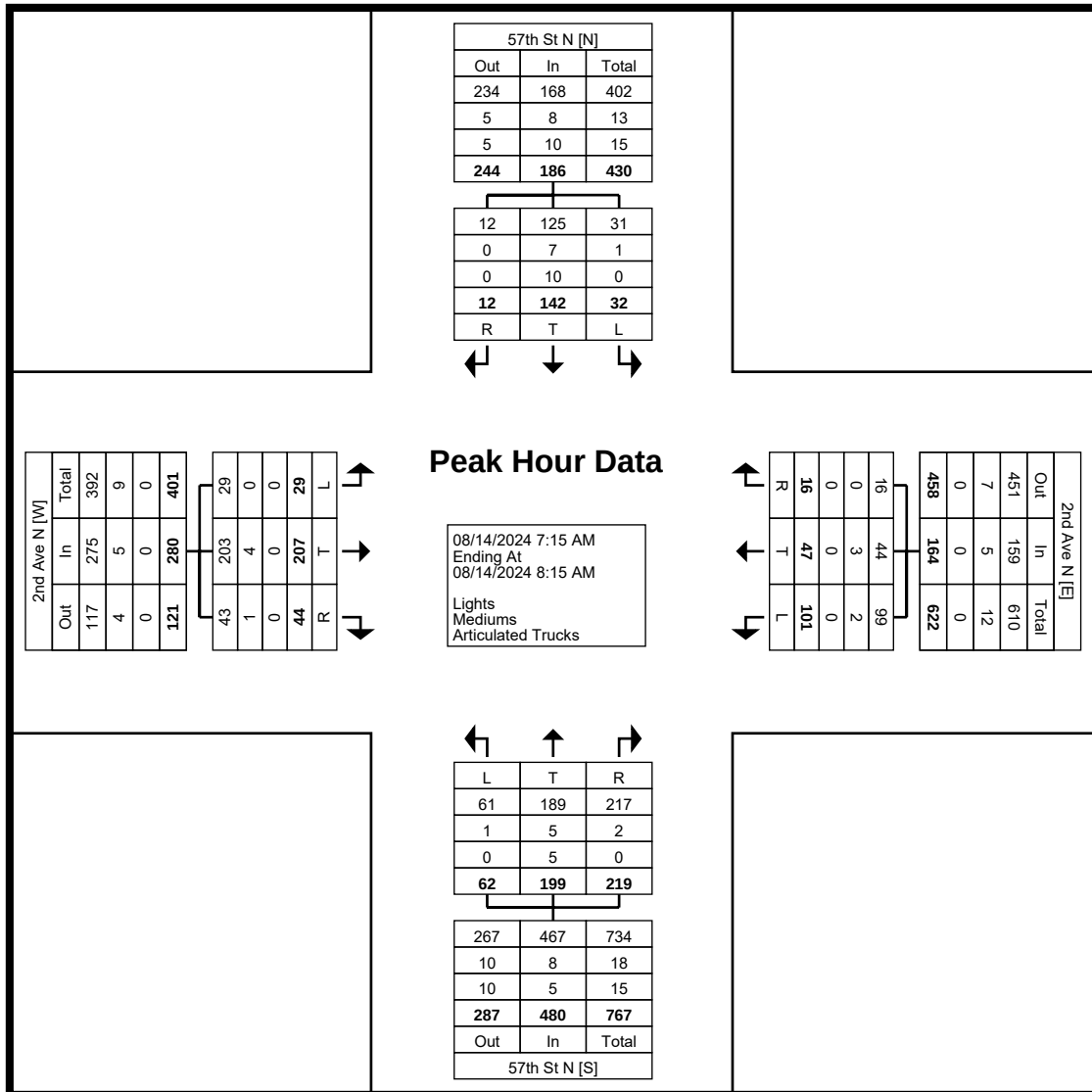
[illegible]



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Count Name: 57th St N & 2nd Ave N
Site Code:
Start Date: 08/13/2024
Page No: 7



Turning Movement Peak Hour Data Plot (7:15 AM)



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Count Name: 57th St S & 3rd Ave S
Site Code:
Start Date: 08/13/2024
Page No: 1

Turning Movement Data

Start Time	57th St S Northbound				57th St S Southbound				3rd St S Eastbound				3rd Ave S Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
10:30 AM	6	78	6	90	1	90	4	95	3	0	5	8	1	0	1	2	195
10:45 AM	10	74	1	85	1	112	7	120	3	1	6	10	2	0	1	3	218
Hourly Total	16	152	7	175	2	202	11	215	6	1	11	18	3	0	2	5	413
11:00 AM	3	104	1	108	0	105	2	107	4	0	6	10	3	1	1	5	230
11:15 AM	8	97	0	105	1	99	13	113	2	0	2	4	1	1	3	5	227
11:30 AM	5	99	7	111	0	113	11	124	5	0	7	12	3	1	0	4	251
11:45 AM	5	126	6	137	0	113	10	123	4	0	7	11	2	0	0	2	273
Hourly Total	21	426	14	461	1	430	36	467	15	0	22	37	9	3	4	16	981
12:00 PM	7	112	1	120	4	106	10	120	8	1	3	12	2	4	2	8	260
12:15 PM	7	111	3	121	0	97	8	105	7	0	9	16	2	1	1	4	246
12:30 PM	4	122	3	129	0	97	4	101	6	1	11	18	1	0	3	4	252
12:45 PM	4	104	5	113	0	77	10	87	7	1	1	9	2	1	0	3	212
Hourly Total	22	449	12	483	4	377	32	413	28	3	24	55	7	6	6	19	970
1:00 PM	6	115	3	124	0	79	5	84	8	3	2	13	4	4	1	9	230
1:15 PM	12	97	4	113	1	90	4	95	5	0	8	13	1	1	1	3	224
1:30 PM	6	98	2	106	1	84	10	95	7	1	6	14	1	1	3	5	220
1:45 PM	9	91	3	103	0	81	7	88	12	1	4	17	3	0	0	3	211
Hourly Total	33	401	12	446	2	334	26	362	32	5	20	57	9	6	5	20	885
2:00 PM	7	84	1	92	1	70	6	77	2	0	8	10	2	0	1	3	182
2:15 PM	5	82	4	91	1	102	13	116	10	0	4	14	4	1	1	6	227
2:30 PM	7	83	3	93	0	77	10	87	4	1	11	16	3	3	0	6	202
2:45 PM	2	76	3	81	0	93	10	103	2	1	5	8	4	1	1	6	198
Hourly Total	21	325	11	357	2	342	39	383	18	2	28	48	13	5	3	21	809
3:00 PM	12	82	4	98	1	112	6	119	5	0	6	11	3	2	1	6	234
3:15 PM	7	85	0	92	0	94	1	95	5	0	5	10	5	1	2	8	205
3:30 PM	4	99	7	110	1	113	10	124	5	1	6	12	2	3	2	7	253
3:45 PM	5	91	1	97	0	110	8	118	5	0	9	14	2	2	2	6	235
Hourly Total	28	357	12	397	2	429	25	456	20	1	26	47	12	8	7	27	927
4:00 PM	8	108	4	120	1	149	16	166	8	0	4	12	3	0	4	7	305
4:15 PM	9	108	2	119	1	128	19	148	5	0	7	12	3	0	0	3	282
4:30 PM	8	101	5	114	2	137	13	152	6	0	10	16	5	2	3	10	292
4:45 PM	13	107	4	124	3	123	20	146	5	1	9	15	6	2	2	10	295
Hourly Total	38	424	15	477	7	537	68	612	24	1	30	55	17	4	9	30	1174
5:00 PM	18	117	4	139	0	150	22	172	1	0	4	5	3	1	3	7	323
5:15 PM	18	101	0	119	1	117	14	132	8	1	8	17	2	1	1	4	272
5:30 PM	8	99	3	110	0	114	13	127	6	0	11	17	4	0	1	5	259
5:45 PM	9	95	4	108	0	99	8	107	5	0	8	13	2	3	0	5	233
Hourly Total	53	412	11	476	1	480	57	538	20	1	31	52	11	5	5	21	1087
6:00 PM	13	72	4	89	0	86	13	99	2	2	4	8	3	2	2	7	203
6:15 PM	8	75	2	85	0	65	5	70	8	1	4	13	2	0	0	2	170
6:30 PM	12	50	3	65	0	65	8	73	5	1	6	12	1	0	0	1	151
6:45 PM	9	62	2	73	2	54	4	60	2	0	5	7	0	1	0	1	141
Hourly Total	42	259	11	312	2	270	30	302	17	4	19	40	6	3	2	11	665
7:00 PM	3	45	0	48	0	60	4	64	4	0	3	7	1	1	2	4	123
7:15 PM	7	73	0	80	1	70	3	74	2	0	6	8	0	1	0	1	163
7:30 PM	9	67	1	77	0	59	2	61	8	0	4	12	1	0	0	1	151
7:45 PM	4	43	0	47	1	44	6	51	3	1	2	6	3	0	0	3	107
Hourly Total	23	228	1	252	2	233	15	250	17	1	15	33	5	2	2	9	544
8:00 PM	4	50	1	55	0	55	7	62	0	0	3	3	1	0	0	1	121
8:15 PM	1	34	1	36	0	40	4	44	3	0	6	9	1	1	0	2	91
8:30 PM	8	34	0	42	1	23	1	25	2	0	6	8	1	0	0	1	76
8:45 PM	2	35	1	38	0	24	4	28	1	2	2	5	2	1	0	3	74
Hourly Total	15	153	3	171	1	142	16	159	6	2	17	25	5	2	0	7	362
9:00 PM	3	27	0	30	0	37	3	40	1	0	4	5	0	0	1	1	76
9:15 PM	2	30	2	34	0	21	4	25	1	0	2	3	0	0	0	0	62
9:30 PM	1	17	0	18	0	36	0	36	2	0	5	7	0	0	0	0	61
9:45 PM	3	27	0	30	0	14	1	15	1	0	3	4	0	0	0	0	49
Hourly Total	9	101	2	112	0	108	8	116	5	0	14	19	0	0	1	1	248
10:00 PM	1	20	1	22	0	20	2	22	1	0	4	5	1	0	0	1	50
10:15 PM	4	25	0	29	0	10	4	14	0	0	2	2	2	0	0	2	47

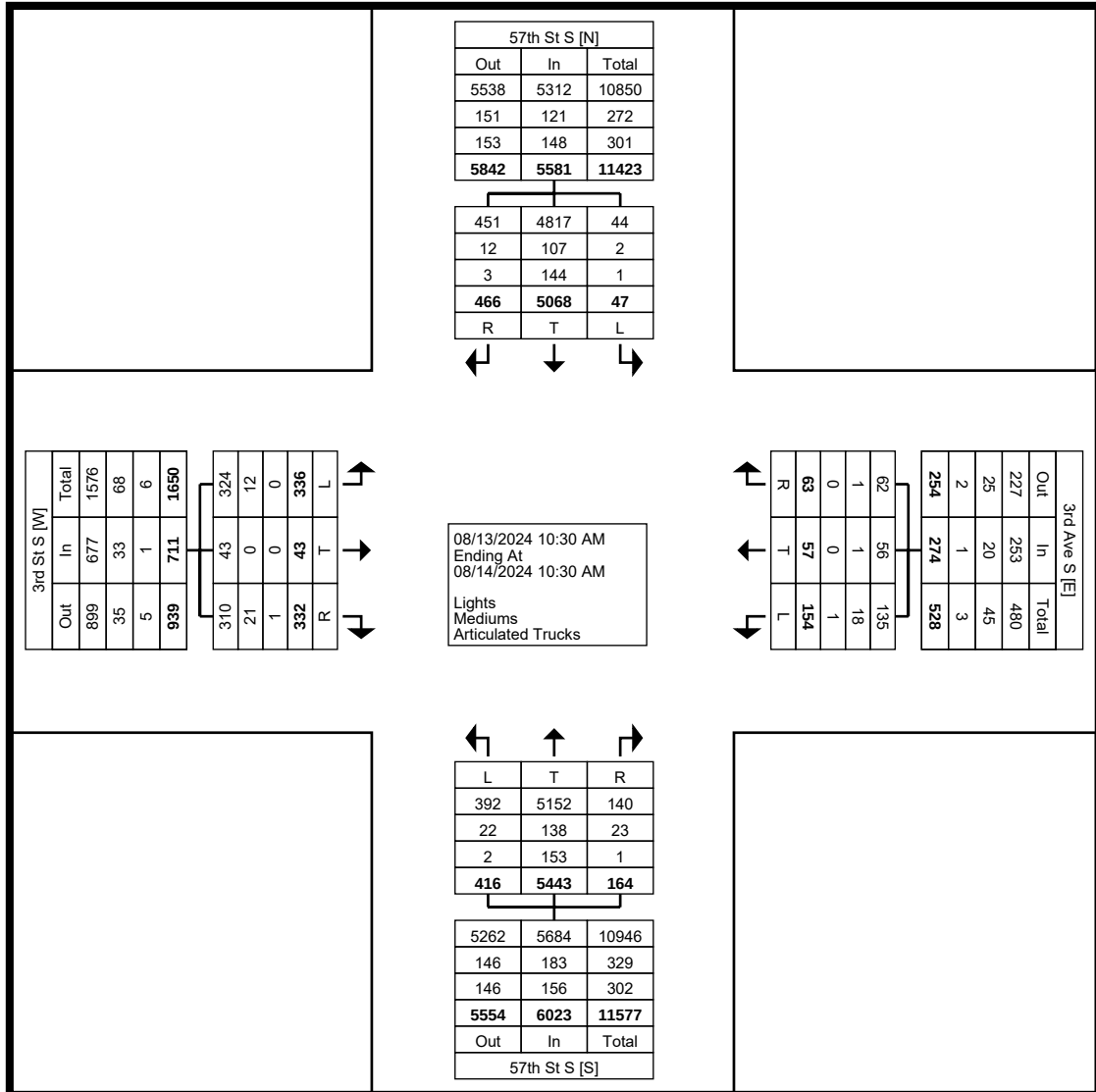
10:30 PM	1	12	0	13	0	18	2	20	0	1	2	3	0	0	0	0	36
10:45 PM	2	20	1	23	0	1	1	2	0	0	0	0	0	0	0	0	25
Hourly Total	8	77	2	87	0	49	9	58	1	1	8	10	3	0	0	3	158
11:00 PM	4	14	0	18	0	6	0	6	0	0	0	0	0	0	0	0	24
11:15 PM	0	10	0	10	0	11	1	12	0	0	0	0	0	0	0	0	22
11:30 PM	2	11	0	13	0	3	1	4	0	0	1	1	0	0	0	0	18
11:45 PM	0	5	0	5	0	6	0	6	0	0	1	1	0	0	0	0	12
Hourly Total	6	40	0	46	0	26	2	28	0	0	2	2	0	0	0	0	76
12:00 AM	0	6	0	6	0	3	0	3	0	0	0	0	1	0	0	1	10
12:15 AM	1	7	0	8	0	5	0	5	0	0	0	0	0	0	0	0	13
12:30 AM	2	6	0	8	1	2	0	3	0	0	0	0	0	0	0	0	11
12:45 AM	2	8	0	10	0	2	0	2	0	0	0	0	0	0	1	1	13
Hourly Total	5	27	0	32	1	12	0	13	0	0	0	0	1	0	1	2	47
1:00 AM	0	3	0	3	0	6	0	6	0	0	0	0	0	0	0	0	9
1:15 AM	1	3	0	4	0	4	0	4	1	0	0	1	0	0	0	0	9
1:30 AM	0	5	0	5	0	2	0	2	0	0	0	0	0	0	0	0	7
1:45 AM	0	1	0	1	0	2	0	2	0	0	1	1	0	0	0	0	4
Hourly Total	1	12	0	13	0	14	0	14	1	0	1	2	0	0	0	0	29
2:00 AM	1	5	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
2:15 AM	0	2	0	2	0	4	1	5	0	0	0	0	0	0	0	0	7
2:30 AM	0	3	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
2:45 AM	1	0	0	1	0	5	0	5	0	0	0	0	0	0	0	0	6
Hourly Total	2	10	0	12	0	10	1	11	0	0	0	0	0	0	0	0	23
3:00 AM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
3:15 AM	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
3:30 AM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
3:45 AM	0	1	0	1	0	2	1	3	2	0	0	2	0	0	0	0	6
Hourly Total	1	5	0	6	0	5	1	6	2	1	0	3	0	0	0	0	15
4:00 AM	0	3	0	3	0	2	1	3	1	0	0	1	0	0	0	0	7
4:15 AM	0	6	0	6	0	4	0	4	1	0	0	1	0	0	0	0	11
4:30 AM	0	12	0	12	0	6	0	6	2	0	1	3	0	0	0	0	21
4:45 AM	0	7	0	7	0	9	0	9	0	0	0	0	0	0	0	0	16
Hourly Total	0	28	0	28	0	21	1	22	4	0	1	5	0	0	0	0	55
5:00 AM	0	14	0	14	0	9	0	9	2	0	0	2	0	0	1	1	26
5:15 AM	1	13	0	14	0	8	1	9	2	2	1	5	0	0	0	0	28
5:30 AM	3	38	0	41	0	14	2	16	3	0	1	4	0	0	0	0	61
5:45 AM	1	56	3	60	1	18	2	21	6	0	2	8	0	0	0	0	89
Hourly Total	5	121	3	129	1	49	5	55	13	2	4	19	0	0	1	1	204
6:00 AM	4	34	0	38	0	29	3	32	5	0	3	8	0	3	1	4	82
6:15 AM	2	73	3	78	0	28	1	29	7	3	1	11	0	0	1	1	119
6:30 AM	3	94	3	100	0	34	1	35	4	2	3	9	3	0	0	3	147
6:45 AM	4	110	6	120	3	50	4	57	10	1	2	13	2	0	0	2	192
Hourly Total	13	311	12	336	3	141	9	153	26	6	9	41	5	3	2	10	540
7:00 AM	3	78	3	84	0	52	2	54	8	3	5	16	0	0	0	0	154
7:15 AM	4	117	4	125	3	62	3	68	8	1	4	13	6	0	2	8	214
7:30 AM	6	133	3	142	3	66	3	72	9	1	3	13	3	0	0	3	230
7:45 AM	0	127	5	132	0	58	10	68	12	1	4	17	7	2	5	14	231
Hourly Total	13	455	15	483	6	238	18	262	37	6	16	59	16	2	7	25	829
8:00 AM	3	71	4	78	2	62	6	70	5	1	3	9	3	1	1	5	162
8:15 AM	2	63	3	68	1	58	8	67	7	0	2	9	1	0	0	1	145
8:30 AM	5	76	2	83	1	49	6	56	9	1	6	16	3	1	0	4	159
8:45 AM	3	75	1	79	1	68	7	76	6	1	2	9	6	2	2	10	174
Hourly Total	13	285	10	308	5	237	27	269	27	3	13	43	13	4	3	20	640
9:00 AM	5	48	1	54	1	59	7	67	4	1	4	9	4	1	0	5	135
9:15 AM	3	62	3	68	1	78	7	86	1	1	4	6	3	1	0	4	164
9:30 AM	9	49	4	62	0	63	3	66	2	0	4	6	2	0	2	4	138
9:45 AM	2	79	1	82	2	64	5	71	3	0	3	6	2	1	1	4	163
Hourly Total	19	238	9	266	4	264	22	290	10	2	15	27	11	3	3	17	600
10:00 AM	5	81	0	86	1	58	4	63	4	1	4	9	3	0	0	3	161
10:15 AM	4	66	2	72	0	60	4	64	3	0	2	5	5	1	0	6	147
Grand Total	416	5443	164	6023	47	5068	466	5581	336	43	332	711	154	57	63	274	12589
Approach %	6.9	90.4	2.7	-	0.8	90.8	8.3	-	47.3	6.0	46.7	-	56.2	20.8	23.0	-	-
Total %	3.3	43.2	1.3	47.8	0.4	40.3	3.7	44.3	2.7	0.3	2.6	5.6	1.2	0.5	0.5	2.2	-
Lights	392	5152	140	5684	44	4817	451	5312	324	43	310	677	135	56	62	253	11926
% Lights	94.2	94.7	85.4	94.4	93.6	95.0	96.8	95.2	96.4	100.0	93.4	95.2	87.7	98.2	98.4	92.3	94.7
Mediums	22	138	23	183	2	107	12	121	12	0	21	33	18	1	1	20	357
% Mediums	5.3	2.5	14.0	3.0	4.3	2.1	2.6	2.2	3.6	0.0	6.3	4.6	11.7	1.8	1.6	7.3	2.8
Articulated Trucks	2	153	1	156	1	144	3	148	0	0	1	1	1	0	0	1	306
% Articulated Trucks	0.5	2.8	0.6	2.6	2.1	2.8	0.6	2.7	0.0	0.0	0.3	0.1	0.6	0.0	0.0	0.4	2.4



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Count Name: 57th St S & 3rd
Ave S
Site Code:
Start Date: 08/13/2024
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Turning Movement Data Plot

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Count Name: 57th St S & 3rd Ave S
Site Code:
Start Date: 08/13/2024
Page No: 4

Turning Movement Peak Hour Data (4:15 PM)

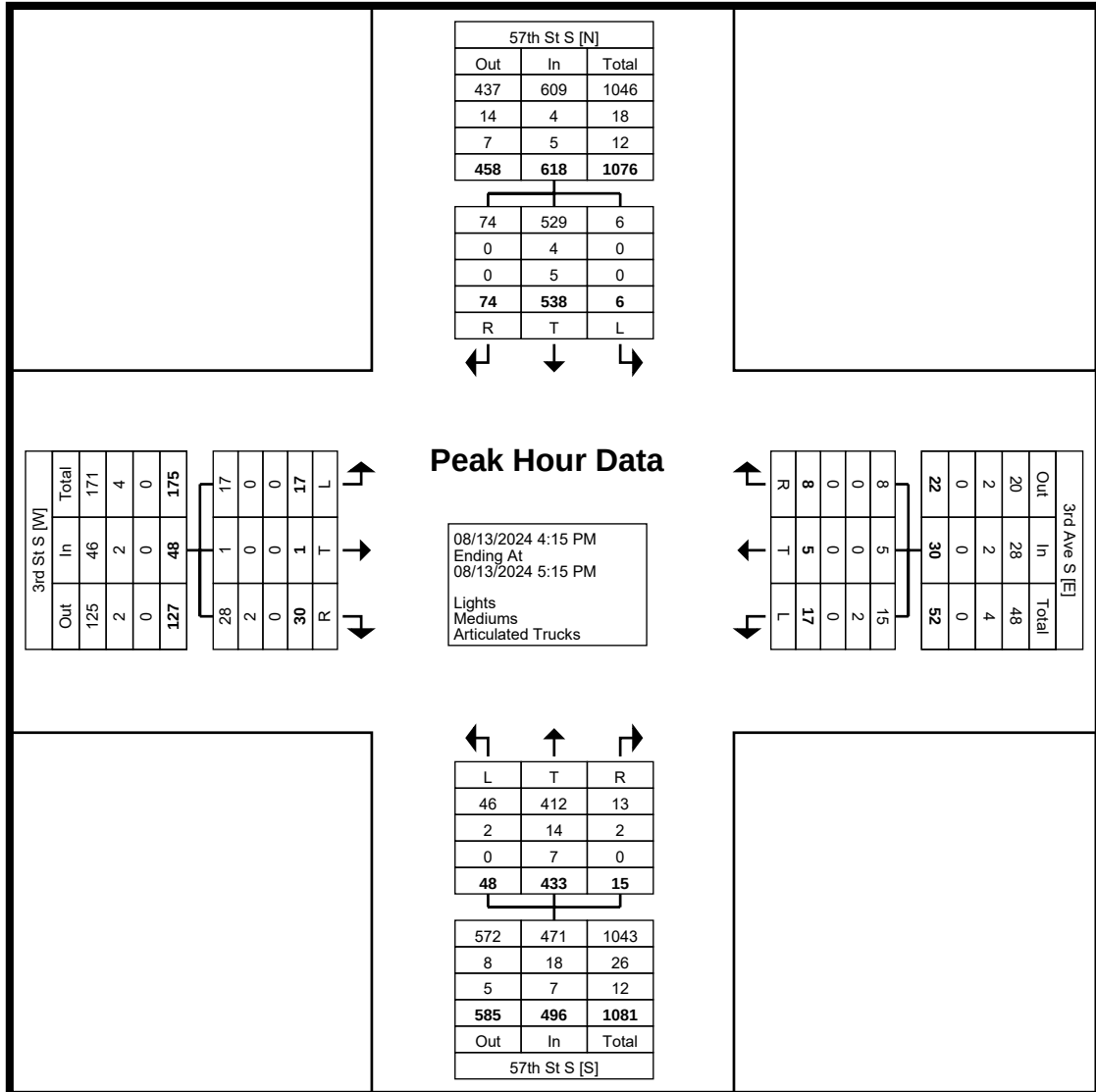
[illegible]



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Count Name: 57th St S & 3rd
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Turning Movement Peak Hour Data Plot (4:15 PM)

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Count Name: 57th St S & 3rd Ave S
Site Code:
Start Date: 08/13/2024
Page No: 6

Turning Movement Peak Hour Data (7:15 AM)

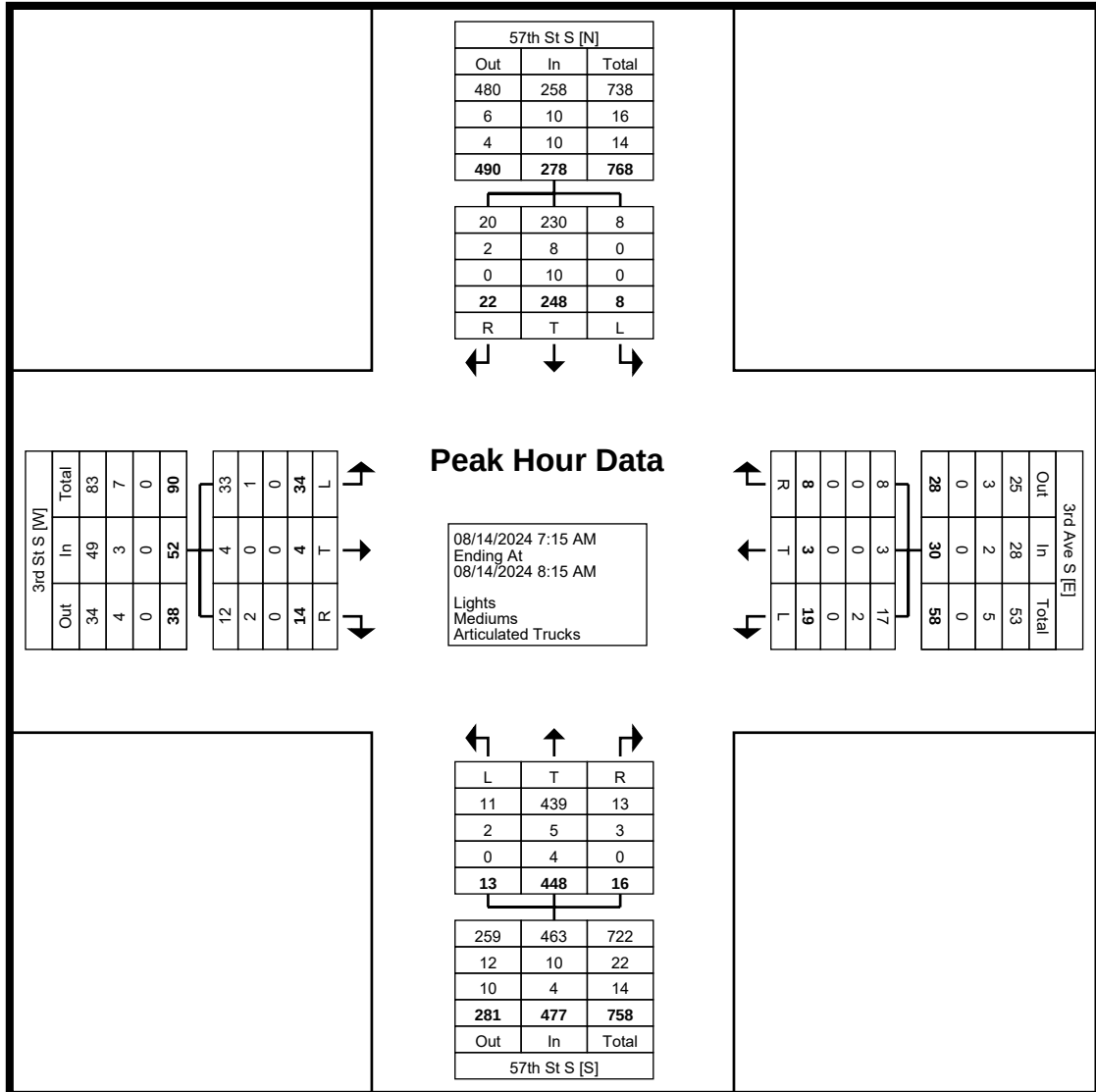
[illegible]



