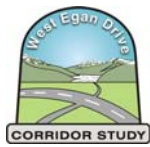


Section 2 - Chapter 3

Existing and Future No-Build Traffic Conditions





3 Existing and Future No-Build Transportation Conditions

This chapter describes the characteristics of existing pedestrian, bicycle, transit, and automobile transportation facilities within the West Egan Drive Corridor (WEDCOR) study area and provides an estimate of future traffic operations (assuming no transportation system improvements) within the study area. The complete analysis and findings of existing and future conditions are provided in the Chapter 3 Technical Memorandum in the Chapter 3 Appendix.

As discussed in Chapter 1, the focus of this study is on travel along and across Egan Drive. However, improvements to Egan Drive may necessarily create transportation or other impacts to facilities that intersect or run parallel to Egan Drive. Therefore, for the purposes of monitoring the potential impact to other facilities, transportation conditions off Egan Drive are also evaluated. Throughout this chapter, the existing transportation conditions for Egan Drive are generally discussed first, followed by a discussion of other facilities in the study area.

This chapter of the report is organized by mode of transportation as follows:

- Pedestrian
- Bicycle
- Transit
- Roadway System and Traffic Operations

Pedestrian Facilities

Egan Drive is closed to non-motorized traffic except at its intersections. Since the section of the roadway in the study area is a high-speed facility through a commercial section of the Mendenhall Valley, it poses a safety concern for pedestrians trying to cross it. With some exceptions, as noted below, sidewalks and multi-use paths connect most parts of the project study area. The multi-use paths on the north side of Egan Drive from the Mendenhall River to Lemon Spur Road, the south side of Egan Drive between Mendenhall Loop Road and Glacier Highway (Airport), and on both sides of Mendenhall Loop Road (extending north toward Back Loop Road) provide pedestrian access in the study area. Sidewalks are also present on Glacier Highway (Airport) and Mendenhall Loop Road Extension. The existing traffic signals include crosswalks, as will the traffic signals planned for Glacier Highway (Airport Area) at Shell Simmons and Jordan Avenue (see Figure 3-1 for an inventory of the pedestrian facilities within the study area).

The areas most frequented by pedestrians appear to be Glacier Highway (Airport) between Nugget Mall and the Mendenhall Loop Road extension and Mendenhall Mall Road and Vintage Boulevard in the vicinity of the post office.

There are a few notable gaps or barriers in the pedestrian system:



- Egan Drive itself may be considered by some as a barrier between the areas north and south of Egan Drive. While there are pedestrian crossings at the intersections with traffic signals, it is a wide, high-volume, high-speed street that could intimidate younger or older pedestrians.
- The intersection of Riverside Drive/Egan Drive has signals and crosswalks. However there are no sidewalks on Riverside Drive between Egan Drive and Mendenhall Mall Road. North of Mendenhall Mall Road, there are sidewalks on Riverside Drive. Also, there are no sidewalks or pathways for people walking along Riverside Drive to or from the neighborhood south of Egan Drive.
- There is no safe crossing location for people walking to and from the neighborhood south of Egan Drive at the unsignalized intersection of Vintage Boulevard/Egan Drive. Likewise, there is no safe crossing location for people trying to cross Egan Drive at Yandukin Drive. Pedestrians attempting to cross are at considerable risk, due to the speed of Egan Drive traffic.
- Brotherhood Bridge has a narrow sidewalk.
- There are no separate sidewalks or pathways on Mendenhall Mall Road. Pedestrians generally use the parking lots.
- Many transit stops are not close to traffic signals. As noted previously, within the study area crosswalks are located only at signalized intersections. Therefore, in many locations along Glacier Highway (e.g., Industrial Boulevard, the Airport Area, and Fred Meyer) people getting off a bus may have difficulty crossing the busy street.