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Count Name: 57th St S & 3rd
Ave S
Site Code:
Start Date: 08/13/2024
Page No: 7



Turning Movement Peak Hour Data Plot (7:15 AM)



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Count Name: 57th St S & 7th
Ave S
Site Code:
Start Date: 08/13/2024
Page No: 1

Turning Movement Data

Start Time	57th St S Northbound			57th St S Southbound			7th Ave S Eastbound			Int. Total
	Left	Thru	App. Total	Thru	Right	App. Total	Left	Right	App. Total	
10:30 AM	4	88	92	90	3	93	1	6	7	192
10:45 AM	2	78	80	122	5	127	5	2	7	214
Hourly Total	6	166	172	212	8	220	6	8	14	406
11:00 AM	3	105	108	110	3	113	3	0	3	224
11:15 AM	4	99	103	101	4	105	4	1	5	213
11:30 AM	2	116	118	125	1	126	1	2	3	247
11:45 AM	1	130	131	117	3	120	5	7	12	263
Hourly Total	10	450	460	453	11	464	13	10	23	947
12:00 PM	2	117	119	116	3	119	2	6	8	246
12:15 PM	1	127	128	106	3	109	2	3	5	242
12:30 PM	5	121	126	105	5	110	4	3	7	243
12:45 PM	1	107	108	80	3	83	3	3	6	197
Hourly Total	9	472	481	407	14	421	11	15	26	928
1:00 PM	0	118	118	82	6	88	4	2	6	212
1:15 PM	5	102	107	94	3	97	5	7	12	216
1:30 PM	3	104	107	93	1	94	1	2	3	204
1:45 PM	1	97	98	90	3	93	3	1	4	195
Hourly Total	9	421	430	359	13	372	13	12	25	827
2:00 PM	3	88	91	79	3	82	1	4	5	178
2:15 PM	2	85	87	110	3	113	2	6	8	208
2:30 PM	2	90	92	89	2	91	2	4	6	189
2:45 PM	3	85	88	98	5	103	1	4	5	196
Hourly Total	10	348	358	376	13	389	6	18	24	771
3:00 PM	2	93	95	123	4	127	2	6	8	230
3:15 PM	6	90	96	108	0	108	3	3	6	210
3:30 PM	3	105	108	123	4	127	8	2	10	245
3:45 PM	1	90	91	114	7	121	4	4	8	220
Hourly Total	12	378	390	468	15	483	17	15	32	905
4:00 PM	5	119	124	152	7	159	2	6	8	291
4:15 PM	2	116	118	137	7	144	1	0	1	263
4:30 PM	5	119	124	147	8	155	2	4	6	285
4:45 PM	2	116	118	130	11	141	4	7	11	270
Hourly Total	14	470	484	566	33	599	9	17	26	1109
5:00 PM	7	136	143	149	9	158	6	2	8	309
5:15 PM	4	117	121	123	7	130	2	3	5	256
5:30 PM	3	107	110	135	2	137	2	3	5	252
5:45 PM	3	99	102	113	5	118	5	3	8	228
Hourly Total	17	459	476	520	23	543	15	11	26	1045
6:00 PM	3	85	88	90	1	91	3	2	5	184
6:15 PM	1	79	80	70	3	73	3	3	6	159
6:30 PM	1	65	66	71	3	74	2	4	6	146
6:45 PM	3	73	76	57	2	59	1	1	2	137
Hourly Total	8	302	310	288	9	297	9	10	19	626
7:00 PM	1	49	50	59	3	62	0	3	3	115
7:15 PM	4	82	86	77	4	81	0	3	3	170
7:30 PM	2	73	75	64	1	65	0	0	0	140
7:45 PM	2	46	48	47	3	50	1	1	2	100
Hourly Total	9	250	259	247	11	258	1	7	8	525
8:00 PM	1	54	55	62	0	62	0	2	2	119
8:15 PM	0	36	36	46	1	47	0	3	3	86
8:30 PM	1	43	44	28	2	30	0	1	1	75
8:45 PM	0	34	34	28	2	30	2	1	3	67
Hourly Total	2	167	169	164	5	169	2	7	9	347
9:00 PM	0	28	28	39	3	42	1	0	1	71
9:15 PM	1	32	33	22	1	23	0	2	2	58
9:30 PM	0	18	18	38	0	38	1	1	2	58
9:45 PM	0	30	30	16	1	17	1	2	3	50
Hourly Total	1	108	109	115	5	120	3	5	8	237
10:00 PM	2	20	22	26	0	26	0	0	0	48
10:15 PM	0	26	26	14	1	15	0	0	0	41
10:30 PM	0	13	13	21	0	21	0	0	0	34

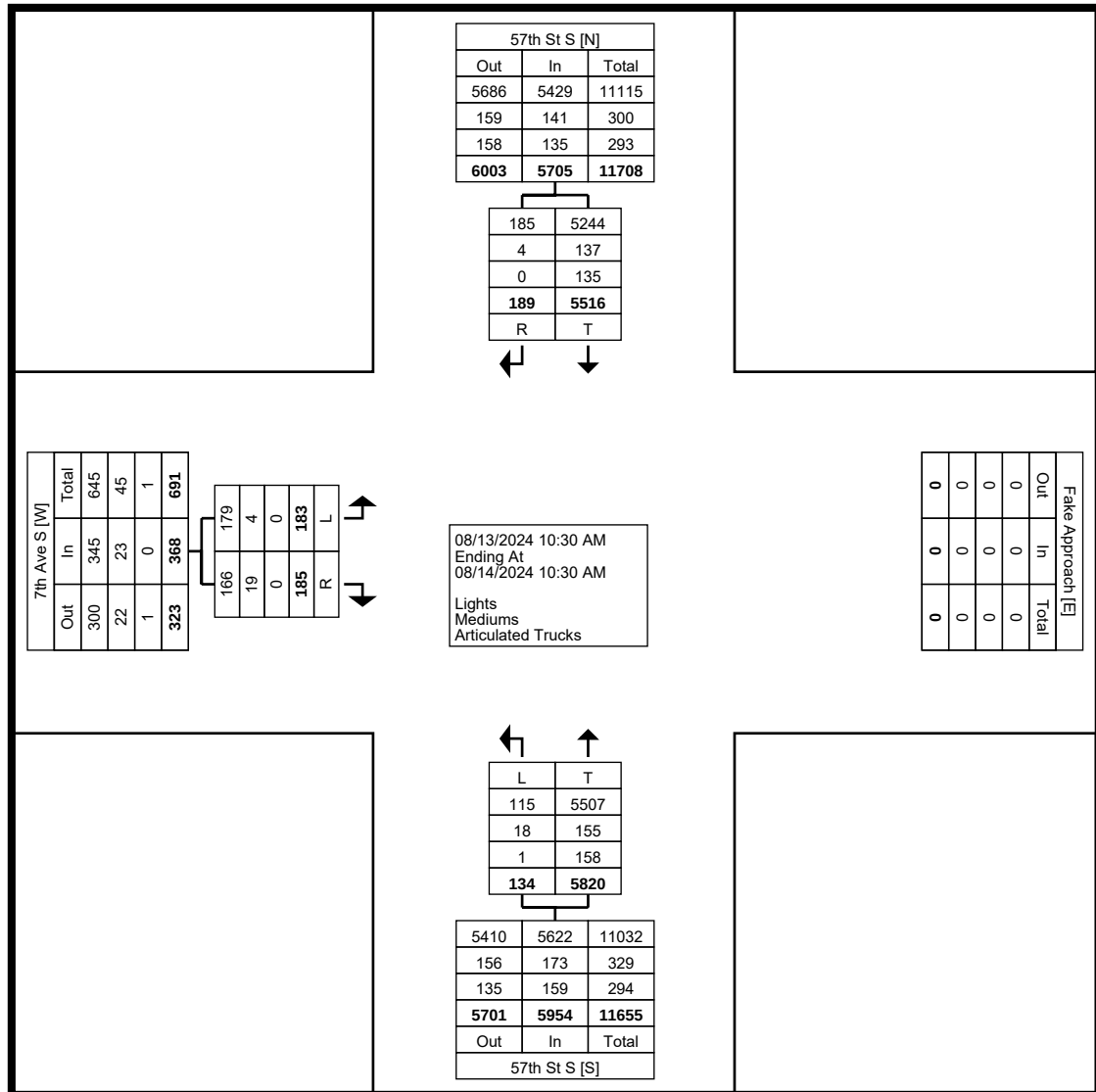
10:45 PM	0	21	21	1	0	1	1	2	3	25
Hourly Total	2	80	82	62	1	63	1	2	3	148
11:00 PM	0	17	17	4	1	5	0	0	0	22
11:15 PM	1	10	11	14	0	14	0	0	0	25
11:30 PM	0	13	13	5	0	5	0	1	1	19
11:45 PM	0	5	5	7	0	7	0	0	0	12
Hourly Total	1	45	46	30	1	31	0	1	1	78
12:00 AM	0	6	6	5	0	5	0	0	0	11
12:15 AM	0	8	8	4	0	4	0	1	1	13
12:30 AM	0	8	8	1	1	2	0	0	0	10
12:45 AM	0	11	11	2	0	2	0	0	0	13
Hourly Total	0	33	33	12	1	13	0	1	1	47
1:00 AM	0	3	3	6	0	6	0	0	0	9
1:15 AM	0	5	5	4	0	4	0	0	0	9
1:30 AM	0	5	5	2	0	2	0	0	0	7
1:45 AM	0	1	1	3	0	3	0	0	0	4
Hourly Total	0	14	14	15	0	15	0	0	0	29
2:00 AM	0	6	6	0	0	0	0	0	0	6
2:15 AM	0	3	3	2	1	3	0	0	0	6
2:30 AM	0	3	3	2	0	2	0	0	0	5
2:45 AM	0	0	0	5	0	5	0	0	0	5
Hourly Total	0	12	12	9	1	10	0	0	0	22
3:00 AM	0	1	1	1	0	1	0	0	0	2
3:15 AM	0	3	3	0	0	0	0	0	0	3
3:30 AM	0	1	1	2	0	2	0	0	0	3
3:45 AM	0	1	1	2	0	2	0	0	0	3
Hourly Total	0	6	6	5	0	5	0	0	0	11
4:00 AM	0	2	2	2	0	2	1	1	2	6
4:15 AM	0	6	6	4	0	4	0	0	0	10
4:30 AM	0	12	12	7	0	7	1	0	1	20
4:45 AM	0	9	9	9	0	9	0	0	0	18
Hourly Total	0	29	29	22	0	22	2	1	3	54
5:00 AM	0	13	13	8	0	8	0	0	0	21
5:15 AM	0	16	16	10	0	10	0	0	0	26
5:30 AM	0	38	38	16	0	16	3	2	5	59
5:45 AM	0	56	56	22	0	22	5	1	6	84
Hourly Total	0	123	123	56	0	56	8	3	11	190
6:00 AM	0	39	39	33	0	33	1	0	1	73
6:15 AM	1	75	76	29	0	29	2	0	2	107
6:30 AM	0	99	99	39	0	39	4	2	6	144
6:45 AM	1	109	110	58	0	58	8	0	8	176
Hourly Total	2	322	324	159	0	159	15	2	17	500
7:00 AM	0	83	83	59	1	60	1	2	3	146
7:15 AM	1	119	120	75	1	76	7	1	8	204
7:30 AM	0	125	125	69	2	71	11	1	12	208
7:45 AM	1	132	133	72	3	75	3	5	8	216
Hourly Total	2	459	461	275	7	282	22	9	31	774
8:00 AM	2	75	77	67	2	69	3	5	8	154
8:15 AM	1	67	68	62	0	62	4	5	9	139
8:30 AM	1	75	76	60	8	68	6	3	9	153
8:45 AM	3	75	78	73	1	74	6	1	7	159
Hourly Total	7	292	299	262	11	273	19	14	33	605
9:00 AM	3	52	55	68	3	71	0	2	2	128
9:15 AM	4	65	69	95	0	95	2	1	3	167
9:30 AM	1	64	65	68	1	69	0	6	6	140
9:45 AM	1	82	83	70	1	71	5	1	6	160
Hourly Total	9	263	272	301	5	306	7	10	17	595
10:00 AM	1	80	81	65	2	67	2	4	6	154
10:15 AM	3	71	74	68	0	68	2	3	5	147
Grand Total	134	5820	5954	5516	189	5705	183	185	368	12027
Approach %	2.3	97.7	-	96.7	3.3	-	49.7	50.3	-	-
Total %	1.1	48.4	49.5	45.9	1.6	47.4	1.5	1.5	3.1	-
Lights	115	5507	5622	5244	185	5429	179	166	345	11396
% Lights	85.8	94.6	94.4	95.1	97.9	95.2	97.8	89.7	93.8	94.8
Mediums	18	155	173	137	4	141	4	19	23	337
% Mediums	13.4	2.7	2.9	2.5	2.1	2.5	2.2	10.3	6.3	2.8
Articulated Trucks	1	158	159	135	0	135	0	0	0	294
% Articulated Trucks	0.7	2.7	2.7	2.4	0.0	2.4	0.0	0.0	0.0	2.4



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Count Name: 57th St S & 7th Ave S
Site Code:
Start Date: 08/13/2024
Page No: 3



Turning Movement Data Plot



Robert Peccia & Associates
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Count Name: 57th St S & 7th
Ave S
Site Code:
Start Date: 08/13/2024
Page No: 4

Turning Movement Peak Hour Data (4:15 PM)

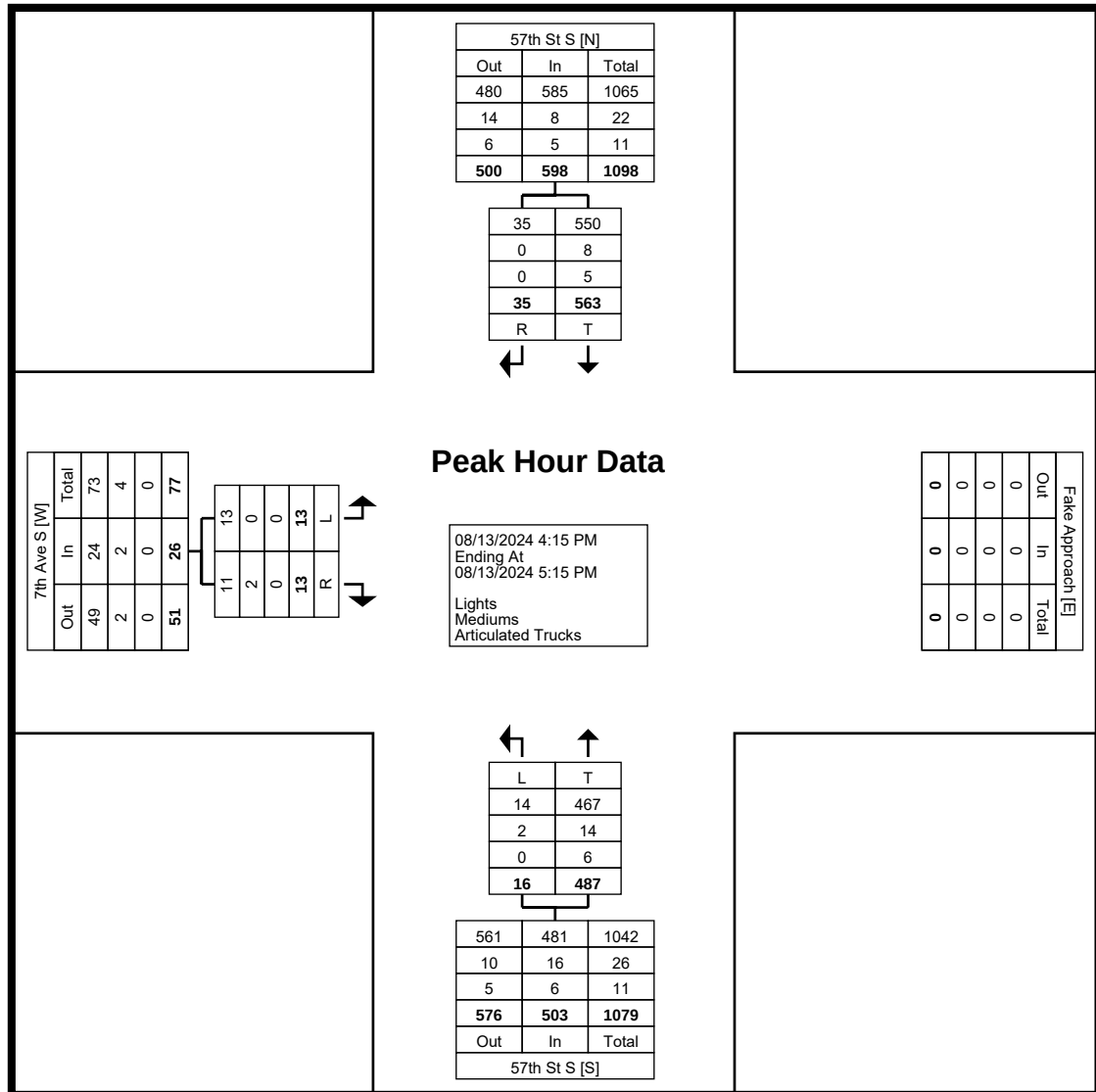
Start Time	57th St S Northbound			57th St S Southbound			7th Ave S Eastbound			Int. Total
	Left	Thru	App. Total	Thru	Right	App. Total	Left	Right	App. Total	
4:15 PM	2	116	118	137	7	144	1	0	1	263
4:30 PM	5	119	124	147	8	155	2	4	6	285
4:45 PM	2	116	118	130	11	141	4	7	11	270
5:00 PM	7	136	143	149	9	158	6	2	8	309
Total	16	487	503	563	35	598	13	13	26	1127
Approach %	3.2	96.8	-	94.1	5.9	-	50.0	50.0	-	-
Total %	1.4	43.2	44.6	50.0	3.1	53.1	1.2	1.2	2.3	-
PHF	0.571	0.895	0.879	0.945	0.795	0.946	0.542	0.464	0.591	0.912
Lights	14	467	481	550	35	585	13	11	24	1090
% Lights	87.5	95.9	95.6	97.7	100.0	97.8	100.0	84.6	92.3	96.7
Mediums	2	14	16	8	0	8	0	2	2	26
% Mediums	12.5	2.9	3.2	1.4	0.0	1.3	0.0	15.4	7.7	2.3
Articulated Trucks	0	6	6	5	0	5	0	0	0	11
% Articulated Trucks	0.0	1.2	1.2	0.9	0.0	0.8	0.0	0.0	0.0	1.0



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Count Name: 57th St S & 7th Ave S
Site Code:
Start Date: 08/13/2024
Page No: 5





Robert Peccia & Associates
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Count Name: 57th St S & 7th Ave S
Site Code:
Start Date: 08/13/2024
Page No: 6

Turning Movement Peak Hour Data (7:15 AM)

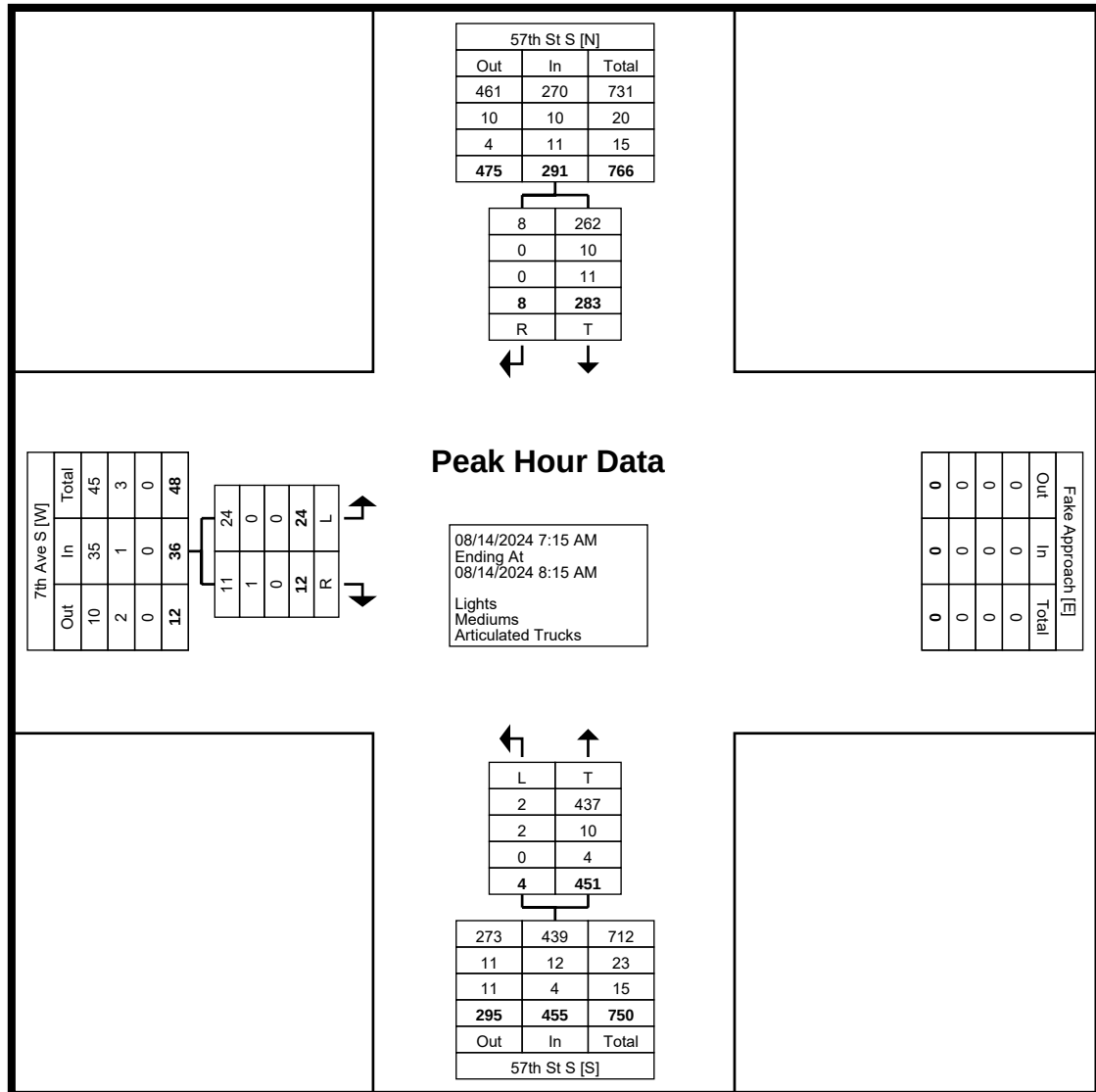
Start Time	57th St S Northbound			57th St S Southbound			7th Ave S Eastbound			Int. Total
	Left	Thru	App. Total	Thru	Right	App. Total	Left	Right	App. Total	
7:15 AM	1	119	120	75	1	76	7	1	8	204
7:30 AM	0	125	125	69	2	71	11	1	12	208
7:45 AM	1	132	133	72	3	75	3	5	8	216
8:00 AM	2	75	77	67	2	69	3	5	8	154
Total	4	451	455	283	8	291	24	12	36	782
Approach %	0.9	99.1	-	97.3	2.7	-	66.7	33.3	-	-
Total %	0.5	57.7	58.2	36.2	1.0	37.2	3.1	1.5	4.6	-
PHF	0.500	0.854	0.855	0.943	0.667	0.957	0.545	0.600	0.750	0.905
Lights	2	437	439	262	8	270	24	11	35	744
% Lights	50.0	96.9	96.5	92.6	100.0	92.8	100.0	91.7	97.2	95.1
Mediums	2	10	12	10	0	10	0	1	1	23
% Mediums	50.0	2.2	2.6	3.5	0.0	3.4	0.0	8.3	2.8	2.9
Articulated Trucks	0	4	4	11	0	11	0	0	0	15
% Articulated Trucks	0.0	0.9	0.9	3.9	0.0	3.8	0.0	0.0	0.0	1.9



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Count Name: 57th St S & 7th
Ave S
Site Code:
Start Date: 08/13/2024
Page No: 7



Turning Movement Peak Hour Data Plot (7:15 AM)



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Count Name: 57th St S & 8th Ave S
Site Code:
Start Date: 08/14/2024
Page No: 1

Turning Movement Data

Start Time	57th St S Northbound			57th St S Southbound			8th Ave S Eastbound			Int. Total
	Left	Thru	App. Total	Thru	Right	App. Total	Left	Right	App. Total	
12:00 PM	3	151	154	102	0	102	3	2	5	261
12:15 PM	2	114	116	93	2	95	0	0	0	211
12:30 PM	2	105	107	96	0	96	0	1	1	204
12:45 PM	1	106	107	100	1	101	2	2	4	212
Hourly Total	8	476	484	391	3	394	5	5	10	888
1:00 PM	2	92	94	109	1	110	3	3	6	210
1:15 PM	2	104	106	104	0	104	0	0	0	210
1:30 PM	1	106	107	88	0	88	2	3	5	200
1:45 PM	0	112	112	95	1	96	1	2	3	211
Hourly Total	5	414	419	396	2	398	6	8	14	831
2:00 PM	3	99	102	89	1	90	0	1	1	193
2:15 PM	3	121	124	79	0	79	0	0	0	203
2:30 PM	1	77	78	118	1	119	0	0	0	197
2:45 PM	2	102	104	92	0	92	0	1	1	197
Hourly Total	9	399	408	378	2	380	0	2	2	790
3:00 PM	2	122	124	141	3	144	0	2	2	270
3:15 PM	2	91	93	106	2	108	1	3	4	205
3:30 PM	5	101	106	130	0	130	2	1	3	239
3:45 PM	5	118	123	128	2	130	1	2	3	256
Hourly Total	14	432	446	505	7	512	4	8	12	970
4:00 PM	0	128	128	170	3	173	3	1	4	305
4:15 PM	5	111	116	141	2	143	3	3	6	265
4:30 PM	3	110	113	156	2	158	1	2	3	274
4:45 PM	0	128	128	160	1	161	0	4	4	293
Hourly Total	8	477	485	627	8	635	7	10	17	1137
5:00 PM	0	124	124	161	4	165	3	3	6	295
5:15 PM	1	132	133	134	1	135	1	3	4	272
5:30 PM	0	123	123	148	1	149	1	1	2	274
5:45 PM	2	104	106	116	1	117	2	3	5	228
Hourly Total	3	483	486	559	7	566	7	10	17	1069
6:00 PM	1	111	112	90	2	92	0	0	0	204
6:15 PM	4	77	81	77	1	78	1	0	1	160
6:30 PM	1	81	82	66	0	66	1	1	2	150
6:45 PM	0	88	88	61	2	63	1	1	2	153
Hourly Total	6	357	363	294	5	299	3	2	5	667
7:00 PM	1	77	78	77	1	78	1	0	1	157
7:15 PM	2	65	67	68	0	68	0	1	1	136
7:30 PM	0	61	61	44	3	47	1	1	2	110
7:45 PM	2	52	54	55	0	55	1	0	1	110
Hourly Total	5	255	260	244	4	248	3	2	5	513
8:00 PM	1	59	60	55	1	56	1	0	1	117
8:15 PM	2	56	58	61	1	62	1	1	2	122
8:30 PM	0	63	63	60	0	60	1	1	2	125
8:45 PM	1	58	59	50	3	53	0	0	0	112
Hourly Total	4	236	240	226	5	231	3	2	5	476
9:00 PM	0	52	52	48	1	49	2	1	3	104
9:15 PM	1	43	44	42	1	43	0	0	0	87
9:30 PM	1	40	41	34	1	35	1	0	1	77
9:45 PM	1	48	49	29	1	30	1	0	1	80
Hourly Total	3	183	186	153	4	157	4	1	5	348
10:00 PM	0	32	32	25	1	26	0	0	0	58
10:15 PM	0	24	24	24	0	24	0	1	1	49
10:30 PM	0	27	27	18	0	18	0	0	0	45
10:45 PM	1	26	27	8	0	8	1	1	2	37
Hourly Total	1	109	110	75	1	76	1	2	3	189
11:00 PM	0	18	18	13	0	13	0	0	0	31
11:15 PM	0	7	7	18	0	18	0	0	0	25
11:30 PM	1	10	11	7	0	7	0	0	0	18
11:45 PM	0	11	11	10	0	10	0	0	0	21
Hourly Total	1	46	47	48	0	48	0	0	0	95
12:00 AM	0	11	11	3	1	4	0	0	0	15