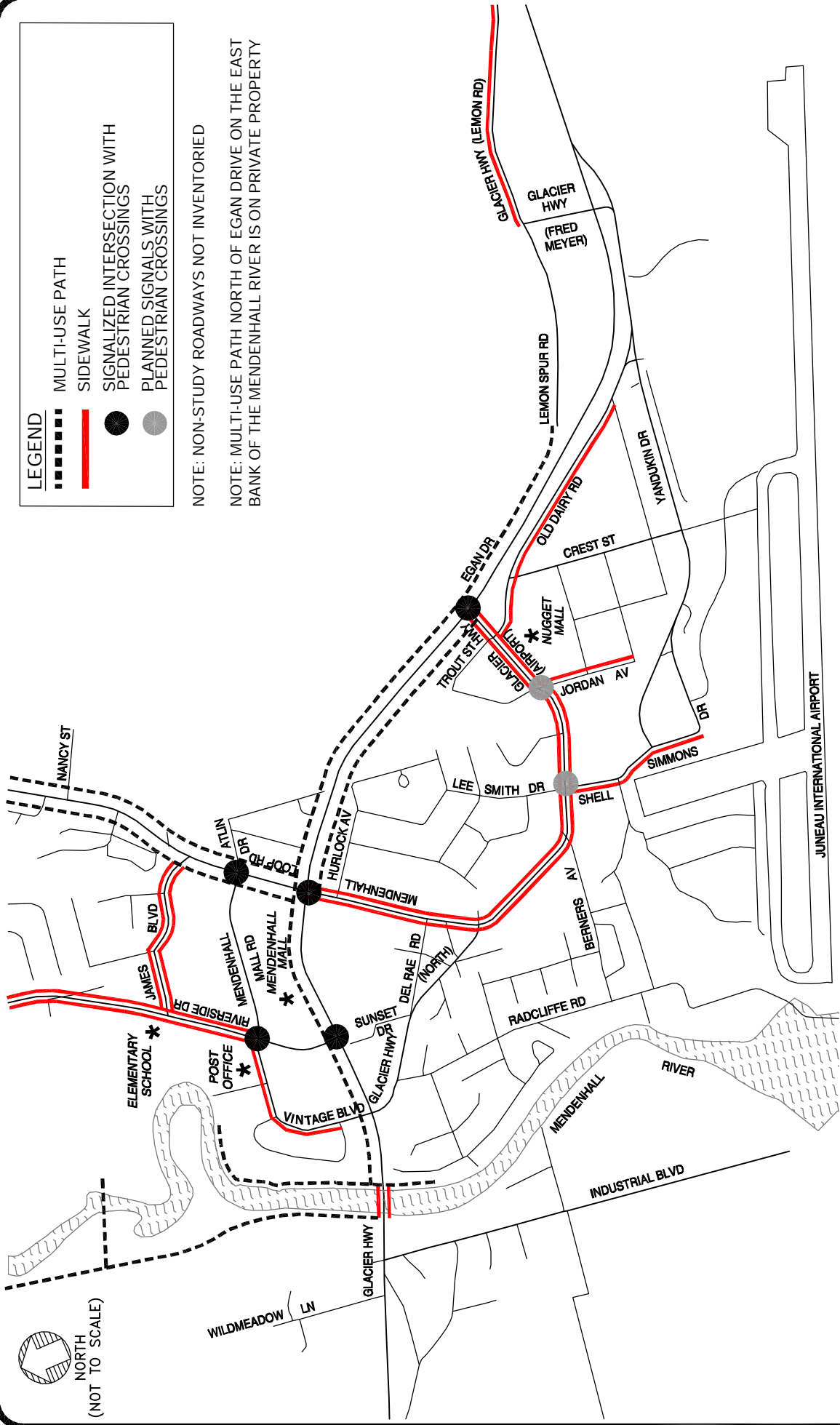
During winter, when this reconnaissance was made, the project team was unable to observe the existence or condition of facilities in the study area that are or are not compliant with the Americans with Disabilities Act (ADA). ADA compliance will be examined during upcoming design activities, as federal law and department policy require that all pedestrian facilities be brought up to ADA standards on department projects.