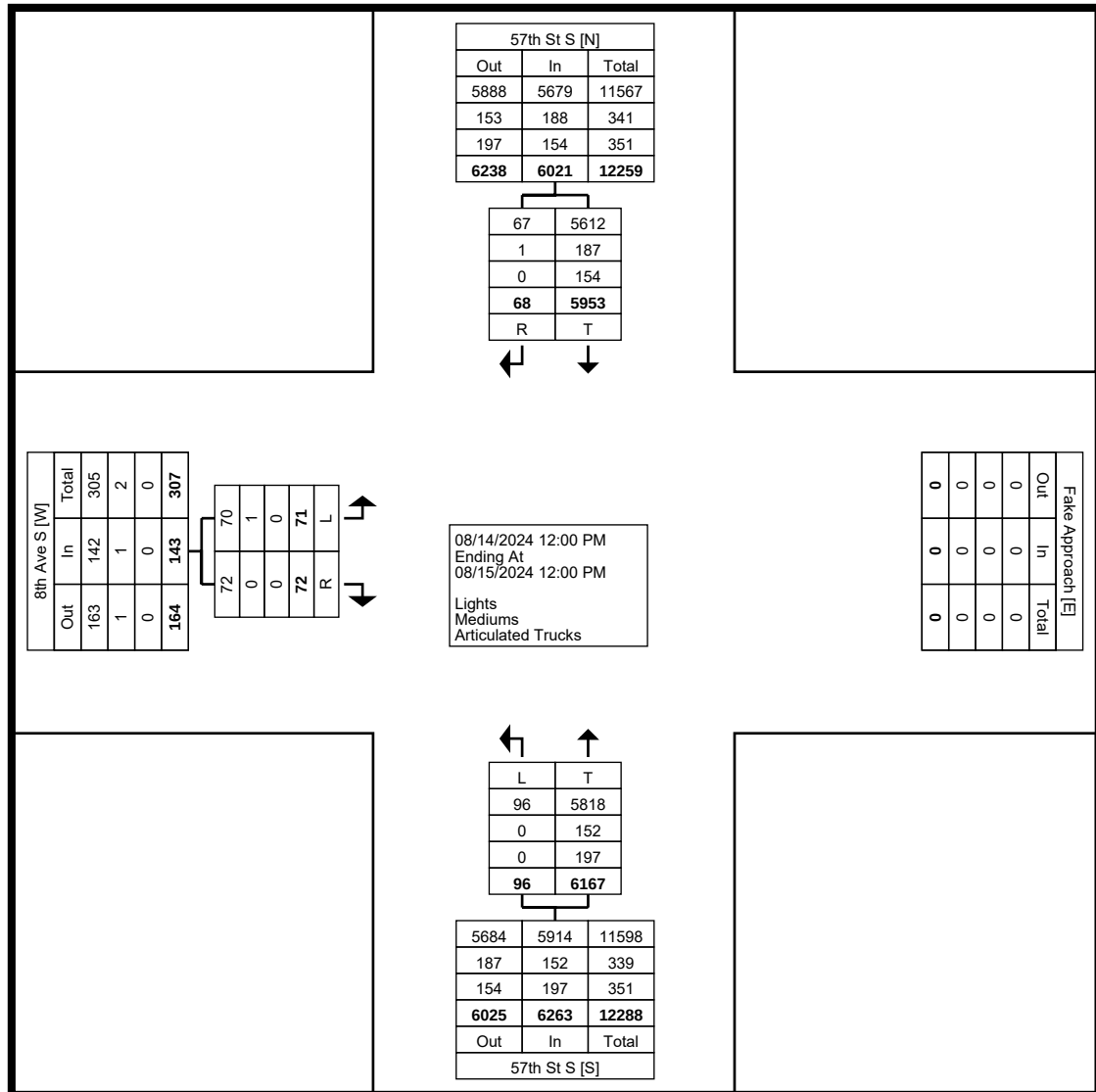
12:15 AM	0	4	4	8	0	8	0	0	0	12
12:30 AM	0	10	10	5	0	5	0	0	0	15
12:45 AM	0	3	3	6	0	6	0	0	0	9
Hourly Total	0	28	28	22	1	23	0	0	0	51
1:00 AM	0	2	2	2	0	2	0	0	0	4
1:15 AM	0	3	3	6	0	6	0	0	0	9
1:30 AM	0	3	3	0	0	0	0	0	0	3
1:45 AM	0	7	7	4	0	4	0	0	0	11
Hourly Total	0	15	15	12	0	12	0	0	0	27
2:00 AM	0	8	8	5	0	5	1	1	2	15
2:15 AM	0	1	1	4	0	4	0	0	0	5
2:30 AM	0	2	2	2	0	2	0	0	0	4
2:45 AM	0	3	3	5	0	5	0	0	0	8
Hourly Total	0	14	14	16	0	16	1	1	2	32
3:00 AM	1	4	5	5	0	5	0	0	0	10
3:15 AM	0	5	5	2	0	2	0	1	1	8
3:30 AM	0	0	0	5	0	5	0	0	0	5
3:45 AM	0	3	3	1	0	1	0	0	0	4
Hourly Total	1	12	13	13	0	13	0	1	1	27
4:00 AM	0	7	7	2	0	2	0	0	0	9
4:15 AM	0	5	5	8	0	8	0	1	1	14
4:30 AM	0	8	8	10	0	10	0	0	0	18
4:45 AM	0	12	12	10	0	10	0	0	0	22
Hourly Total	0	32	32	30	0	30	0	1	1	63
5:00 AM	0	9	9	7	0	7	0	0	0	16
5:15 AM	0	18	18	15	0	15	1	0	1	34
5:30 AM	0	31	31	17	0	17	0	0	0	48
5:45 AM	0	53	53	20	0	20	0	0	0	73
Hourly Total	0	111	111	59	0	59	1	0	1	171
6:00 AM	0	27	27	28	0	28	1	1	2	57
6:15 AM	1	70	71	35	0	35	0	0	0	106
6:30 AM	0	96	96	39	0	39	3	0	3	138
6:45 AM	0	108	108	59	0	59	2	1	3	170
Hourly Total	1	301	302	161	0	161	6	2	8	471
7:00 AM	1	74	75	69	0	69	0	0	0	144
7:15 AM	0	109	109	48	0	48	1	0	1	158
7:30 AM	0	124	124	93	1	94	1	0	1	219
7:45 AM	0	127	127	84	0	84	2	2	4	215
Hourly Total	1	434	435	294	1	295	4	2	6	736
8:00 AM	0	76	76	85	1	86	1	1	2	164
8:15 AM	1	61	62	73	0	73	0	0	0	135
8:30 AM	2	91	93	83	0	83	3	1	4	180
8:45 AM	1	88	89	90	0	90	2	0	2	181
Hourly Total	4	316	320	331	1	332	6	2	8	660
9:00 AM	2	66	68	90	1	91	1	1	2	161
9:15 AM	2	72	74	69	3	72	1	1	2	148
9:30 AM	2	51	53	84	0	84	1	1	2	139
9:45 AM	1	81	82	81	2	83	0	1	1	166
Hourly Total	7	270	277	324	6	330	3	4	7	614
10:00 AM	3	79	82	78	0	78	1	0	1	161
10:15 AM	1	72	73	77	3	80	1	0	1	154
10:30 AM	1	93	94	90	2	92	0	1	1	187
10:45 AM	5	92	97	108	0	108	1	2	3	208
Hourly Total	10	336	346	353	5	358	3	3	6	710
11:00 AM	1	93	94	118	1	119	0	1	1	214
11:15 AM	0	112	112	106	1	107	1	0	1	220
11:30 AM	3	100	103	117	2	119	2	2	4	226
11:45 AM	1	126	127	101	2	103	1	1	2	232
Hourly Total	5	431	436	442	6	448	4	4	8	892
Grand Total	96	6167	6263	5953	68	6021	71	72	143	12427
Approach %	1.5	98.5	-	98.9	1.1	-	49.7	50.3	-	-
Total %	0.8	49.6	50.4	47.9	0.5	48.5	0.6	0.6	1.2	-
Lights	96	5818	5914	5612	67	5679	70	72	142	11735
% Lights	100.0	94.3	94.4	94.3	98.5	94.3	98.6	100.0	99.3	94.4
Mediums	0	152	152	187	1	188	1	0	1	341
% Mediums	0.0	2.5	2.4	3.1	1.5	3.1	1.4	0.0	0.7	2.7
Articulated Trucks	0	197	197	154	0	154	0	0	0	351
% Articulated Trucks	0.0	3.2	3.1	2.6	0.0	2.6	0.0	0.0	0.0	2.8



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Turning Movement Data Plot



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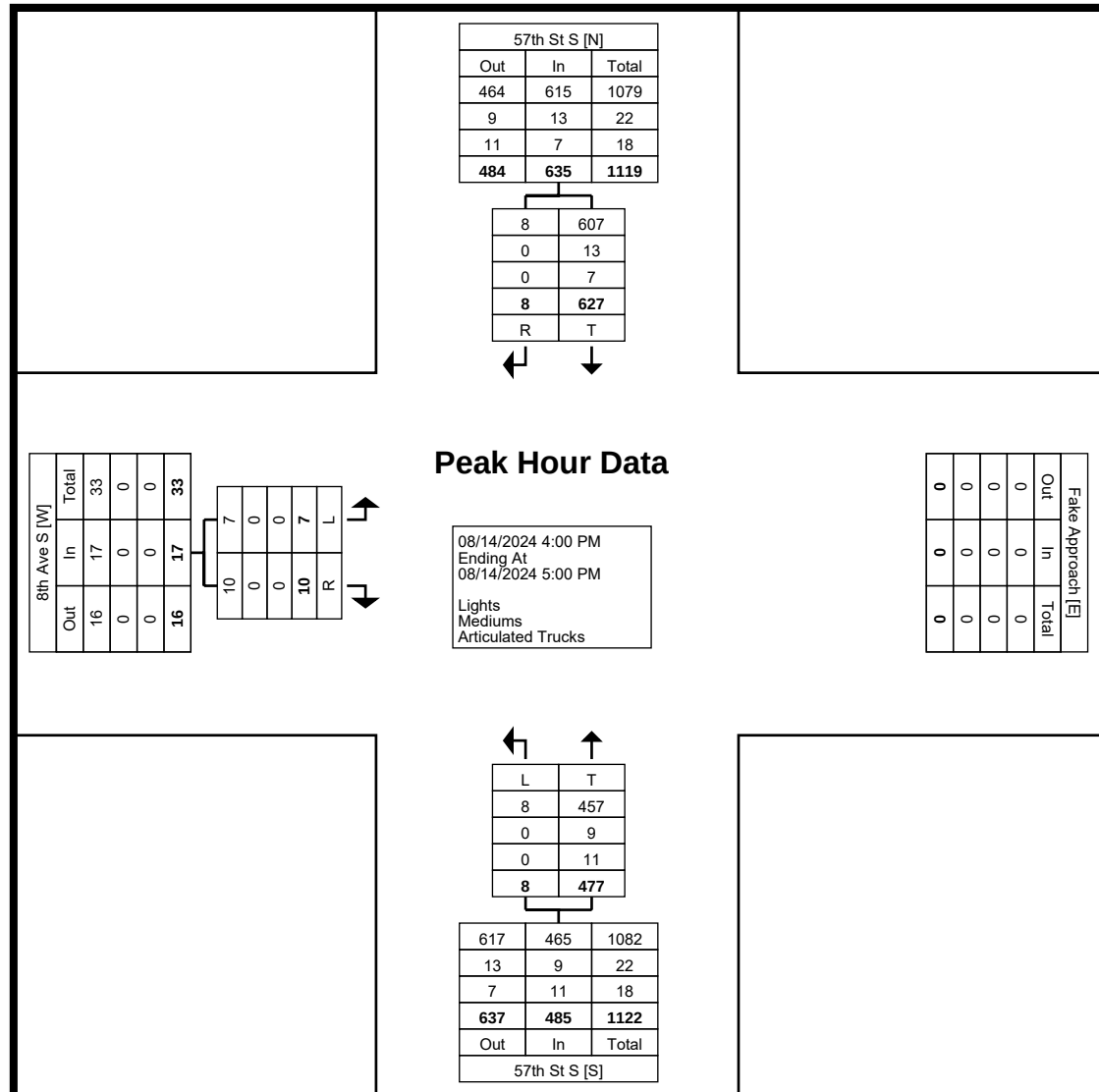
Turning Movement Peak Hour Data (4:00 PM)

Start Time	57th St S Northbound			57th St S Southbound			8th Ave S Eastbound			Int. Total
	Left	Thru	App. Total	Thru	Right	App. Total	Left	Right	App. Total	
4:00 PM	0	128	128	170	3	173	3	1	4	305
4:15 PM	5	111	116	141	2	143	3	3	6	265
4:30 PM	3	110	113	156	2	158	1	2	3	274
4:45 PM	0	128	128	160	1	161	0	4	4	293
Total	8	477	485	627	8	635	7	10	17	1137
Approach %	1.6	98.4	-	98.7	1.3	-	41.2	58.8	-	-
Total %	0.7	42.0	42.7	55.1	0.7	55.8	0.6	0.9	1.5	-
PHF	0.400	0.932	0.947	0.922	0.667	0.918	0.583	0.625	0.708	0.932
Lights	8	457	465	607	8	615	7	10	17	1097
% Lights	100.0	95.8	95.9	96.8	100.0	96.9	100.0	100.0	100.0	96.5
Mediums	0	9	9	13	0	13	0	0	0	22
% Mediums	0.0	1.9	1.9	2.1	0.0	2.0	0.0	0.0	0.0	1.9
Articulated Trucks	0	11	11	7	0	7	0	0	0	18
% Articulated Trucks	0.0	2.3	2.3	1.1	0.0	1.1	0.0	0.0	0.0	1.6

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



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Turning Movement Peak Hour Data (7:15 AM)

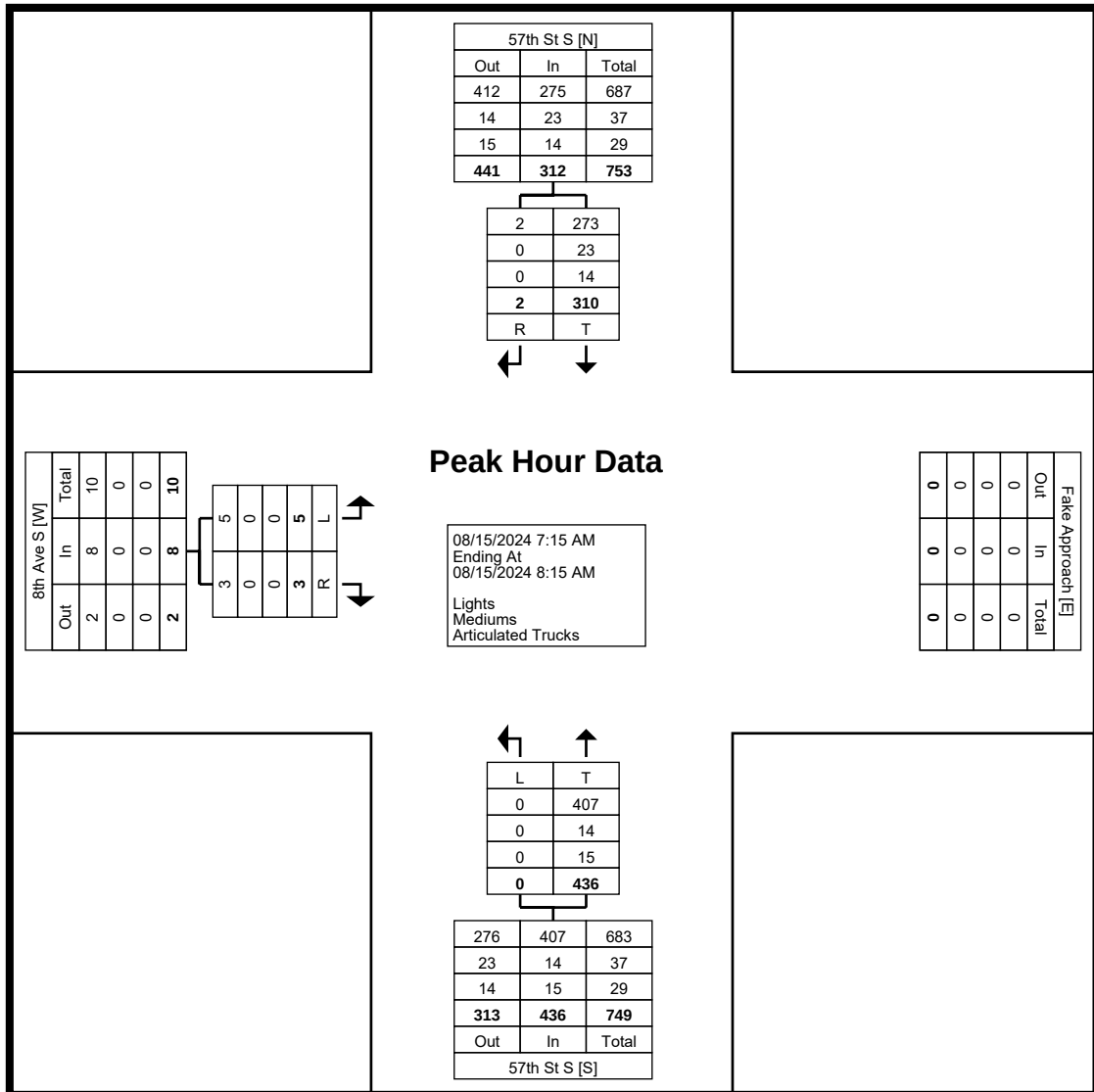
Start Time	57th St S Northbound			57th St S Southbound			8th Ave S Eastbound			Int. Total
	Left	Thru	App. Total	Thru	Right	App. Total	Left	Right	App. Total	
7:15 AM	0	109	109	48	0	48	1	0	1	158
7:30 AM	0	124	124	93	1	94	1	0	1	219
7:45 AM	0	127	127	84	0	84	2	2	4	215
8:00 AM	0	76	76	85	1	86	1	1	2	164
Total	0	436	436	310	2	312	5	3	8	756
Approach %	0.0	100.0	-	99.4	0.6	-	62.5	37.5	-	-
Total %	0.0	57.7	57.7	41.0	0.3	41.3	0.7	0.4	1.1	-
PHF	0.000	0.858	0.858	0.833	0.500	0.830	0.625	0.375	0.500	0.863
Lights	0	407	407	273	2	275	5	3	8	690
% Lights	-	93.3	93.3	88.1	100.0	88.1	100.0	100.0	100.0	91.3
Mediums	0	14	14	23	0	23	0	0	0	37
% Mediums	-	3.2	3.2	7.4	0.0	7.4	0.0	0.0	0.0	4.9
Articulated Trucks	0	15	15	14	0	14	0	0	0	29
% Articulated Trucks	-	3.4	3.4	4.5	0.0	4.5	0.0	0.0	0.0	3.8



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Turning Movement Data

Start Time	57th St S Northbound				57th St S Southbound				10th Ave S Eastbound				10th Ave S Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
10:30 AM	33	18	8	59	11	28	55	94	50	43	4	97	8	46	23	77	327
10:45 AM	30	18	4	52	24	35	60	119	39	62	5	106	5	45	16	66	343
Hourly Total	63	36	12	111	35	63	115	213	89	105	9	203	13	91	39	143	670
11:00 AM	29	26	9	64	19	29	67	115	60	52	4	116	16	46	20	82	377
11:15 AM	32	20	10	62	19	27	67	113	56	53	3	112	7	41	23	71	358
11:30 AM	28	28	5	61	22	35	66	123	68	44	9	121	7	55	21	83	388
11:45 AM	37	31	10	78	19	40	60	119	65	56	10	131	13	49	27	89	417
Hourly Total	126	105	34	265	79	131	260	470	249	205	26	480	43	191	91	325	1540
12:00 PM	35	27	9	71	24	28	71	123	67	53	10	130	10	43	24	77	401
12:15 PM	37	19	6	62	23	30	50	103	78	56	7	141	11	52	21	84	390
12:30 PM	48	39	12	99	29	29	59	117	67	36	7	110	14	52	17	83	409
12:45 PM	28	27	9	64	15	27	44	86	65	48	6	119	7	59	16	82	351
Hourly Total	148	112	36	296	91	114	224	429	277	193	30	500	42	206	78	326	1551
1:00 PM	39	24	7	70	18	19	50	87	58	38	7	103	14	47	33	94	354
1:15 PM	33	26	16	75	24	26	47	97	56	46	4	106	9	63	21	93	371
1:30 PM	30	25	11	66	23	24	54	101	66	46	6	118	6	55	9	70	355
1:45 PM	42	25	7	74	19	20	45	84	52	60	5	117	4	43	9	56	331
Hourly Total	144	100	41	285	84	89	196	369	232	190	22	444	33	208	72	313	1411
2:00 PM	37	24	7	68	24	23	42	89	54	56	12	122	5	31	10	46	325
2:15 PM	32	14	10	56	23	19	59	101	46	61	1	108	8	47	20	75	340
2:30 PM	35	14	7	56	20	28	54	102	50	59	4	113	10	38	26	74	345
2:45 PM	30	18	12	60	20	26	56	102	46	57	12	115	4	43	21	68	345
Hourly Total	134	70	36	240	87	96	211	394	196	233	29	458	27	159	77	263	1355
3:00 PM	39	16	6	61	22	20	75	117	65	55	8	128	4	46	22	72	378
3:15 PM	44	21	17	82	26	26	66	118	41	56	9	106	5	39	26	70	376
3:30 PM	29	20	14	63	30	17	68	115	46	58	3	107	4	44	33	81	366
3:45 PM	25	8	10	43	19	19	72	110	53	53	9	115	9	51	23	83	351
Hourly Total	137	65	47	249	97	82	281	460	205	222	29	456	22	180	104	306	1471
4:00 PM	43	16	9	68	28	30	90	148	70	65	6	141	9	48	36	93	450
4:15 PM	32	23	12	67	30	29	76	135	62	59	13	134	12	48	25	85	421
4:30 PM	28	27	6	61	24	41	81	146	65	70	8	143	14	65	26	105	455
4:45 PM	38	22	15	75	34	35	62	131	58	61	11	130	6	47	27	80	416
Hourly Total	141	88	42	271	116	135	309	560	255	255	38	548	41	208	114	363	1742
5:00 PM	45	34	11	90	35	35	84	154	67	77	12	156	10	46	39	95	495
5:15 PM	33	19	14	66	29	31	62	122	47	78	7	132	6	58	43	107	427
5:30 PM	42	30	15	87	36	32	70	138	55	63	9	127	5	52	15	72	424
5:45 PM	28	27	15	70	32	26	55	113	61	50	7	118	2	52	7	61	362
Hourly Total	148	110	55	313	132	124	271	527	230	268	35	533	23	208	104	335	1708
6:00 PM	37	12	7	56	15	25	40	80	56	45	5	106	6	42	12	60	302
6:15 PM	27	15	7	49	12	20	34	66	50	47	8	105	5	28	7	40	260
6:30 PM	20	18	6	44	13	20	35	68	35	45	3	83	2	36	8	46	241
6:45 PM	17	23	9	49	15	22	28	65	37	34	2	73	4	30	13	47	234
Hourly Total	101	68	29	198	55	87	137	279	178	171	18	367	17	136	40	193	1037
7:00 PM	16	19	7	42	13	20	26	59	26	35	5	66	3	32	5	40	207
7:15 PM	25	22	7	54	13	33	32	78	56	49	7	112	6	19	12	37	281
7:30 PM	19	21	8	48	12	20	25	57	41	28	3	72	6	22	4	32	209
7:45 PM	12	8	3	23	10	10	23	43	33	27	2	62	3	21	9	33	161
Hourly Total	72	70	25	167	48	83	106	237	156	139	17	312	18	94	30	142	858
8:00 PM	15	15	6	36	9	19	33	61	30	29	3	62	3	16	11	30	189
8:15 PM	11	11	1	23	14	13	25	52	23	18	5	46	2	21	5	28	149
8:30 PM	12	15	6	33	6	10	13	29	20	13	0	33	2	12	7	21	116
8:45 PM	12	11	4	27	8	8	15	31	21	19	1	41	1	19	4	24	123
Hourly Total	50	52	17	119	37	50	86	173	94	79	9	182	8	68	27	103	577
9:00 PM	8	11	2	21	7	12	16	35	10	20	3	33	0	12	7	19	108
9:15 PM	3	11	2	16	8	8	13	29	21	19	2	42	3	17	2	22	109
9:30 PM	10	4	1	15	5	18	15	38	9	10	5	24	6	15	2	23	100
9:45 PM	7	11	2	20	1	9	12	22	19	6	2	27	0	15	1	16	85
Hourly Total	28	37	7	72	21	47	56	124	59	55	12	126	9	59	12	80	402
10:00 PM	2	6	4	12	2	8	16	26	12	12	0	24	2	8	4	14	76
10:15 PM	8	6	3	17	0	8	5	13	18	10	2	30	1	7	4	12	72

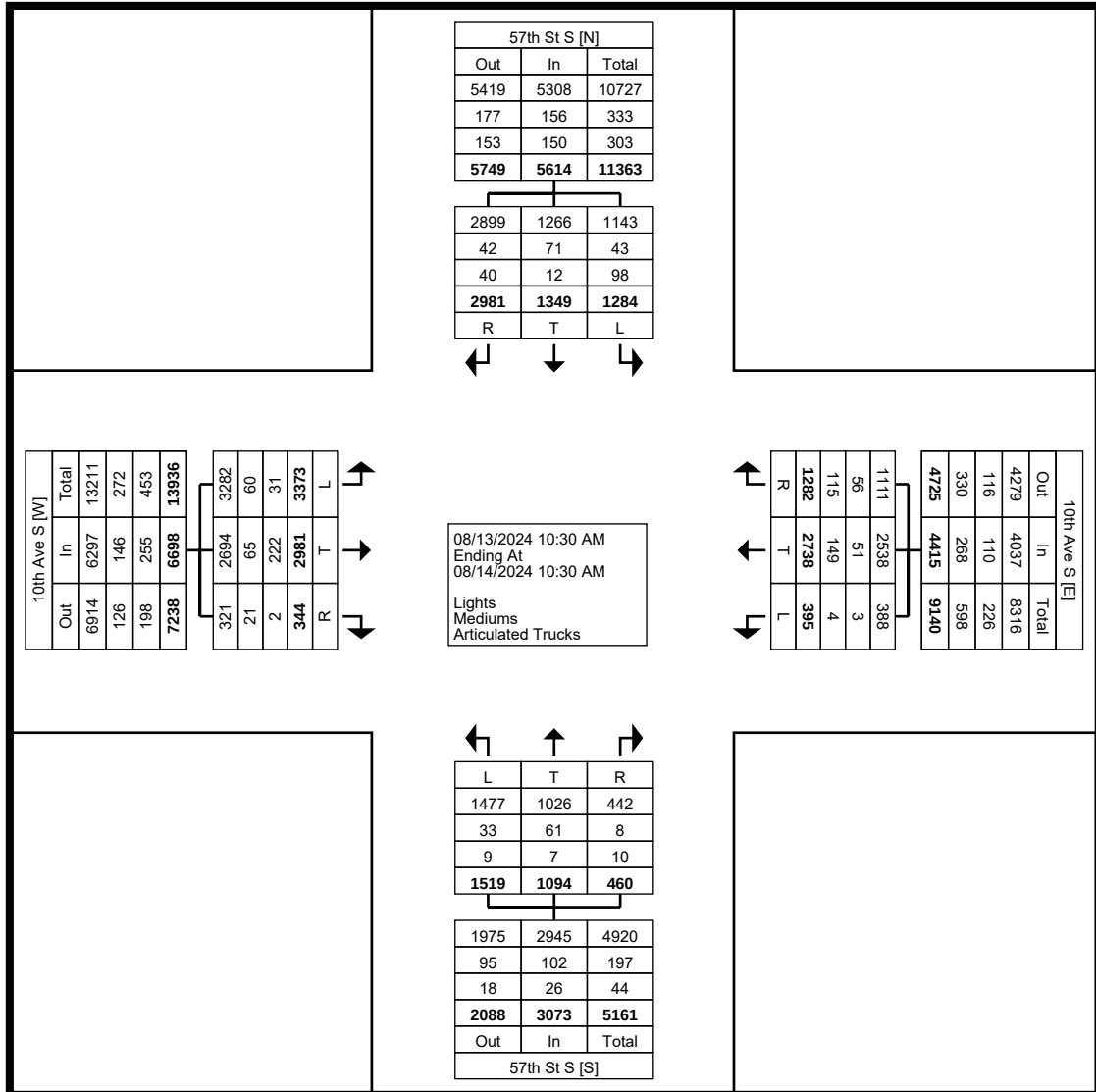
10:30 PM	7	2	3	12	1	7	15	23	11	9	0	20	0	6	2	8	63
10:45 PM	3	6	0	9	0	0	4	4	11	9	0	20	0	8	5	13	46
Hourly Total	20	20	10	50	3	23	40	66	52	40	2	94	3	29	15	47	257
11:00 PM	2	8	0	10	2	0	2	4	10	9	1	20	0	7	1	8	42
11:15 PM	1	1	0	2	3	2	6	11	9	8	0	17	0	9	1	10	40
11:30 PM	3	3	1	7	1	1	5	7	8	4	0	12	0	2	2	4	30
11:45 PM	2	1	0	3	3	3	1	7	3	7	1	11	1	3	0	4	25
Hourly Total	8	13	1	22	9	6	14	29	30	28	2	60	1	21	4	26	137
12:00 AM	1	1	0	2	0	1	4	5	6	5	2	13	0	7	1	8	28
12:15 AM	2	1	2	5	1	0	2	3	5	9	1	15	0	1	2	3	26
12:30 AM	0	2	5	7	0	1	3	4	7	4	0	11	0	5	0	5	27
12:45 AM	1	0	0	1	1	0	1	2	7	4	0	11	0	3	2	5	19
Hourly Total	4	4	7	15	2	2	10	14	25	22	3	50	0	16	5	21	100
1:00 AM	0	0	1	1	1	2	3	6	3	3	1	7	0	1	0	1	15
1:15 AM	1	1	0	2	1	1	2	4	2	0	0	2	0	2	2	4	12
1:30 AM	0	0	1	1	0	0	2	2	3	2	0	5	0	8	1	9	17
1:45 AM	0	0	0	0	1	1	1	3	0	3	0	3	0	2	1	3	9
Hourly Total	1	1	2	4	3	4	8	15	8	8	1	17	0	13	4	17	53
2:00 AM	2	2	0	4	0	0	1	1	3	3	0	6	0	0	0	0	11
2:15 AM	0	0	0	0	0	2	1	3	2	4	0	6	0	7	2	9	18
2:30 AM	1	1	0	2	1	0	2	3	1	2	1	4	0	5	2	7	16
2:45 AM	0	0	0	0	0	3	3	6	0	4	0	4	0	3	0	3	13
Hourly Total	3	3	0	6	1	5	7	13	6	13	1	20	0	15	4	19	58
3:00 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	4	1	5	7
3:15 AM	0	0	0	0	1	0	0	1	2	1	0	3	0	2	1	3	7
3:30 AM	0	0	0	0	1	0	1	2	1	3	0	4	0	6	0	6	12
3:45 AM	0	0	0	0	0	1	1	2	0	3	1	4	1	1	1	3	9
Hourly Total	0	0	0	0	2	1	2	5	3	9	1	13	1	13	3	17	35
4:00 AM	1	0	0	1	0	0	4	4	0	2	0	2	0	1	2	3	10
4:15 AM	0	0	0	0	0	1	4	5	7	2	0	9	0	4	0	4	18
4:30 AM	0	2	0	2	1	1	5	7	7	3	0	10	0	8	2	10	29
4:45 AM	1	0	0	1	3	1	5	9	8	4	0	12	0	8	1	9	31
Hourly Total	2	2	0	4	4	3	18	25	22	11	0	33	0	21	5	26	88
5:00 AM	1	0	0	1	4	2	2	8	9	11	1	21	0	4	4	8	38
5:15 AM	0	1	0	1	3	1	6	10	12	11	0	23	1	11	4	16	50
5:30 AM	2	0	1	3	8	3	6	17	28	15	0	43	0	12	10	22	85
5:45 AM	1	1	0	2	11	3	10	24	38	21	0	59	0	13	18	31	116
Hourly Total	4	2	1	7	26	9	24	59	87	58	1	146	1	40	36	77	289
6:00 AM	1	1	2	4	15	6	7	28	26	20	0	46	1	12	9	22	100
6:15 AM	3	5	2	10	19	7	9	35	49	36	1	86	1	23	21	45	176
6:30 AM	6	5	1	12	11	5	21	37	74	40	5	119	3	29	21	53	221
6:45 AM	2	5	7	14	27	14	22	63	70	48	1	119	1	47	31	79	275
Hourly Total	12	16	12	40	72	32	59	163	219	144	7	370	6	111	82	199	772
7:00 AM	8	7	1	16	19	14	22	55	65	25	0	90	1	33	16	50	211
7:15 AM	6	9	2	17	20	10	41	71	72	47	2	121	7	35	35	77	286
7:30 AM	9	6	2	17	10	11	50	71	68	30	3	101	6	67	47	120	309
7:45 AM	8	9	2	19	17	11	42	70	85	35	3	123	6	65	31	102	314
Hourly Total	31	31	7	69	66	46	155	267	290	137	8	435	20	200	129	349	1120
8:00 AM	5	13	2	20	32	8	36	76	45	49	0	94	5	48	20	73	263
8:15 AM	9	4	4	17	22	9	36	67	41	39	3	83	5	36	20	61	228
8:30 AM	11	11	6	28	19	13	32	64	48	33	4	85	4	55	20	79	256
8:45 AM	13	9	7	29	15	11	44	70	44	27	3	74	5	47	19	71	244
Hourly Total	38	37	19	94	88	41	148	277	178	148	10	336	19	186	79	284	991
9:00 AM	10	10	1	21	30	11	29	70	27	37	3	67	2	32	16	50	208
9:15 AM	20	5	0	25	25	15	53	93	38	42	4	84	4	42	21	67	269
9:30 AM	14	10	4	28	24	13	33	70	32	49	6	87	14	48	20	82	267
9:45 AM	17	13	4	34	17	11	40	68	39	32	7	78	12	47	33	92	272
Hourly Total	61	38	9	108	96	50	155	301	136	160	20	316	32	169	90	291	1016
10:00 AM	25	6	5	36	16	15	43	74	52	55	7	114	8	44	23	75	299
10:15 AM	18	8	6	32	14	11	46	71	45	33	7	85	8	52	15	75	263
Grand Total	1519	1094	460	3073	1284	1349	2981	5614	3373	2981	344	6698	395	2738	1282	4415	19800
Approach %	49.4	35.6	15.0	-	22.9	24.0	53.1	-	50.4	44.5	5.1	-	8.9	62.0	29.0	-	-
Total %	7.7	5.5	2.3	15.5	6.5	6.8	15.1	28.4	17.0	15.1	1.7	33.8	2.0	13.8	6.5	22.3	-
Lights	1477	1026	442	2945	1143	1266	2899	5308	3282	2694	321	6297	388	2538	1111	4037	18587
% Lights	97.2	93.8	96.1	95.8	89.0	93.8	97.2	94.5	97.3	90.4	93.3	94.0	98.2	92.7	86.7	91.4	93.9
Mediums	33	61	8	102	43	71	42	156	60	65	21	146	3	51	56	110	514
% Mediums	2.2	5.6	1.7	3.3	3.3	5.3	1.4	2.8	1.8	2.2	6.1	2.2	0.8	1.9	4.4	2.5	2.6
Articulated Trucks	9	7	10	26	98	12	40	150	31	222	2	255	4	149	115	268	699
% Articulated Trucks	0.6	0.6	2.2	0.8	7.6	0.9	1.3	2.7	0.9	7.4	0.6	3.8	1.0	5.4	9.0	6.1	3.5



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Turning Movement Data Plot



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Turning Movement Peak Hour Data (4:30 PM)

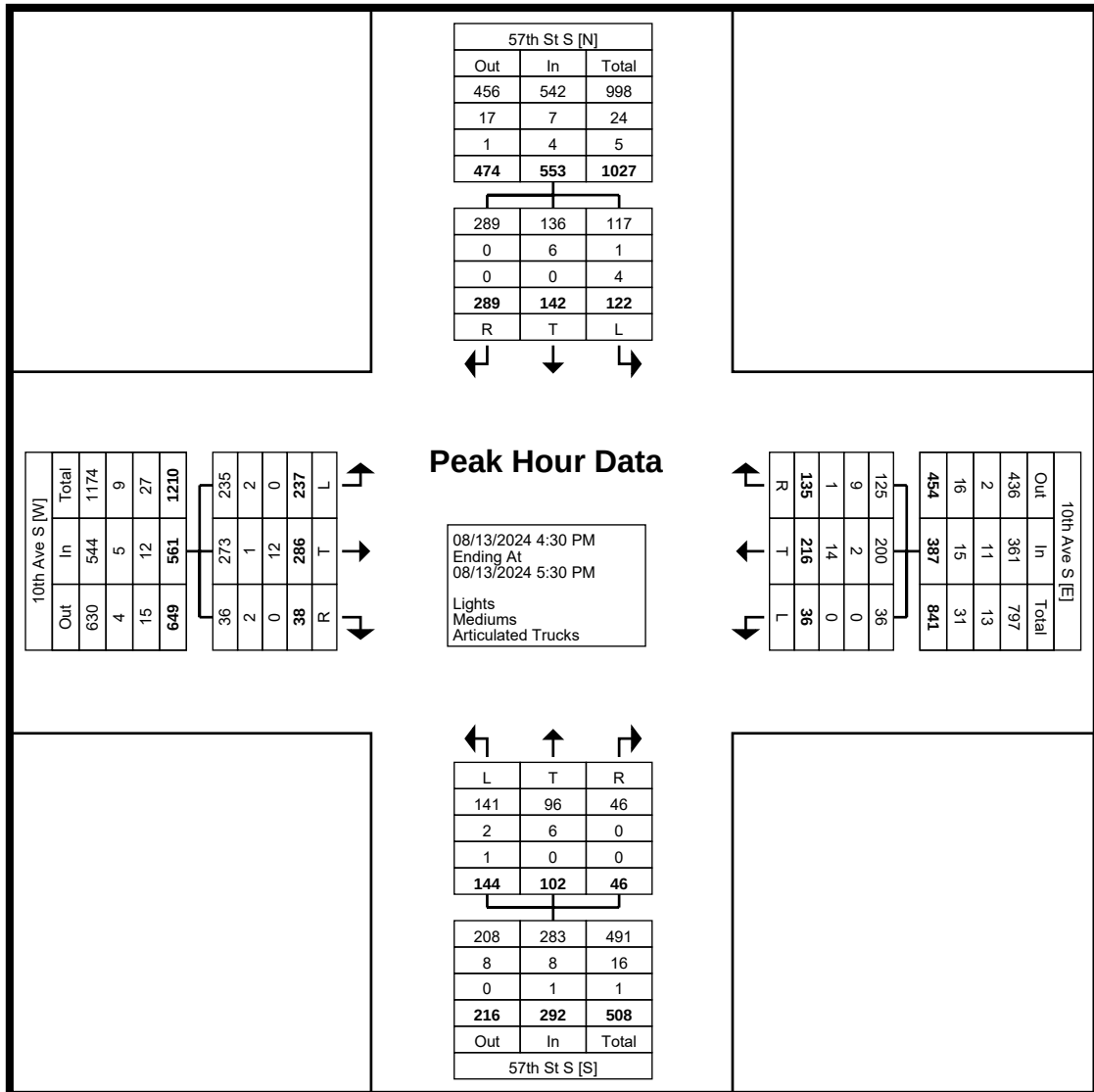
Start Time	57th St S Northbound				57th St S Southbound				10th Ave S Eastbound				10th Ave S Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
4:30 PM	28	27	6	61	24	41	81	146	65	70	8	143	14	65	26	105	455
4:45 PM	38	22	15	75	34	35	62	131	58	61	11	130	6	47	27	80	416
5:00 PM	45	34	11	90	35	35	84	154	67	77	12	156	10	46	39	95	495
5:15 PM	33	19	14	66	29	31	62	122	47	78	7	132	6	58	43	107	427
Total	144	102	46	292	122	142	289	553	237	286	38	561	36	216	135	387	1793
Approach %	49.3	34.9	15.8	-	22.1	25.7	52.3	-	42.2	51.0	6.8	-	9.3	55.8	34.9	-	-
Total %	8.0	5.7	2.6	16.3	6.8	7.9	16.1	30.8	13.2	16.0	2.1	31.3	2.0	12.0	7.5	21.6	-
PHF	0.800	0.750	0.767	0.811	0.871	0.866	0.860	0.898	0.884	0.917	0.792	0.899	0.643	0.831	0.785	0.904	0.906
Lights	141	96	46	283	117	136	289	542	235	273	36	544	36	200	125	361	1730
% Lights	97.9	94.1	100.0	96.9	95.9	95.8	100.0	98.0	99.2	95.5	94.7	97.0	100.0	92.6	92.6	93.3	96.5
Mediums	2	6	0	8	1	6	0	7	2	1	2	5	0	2	9	11	31
% Mediums	1.4	5.9	0.0	2.7	0.8	4.2	0.0	1.3	0.8	0.3	5.3	0.9	0.0	0.9	6.7	2.8	1.7
Articulated Trucks	1	0	0	1	4	0	0	4	0	12	0	12	0	14	1	15	32
% Articulated Trucks	0.7	0.0	0.0	0.3	3.3	0.0	0.0	0.7	0.0	4.2	0.0	2.1	0.0	6.5	0.7	3.9	1.8



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Count Name: 57th St S & 10th Ave S
Site Code:
Start Date: 08/13/2024
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Turning Movement Peak Hour Data Plot (4:30 PM)



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Count Name: 57th St S & 10th Ave S
Site Code:
Start Date: 08/13/2024
Page No: 6

Turning Movement Peak Hour Data (7:15 AM)

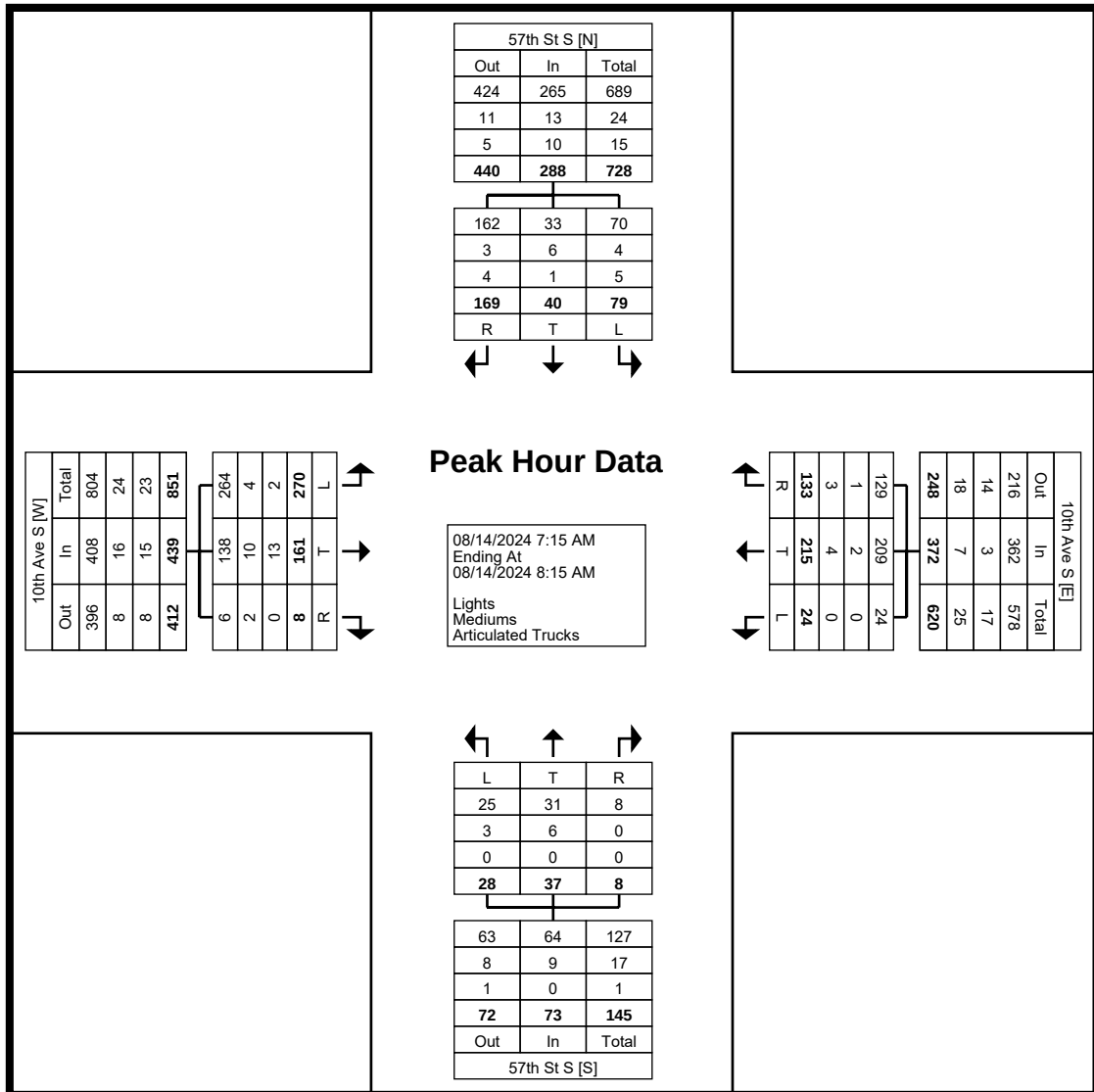
Start Time	57th St S Northbound				57th St S Southbound				10th Ave S Eastbound				10th Ave S Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
7:15 AM	6	9	2	17	20	10	41	71	72	47	2	121	7	35	35	77	286
7:30 AM	9	6	2	17	10	11	50	71	68	30	3	101	6	67	47	120	309
7:45 AM	8	9	2	19	17	11	42	70	85	35	3	123	6	65	31	102	314
8:00 AM	5	13	2	20	32	8	36	76	45	49	0	94	5	48	20	73	263
Total	28	37	8	73	79	40	169	288	270	161	8	439	24	215	133	372	1172
Approach %	38.4	50.7	11.0	-	27.4	13.9	58.7	-	61.5	36.7	1.8	-	6.5	57.8	35.8	-	-
Total %	2.4	3.2	0.7	6.2	6.7	3.4	14.4	24.6	23.0	13.7	0.7	37.5	2.0	18.3	11.3	31.7	-
PHF	0.778	0.712	1.000	0.913	0.617	0.909	0.845	0.947	0.794	0.821	0.667	0.892	0.857	0.802	0.707	0.775	0.933
Lights	25	31	8	64	70	33	162	265	264	138	6	408	24	209	129	362	1099
% Lights	89.3	83.8	100.0	87.7	88.6	82.5	95.9	92.0	97.8	85.7	75.0	92.9	100.0	97.2	97.0	97.3	93.8
Mediums	3	6	0	9	4	6	3	13	4	10	2	16	0	2	1	3	41
% Mediums	10.7	16.2	0.0	12.3	5.1	15.0	1.8	4.5	1.5	6.2	25.0	3.6	0.0	0.9	0.8	0.8	3.5
Articulated Trucks	0	0	0	0	5	1	4	10	2	13	0	15	0	4	3	7	32
% Articulated Trucks	0.0	0.0	0.0	0.0	6.3	2.5	2.4	3.5	0.7	8.1	0.0	3.4	0.0	1.9	2.3	1.9	2.7



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Count Name: 57th St S & 10th Ave S
Site Code:
Start Date: 08/13/2024
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Turning Movement Peak Hour Data Plot (7:15 AM)



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Count Name: Hwy 87 &
Construction Gate
Site Code:
Start Date: 08/14/2024
Page No: 1

Turning Movement Data

Start Time	Construction Gate Southbound			Hwy 87 Eastbound			Hwy 87 Westbound			Int. Total
	Left	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	
12:15 PM	0	2	2	7	76	83	66	0	66	151
12:30 PM	0	3	3	2	69	71	73	0	73	147
12:45 PM	0	2	2	1	77	78	81	0	81	161
Hourly Total	0	7	7	10	222	232	220	0	220	459
1:00 PM	0	6	6	4	76	80	56	0	56	142
1:15 PM	0	3	3	5	82	87	79	0	79	169
1:30 PM	0	0	0	4	86	90	90	0	90	180
1:45 PM	0	2	2	1	78	79	87	1	88	169
Hourly Total	0	11	11	14	322	336	312	1	313	660
2:00 PM	0	2	2	1	87	88	87	0	87	177
2:15 PM	0	0	0	1	84	85	90	0	90	175
2:30 PM	0	3	3	1	73	74	78	0	78	155
2:45 PM	0	0	0	1	91	92	91	0	91	183
Hourly Total	0	5	5	4	335	339	346	0	346	690
3:00 PM	0	4	4	1	80	81	73	0	73	158
3:15 PM	0	5	5	2	93	95	75	0	75	175
3:30 PM	0	18	18	0	86	86	79	0	79	183
3:45 PM	0	2	2	0	79	79	88	0	88	169
Hourly Total	0	29	29	3	338	341	315	0	315	685
4:00 PM	0	3	3	1	108	109	88	0	88	200
4:15 PM	0	15	15	0	103	103	85	0	85	203
4:30 PM	1	21	22	1	102	103	74	0	74	199
4:45 PM	2	5	7	1	108	109	63	0	63	179
Hourly Total	3	44	47	3	421	424	310	0	310	781
5:00 PM	0	14	14	1	122	123	77	0	77	214
5:15 PM	0	16	16	0	112	112	57	0	57	185
5:30 PM	0	10	10	0	119	119	73	0	73	202
5:45 PM	0	2	2	0	110	110	59	0	59	171
Hourly Total	0	42	42	1	463	464	266	0	266	772
6:00 PM	0	2	2	0	75	75	68	0	68	145
6:15 PM	0	0	0	0	78	78	56	0	56	134
6:30 PM	0	1	1	0	54	54	55	0	55	110
6:45 PM	0	0	0	0	54	54	40	0	40	94
Hourly Total	0	3	3	0	261	261	219	0	219	483
7:00 PM	0	0	0	0	55	55	47	0	47	102
7:15 PM	0	0	0	0	54	54	33	0	33	87
7:30 PM	0	0	0	0	39	39	38	0	38	77
7:45 PM	0	0	0	0	41	41	30	0	30	71
Hourly Total	0	0	0	0	189	189	148	0	148	337
8:00 PM	0	0	0	0	47	47	46	0	46	93
8:15 PM	0	0	0	0	41	41	27	0	27	68
8:30 PM	0	0	0	0	37	37	27	0	27	64
8:45 PM	0	0	0	0	40	40	34	0	34	74
Hourly Total	0	0	0	0	165	165	134	0	134	299
9:00 PM	0	0	0	0	47	47	25	0	25	72
9:15 PM	0	0	0	0	32	32	27	0	27	59
9:30 PM	0	0	0	0	31	31	29	0	29	60
9:45 PM	0	0	0	0	25	25	22	0	22	47
Hourly Total	0	0	0	0	135	135	103	0	103	238
10:00 PM	0	0	0	0	15	15	20	0	20	35
10:15 PM	0	0	0	0	13	13	12	0	12	25
10:30 PM	0	0	0	0	10	10	11	0	11	21
10:45 PM	0	0	0	0	9	9	15	0	15	24
Hourly Total	0	0	0	0	47	47	58	0	58	105
11:00 PM	0	0	0	0	12	12	9	0	9	21
11:15 PM	0	0	0	0	7	7	13	0	13	20
11:30 PM	0	0	0	0	9	9	7	0	7	16
11:45 PM	0	0	0	0	14	14	9	0	9	23
Hourly Total	0	0	0	0	42	42	38	0	38	80
12:00 AM	0	0	0	0	4	4	5	0	5	9
12:15 AM	0	0	0	0	5	5	3	0	3	8