LEGEND

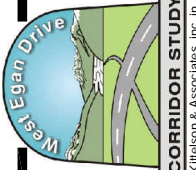
- MULTI-USE PATH
- SIDEWALK
- SIGNALIZED INTERSECTION WITH PEDESTRIAN CROSSINGS
- PLANNED SIGNALS WITH PEDESTRIAN CROSSINGS
- PLANNED SIGNALS WITH PEDESTRIAN CROSSINGS

NOTE: NON-STUDY ROADWAYS NOT INVENTORIED

NOTE: MULTI-USE PATH NORTH OF EGAN DRIVE ON THE EAST BANK OF THE MENDENHALL RIVER IS ON PRIVATE PROPERTY



SOURCE: AREA WIDE TRANSPORTATION ASSESSMENT AND FIELD OBSERVATIONS



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PEDESTRIAN FACILITIES

West Egan Drive Corridor Study

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DATE: JULY 2003

FIGURE: 3-1

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Bicycle Facilities

In the study area, there are no dedicated bicycle lanes on Egan Drive. Shoulders are available for bicyclists on Glacier Highway west of Vintage Boulevard, with very narrow shoulders across the Brotherhood Bridge. From the Egan Drive/Mendenhall Loop Road intersection multi-use paths provide bicycle access along Mendenhall Loop Road and Egan Drive (on both the north and south side of the roadway). East of Glacier Highway (McNugget), the multi-use path veers to the north and connects to Lemon Spur Road, a low traffic volume facility that is comfortable for bicyclists. From Lemon Spur Road, there are bicycle lanes on Glacier Highway (Lemon Road) towards Lemon Creek (see Figure 3-2).

Bike lanes are also provided on Glacier Highway (Airport), Glacier Highway (North), Mendenhall Loop Road Extension, and Riverside Drive north of Mendenhall Mall Road.

There are no bike lanes on Mendenhall Loop Road between Atlin Drive and Nancy Street. Bicyclists riding south on Mendenhall Loop Road find themselves cut off at Nancy Street. For bicyclists riding north, the bike lane transitions to the multi-use path at Atlin Drive. All other roadways in the study area have only roadway shoulders for bicyclists.

Public Transit

While service frequency is outside the scope of this project, connections between the public transit system and other elements of the transportation system (e.g., bus stop locations, pedestrian connections, etc.) are likely to be part of the various possible solutions.

In the West Egan Drive Corridor, Capital Transit provides public transportation service seven days a week on four fixed bus routes and the Care-a-Van complementary paratransit service (see Figure 3-3 for the fixed-route service alignments and their stops).