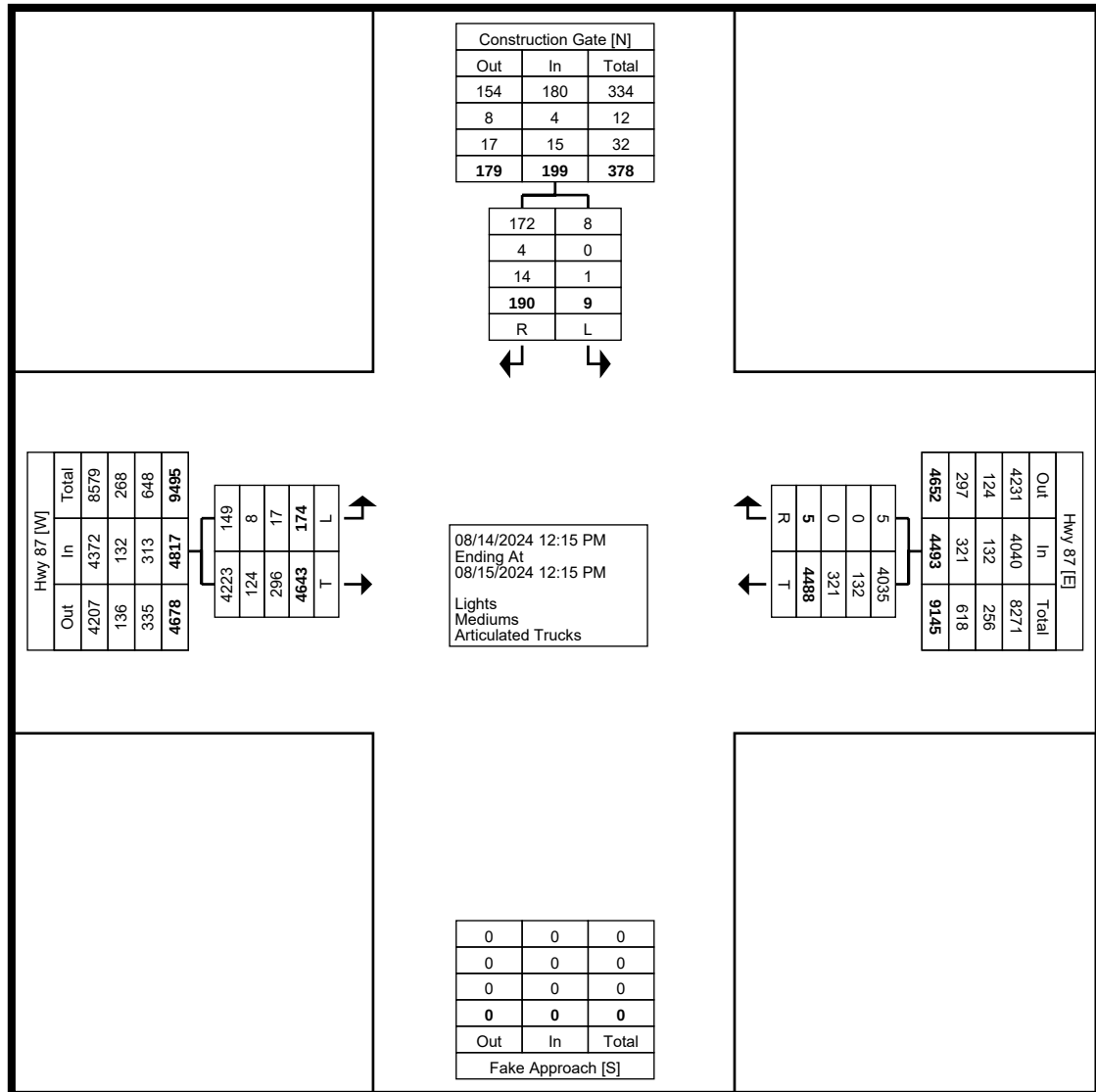
12:30 AM	0	0	0	0	3	3	5	0	5	8
12:45 AM	0	0	0	0	6	6	2	0	2	8
Hourly Total	0	0	0	0	18	18	15	0	15	33
1:00 AM	0	0	0	0	4	4	3	0	3	7
1:15 AM	0	0	0	0	3	3	1	0	1	4
1:30 AM	0	0	0	0	5	5	2	0	2	7
1:45 AM	0	0	0	0	3	3	6	0	6	9
Hourly Total	0	0	0	0	15	15	12	0	12	27
2:00 AM	0	0	0	0	4	4	2	0	2	6
2:15 AM	0	0	0	0	3	3	2	0	2	5
2:30 AM	0	0	0	0	2	2	4	0	4	6
2:45 AM	0	0	0	0	3	3	4	0	4	7
Hourly Total	0	0	0	0	12	12	12	0	12	24
3:00 AM	0	0	0	0	4	4	3	0	3	7
3:15 AM	0	0	0	0	3	3	5	0	5	8
3:30 AM	0	0	0	0	3	3	8	0	8	11
3:45 AM	0	0	0	0	2	2	6	0	6	8
Hourly Total	0	0	0	0	12	12	22	0	22	34
4:00 AM	0	0	0	0	6	6	4	0	4	10
4:15 AM	0	0	0	0	5	5	4	0	4	9
4:30 AM	0	0	0	0	5	5	8	0	8	13
4:45 AM	0	0	0	1	6	7	6	0	6	13
Hourly Total	0	0	0	1	22	23	22	0	22	45
5:00 AM	0	0	0	0	12	12	10	0	10	22
5:15 AM	0	0	0	3	12	15	13	0	13	28
5:30 AM	0	0	0	10	14	24	21	0	21	45
5:45 AM	0	0	0	7	16	23	35	0	35	58
Hourly Total	0	0	0	20	54	74	79	0	79	153
6:00 AM	1	2	3	9	18	27	20	0	20	50
6:15 AM	0	1	1	14	31	45	44	0	44	90
6:30 AM	0	1	1	25	40	65	69	1	70	136
6:45 AM	0	0	0	30	40	70	80	1	81	151
Hourly Total	1	4	5	78	129	207	213	2	215	427
7:00 AM	0	1	1	6	59	65	64	0	64	130
7:15 AM	1	0	1	2	46	48	95	0	95	144
7:30 AM	0	0	0	2	41	43	119	1	120	163
7:45 AM	0	3	3	2	57	59	93	0	93	155
Hourly Total	1	4	5	12	203	215	371	1	372	592
8:00 AM	0	1	1	1	64	65	73	0	73	139
8:15 AM	0	1	1	1	66	67	78	0	78	146
8:30 AM	0	2	2	1	63	64	62	0	62	128
8:45 AM	0	1	1	5	74	79	69	0	69	149
Hourly Total	0	5	5	8	267	275	282	0	282	562
9:00 AM	0	1	1	0	72	72	66	0	66	139
9:15 AM	0	0	0	2	77	79	71	0	71	150
9:30 AM	0	1	1	2	64	66	72	0	72	139
9:45 AM	0	3	3	1	78	79	63	1	64	146
Hourly Total	0	5	5	5	291	296	272	1	273	574
10:00 AM	1	2	3	6	103	109	82	0	82	194
10:15 AM	1	1	2	0	70	70	72	0	72	144
10:30 AM	0	4	4	0	71	71	88	0	88	163
10:45 AM	1	1	2	0	77	77	86	0	86	165
Hourly Total	3	8	11	6	321	327	328	0	328	666
11:00 AM	1	2	3	1	62	63	73	0	73	139
11:15 AM	0	6	6	1	88	89	80	0	80	175
11:30 AM	0	1	1	0	57	57	78	0	78	136
11:45 AM	0	6	6	4	70	74	89	0	89	169
Hourly Total	1	15	16	6	277	283	320	0	320	619
12:00 PM	0	8	8	3	82	85	71	0	71	164
Grand Total	9	190	199	174	4643	4817	4488	5	4493	9509
Approach %	4.5	95.5	-	3.6	96.4	-	99.9	0.1	-	-
Total %	0.1	2.0	2.1	1.8	48.8	50.7	47.2	0.1	47.2	-
Lights	8	172	180	149	4223	4372	4035	5	4040	8592
% Lights	88.9	90.5	90.5	85.6	91.0	90.8	89.9	100.0	89.9	90.4
Mediums	0	4	4	8	124	132	132	0	132	268
% Mediums	0.0	2.1	2.0	4.6	2.7	2.7	2.9	0.0	2.9	2.8
Articulated Trucks	1	14	15	17	296	313	321	0	321	649
% Articulated Trucks	11.1	7.4	7.5	9.8	6.4	6.5	7.2	0.0	7.1	6.8



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Count Name: Hwy 87 &
Construction Gate
Site Code:
Start Date: 08/14/2024
Page No: 3



Turning Movement Data Plot



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Count Name: Hwy 87 &
Construction Gate
Site Code:
Start Date: 08/14/2024
Page No: 4

Turning Movement Peak Hour Data (4:15 PM)

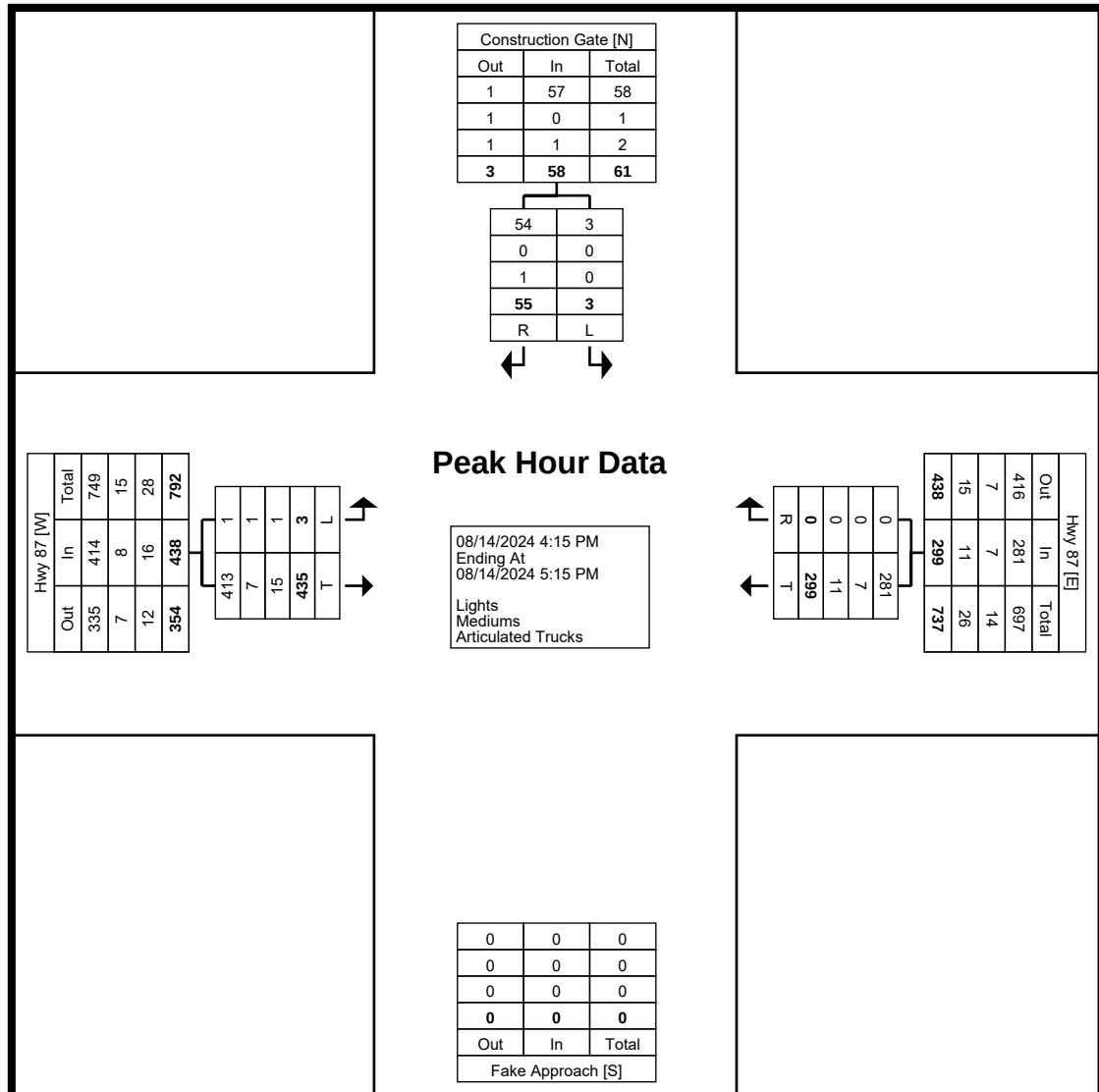
Start Time	Construction Gate Southbound			Hwy 87 Eastbound			Hwy 87 Westbound			Int. Total
	Left	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	
4:15 PM	0	15	15	0	103	103	85	0	85	203
4:30 PM	1	21	22	1	102	103	74	0	74	199
4:45 PM	2	5	7	1	108	109	63	0	63	179
5:00 PM	0	14	14	1	122	123	77	0	77	214
Total	3	55	58	3	435	438	299	0	299	795
Approach %	5.2	94.8	-	0.7	99.3	-	100.0	0.0	-	-
Total %	0.4	6.9	7.3	0.4	54.7	55.1	37.6	0.0	37.6	-
PHF	0.375	0.655	0.659	0.750	0.891	0.890	0.879	0.000	0.879	0.929
Lights	3	54	57	1	413	414	281	0	281	752
% Lights	100.0	98.2	98.3	33.3	94.9	94.5	94.0	-	94.0	94.6
Mediums	0	0	0	1	7	8	7	0	7	15
% Mediums	0.0	0.0	0.0	33.3	1.6	1.8	2.3	-	2.3	1.9
Articulated Trucks	0	1	1	1	15	16	11	0	11	28
% Articulated Trucks	0.0	1.8	1.7	33.3	3.4	3.7	3.7	-	3.7	3.5



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Count Name: Hwy 87 &
Construction Gate
Site Code:
Start Date: 08/14/2024
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Turning Movement Peak Hour Data Plot (4:15 PM)



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Count Name: Hwy 87 &
Construction Gate
Site Code:
Start Date: 08/14/2024
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Turning Movement Peak Hour Data (7:30 AM)

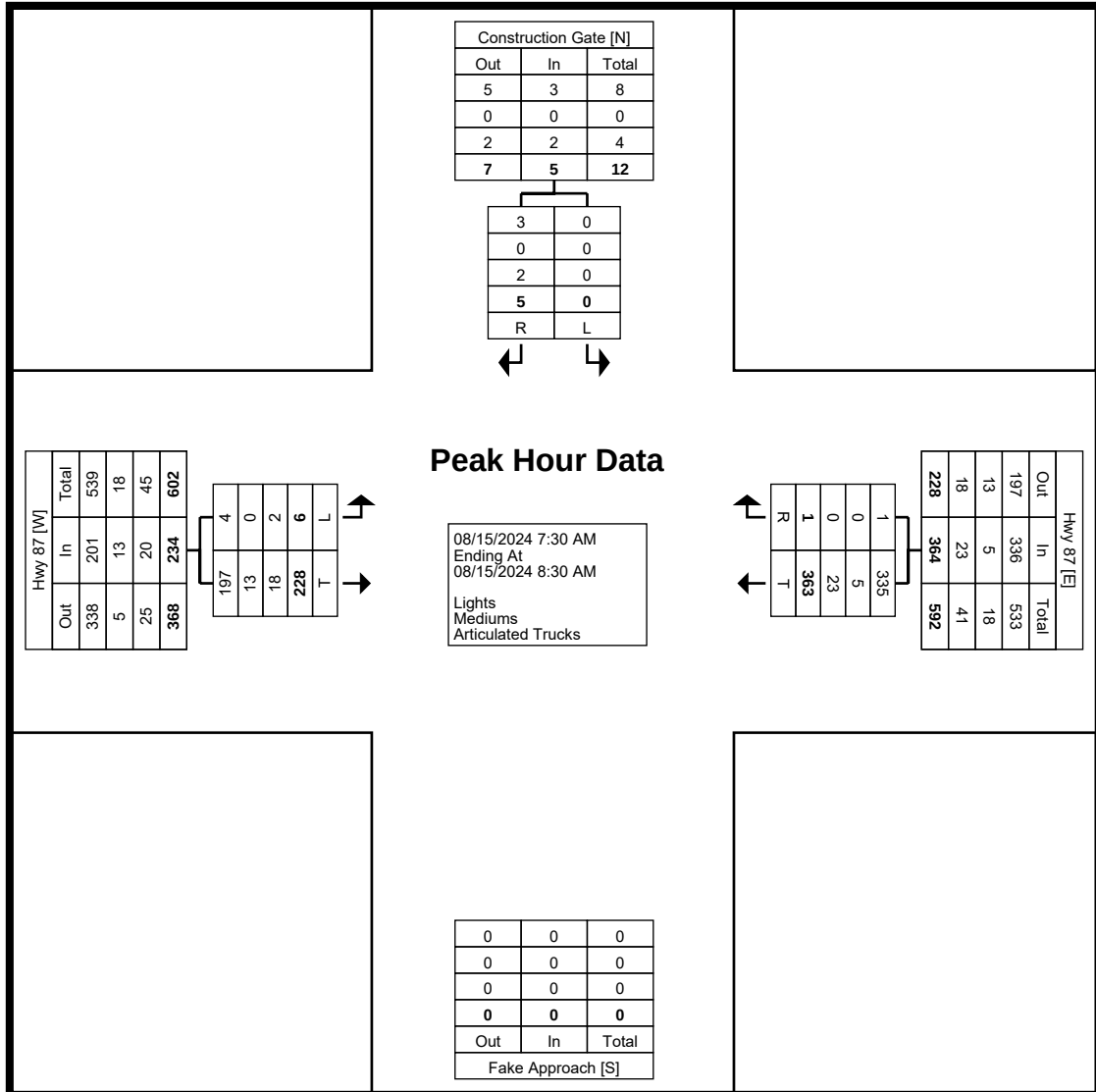
Start Time	Construction Gate Southbound			Hwy 87 Eastbound			Hwy 87 Westbound			Int. Total
	Left	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	
7:30 AM	0	0	0	2	41	43	119	1	120	163
7:45 AM	0	3	3	2	57	59	93	0	93	155
8:00 AM	0	1	1	1	64	65	73	0	73	139
8:15 AM	0	1	1	1	66	67	78	0	78	146
Total	0	5	5	6	228	234	363	1	364	603
Approach %	0.0	100.0	-	2.6	97.4	-	99.7	0.3	-	-
Total %	0.0	0.8	0.8	1.0	37.8	38.8	60.2	0.2	60.4	-
PHF	0.000	0.417	0.417	0.750	0.864	0.873	0.763	0.250	0.758	0.925
Lights	0	3	3	4	197	201	335	1	336	540
% Lights	-	60.0	60.0	66.7	86.4	85.9	92.3	100.0	92.3	89.6
Mediums	0	0	0	0	13	13	5	0	5	18
% Mediums	-	0.0	0.0	0.0	5.7	5.6	1.4	0.0	1.4	3.0
Articulated Trucks	0	2	2	2	18	20	23	0	23	45
% Articulated Trucks	-	40.0	40.0	33.3	7.9	8.5	6.3	0.0	6.3	7.5



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Count Name: Hwy 87 &
Construction Gate
Site Code:
Start Date: 08/14/2024
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Turning Movement Peak Hour Data Plot (7:30 AM)



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Count Name: Hwy 87 & Stone
Mill Ln
Site Code:
Start Date: 08/14/2024
Page No: 1

Turning Movement Data

Start Time	Stone Mill Ln Northbound			Hwy 87 Eastbound				Hwy 87 Westbound			Int. Total
	Left	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	App. Total	
12:00 PM	5	0	5	0	67	8	75	0	87	87	167
12:15 PM	6	0	6	0	68	8	76	0	64	64	146
12:30 PM	7	0	7	0	58	8	66	0	65	65	138
12:45 PM	9	1	10	0	56	14	70	0	64	64	144
Hourly Total	27	1	28	0	249	38	287	0	280	280	595
1:00 PM	5	2	7	0	66	5	71	0	52	52	130
1:15 PM	7	0	7	0	69	13	82	0	66	66	155
1:30 PM	4	0	4	0	74	6	80	0	78	78	162
1:45 PM	5	0	5	0	66	8	74	0	84	84	163
Hourly Total	21	2	23	0	275	32	307	0	280	280	610
2:00 PM	9	0	9	0	83	7	90	0	74	74	173
2:15 PM	4	1	5	0	75	10	85	0	79	79	169
2:30 PM	4	0	4	0	64	5	69	0	75	75	148
2:45 PM	5	1	6	0	77	8	85	0	81	81	172
Hourly Total	22	2	24	0	299	30	329	0	309	309	662
3:00 PM	3	0	3	0	68	8	76	1	67	68	147
3:15 PM	4	0	4	0	83	7	90	0	66	66	160
3:30 PM	2	1	3	0	78	7	85	1	79	80	168
3:45 PM	2	1	3	0	71	6	77	1	72	73	153
Hourly Total	11	2	13	0	300	28	328	3	284	287	628
4:00 PM	4	1	5	0	105	4	109	0	79	79	193
4:15 PM	8	0	8	0	88	5	93	2	65	67	168
4:30 PM	8	0	8	0	101	10	111	0	57	57	176
4:45 PM	0	0	0	0	100	11	111	0	63	63	174
Hourly Total	20	1	21	0	394	30	424	2	264	266	711
5:00 PM	7	1	8	0	106	11	117	0	63	63	188
5:15 PM	3	0	3	0	97	13	110	0	57	57	170
5:30 PM	3	0	3	0	103	9	112	0	56	56	171
5:45 PM	4	0	4	0	108	6	114	1	58	59	177
Hourly Total	17	1	18	0	414	39	453	1	234	235	706
6:00 PM	3	0	3	0	70	5	75	0	60	60	138
6:15 PM	3	0	3	0	75	11	86	0	51	51	140
6:30 PM	4	0	4	0	50	5	55	0	47	47	106
6:45 PM	4	2	6	0	45	3	48	0	36	36	90
Hourly Total	14	2	16	0	240	24	264	0	194	194	474
7:00 PM	5	0	5	0	47	7	54	0	44	44	103
7:15 PM	5	0	5	0	45	6	51	0	27	27	83
7:30 PM	2	0	2	0	35	5	40	0	35	35	77
7:45 PM	1	0	1	0	37	3	40	1	25	26	67
Hourly Total	13	0	13	0	164	21	185	1	131	132	330
8:00 PM	2	0	2	0	37	4	41	0	44	44	87
8:15 PM	0	0	0	0	37	7	44	0	26	26	70
8:30 PM	1	0	1	0	32	4	36	0	28	28	65
8:45 PM	2	0	2	1	33	4	38	0	29	29	69
Hourly Total	5	0	5	1	139	19	159	0	127	127	291
9:00 PM	1	0	1	0	36	5	41	0	23	23	65
9:15 PM	0	0	0	0	35	4	39	0	23	23	62
9:30 PM	0	0	0	0	28	1	29	0	29	29	58
9:45 PM	0	0	0	0	24	1	25	0	20	20	45
Hourly Total	1	0	1	0	123	11	134	0	95	95	230
10:00 PM	0	0	0	0	15	1	16	0	20	20	36
10:15 PM	0	0	0	0	10	1	11	1	11	12	23
10:30 PM	1	0	1	0	13	0	13	0	10	10	24
10:45 PM	0	0	0	0	9	1	10	0	13	13	23
Hourly Total	1	0	1	0	47	3	50	1	54	55	106
11:00 PM	0	0	0	0	9	1	10	0	9	9	19
11:15 PM	0	0	0	0	7	0	7	0	12	12	19
11:30 PM	1	0	1	0	6	1	7	0	5	5	13
11:45 PM	0	0	0	0	12	2	14	0	8	8	22
Hourly Total	1	0	1	0	34	4	38	0	34	34	73
12:00 AM	0	0	0	0	4	0	4	0	7	7	11

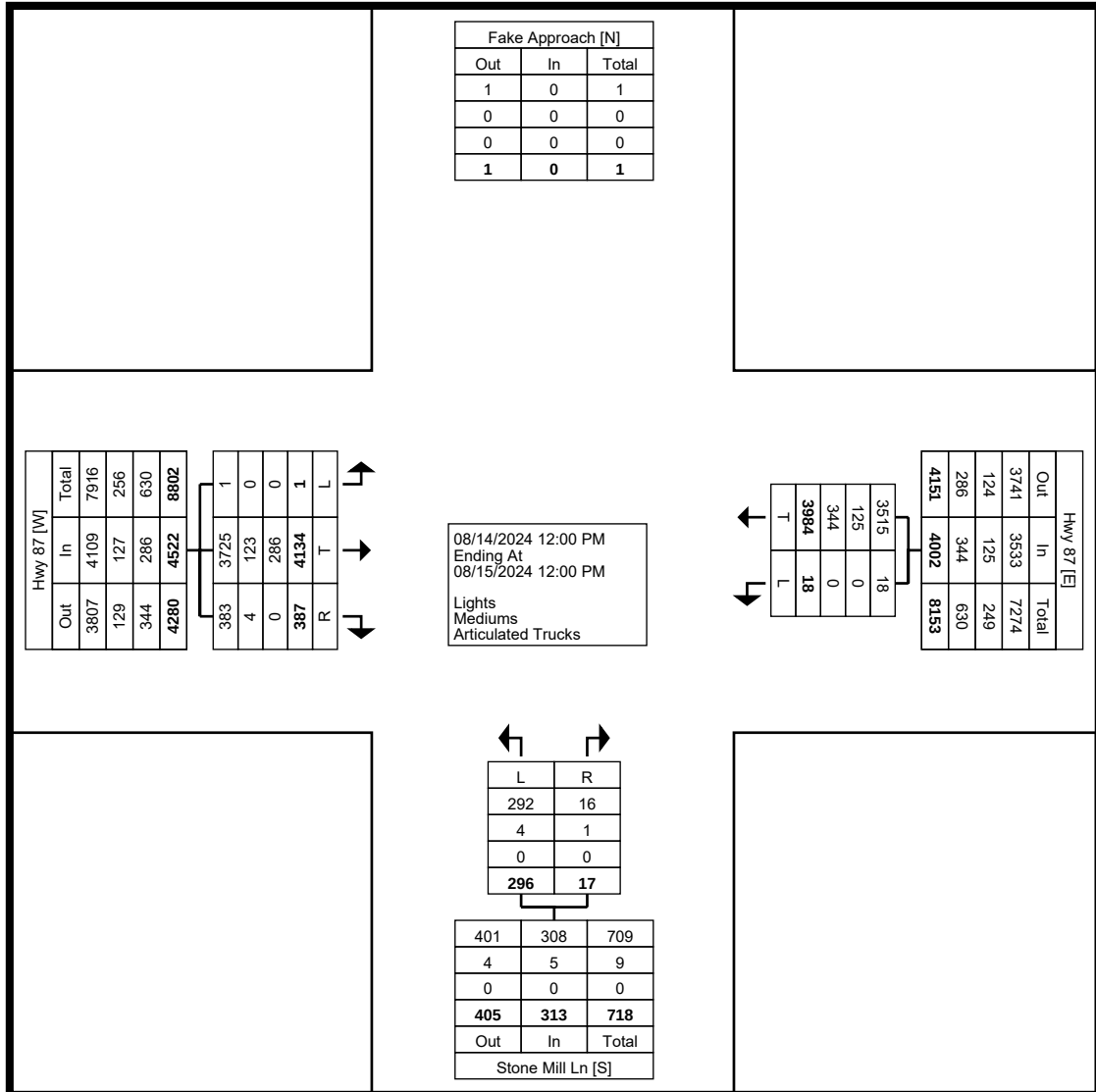
12:15 AM	0	0	0	0	3	2	5	0	3	3	8
12:30 AM	0	0	0	0	1	0	1	0	4	4	5
12:45 AM	0	0	0	0	8	0	8	0	2	2	10
Hourly Total	0	0	0	0	16	2	18	0	16	16	34
1:00 AM	0	0	0	0	4	0	4	0	3	3	7
1:15 AM	0	0	0	0	2	1	3	0	1	1	4
1:30 AM	0	0	0	0	5	0	5	0	2	2	7
1:45 AM	0	0	0	0	2	1	3	0	6	6	9
Hourly Total	0	0	0	0	13	2	15	0	12	12	27
2:00 AM	0	0	0	0	3	0	3	0	2	2	5
2:15 AM	0	0	0	0	4	0	4	0	3	3	7
2:30 AM	0	0	0	0	2	0	2	0	3	3	5
2:45 AM	1	0	1	0	2	0	2	0	3	3	6
Hourly Total	1	0	1	0	11	0	11	0	11	11	23
3:00 AM	0	0	0	0	4	0	4	0	2	2	6
3:15 AM	0	0	0	0	3	0	3	0	6	6	9
3:30 AM	0	0	0	0	3	0	3	0	6	6	9
3:45 AM	0	0	0	0	3	0	3	0	7	7	10
Hourly Total	0	0	0	0	13	0	13	0	21	21	34
4:00 AM	0	0	0	0	5	0	5	0	6	6	11
4:15 AM	0	0	0	0	7	0	7	0	1	1	8
4:30 AM	1	0	1	0	3	0	3	0	8	8	12
4:45 AM	0	0	0	0	7	0	7	0	6	6	13
Hourly Total	1	0	1	0	22	0	22	0	21	21	44
5:00 AM	1	0	1	0	12	0	12	0	8	8	21
5:15 AM	0	0	0	0	10	0	10	0	14	14	24
5:30 AM	5	0	5	0	13	0	13	0	16	16	34
5:45 AM	1	0	1	0	10	1	11	0	30	30	42
Hourly Total	7	0	7	0	45	1	46	0	68	68	121
6:00 AM	2	0	2	0	22	2	24	0	18	18	44
6:15 AM	6	0	6	0	28	1	29	0	39	39	74
6:30 AM	1	1	2	0	36	1	37	0	73	73	112
6:45 AM	7	0	7	0	37	1	38	0	63	63	108
Hourly Total	16	1	17	0	123	5	128	0	193	193	338
7:00 AM	4	0	4	0	57	2	59	2	66	68	131
7:15 AM	10	0	10	0	44	4	48	0	79	79	137
7:30 AM	13	2	15	0	38	2	40	0	101	101	156
7:45 AM	10	1	11	0	45	4	49	0	75	75	135
Hourly Total	37	3	40	0	184	12	196	2	321	323	559
8:00 AM	9	0	9	0	62	1	63	0	66	66	138
8:15 AM	1	1	2	0	61	5	66	1	65	66	134
8:30 AM	6	0	6	0	56	9	65	0	55	55	126
8:45 AM	3	0	3	0	70	8	78	0	67	67	148
Hourly Total	19	1	20	0	249	23	272	1	253	254	546
9:00 AM	4	0	4	0	50	9	59	0	57	57	120
9:15 AM	6	0	6	0	73	4	77	0	59	59	142
9:30 AM	7	0	7	0	56	2	58	1	65	66	131
9:45 AM	5	0	5	0	71	6	77	1	59	60	142
Hourly Total	22	0	22	0	250	21	271	2	240	242	535
10:00 AM	4	0	4	0	85	11	96	0	60	60	160
10:15 AM	6	0	6	0	56	6	62	2	56	58	126
10:30 AM	7	1	8	0	61	4	65	1	78	79	152
10:45 AM	6	0	6	0	68	5	73	0	74	74	153
Hourly Total	23	1	24	0	270	26	296	3	268	271	591
11:00 AM	4	0	4	0	61	4	65	0	63	63	132
11:15 AM	4	0	4	0	80	7	87	1	66	67	158
11:30 AM	3	0	3	0	64	2	66	0	73	73	142
11:45 AM	6	0	6	0	55	3	58	1	72	73	137
Hourly Total	17	0	17	0	260	16	276	2	274	276	569
Grand Total	296	17	313	1	4134	387	4522	18	3984	4002	8837
Approach %	94.6	5.4	-	0.0	91.4	8.6	-	0.4	99.6	-	-
Total %	3.3	0.2	3.5	0.0	46.8	4.4	51.2	0.2	45.1	45.3	-
Lights	292	16	308	1	3725	383	4109	18	3515	3533	7950
% Lights	98.6	94.1	98.4	100.0	90.1	99.0	90.9	100.0	88.2	88.3	90.0
Mediums	4	1	5	0	123	4	127	0	125	125	257
% Mediums	1.4	5.9	1.6	0.0	3.0	1.0	2.8	0.0	3.1	3.1	2.9
Articulated Trucks	0	0	0	0	286	0	286	0	344	344	630
% Articulated Trucks	0.0	0.0	0.0	0.0	6.9	0.0	6.3	0.0	8.6	8.6	7.1