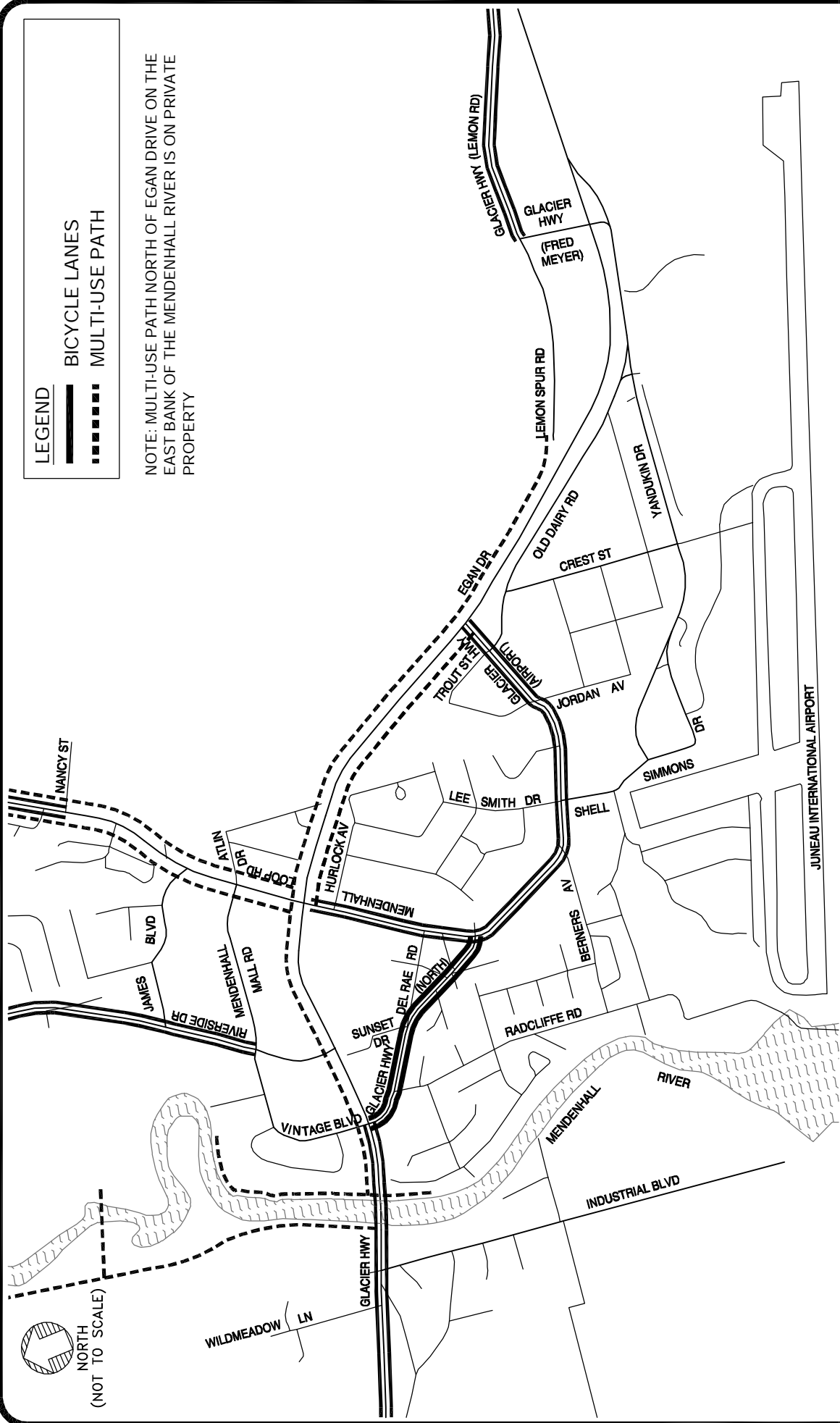
Transit routes run generally along Egan Drive and Glacier Highway, with few transfer points and no feeder service or deviations off the main routes. The only transfer point in the study area is at Nugget Mall, shown in Figure 3-3 on Mallard Street, where riders can transfer between regular and express bus service.

The Chapter 3 Technical Memorandum in the Chapter 3 Appendix contains a detailed summary of Capital Transit's bus stops and regular, commuter, and express service.

LEGEND

-  BICYCLE LANES
-  MULTI-USE PATH

NOTE: MULTI-USE PATH NORTH OF EGAN DRIVE ON THE EAST BANK OF THE MENDENHALL RIVER IS ON PRIVATE PROPERTY



SOURCE: AREA WIDE TRANSPORTATION ASSESSMENT AND FIELD OBSERVATIONS

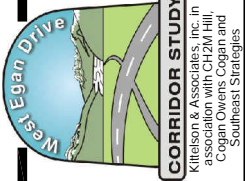
BICYCLE FACILITIES

West Egan Drive Corridor Study

DATE: JULY 2003
 FIGURE: 3-2

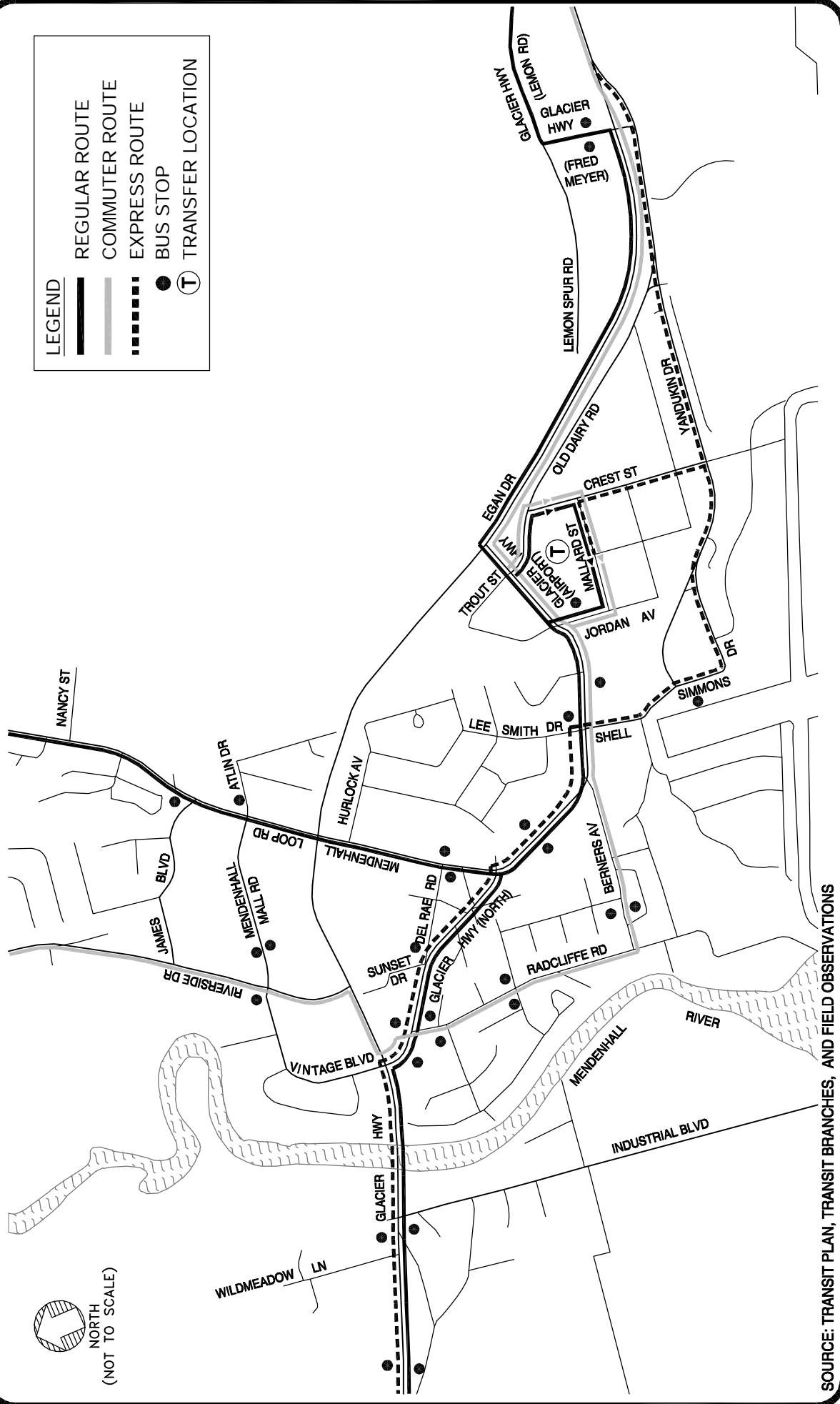
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LEGEND

- REGULAR ROUTE
- COMMUTER ROUTE
- EXPRESS ROUTE
- BUS STOP
- TRANSFER LOCATION



NORTH
(NOT TO SCALE)