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Count Name: Hwy 87 & Stone
Mill Ln
Site Code:
Start Date: 08/14/2024
Page No: 3



Turning Movement Data Plot



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Count Name: Hwy 87 & Stone
Mill Ln
Site Code:
Start Date: 08/14/2024
Page No: 4

Turning Movement Peak Hour Data (4:00 PM)

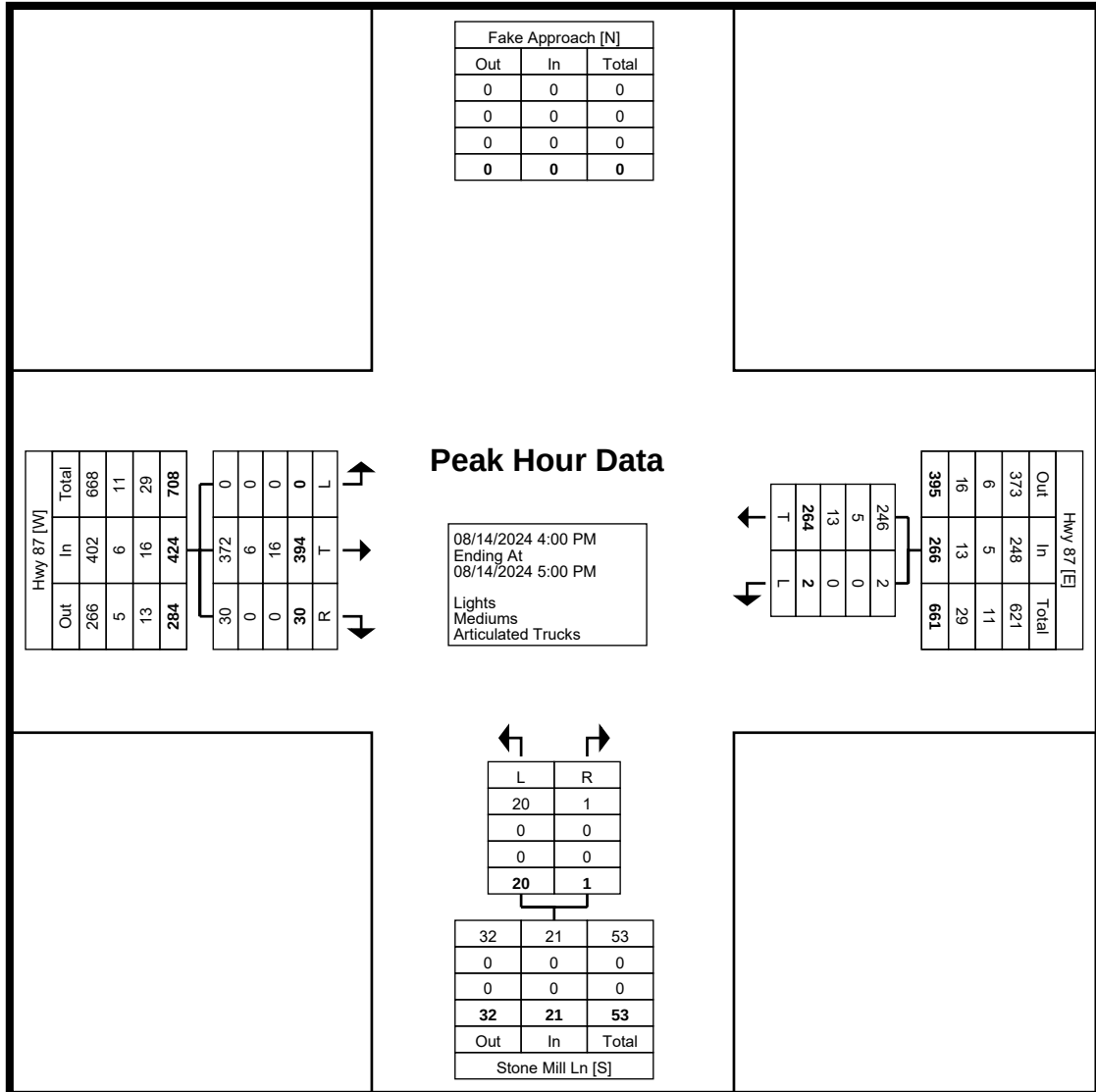
Start Time	Stone Mill Ln Northbound			Hwy 87 Eastbound				Hwy 87 Westbound			Int. Total
	Left	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	App. Total	
4:00 PM	4	1	5	0	105	4	109	0	79	79	193
4:15 PM	8	0	8	0	88	5	93	2	65	67	168
4:30 PM	8	0	8	0	101	10	111	0	57	57	176
4:45 PM	0	0	0	0	100	11	111	0	63	63	174
Total	20	1	21	0	394	30	424	2	264	266	711
Approach %	95.2	4.8	-	0.0	92.9	7.1	-	0.8	99.2	-	-
Total %	2.8	0.1	3.0	0.0	55.4	4.2	59.6	0.3	37.1	37.4	-
PHF	0.625	0.250	0.656	0.000	0.938	0.682	0.955	0.250	0.835	0.842	0.921
Lights	20	1	21	0	372	30	402	2	246	248	671
% Lights	100.0	100.0	100.0	-	94.4	100.0	94.8	100.0	93.2	93.2	94.4
Mediums	0	0	0	0	6	0	6	0	5	5	11
% Mediums	0.0	0.0	0.0	-	1.5	0.0	1.4	0.0	1.9	1.9	1.5
Articulated Trucks	0	0	0	0	16	0	16	0	13	13	29
% Articulated Trucks	0.0	0.0	0.0	-	4.1	0.0	3.8	0.0	4.9	4.9	4.1



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Count Name: Hwy 87 & Stone
Mill Ln
Site Code:
Start Date: 08/14/2024
Page No: 5





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Count Name: Hwy 87 & Stone
Mill Ln
Site Code:
Start Date: 08/14/2024
Page No: 6

Turning Movement Peak Hour Data (7:15 AM)

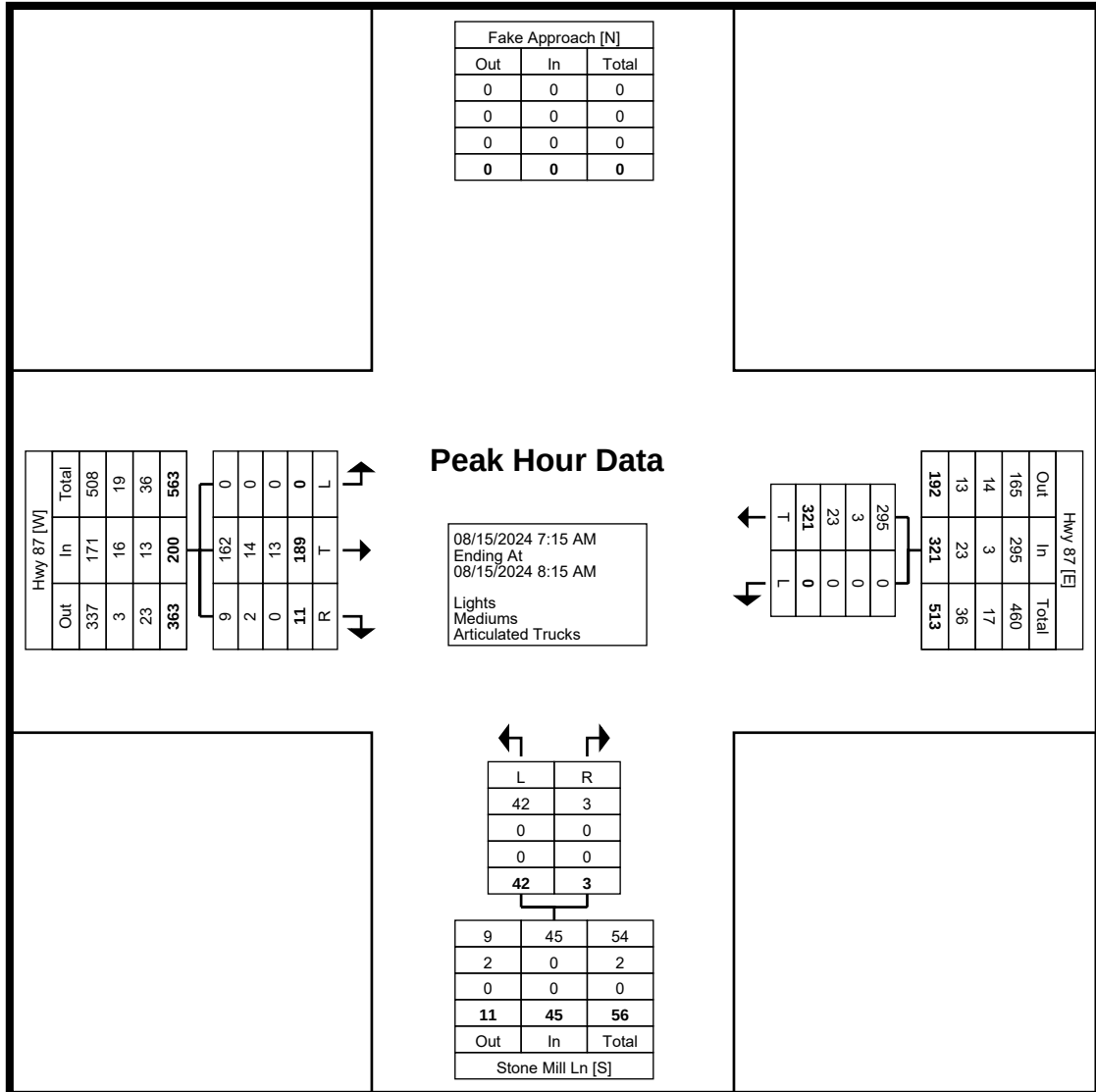
Start Time	Stone Mill Ln Northbound			Hwy 87 Eastbound				Hwy 87 Westbound			Int. Total
	Left	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	App. Total	
7:15 AM	10	0	10	0	44	4	48	0	79	79	137
7:30 AM	13	2	15	0	38	2	40	0	101	101	156
7:45 AM	10	1	11	0	45	4	49	0	75	75	135
8:00 AM	9	0	9	0	62	1	63	0	66	66	138
Total	42	3	45	0	189	11	200	0	321	321	566
Approach %	93.3	6.7	-	0.0	94.5	5.5	-	0.0	100.0	-	-
Total %	7.4	0.5	8.0	0.0	33.4	1.9	35.3	0.0	56.7	56.7	-
PHF	0.808	0.375	0.750	0.000	0.762	0.688	0.794	0.000	0.795	0.795	0.907
Lights	42	3	45	0	162	9	171	0	295	295	511
% Lights	100.0	100.0	100.0	-	85.7	81.8	85.5	-	91.9	91.9	90.3
Mediums	0	0	0	0	14	2	16	0	3	3	19
% Mediums	0.0	0.0	0.0	-	7.4	18.2	8.0	-	0.9	0.9	3.4
Articulated Trucks	0	0	0	0	13	0	13	0	23	23	36
% Articulated Trucks	0.0	0.0	0.0	-	6.9	0.0	6.5	-	7.2	7.2	6.4



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Count Name: Hwy 87 & Stone
Mill Ln
Site Code:
Start Date: 08/14/2024
Page No: 7





Robert Peccia & Associates
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Count Name: Hwy 87 & Stockett
Rd/Highwood Rd
Site Code:
Start Date: 08/14/2024
Page No: 1

Turning Movement Data

Start Time	Stockett Rd Northbound				Highwood Rd Southbound				Hwy 87 Eastbound				Hwy 87 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 PM	21	0	1	22	0	1	12	13	10	46	12	68	4	51	1	56	159
12:15 PM	12	0	2	14	0	0	8	8	3	47	11	61	0	43	0	43	126
12:30 PM	13	0	0	13	0	0	8	8	4	45	12	61	0	43	0	43	125
12:45 PM	8	1	0	9	0	0	9	9	1	43	10	54	0	46	0	46	118
Hourly Total	54	1	3	58	0	1	37	38	18	181	45	244	4	183	1	188	528
1:00 PM	11	0	0	11	0	1	7	8	7	44	15	66	0	35	0	35	120
1:15 PM	9	0	0	9	0	0	12	12	8	50	9	67	2	42	0	44	132
1:30 PM	9	0	0	9	0	0	8	8	9	53	9	71	2	58	0	60	148
1:45 PM	18	1	0	19	0	1	11	12	5	52	7	64	0	50	0	50	145
Hourly Total	47	1	0	48	0	2	38	40	29	199	40	268	4	185	0	189	545
2:00 PM	10	0	0	10	0	0	11	11	13	59	14	86	1	51	0	52	159
2:15 PM	16	0	0	16	0	1	9	10	11	50	11	72	0	52	0	52	150
2:30 PM	16	0	0	16	0	1	10	11	11	42	10	63	3	45	0	48	138
2:45 PM	11	0	0	11	0	0	5	5	11	53	17	81	0	52	0	52	149
Hourly Total	53	0	0	53	0	2	35	37	46	204	52	302	4	200	0	204	596
3:00 PM	11	0	0	11	0	0	11	11	10	50	5	65	1	45	0	46	133
3:15 PM	10	0	0	10	0	0	6	6	9	57	17	83	1	47	0	48	147
3:30 PM	13	1	0	14	0	1	12	13	13	51	12	76	1	49	1	51	154
3:45 PM	11	0	0	11	0	0	7	7	7	49	14	70	4	54	0	58	146
Hourly Total	45	1	0	46	0	1	36	37	39	207	48	294	7	195	1	203	580
4:00 PM	17	0	0	17	0	0	12	12	14	62	20	96	0	51	0	51	176
4:15 PM	13	0	0	13	0	0	6	6	18	62	18	98	1	45	0	46	163
4:30 PM	11	0	0	11	0	0	6	6	14	64	23	101	0	41	0	41	159
4:45 PM	9	0	0	9	0	2	8	10	17	52	23	92	0	43	0	43	154
Hourly Total	50	0	0	50	0	2	32	34	63	240	84	387	1	180	0	181	652
5:00 PM	10	2	2	14	0	0	10	10	14	62	26	102	2	42	1	45	171
5:15 PM	7	0	2	9	0	2	11	13	8	58	36	102	1	39	0	40	164
5:30 PM	6	0	0	6	1	0	7	8	12	60	30	102	1	45	0	46	162
5:45 PM	7	0	0	7	0	1	6	7	14	69	27	110	1	39	0	40	164
Hourly Total	30	2	4	36	1	3	34	38	48	249	119	416	5	165	1	171	661
6:00 PM	8	0	0	8	1	0	2	3	12	39	19	70	0	50	1	51	132
6:15 PM	9	0	0	9	1	0	5	6	9	48	14	71	0	36	0	36	122
6:30 PM	12	0	1	13	0	0	1	1	11	30	11	52	0	27	0	27	93
6:45 PM	8	0	0	8	0	0	3	3	7	31	7	45	1	27	0	28	84
Hourly Total	37	0	1	38	2	0	11	13	39	148	51	238	1	140	1	142	431
7:00 PM	3	0	0	3	0	1	4	5	2	42	6	50	0	29	0	29	87
7:15 PM	0	0	0	0	0	0	4	4	3	35	8	46	0	17	0	17	67
7:30 PM	0	1	1	2	0	0	2	2	4	25	7	36	0	23	0	23	63
7:45 PM	0	1	0	1	0	0	0	0	0	25	9	34	1	20	0	21	56
Hourly Total	3	2	1	6	0	1	10	11	9	127	30	166	1	89	0	90	273
8:00 PM	6	0	0	6	0	2	6	8	3	23	12	38	0	28	0	28	80
8:15 PM	3	0	0	3	0	0	0	0	7	17	12	36	0	23	1	24	63
8:30 PM	8	1	0	9	0	0	2	2	6	23	7	36	1	16	0	17	64
8:45 PM	1	0	0	1	0	0	2	2	4	19	10	33	2	25	0	27	63
Hourly Total	18	1	0	19	0	2	10	12	20	82	41	143	3	92	1	96	270
9:00 PM	6	3	0	9	0	0	1	1	4	23	8	35	1	16	0	17	62
9:15 PM	4	1	0	5	0	2	7	9	6	30	5	41	0	12	0	12	67
9:30 PM	6	0	0	6	0	0	3	3	5	16	3	24	0	19	1	20	53
9:45 PM	7	0	0	7	0	0	3	3	4	19	7	30	1	9	0	10	50
Hourly Total	23	4	0	27	0	2	14	16	19	88	23	130	2	56	1	59	232
10:00 PM	0	0	1	1	0	1	3	4	4	6	4	14	0	18	0	18	37
10:15 PM	1	1	0	2	0	0	0	0	4	5	1	10	0	12	0	12	24
10:30 PM	1	0	0	1	0	0	3	3	0	8	6	14	0	7	0	7	25
10:45 PM	0	0	0	0	0	0	1	1	0	5	3	8	0	12	0	12	21
Hourly Total	2	1	1	4	0	1	7	8	8	24	14	46	0	49	0	49	107
11:00 PM	2	0	1	3	0	0	0	0	2	5	1	8	0	7	0	7	18
11:15 PM	0	0	0	0	0	0	2	2	0	4	3	7	0	11	1	12	21
11:30 PM	1	0	0	1	0	0	2	2	0	4	3	7	0	2	0	2	12
11:45 PM	1	0	0	1	0	0	0	0	1	11	0	12	0	9	0	9	22
Hourly Total	4	0	1	5	0	0	4	4	3	24	7	34	0	29	1	30	73

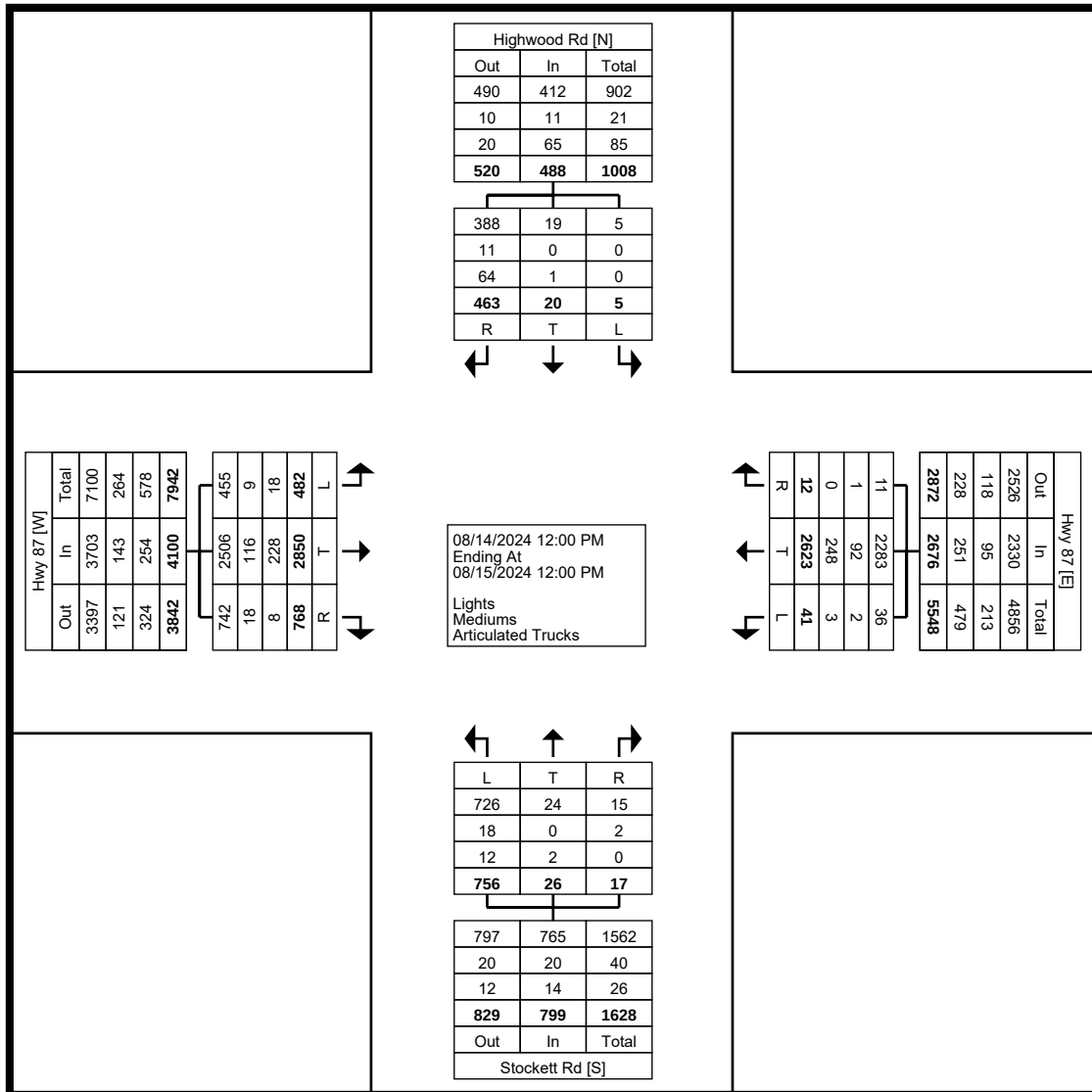
12:00 AM	0	0	0	0	0	0	0	0	4	0	4	0	5	0	5	9	
12:15 AM	0	0	0	0	0	0	0	0	4	1	5	0	4	0	4	9	
12:30 AM	0	0	0	0	0	0	1	1	1	0	0	1	0	3	1	4	6
12:45 AM	0	0	0	0	0	0	0	0	2	3	2	7	0	1	0	1	8
Hourly Total	0	0	0	0	0	0	1	1	3	11	3	17	0	13	1	14	32
1:00 AM	1	0	0	1	0	0	0	0	0	3	1	4	0	2	0	2	7
1:15 AM	0	0	0	0	0	0	0	0	0	0	2	2	0	1	0	1	3
1:30 AM	0	0	0	0	0	0	0	0	1	2	1	4	0	2	0	2	6
1:45 AM	0	0	0	0	0	0	1	1	0	2	0	2	0	6	0	6	9
Hourly Total	1	0	0	1	0	0	1	1	1	7	4	12	0	11	0	11	25
2:00 AM	0	0	0	0	0	0	0	0	0	4	0	4	0	2	0	2	6
2:15 AM	0	0	0	0	0	0	0	0	1	2	1	4	0	3	0	3	7
2:30 AM	0	0	0	0	0	0	0	0	1	1	0	2	0	3	0	3	5
2:45 AM	2	0	0	2	0	0	0	0	0	1	0	1	0	1	0	1	4
Hourly Total	2	0	0	2	0	0	0	0	2	8	1	11	0	9	0	9	22
3:00 AM	1	0	0	1	0	0	0	0	0	1	4	5	0	2	0	2	8
3:15 AM	2	0	0	2	0	0	0	0	1	1	1	3	0	5	0	5	10
3:30 AM	2	0	0	2	0	0	0	0	0	2	0	2	0	3	0	3	7
3:45 AM	0	0	0	0	0	0	2	2	1	3	0	4	0	5	0	5	11
Hourly Total	5	0	0	5	0	0	2	2	2	7	5	14	0	15	0	15	36
4:00 AM	1	0	0	1	0	0	0	0	0	4	1	5	0	4	0	4	10
4:15 AM	0	0	0	0	0	0	0	0	1	5	0	6	0	1	0	1	7
4:30 AM	1	0	0	1	0	0	1	1	0	3	0	3	0	6	0	6	11
4:45 AM	2	0	0	2	0	0	1	1	0	7	1	8	0	3	0	3	14
Hourly Total	4	0	0	4	0	0	2	2	1	19	2	22	0	14	0	14	42
5:00 AM	5	0	0	5	0	0	0	0	0	10	2	12	0	3	0	3	20
5:15 AM	5	0	0	5	0	0	1	1	0	6	3	9	0	8	0	8	23
5:30 AM	4	0	0	4	0	0	2	2	0	9	5	14	0	10	0	10	30
5:45 AM	8	0	0	8	0	1	4	5	0	8	0	8	0	21	0	21	42
Hourly Total	22	0	0	22	0	1	7	8	0	33	10	43	0	42	0	42	115
6:00 AM	5	0	0	5	0	0	2	2	0	18	3	21	0	12	0	12	40
6:15 AM	19	0	0	19	0	0	2	2	1	22	1	24	1	20	0	21	66
6:30 AM	28	0	0	28	0	0	7	7	2	35	5	42	0	33	0	33	110
6:45 AM	21	1	0	22	0	0	13	13	0	25	12	37	0	32	0	32	104
Hourly Total	73	1	0	74	0	0	24	24	3	100	21	124	1	97	0	98	320
7:00 AM	21	2	0	23	1	0	9	10	1	40	13	54	3	35	1	39	126
7:15 AM	23	0	0	23	0	0	10	10	2	29	10	41	1	48	0	49	123
7:30 AM	35	0	0	35	0	0	14	14	2	34	3	39	0	54	0	54	142
7:45 AM	17	1	0	18	0	0	14	14	10	31	5	46	2	44	0	46	124
Hourly Total	96	3	0	99	1	0	47	48	15	134	31	180	6	181	1	188	515
8:00 AM	12	1	0	13	0	0	8	8	9	50	6	65	0	44	0	44	130
8:15 AM	13	1	0	14	0	0	8	8	14	42	7	63	0	38	0	38	123
8:30 AM	11	0	0	11	1	0	6	7	6	41	5	52	0	39	0	39	109
8:45 AM	18	0	0	18	0	0	8	8	6	53	8	67	0	43	0	43	136
Hourly Total	54	2	0	56	1	0	30	31	35	186	26	247	0	164	0	164	498
9:00 AM	8	0	0	8	0	0	16	16	4	37	10	51	0	23	0	23	98
9:15 AM	13	0	1	14	0	0	10	10	8	52	11	71	0	34	0	34	129
9:30 AM	8	1	0	9	0	0	10	10	7	45	2	54	1	49	1	51	124
9:45 AM	11	1	0	12	0	0	7	7	8	45	12	65	0	35	0	35	119
Hourly Total	40	2	1	43	0	0	43	43	27	179	35	241	1	141	1	143	470
10:00 AM	15	1	2	18	0	0	5	5	8	62	12	82	0	36	0	36	141
10:15 AM	9	1	0	10	0	0	7	7	5	41	10	56	0	40	0	40	113
10:30 AM	13	0	0	13	0	1	13	14	5	50	7	62	0	58	0	58	147
10:45 AM	6	0	0	6	0	1	13	14	5	48	13	66	1	54	1	56	142
Hourly Total	43	2	2	47	0	2	38	40	23	201	42	266	1	188	1	190	543
11:00 AM	7	0	0	7	0	0	0	0	9	45	12	66	0	37	1	38	111
11:15 AM	16	1	1	18	0	0	0	0	8	59	9	76	0	44	0	44	138
11:30 AM	14	1	2	17	0	0	0	0	6	46	8	60	0	51	0	51	128
11:45 AM	13	1	0	14	0	0	0	0	6	42	5	53	0	53	0	53	120
Hourly Total	50	3	3	56	0	0	0	0	29	192	34	255	0	185	1	186	497
Grand Total	756	26	17	799	5	20	463	488	482	2850	768	4100	41	2623	12	2676	8063
Approach %	94.6	3.3	2.1	-	1.0	4.1	94.9	-	11.8	69.5	18.7	-	1.5	98.0	0.4	-	-
Total %	9.4	0.3	0.2	9.9	0.1	0.2	5.7	6.1	6.0	35.3	9.5	50.8	0.5	32.5	0.1	33.2	-
Lights	726	24	15	765	5	19	388	412	455	2506	742	3703	36	2283	11	2330	7210
% Lights	96.0	92.3	88.2	95.7	100.0	95.0	83.8	84.4	94.4	87.9	96.6	90.3	87.8	87.0	91.7	87.1	89.4
Mediums	18	0	2	20	0	0	11	11	9	116	18	143	2	92	1	95	269
% Mediums	2.4	0.0	11.8	2.5	0.0	0.0	2.4	2.3	1.9	4.1	2.3	3.5	4.9	3.5	8.3	3.6	3.3
Articulated Trucks	12	2	0	14	0	1	64	65	18	228	8	254	3	248	0	251	584
% Articulated Trucks	1.6	7.7	0.0	1.8	0.0	5.0	13.8	13.3	3.7	8.0	1.0	6.2	7.3	9.5	0.0	9.4	7.2