SOURCE: TRANSIT PLAN, TRANSIT BRANCHES, AND FIELD OBSERVATIONS

TRANSIT FACILITIES

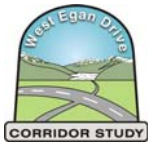
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DATE: JULY 2003
FIGURE: 3-3

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Roadway System and Traffic Operations

There are six main roadways in the WEDCOR study area that provide pedestrian, bicycle, transit and auto connections: Egan Drive, Riverside Drive, Mendenhall Loop Road, Glacier Highway, Shell Simmons/Yandukin Drive, and Industrial Boulevard. Of these, ADOT&PF owns and maintains Egan Drive, Mendenhall Loop Road and Glacier Highway, while the City and Borough of Juneau owns and maintains the other three. In addition to this, Old Dairy Road is also owned and maintained by ADOT&PF. All other streets within the WEDCOR study area are under the jurisdiction of the CBJ, with the exception of Mendenhall Mall Road. The latter is privately owned, providing access to Mendenhall Mall and connecting Riverside Drive and Mendenhall Loop Road.

The functional classification of a road identifies its intended use and capacity, and influences its design. See Figure 3-4 for the functional classifications and the number of through traffic lanes within the WEDCOR study area.

Road Design

This factor influences travel speeds, the number of crashes, and the level of comfort for drivers and passengers. There are no apparent roadway alignment issues along Egan Drive that create safety or operational difficulties, such as unduly tight horizontal curves or abrupt vertical curves. Small constraints exist at:

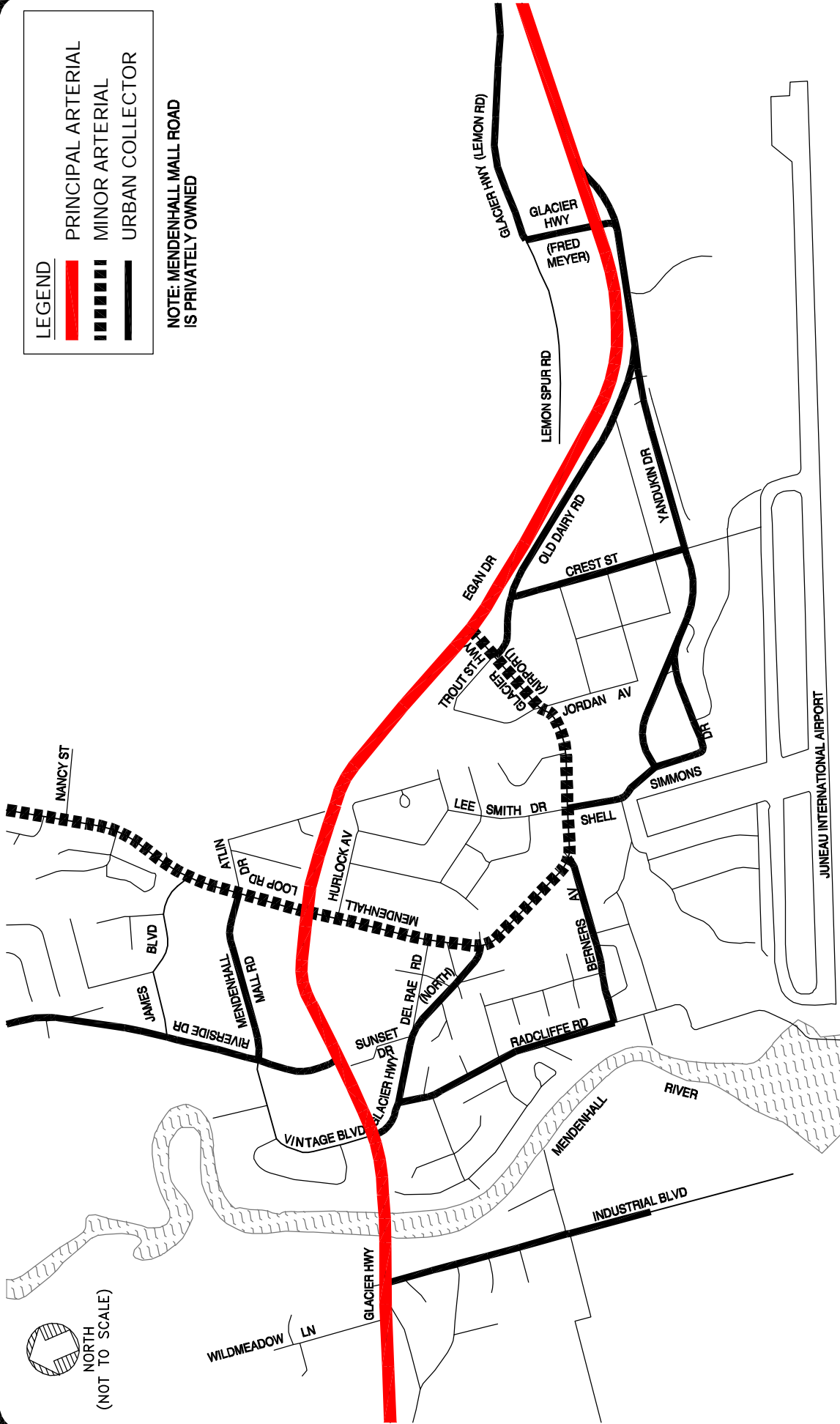
- **Egan Drive/Yandukin Drive/Glacier Highway (Fred Meyer):** There is a sight distance constraint for vehicles turning left from eastbound Egan Drive onto Glacier Highway (Fred Meyer). Vehicles waiting to turn left onto Yandukin Drive may obstruct the eastbound left-turning driver's view of oncoming through traffic.
- **Industrial Boulevard/Glacier Highway:** Intersection sight distance is deficient for southbound vehicles turning left onto Glacier Highway due to the crest vertical curve on the Brotherhood Bridge.

The spacing of traffic signal affects traffic flow through the signals and the ability to store vehicles between signals. While the signal spacing along Egan Drive is adequate, the signal spacing along Mendenhall Loop Road is not. As a result, drivers frequently endure delays on Mendenhall Loop Road between Egan Drive and Mendenhall Mall Road/Atlin Drive during both the morning and afternoon peak periods.

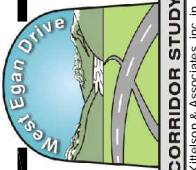
LEGEND

-  PRINCIPAL ARTERIAL
-  MINOR ARTERIAL
-  URBAN COLLECTOR

NOTE: MENDENHALL MALL ROAD IS PRIVATELY OWNED



SOURCE: AREA WIDE TRANSPORTATION ASSESSMENT



ROADWAY FUNCTIONAL CLASSIFICATIONS AND THROUGH LANES

West Egan Drive Corridor Study

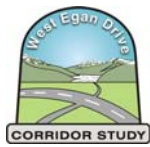
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FIGURE
3-4

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Additionally, there are potential hazards at the intersection of Mendenhall Loop Road/Mendenhall Mall Road/Atlin Drive. Instead of directing westbound Atlin Drive traffic toward its receiving lane on Mendenhall Mall Road, the angle of the Atlin Drive leg of the intersection directs traffic into oncoming traffic from Mendenhall Mall Road. Finally at the intersection of Egan Drive/Glacier Highway (North), the super-elevation (cross slope) of Egan Drive decreases the efficiency of turning movements to and from Glacier Highway (North).