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Count Name: Hwy 87 & Stockett
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Turning Movement Data Plot



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Count Name: Hwy 87 & Stockett
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Turning Movement Peak Hour Data (5:00 PM)

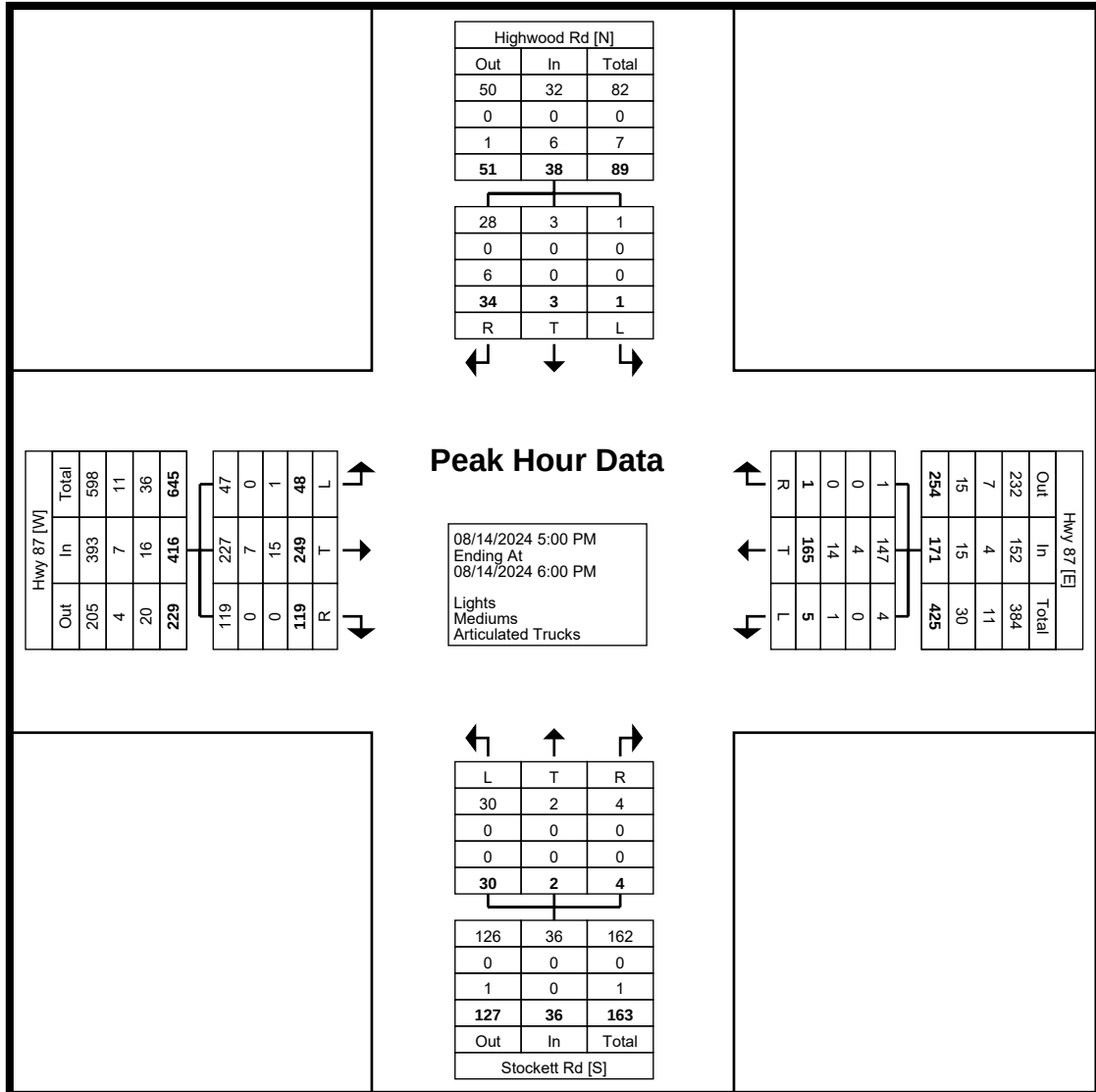
Start Time	Stockett Rd Northbound				Highwood Rd Southbound				Hwy 87 Eastbound				Hwy 87 Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
5:00 PM	10	2	2	14	0	0	10	10	14	62	26	102	2	42	1	45	171
5:15 PM	7	0	2	9	0	2	11	13	8	58	36	102	1	39	0	40	164
5:30 PM	6	0	0	6	1	0	7	8	12	60	30	102	1	45	0	46	162
5:45 PM	7	0	0	7	0	1	6	7	14	69	27	110	1	39	0	40	164
Total	30	2	4	36	1	3	34	38	48	249	119	416	5	165	1	171	661
Approach %	83.3	5.6	11.1	-	2.6	7.9	89.5	-	11.5	59.9	28.6	-	2.9	96.5	0.6	-	-
Total %	4.5	0.3	0.6	5.4	0.2	0.5	5.1	5.7	7.3	37.7	18.0	62.9	0.8	25.0	0.2	25.9	-
PHF	0.750	0.250	0.500	0.643	0.250	0.375	0.773	0.731	0.857	0.902	0.826	0.945	0.625	0.917	0.250	0.929	0.966
Lights	30	2	4	36	1	3	28	32	47	227	119	393	4	147	1	152	613
% Lights	100.0	100.0	100.0	100.0	100.0	100.0	82.4	84.2	97.9	91.2	100.0	94.5	80.0	89.1	100.0	88.9	92.7
Mediums	0	0	0	0	0	0	0	0	0	7	0	7	0	4	0	4	11
% Mediums	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	1.7	0.0	2.4	0.0	2.3	1.7
Articulated Trucks	0	0	0	0	0	0	6	6	1	15	0	16	1	14	0	15	37
% Articulated Trucks	0.0	0.0	0.0	0.0	0.0	0.0	17.6	15.8	2.1	6.0	0.0	3.8	20.0	8.5	0.0	8.8	5.6



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Turning Movement Peak Hour Data Plot (5:00 PM)



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Count Name: Hwy 87 & Stockett
Rd/Highwood Rd
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Turning Movement Peak Hour Data (7:15 AM)

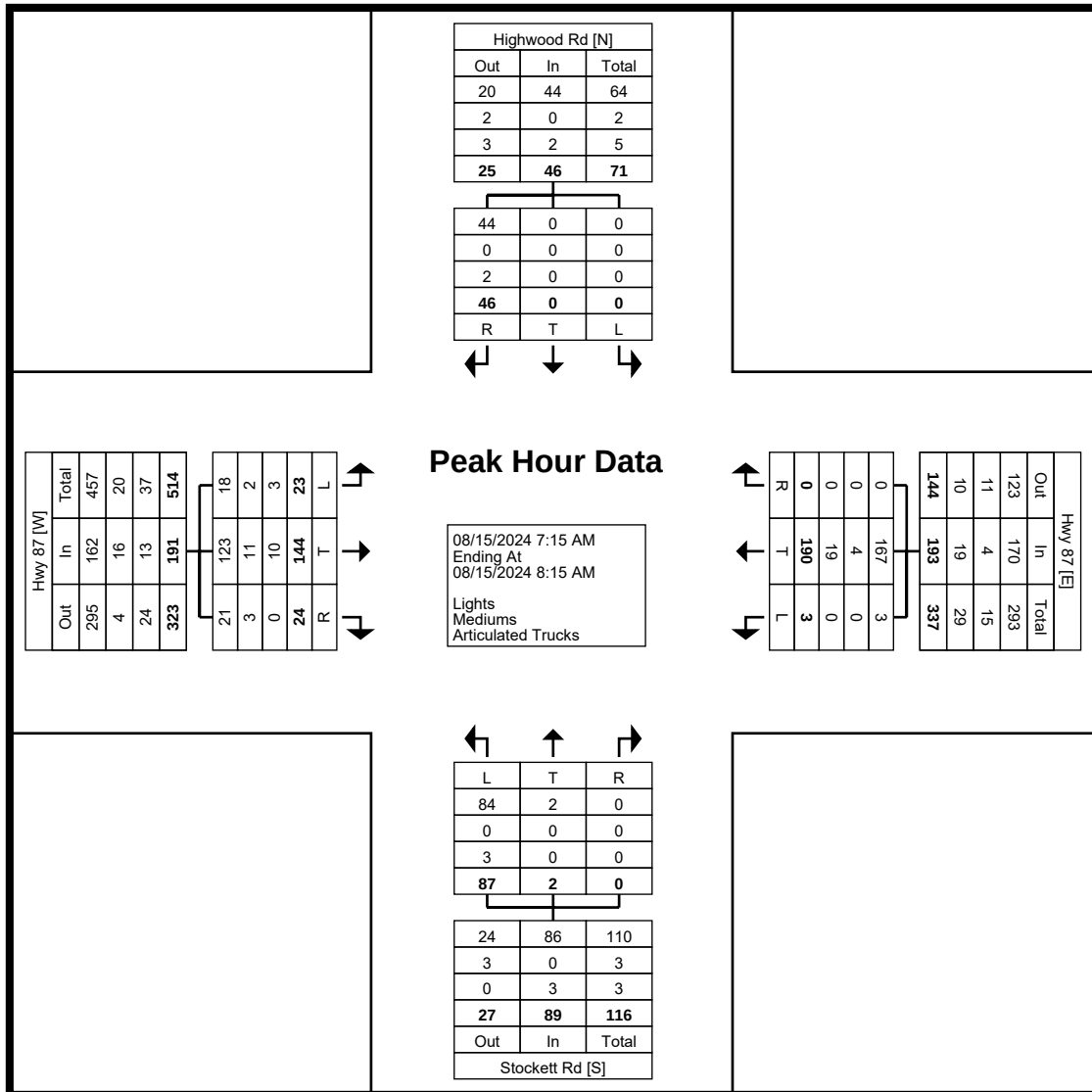
Start Time	Stockett Rd Northbound				Highwood Rd Southbound				Hwy 87 Eastbound				Hwy 87 Westbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
7:15 AM	23	0	0	23	0	0	10	10	2	29	10	41	1	48	0	49	123
7:30 AM	35	0	0	35	0	0	14	14	2	34	3	39	0	54	0	54	142
7:45 AM	17	1	0	18	0	0	14	14	10	31	5	46	2	44	0	46	124
8:00 AM	12	1	0	13	0	0	8	8	9	50	6	65	0	44	0	44	130
Total	87	2	0	89	0	0	46	46	23	144	24	191	3	190	0	193	519
Approach %	97.8	2.2	0.0	-	0.0	0.0	100.0	-	12.0	75.4	12.6	-	1.6	98.4	0.0	-	-
Total %	16.8	0.4	0.0	17.1	0.0	0.0	8.9	8.9	4.4	27.7	4.6	36.8	0.6	36.6	0.0	37.2	-
PHF	0.621	0.500	0.000	0.636	0.000	0.000	0.821	0.821	0.575	0.720	0.600	0.735	0.375	0.880	0.000	0.894	0.914
Lights	84	2	0	86	0	0	44	44	18	123	21	162	3	167	0	170	462
% Lights	96.6	100.0	-	96.6	-	-	95.7	95.7	78.3	85.4	87.5	84.8	100.0	87.9	-	88.1	89.0
Mediums	0	0	0	0	0	0	0	0	2	11	3	16	0	4	0	4	20
% Mediums	0.0	0.0	-	0.0	-	-	0.0	0.0	8.7	7.6	12.5	8.4	0.0	2.1	-	2.1	3.9
Articulated Trucks	3	0	0	3	0	0	2	2	3	10	0	13	0	19	0	19	37
% Articulated Trucks	3.4	0.0	-	3.4	-	-	4.3	4.3	13.0	6.9	0.0	6.8	0.0	10.0	-	9.8	7.1



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Site Code:
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Turning Movement Peak Hour Data Plot (7:15 AM)



Appendix C

Intersection Operational Analysis

HCM 7th Signalized Intersection Summary

1: 57th St N & 2nd Ave N

09/09/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	207	44	101	47	16	62	199	219	32	142	12
Future Volume (veh/h)	29	207	44	101	47	16	62	199	219	32	142	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	33	235	50	115	53	18	70	226	249	36	161	14
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	335	350	73	286	426	138	642	769	767	499	738	625
Arrive On Green	0.03	0.13	0.13	0.08	0.18	0.18	0.05	0.45	0.45	0.04	0.43	0.43
Sat Flow, veh/h	1641	2695	563	1641	2431	786	1641	1723	1460	1641	1723	1460
Grp Volume(v), veh/h	33	141	144	115	35	36	70	226	249	36	161	14
Grp Sat Flow(s),veh/h/ln	1641	1637	1621	1641	1637	1581	1641	1723	1460	1641	1723	1460
Q Serve(g_s), s	1.2	5.5	5.7	4.0	1.2	1.3	1.6	5.6	6.6	0.8	4.0	0.4
Cycle Q Clear(g_c), s	1.2	5.5	5.7	4.0	1.2	1.3	1.6	5.6	6.6	0.8	4.0	0.4
Prop In Lane	1.00		0.35	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	335	213	211	286	287	277	642	769	767	499	738	625
V/C Ratio(X)	0.10	0.66	0.68	0.40	0.12	0.13	0.11	0.29	0.32	0.07	0.22	0.02
Avail Cap(c_a), veh/h	540	458	454	416	458	443	814	769	767	700	738	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	28.0	28.0	22.4	23.5	23.5	9.6	11.9	9.2	10.0	12.2	11.1
Incr Delay (d2), s/veh	0.1	3.5	3.9	0.9	0.2	0.2	0.1	1.0	1.1	0.1	0.7	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.2	2.2	1.4	0.4	0.5	0.5	2.0	1.8	0.2	1.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.2	31.5	31.9	23.3	23.6	23.7	9.6	12.9	10.3	10.1	12.8	11.2
LnGrp LOS	C	C	C	C	C	C	A	B	B	B	B	B
Approach Vol, veh/h	318			186			545			211		
Approach Delay, s/veh	30.9			23.4			11.3			12.3		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.8	36.2	9.7	14.9	8.0	35.0	6.6	17.9				
Change Period (Y+Rc), s	4.3	* 6.1	4.3	* 6.1	4.3	* 6.1	4.3	* 6.1				
Max Green Setting (Gmax), s	10.7	* 29	10.7	* 19	10.7	* 29	10.7	* 19				
Max Q Clear Time (g_c+I1), s	2.8	8.6	6.0	7.7	3.6	6.0	3.2	3.3				
Green Ext Time (p_c), s	0.0	1.9	0.1	1.0	0.1	0.8	0.0	0.2				

Intersection Summary

HCM 7th Control Delay, s/veh	18.2
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th TWSC
2: 57th St N & 3rd Ave S

09/09/2024

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	4	14	19	3	8	13	448	16	8	248	22
Future Vol, veh/h	34	4	14	19	3	8	13	448	16	8	248	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	4	15	21	3	9	14	492	18	9	273	24
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	579	841	148	686	844	255	297	0	0	510	0	0
Stage 1	302	302	-	530	530	-	-	-	-	-	-	-
Stage 2	276	538	-	156	314	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	399	300	872	334	298	744	1262	-	-	1051	-	-
Stage 1	682	663	-	501	525	-	-	-	-	-	-	-
Stage 2	706	520	-	831	655	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	382	294	872	317	293	744	1262	-	-	1051	-	-
Mov Cap-2 Maneuver	382	294	-	317	293	-	-	-	-	-	-	-
Stage 1	677	657	-	495	519	-	-	-	-	-	-	-
Stage 2	686	514	-	804	649	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s/v14.45			15.66		0.21		0.24					
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1262	-	-	438	370	1051	-	-				
HCM Lane V/C Ratio	0.011	-	-	0.13	0.089	0.008	-	-				
HCM Control Delay (s/veh)	7.9	-	-	14.4	15.7	8.5	-	-				
HCM Lane LOS	A	-	-	B	C	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.4	0.3	0	-	-				

HCM 7th TWSC
3: 57th St N & 7th Ave S

09/09/2024

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	12	4	451	283	8
Future Vol, veh/h	24	12	4	451	283	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	13	4	496	311	9

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	572	160	320	0	-	0
Stage 1	315	-	-	-	-	-
Stage 2	257	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	450	857	1237	-	-	-
Stage 1	713	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	449	857	1237	-	-	-
Mov Cap-2 Maneuver	449	-	-	-	-	-
Stage 1	710	-	-	-	-	-
Stage 2	763	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v12.29		0.07	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1237	-	533	-	-
HCM Lane V/C Ratio	0.004	-	0.074	-	-
HCM Control Delay (s/veh)	7.9	-	12.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

HCM 7th TWSC
4: 57th St N & 8th Ave S

09/09/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	3	0	436	310	2
Future Vol, veh/h	5	3	0	436	310	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	3	0	507	360	2

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	615	181	363	0	-	0
Stage 1	362	-	-	-	-	-
Stage 2	253	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	423	830	1192	-	-	-
Stage 1	675	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	423	830	1192	-	-	-
Mov Cap-2 Maneuver	423	-	-	-	-	-
Stage 1	675	-	-	-	-	-
Stage 2	765	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v12.07		0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1192	-	518	-	-
HCM Lane V/C Ratio	-	-	0.018	-	-
HCM Control Delay (s/veh)	0	-	12.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 7th Signalized Intersection Summary

5: 57th St N & 10th Ave S

09/09/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	161	8	24	215	133	28	37	8	79	40	169
Future Volume (veh/h)	270	161	8	24	215	133	28	37	8	79	40	169
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	293	175	9	26	234	145	30	40	9	86	43	184
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	433	979	50	348	326	194	488	772	168	574	543	711
Arrive On Green	0.17	0.31	0.31	0.03	0.17	0.17	0.03	0.29	0.29	0.06	0.32	0.32
Sat Flow, veh/h	1641	3168	162	1641	1972	1176	1641	2673	581	1641	1723	1460
Grp Volume(v), veh/h	293	90	94	26	193	186	30	24	25	86	43	184
Grp Sat Flow(s),veh/h/ln	1641	1637	1694	1641	1637	1511	1641	1637	1618	1641	1723	1460
Q Serve(g_s), s	9.6	2.8	2.8	0.9	7.8	8.2	0.9	0.7	0.8	2.5	1.2	5.2
Cycle Q Clear(g_c), s	9.6	2.8	2.8	0.9	7.8	8.2	0.9	0.7	0.8	2.5	1.2	5.2
Prop In Lane	1.00		0.10	1.00		0.78	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	433	506	523	348	271	250	488	472	467	574	543	711
V/C Ratio(X)	0.68	0.18	0.18	0.07	0.71	0.75	0.06	0.05	0.05	0.15	0.08	0.26
Avail Cap(c_a), veh/h	566	615	637	552	451	417	687	472	467	730	543	711
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	17.7	17.7	23.1	27.6	27.8	16.5	18.0	18.0	15.8	16.8	10.5
Incr Delay (d2), s/veh	2.1	0.2	0.2	0.1	3.5	4.4	0.1	0.2	0.2	0.1	0.3	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	1.0	1.0	0.3	3.0	3.0	0.3	0.3	0.3	0.8	0.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.2	17.8	17.8	23.2	31.1	32.2	16.5	18.2	18.2	15.9	17.1	11.4
LnGrp LOS	C	B	B	C	C	C	B	B	B	B	B	B
Approach Vol, veh/h	477			405			79			313		
Approach Delay, s/veh	19.3			31.1			17.6			13.4		
Approach LOS	B			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	27.0	6.3	28.3	6.5	28.9	16.3	18.3				
Change Period (Y+Rc), s	4.3	6.8	4.3	* 6.7	4.3	6.8	4.3	* 6.7				
Max Green Setting (Gmax), s	10.7	20.2	10.7	* 26	10.7	20.2	17.7	* 19				
Max Q Clear Time (g_c+I1), s	4.5	2.8	2.9	4.8	2.9	7.2	11.6	10.2				
Green Ext Time (p_c), s	0.1	0.1	0.0	0.8	0.0	0.6	0.4	1.3				

Intersection Summary

HCM 7th Control Delay, s/veh	21.5
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th TWSC
6: US 87 & Malmstom Entrance

09/09/2024

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	228	363	1	0	5
Future Vol, veh/h	60	228	363	1	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	600	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	248	395	1	0	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	396	0	0	649	198
Stage 1	-	-	-	395	-
Stage 2	-	-	-	254	-
Critical Hdwy	4.14	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	3.52	3.32
Pot Cap-1 Maneuver	1159	-	-	402	810
Stage 1	-	-	-	650	-
Stage 2	-	-	-	765	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	1159	-	-	380	810
Mov Cap-2 Maneuver	-	-	-	380	-
Stage 1	-	-	-	613	-
Stage 2	-	-	-	765	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.73	0	9.47
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1159	-	-	-	810
HCM Lane V/C Ratio	0.056	-	-	-	0.007
HCM Control Delay (s/veh)	8.3	-	-	-	9.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	189	11	0	321	42	3
Future Vol, veh/h	189	11	0	321	42	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	600	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	208	12	0	353	46	3
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	220	0	384	104
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	176	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1347	-	591	931
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	836	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1347	-	591	931
Mov Cap-2 Maneuver	-	-	-	-	591	-
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	836	-
Approach	EB		WB		NB	
HCM Control Delay, s/v	0		0		11.47	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	606	-	-	1347	-	
HCM Lane V/C Ratio	0.082	-	-	-	-	
HCM Control Delay (s/veh)	11.5	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	144	24	3	190	0	87	2	0	0	0	46
Future Vol, veh/h	23	144	24	3	190	0	87	2	0	0	0	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	600	-	-	375	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	158	26	3	209	0	96	2	0	0	0	51
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	209	0	0	185	0	0	333	437	92	346	451	104
Stage 1	-	-	-	-	-	-	222	222	-	215	215	-
Stage 2	-	-	-	-	-	-	111	215	-	131	235	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1359	-	-	1387	-	-	597	511	947	584	503	930
Stage 1	-	-	-	-	-	-	760	719	-	767	723	-
Stage 2	-	-	-	-	-	-	882	723	-	859	709	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1359	-	-	1387	-	-	552	501	947	569	492	930
Mov Cap-2 Maneuver	-	-	-	-	-	-	552	501	-	569	492	-
Stage 1	-	-	-	-	-	-	746	705	-	765	722	-
Stage 2	-	-	-	-	-	-	832	722	-	841	696	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0.93			0.12			12.94			9.09		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	551	1359	-	-	1387	-	-	930				
HCM Lane V/C Ratio	0.177	0.019	-	-	0.002	-	-	0.054				
HCM Control Delay (s/veh)	12.9	7.7	-	-	7.6	-	-	9.1				
HCM Lane LOS	B	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	0.2				

HCM 7th Signalized Intersection Summary

1: 57th St N & 2nd Ave N

09/09/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	81	72	285	289	49	105	214	151	30	252	40
Future Volume (veh/h)	16	81	72	285	289	49	105	214	151	30	252	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	18	89	79	313	318	54	115	235	166	33	277	44
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	230	158	127	464	740	124	453	664	844	441	608	515
Arrive On Green	0.02	0.09	0.09	0.19	0.26	0.26	0.07	0.39	0.39	0.03	0.35	0.35
Sat Flow, veh/h	1641	1724	1386	1641	2804	471	1641	1723	1460	1641	1723	1460
Grp Volume(v), veh/h	18	84	84	313	184	188	115	235	166	33	277	44
Grp Sat Flow(s),veh/h/ln	1641	1637	1473	1641	1637	1638	1641	1723	1460	1641	1723	1460
Q Serve(g_s), s	0.7	3.5	3.9	11.4	6.6	6.7	3.1	6.8	3.8	0.9	8.7	1.4
Cycle Q Clear(g_c), s	0.7	3.5	3.9	11.4	6.6	6.7	3.1	6.8	3.8	0.9	8.7	1.4
Prop In Lane	1.00		0.94	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	230	150	135	464	432	432	453	664	844	441	608	515
V/C Ratio(X)	0.08	0.56	0.62	0.67	0.43	0.43	0.25	0.35	0.20	0.07	0.46	0.09
Avail Cap(c_a), veh/h	445	419	377	514	536	536	595	664	844	636	608	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	30.5	30.7	20.8	21.5	21.5	13.4	15.4	7.0	13.6	17.5	15.2
Incr Delay (d2), s/veh	0.1	3.2	4.6	3.0	0.7	0.7	0.3	1.5	0.5	0.1	2.5	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.4	1.4	4.2	2.3	2.4	1.0	2.6	1.0	0.3	3.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.1	33.8	35.3	23.8	22.1	22.2	13.6	16.9	7.6	13.7	20.0	15.5
LnGrp LOS	C	C	D	C	C	C	B	B	A	B	B	B
Approach Vol, veh/h	186			685			516			354		
Approach Delay, s/veh	33.9			22.9			13.1			18.8		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	33.2	17.9	12.5	8.9	30.9	5.8	24.6				
Change Period (Y+Rc), s	4.3	* 6.1	4.3	* 6.1	4.3	* 6.1	4.3	* 6.1				
Max Green Setting (Gmax), s	10.7	* 25	15.7	* 18	10.7	* 25	10.7	* 23				
Max Q Clear Time (g_c+I1), s	2.9	8.8	13.4	5.9	5.1	10.7	2.7	8.7				
Green Ext Time (p_c), s	0.0	1.5	0.2	0.6	0.1	1.3	0.0	1.6				

Intersection Summary

HCM 7th Control Delay, s/veh	20.4
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th TWSC
2: 57th St N & 3rd Ave S

09/09/2024

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Vol, veh/h	17	1	30	17	5	8	48	433	15	6	538	74
Future Vol, veh/h	17	1	30	17	5	8	48	433	15	6	538	74
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	1	33	18	5	9	52	471	16	7	585	80

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	980	1229	333	889	1261	243	665	0	0	487	0	0
Stage 1	638	638	-	583	583	-	-	-	-	-	-	-
Stage 2	342	591	-	306	678	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	204	176	663	238	169	757	920	-	-	1072	-	-
Stage 1	431	469	-	465	497	-	-	-	-	-	-	-
Stage 2	646	493	-	679	450	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	183	165	663	211	158	757	920	-	-	1072	-	-
Mov Cap-2 Maneuver	183	165	-	211	158	-	-	-	-	-	-	-
Stage 1	429	466	-	439	469	-	-	-	-	-	-	-
Stage 2	595	465	-	640	447	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	17.81	22	0.89	0.08
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	920	-	-	333	244	1072	-	-
HCM Lane V/C Ratio	0.057	-	-	0.157	0.134	0.006	-	-
HCM Control Delay (s/veh)	9.1	-	-	17.8	22	8.4	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.5	0.5	0	-	-

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	13	16	487	563	35
Future Vol, veh/h	13	13	16	487	563	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	14	18	535	619	38

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	941	329	657	0	-	0
Stage 1	638	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	262	667	926	-	-	-
Stage 1	488	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	257	667	926	-	-	-
Mov Cap-2 Maneuver	257	-	-	-	-	-
Stage 1	479	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v15.51		0.29	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	926	-	371	-	-
HCM Lane V/C Ratio	0.019	-	0.077	-	-
HCM Control Delay (s/veh)	9	-	15.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

HCM 7th TWSC
4: 57th St N & 8th Ave S

09/09/2024

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	10	8	477	627	8
Future Vol, veh/h	7	10	8	477	627	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	11	9	518	682	9

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	963	345	690	0	-	0
Stage 1	686	-	-	-	-	-
Stage 2	277	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	254	651	900	-	-	-
Stage 1	461	-	-	-	-	-
Stage 2	745	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	251	651	900	-	-	-
Mov Cap-2 Maneuver	251	-	-	-	-	-
Stage 1	457	-	-	-	-	-
Stage 2	745	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	14.61	0.15	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	900	-	393	-	-
HCM Lane V/C Ratio	0.01	-	0.047	-	-
HCM Control Delay (s/veh)	9	-	14.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 7th Signalized Intersection Summary

5: 57th St N & 10th Ave S

09/09/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	237	286	38	36	216	135	144	102	46	122	142	286
Future Volume (veh/h)	237	286	38	36	216	135	144	102	46	122	142	286
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	260	314	42	40	237	148	158	112	51	134	156	314
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	392	811	108	325	320	192	454	687	297	555	512	659
Arrive On Green	0.15	0.28	0.28	0.04	0.16	0.16	0.09	0.31	0.31	0.08	0.30	0.30
Sat Flow, veh/h	1641	2905	385	1641	1965	1181	1641	2225	961	1641	1723	1460
Grp Volume(v), veh/h	260	176	180	40	196	189	158	81	82	134	156	314
Grp Sat Flow(s),veh/h/ln	1641	1637	1653	1641	1637	1510	1641	1637	1550	1641	1723	1460
Q Serve(g_s), s	9.2	6.5	6.6	1.5	8.5	9.0	4.9	2.7	2.9	4.1	5.2	11.2
Cycle Q Clear(g_c), s	9.2	6.5	6.6	1.5	8.5	9.0	4.9	2.7	2.9	4.1	5.2	11.2
Prop In Lane	1.00		0.23	1.00		0.78	1.00		0.62	1.00		1.00
Lane Grp Cap(c), veh/h	392	457	462	325	266	246	454	505	478	555	512	659
V/C Ratio(X)	0.66	0.38	0.39	0.12	0.74	0.77	0.35	0.16	0.17	0.24	0.30	0.48
Avail Cap(c_a), veh/h	506	532	538	498	401	370	541	505	478	661	512	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.2	21.7	21.8	24.5	29.8	29.9	15.7	18.8	18.9	15.9	20.3	14.3
Incr Delay (d2), s/veh	2.1	0.5	0.5	0.2	3.9	5.5	0.5	0.7	0.8	0.2	1.5	2.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	2.3	2.4	0.5	3.4	3.4	1.6	1.0	1.0	1.4	2.1	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.3	22.3	22.3	24.7	33.7	35.4	16.2	19.5	19.6	16.1	21.8	16.8
LnGrp LOS	C	C	C	C	C	D	B	B	B	B	C	B
Approach Vol, veh/h	616			425			321			604		
Approach Delay, s/veh	22.3			33.6			17.9			17.9		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	29.9	7.1	27.6	11.0	29.0	15.8	18.9				
Change Period (Y+Rc), s	4.3	6.8	4.3	* 6.7	4.3	6.8	4.3	* 6.7				
Max Green Setting (Gmax), s	10.7	22.2	10.7	* 24	10.7	22.2	16.7	* 18				
Max Q Clear Time (g_c+l1), s	6.1	4.9	3.5	8.6	6.9	13.2	11.2	11.0				
Green Ext Time (p_c), s	0.1	0.7	0.0	1.6	0.1	1.3	0.3	1.2				

Intersection Summary

HCM 7th Control Delay, s/veh	22.7
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th TWSC
6: US 87 & Malmstom Entrance

09/09/2024

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	435	299	0	3	55
Future Vol, veh/h	3	435	299	0	3	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	600	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	473	325	0	3	60

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	325	0	0	568	163
Stage 1	-	-	-	325	-
Stage 2	-	-	-	243	-
Critical Hdwy	4.14	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	3.52	3.32
Pot Cap-1 Maneuver	1231	-	-	453	854
Stage 1	-	-	-	705	-
Stage 2	-	-	-	775	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1231	-	-	452	854
Mov Cap-2 Maneuver	-	-	-	452	-
Stage 1	-	-	-	703	-
Stage 2	-	-	-	775	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.05	0	9.78
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1231	-	-	-	816
HCM Lane V/C Ratio	0.003	-	-	-	0.077
HCM Control Delay (s/veh)	7.9	-	-	-	9.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	394	30	2	264	20	1
Future Vol, veh/h	394	30	2	264	20	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	600	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	428	33	2	287	22	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	461	0	576	214
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	148	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1097	-	448	791
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	864	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1097	-	447	791
Mov Cap-2 Maneuver	-	-	-	-	447	-
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	863	-
Approach	EB		WB		NB	
HCM Control Delay, s/v	0		0.06		13.31	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	456	-	-	1097	-	
HCM Lane V/C Ratio	0.05	-	-	0.002	-	
HCM Control Delay (s/veh)	13.3	-	-	8.3	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.2	-	-	0	-	

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	249	119	5	165	1	30	2	4	1	3	34
Future Vol, veh/h	48	249	119	5	165	1	30	2	4	1	3	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	600	-	-	375	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	271	129	5	179	1	33	2	4	1	3	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	180	0	0	400	0	0	542	631	200	432	695	90
Stage 1	-	-	-	-	-	-	440	440	-	191	191	-
Stage 2	-	-	-	-	-	-	102	191	-	241	504	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1392	-	-	1155	-	-	424	397	808	508	364	950
Stage 1	-	-	-	-	-	-	566	576	-	793	741	-
Stage 2	-	-	-	-	-	-	893	741	-	741	539	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1392	-	-	1155	-	-	386	380	808	481	349	950
Mov Cap-2 Maneuver	-	-	-	-	-	-	386	380	-	481	349	-
Stage 1	-	-	-	-	-	-	545	555	-	789	738	-
Stage 2	-	-	-	-	-	-	850	737	-	707	519	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0.89			0.24			14.71			9.64		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	410	1392	-	-	1155	-	-	818
HCM Lane V/C Ratio	0.095	0.037	-	-	0.005	-	-	0.051
HCM Control Delay (s/veh)	14.7	7.7	-	-	8.1	-	-	9.6
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.2

HCM 7th Signalized Intersection Summary

1: 57th St N & 2nd Ave N

09/09/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	207	44	101	47	16	62	199	219	32	142	12
Future Volume (veh/h)	29	207	44	101	47	16	62	199	219	32	142	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	43	308	66	150	70	24	92	296	326	48	211	18
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	369	420	89	304	516	169	560	717	749	406	690	585
Arrive On Green	0.04	0.16	0.16	0.10	0.21	0.21	0.06	0.42	0.42	0.04	0.40	0.40
Sat Flow, veh/h	1641	2689	568	1641	2424	793	1641	1723	1460	1641	1723	1460
Grp Volume(v), veh/h	43	186	188	150	46	48	92	296	326	48	211	18
Grp Sat Flow(s),veh/h/ln	1641	1637	1620	1641	1637	1580	1641	1723	1460	1641	1723	1460
Q Serve(g_s), s	1.6	7.8	8.0	5.2	1.6	1.8	2.3	8.7	10.1	1.2	6.0	0.5
Cycle Q Clear(g_c), s	1.6	7.8	8.0	5.2	1.6	1.8	2.3	8.7	10.1	1.2	6.0	0.5
Prop In Lane	1.00		0.35	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	369	256	253	304	349	337	560	717	749	406	690	585
V/C Ratio(X)	0.12	0.73	0.74	0.49	0.13	0.14	0.16	0.41	0.44	0.12	0.31	0.03
Avail Cap(c_a), veh/h	546	429	424	389	429	414	708	717	749	579	690	585
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	29.0	29.1	21.5	23.0	23.0	11.5	14.9	11.0	12.0	14.8	13.1
Incr Delay (d2), s/veh	0.1	3.9	4.3	1.2	0.2	0.2	0.1	1.8	1.8	0.1	1.1	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.1	3.1	1.9	0.6	0.6	0.7	3.3	0.4	0.4	2.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.1	32.9	33.4	22.7	23.2	23.2	11.6	16.6	12.9	12.1	15.9	13.2
LnGrp LOS	C	C	C	C	C	C	B	B	B	B	B	B
Approach Vol, veh/h	417				244		714				277	
Approach Delay, s/veh	32.2				22.9		14.3				15.1	
Approach LOS	C				C		B				B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	36.1	11.3	17.4	8.5	35.0	7.2	21.5				
Change Period (Y+Rc), s	4.3	* 6.1	4.3	* 6.1	4.3	* 6.1	4.3	* 6.1				
Max Green Setting (Gmax), s	10.7	* 29	10.7	* 19	10.7	* 29	10.7	* 19				
Max Q Clear Time (g_c+I1), s	3.2	12.1	7.2	10.0	4.3	8.0	3.6	3.8				
Green Ext Time (p_c), s	0.0	2.5	0.1	1.3	0.1	1.0	0.0	0.3				
Intersection Summary												
HCM 7th Control Delay, s/veh	20.2											
HCM 7th LOS	C											
Notes												
* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 7th TWSC
2: 57th St N & 3rd Ave S

09/09/2024

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	34	4	14	19	3	8	13	448	16	8	248	22
Future Vol, veh/h	34	4	14	19	3	8	13	448	16	8	248	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	6	20	27	4	12	19	645	23	12	357	32

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	758	1101	194	898	1106	334	389	0	0	668	0	0
Stage 1	396	396	-	694	694	-	-	-	-	-	-	-
Stage 2	362	705	-	204	412	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	296	210	814	234	209	662	1166	-	-	918	-	-
Stage 1	601	603	-	399	442	-	-	-	-	-	-	-
Stage 2	629	437	-	778	593	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	277	205	814	216	203	662	1166	-	-	918	-	-
Mov Cap-2 Maneuver	277	205	-	216	203	-	-	-	-	-	-	-
Stage 1	593	595	-	393	435	-	-	-	-	-	-	-
Stage 2	602	430	-	742	585	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v19.31		21.5	0.22	0.26
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1166	-	-	326 261	918	-	-
HCM Lane V/C Ratio	0.016	-	-	0.23 0.165	0.013	-	-
HCM Control Delay (s/veh)	8.1	-	-	19.3 21.5	9	-	-
HCM Lane LOS	A	-	-	C C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.9 0.6	0	-	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	12	4	451	283	8
Future Vol, veh/h	24	12	4	451	283	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	17	6	649	407	12

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	749	209	419	0	-	0
Stage 1	413	-	-	-	-	-
Stage 2	336	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	347	796	1137	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	346	796	1137	-	-	-
Mov Cap-2 Maneuver	346	-	-	-	-	-
Stage 1	633	-	-	-	-	-
Stage 2	696	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	14.62	0.07	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1137	-	426	-	-
HCM Lane V/C Ratio	0.005	-	0.122	-	-
HCM Control Delay (s/veh)	8.2	-	14.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

HCM 7th TWSC
4: 57th St N & 8th Ave S

09/09/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	3	0	436	310	2
Future Vol, veh/h	5	3	0	436	310	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	5	0	664	472	3

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	806	238	475	0	-	0
Stage 1	474	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	320	764	1083	-	-	-
Stage 1	593	-	-	-	-	-
Stage 2	699	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	320	764	1083	-	-	-
Mov Cap-2 Maneuver	320	-	-	-	-	-
Stage 1	593	-	-	-	-	-
Stage 2	699	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v14.08		0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1083	-	409	-	-
HCM Lane V/C Ratio	-	-	0.03	-	-
HCM Control Delay (s/veh)	0	-	14.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 7th Signalized Intersection Summary

5: 57th St N & 10th Ave S

09/09/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	161	8	24	215	133	28	37	8	79	40	169
Future Volume (veh/h)	270	161	8	24	215	133	28	37	8	79	40	169
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	384	229	11	34	306	189	40	53	11	112	57	241
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	467	1165	56	366	378	228	421	673	136	518	484	712
Arrive On Green	0.21	0.37	0.37	0.03	0.19	0.19	0.04	0.25	0.25	0.07	0.28	0.28
Sat Flow, veh/h	1641	3180	152	1641	1964	1183	1641	2714	546	1641	1723	1460
Grp Volume(v), veh/h	384	117	123	34	254	241	40	31	33	112	57	241
Grp Sat Flow(s),veh/h/ln	1641	1637	1695	1641	1637	1510	1641	1637	1624	1641	1723	1460
Q Serve(g_s), s	13.7	3.8	3.9	1.3	11.6	12.0	1.4	1.1	1.2	3.9	1.9	7.9
Cycle Q Clear(g_c), s	13.7	3.8	3.9	1.3	11.6	12.0	1.4	1.1	1.2	3.9	1.9	7.9
Prop In Lane	1.00		0.09	1.00		0.78	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	467	599	621	366	315	291	421	406	403	518	484	712
V/C Ratio(X)	0.82	0.20	0.20	0.09	0.81	0.83	0.09	0.08	0.08	0.22	0.12	0.34
Avail Cap(c_a), veh/h	540	599	621	536	379	349	585	406	403	628	484	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.6	16.9	16.9	23.9	30.2	30.4	20.5	22.5	22.6	19.4	20.9	12.3
Incr Delay (d2), s/veh	8.8	0.2	0.2	0.1	10.2	13.3	0.1	0.4	0.4	0.2	0.5	1.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	1.3	1.4	0.5	5.1	5.1	0.5	0.4	0.5	1.4	0.8	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	27.4	17.1	17.1	24.0	40.4	43.6	20.6	22.9	23.0	19.6	21.4	13.6
LnGrp LOS	C	B	B	C	D	D	C	C	C	B	C	B
Approach Vol, veh/h	624			529			104			410		
Approach Delay, s/veh	23.4			40.8			22.0			16.3		
Approach LOS	C			D			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	26.2	6.9	35.4	7.2	28.8	20.5	21.8				
Change Period (Y+Rc), s	4.3	6.8	4.3	* 6.7	4.3	6.8	4.3	* 6.7				
Max Green Setting (Gmax), s	10.7	19.4	10.7	* 27	10.7	19.4	19.7	* 18				
Max Q Clear Time (g_c+l1), s	5.9	3.2	3.3	5.9	3.4	9.9	15.7	14.0				
Green Ext Time (p_c), s	0.1	0.2	0.0	1.1	0.0	0.7	0.5	1.0				

Intersection Summary

HCM 7th Control Delay, s/veh	27.1
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th TWSC
6: US 87 & Malmstom Entrance

09/09/2024

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	228	363	1	0	5
Future Vol, veh/h	60	228	363	1	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	600	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	85	325	517	1	0	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	518	0	0	851	259
Stage 1	-	-	-	518	-
Stage 2	-	-	-	333	-
Critical Hdwy	4.14	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	3.52	3.32
Pot Cap-1 Maneuver	1044	-	-	299	740
Stage 1	-	-	-	563	-
Stage 2	-	-	-	698	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	1044	-	-	275	740
Mov Cap-2 Maneuver	-	-	-	275	-
Stage 1	-	-	-	517	-
Stage 2	-	-	-	698	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.82	0	9.91
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1044	-	-	-	740
HCM Lane V/C Ratio	0.082	-	-	-	0.01
HCM Control Delay (s/veh)	8.8	-	-	-	9.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	189	11	0	321	42	3
Future Vol, veh/h	189	11	0	321	42	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	600	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	272	16	0	462	60	4
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	288	0	503	136
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	231	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1271	-	498	888
Stage 1	-	-	-	-	749	-
Stage 2	-	-	-	-	785	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1271	-	498	888
Mov Cap-2 Maneuver	-	-	-	-	498	-
Stage 1	-	-	-	-	749	-
Stage 2	-	-	-	-	785	-
Approach	EB	WB		NB		
HCM Control Delay, s/v	0	0		13.03		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	513	-	-	1271	-	
HCM Lane V/C Ratio	0.126	-	-	-	-	
HCM Control Delay (s/veh)	13	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.4	-	-	0	-	

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	144	24	3	190	0	87	2	0	0	0	46
Future Vol, veh/h	23	144	24	3	190	0	87	2	0	0	0	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	600	-	-	375	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	207	35	4	274	0	125	3	0	0	0	66
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	274	0	0	242	0	0	436	573	121	453	590	137
Stage 1	-	-	-	-	-	-	291	291	-	282	282	-
Stage 2	-	-	-	-	-	-	145	282	-	171	308	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1287	-	-	1322	-	-	504	428	908	490	419	887
Stage 1	-	-	-	-	-	-	693	670	-	701	676	-
Stage 2	-	-	-	-	-	-	842	676	-	814	659	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1287	-	-	1322	-	-	453	416	908	472	406	887
Mov Cap-2 Maneuver	-	-	-	-	-	-	453	416	-	472	406	-
Stage 1	-	-	-	-	-	-	675	653	-	699	674	-
Stage 2	-	-	-	-	-	-	777	674	-	789	642	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0.95			0.12			16.09			9.39		
HCM LOS							C			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	452	1287	-	-	1322	-	-	887				
HCM Lane V/C Ratio	0.284	0.026	-	-	0.003	-	-	0.075				
HCM Control Delay (s/veh)	16.1	7.9	-	-	7.7	-	-	9.4				
HCM Lane LOS	C	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	1.2	0.1	-	-	0	-	-	0.2				

HCM 7th Signalized Intersection Summary

1: 57th St N & 2nd Ave N

09/09/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	81	72	285	289	49	105	214	151	30	252	40
Future Volume (veh/h)	16	81	72	285	289	49	105	214	151	30	252	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	23	117	104	410	416	71	151	308	217	43	363	58
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	186	151	456	776	131	389	660	843	378	587	498
Arrive On Green	0.03	0.11	0.11	0.19	0.28	0.28	0.08	0.38	0.38	0.04	0.34	0.34
Sat Flow, veh/h	1641	1713	1396	1641	2800	474	1641	1723	1460	1641	1723	1460
Grp Volume(v), veh/h	23	111	110	410	242	245	151	308	217	43	363	58
Grp Sat Flow(s),veh/h/ln	1641	1637	1472	1641	1637	1637	1641	1723	1460	1641	1723	1460
Q Serve(g_s), s	0.9	4.9	5.4	14.7	9.5	9.6	4.3	10.2	5.6	1.3	13.3	2.1
Cycle Q Clear(g_c), s	0.9	4.9	5.4	14.7	9.5	9.6	4.3	10.2	5.6	1.3	13.3	2.1
Prop In Lane	1.00		0.95	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	235	177	159	456	454	454	389	660	843	378	587	498
V/C Ratio(X)	0.10	0.63	0.69	0.90	0.53	0.54	0.39	0.47	0.26	0.11	0.62	0.12
Avail Cap(c_a), veh/h	425	389	350	456	476	476	486	660	843	546	587	498
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	32.3	32.5	24.1	23.2	23.3	14.9	17.5	7.9	15.3	20.8	17.1
Incr Delay (d2), s/veh	0.2	3.6	5.2	20.4	1.0	1.1	0.6	2.4	0.7	0.1	4.8	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.0	2.0	8.3	3.4	3.5	1.4	3.9	1.5	0.4	5.5	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	29.0	35.9	37.7	44.5	24.2	24.4	15.5	19.9	8.7	15.4	25.7	17.6
LnGrp LOS	C	D	D	D	C	C	B	B	A	B	C	B
Approach Vol, veh/h	244			897			676			464		
Approach Delay, s/veh	36.1			33.5			15.3			23.7		
Approach LOS	D			C			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.3	35.1	19.0	14.3	10.5	31.9	6.2	27.1				
Change Period (Y+Rc), s	4.3	* 6.1	4.3	* 6.1	4.3	* 6.1	4.3	* 6.1				
Max Green Setting (Gmax), s	10.7	* 26	14.7	* 18	10.7	* 26	10.7	* 22				
Max Q Clear Time (g_c+I1), s	3.3	12.2	16.7	7.4	6.3	15.3	2.9	11.6				
Green Ext Time (p_c), s	0.0	2.0	0.0	0.8	0.1	1.6	0.0	1.9				

Intersection Summary

HCM 7th Control Delay, s/veh	26.4
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th TWSC
2: 57th St N & 3rd Ave S

09/09/2024

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	1	30	17	5	8	48	433	15	6	538	74
Future Vol, veh/h	17	1	30	17	5	8	48	433	15	6	538	74
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	1	43	24	7	11	68	617	21	9	766	105
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1284	1610	436	1165	1652	319	871	0	0	638	0	0
Stage 1	836	836	-	764	764	-	-	-	-	-	-	-
Stage 2	449	775	-	401	889	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	122	104	568	149	98	677	769	-	-	942	-	-
Stage 1	328	381	-	362	411	-	-	-	-	-	-	-
Stage 2	559	406	-	597	360	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	100	93	568	123	88	677	769	-	-	942	-	-
Mov Cap-2 Maneuver	100	93	-	123	88	-	-	-	-	-	-	-
Stage 1	325	377	-	330	374	-	-	-	-	-	-	-
Stage 2	492	370	-	545	357	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s/v30.92			39.85		0.98		0.09					
HCM LOS	D		E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	769	-	-	206	145	942	-	-				
HCM Lane V/C Ratio	0.089	-	-	0.332	0.294	0.009	-	-				
HCM Control Delay (s/veh)	10.1	-	-	30.9	39.8	8.9	-	-				
HCM Lane LOS	B	-	-	D	E	A	-	-				
HCM 95th %tile Q(veh)	0.3	-	-	1.4	1.1	0	-	-				

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	13	16	487	563	35
Future Vol, veh/h	13	13	16	487	563	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	19	23	701	810	50

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1232	430	861	0	-	0
Stage 1	836	-	-	-	-	-
Stage 2	397	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	169	573	777	-	-	-
Stage 1	386	-	-	-	-	-
Stage 2	648	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	164	573	777	-	-	-
Mov Cap-2 Maneuver	164	-	-	-	-	-
Stage 1	374	-	-	-	-	-
Stage 2	648	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v21.51		0.31	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	777	-	255	-	-
HCM Lane V/C Ratio	0.03	-	0.147	-	-
HCM Control Delay (s/veh)	9.8	-	21.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

HCM 7th TWSC
4: 57th St N & 8th Ave S

09/09/2024

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	10	8	477	627	8
Future Vol, veh/h	7	10	8	477	627	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	14	11	679	893	11

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1261	452	904	0	-	0
Stage 1	898	-	-	-	-	-
Stage 2	362	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	162	555	748	-	-	-
Stage 1	358	-	-	-	-	-
Stage 2	675	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	160	555	748	-	-	-
Mov Cap-2 Maneuver	160	-	-	-	-	-
Stage 1	352	-	-	-	-	-
Stage 2	675	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v19.36		0.16	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	748	-	275	-	-
HCM Lane V/C Ratio	0.015	-	0.088	-	-
HCM Control Delay (s/veh)	9.9	-	19.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

HCM 7th Signalized Intersection Summary

5: 57th St N & 10th Ave S

09/09/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	237	286	38	36	216	135	144	102	46	122	142	286
Future Volume (veh/h)	237	286	38	36	216	135	144	102	46	122	142	286
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723	1723
Adj Flow Rate, veh/h	341	412	55	52	311	194	207	147	66	176	204	412
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	421	974	129	333	375	228	390	571	245	489	417	624
Arrive On Green	0.19	0.34	0.34	0.04	0.19	0.19	0.12	0.26	0.26	0.10	0.24	0.24
Sat Flow, veh/h	1641	2905	385	1641	1955	1190	1641	2230	957	1641	1723	1460
Grp Volume(v), veh/h	341	231	236	52	259	246	207	106	107	176	204	412
Grp Sat Flow(s),veh/h/ln	1641	1637	1653	1641	1637	1508	1641	1637	1551	1641	1723	1460
Q Serve(g_s), s	13.1	9.1	9.2	2.1	12.7	13.1	7.7	4.3	4.6	6.6	8.5	18.8
Cycle Q Clear(g_c), s	13.1	9.1	9.2	2.1	12.7	13.1	7.7	4.3	4.6	6.6	8.5	18.8
Prop In Lane	1.00		0.23	1.00		0.79	1.00		0.62	1.00		1.00
Lane Grp Cap(c), veh/h	421	549	554	333	314	289	390	419	397	489	417	624
V/C Ratio(X)	0.81	0.42	0.43	0.16	0.83	0.85	0.53	0.25	0.27	0.36	0.49	0.66
Avail Cap(c_a), veh/h	484	549	554	474	359	331	409	419	397	531	417	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.7	21.5	21.5	25.3	32.4	32.6	20.3	24.7	24.8	20.2	27.2	19.1
Incr Delay (d2), s/veh	8.8	0.5	0.5	0.2	13.1	16.9	1.2	1.4	1.7	0.4	4.1	5.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	3.3	3.3	0.8	5.8	5.8	2.8	1.7	1.8	2.3	3.7	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	29.6	22.0	22.0	25.5	45.6	49.5	21.4	26.2	26.5	20.7	31.3	24.5
LnGrp LOS	C	C	C	C	D	D	C	C	C	C	C	C
Approach Vol, veh/h	808			557			420			792		
Approach Delay, s/veh	25.2			45.4			23.9			25.4		
Approach LOS	C			D			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.8	28.2	7.8	34.7	14.0	27.0	19.8	22.7				
Change Period (Y+Rc), s	4.3	6.8	4.3	* 6.7	4.3	6.8	4.3	* 6.7				
Max Green Setting (Gmax), s	10.7	20.2	10.7	* 26	10.7	20.2	18.7	* 18				
Max Q Clear Time (g_c+l1), s	8.6	6.6	4.1	11.2	9.7	20.8	15.1	15.1				
Green Ext Time (p_c), s	0.1	0.8	0.0	2.2	0.1	0.0	0.4	0.9				

Intersection Summary

HCM 7th Control Delay, s/veh	29.4
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 7th TWSC
6: US 87 & Malmstom Entrance

09/09/2024

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	435	299	0	3	55
Future Vol, veh/h	3	435	299	0	3	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	600	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	619	426	0	4	78

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	426	0	0	744	213
Stage 1	-	-	-	426	-
Stage 2	-	-	-	318	-
Critical Hdwy	4.14	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	3.52	3.32
Pot Cap-1 Maneuver	1130	-	-	350	792
Stage 1	-	-	-	627	-
Stage 2	-	-	-	710	-
Platoon blocked, %	-	-	-		
Mov Cap-1 Maneuver	1130	-	-	349	792
Mov Cap-2 Maneuver	-	-	-	349	-
Stage 1	-	-	-	624	-
Stage 2	-	-	-	710	-

Approach	EB	WB	SB
HCM Control Delay, s/v	0.06	0	10.45
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1130	-	-	-	743
HCM Lane V/C Ratio	0.004	-	-	-	0.111
HCM Control Delay (s/veh)	8.2	-	-	-	10.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	
Traffic Vol, veh/h	394	30	2	264	20	1
Future Vol, veh/h	394	30	2	264	20	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	600	600	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	561	43	3	376	28	1

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	604	0	755	281
Stage 1	-	-	-	-	561	-
Stage 2	-	-	-	-	194	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	970	-	345	717
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	820	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	970	-	344	717
Mov Cap-2 Maneuver	-	-	-	-	344	-
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	818	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.07	16.16
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	352	-	-	970	-
HCM Lane V/C Ratio	0.085	-	-	0.003	-
HCM Control Delay (s/veh)	16.2	-	-	8.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	249	119	5	165	1	30	2	4	1	3	34
Future Vol, veh/h	48	249	119	5	165	1	30	2	4	1	3	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	600	-	-	375	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	68	355	169	7	235	1	43	3	6	1	4	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	236	0	0	524	0	0	710	827	262	565	911	118
Stage 1	-	-	-	-	-	-	576	576	-	250	250	-
Stage 2	-	-	-	-	-	-	134	251	-	315	661	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1328	-	-	1039	-	-	321	306	737	407	273	911
Stage 1	-	-	-	-	-	-	470	500	-	732	699	-
Stage 2	-	-	-	-	-	-	856	698	-	670	458	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1328	-	-	1039	-	-	282	288	737	377	257	911
Mov Cap-2 Maneuver	-	-	-	-	-	-	282	288	-	377	257	-
Stage 1	-	-	-	-	-	-	446	475	-	727	694	-
Stage 2	-	-	-	-	-	-	800	693	-	627	434	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0.91			0.25			19.3			10.28		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	303	1328	-	-	1039	-	-	736
HCM Lane V/C Ratio	0.169	0.051	-	-	0.007	-	-	0.074
HCM Control Delay (s/veh)	19.3	7.9	-	-	8.5	-	-	10.3
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0.2	-	-	0	-	-	0.2