Accidents

According to 1997-1999 data, the most critical intersections in the study area from the perspective of safety are:

- Egan Drive/Vintage Boulevard
- Egan Drive/Mendenhall Loop Road
- Riverside Drive/Vintage Boulevard/Mendenhall Mall Road
- Mendenhall Loop Road/Mendenhall Mall Road/Atlin Drive
- Egan Drive/Glacier Highway (McNugget)

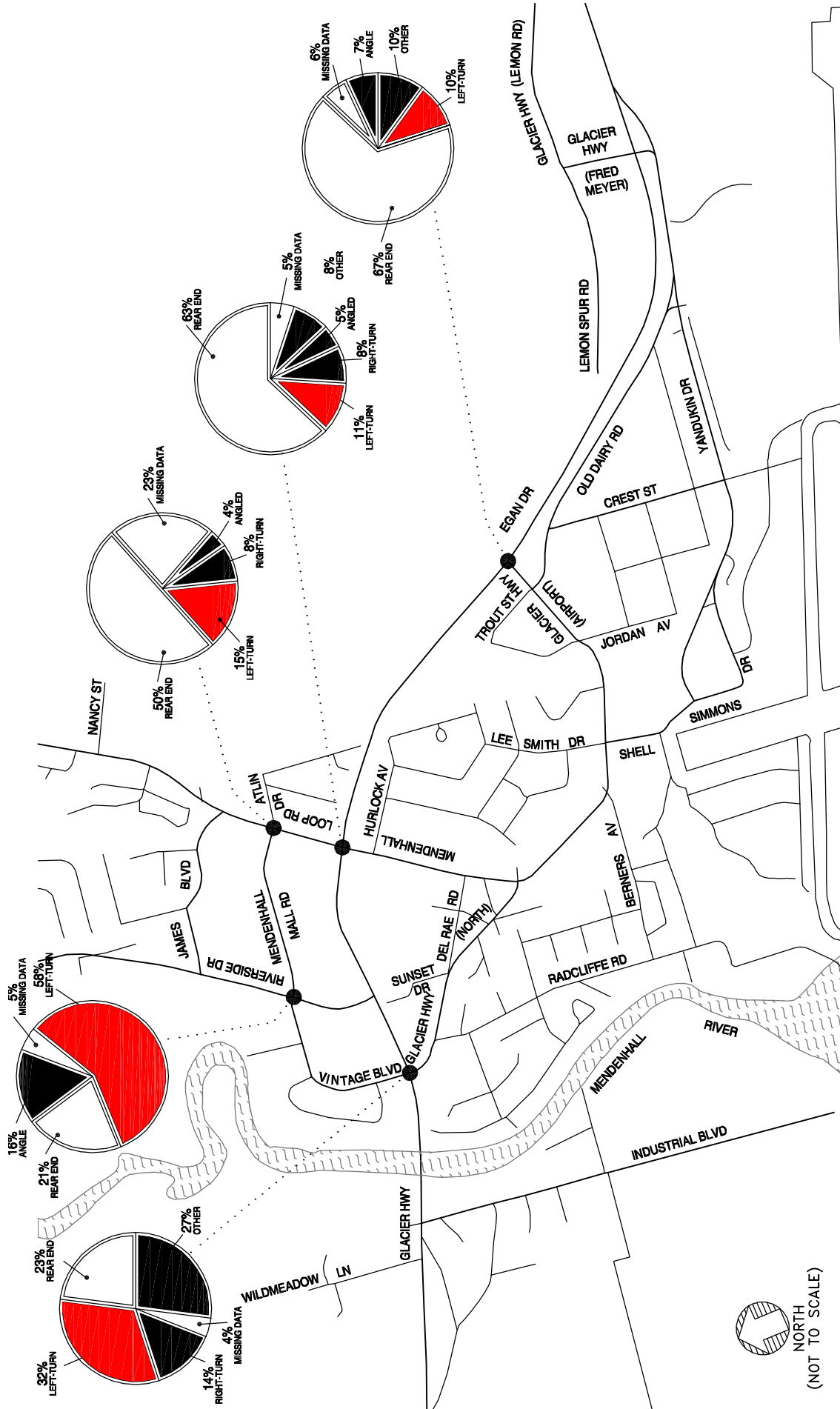
With the exception of the Riverside Drive/Vintage Boulevard/Mendenhall Mall Road intersection, the most common occurrences are rear-end accidents (see Figure 3-5). This is typical of congested intersections and of signalized intersections on high-speed roadways. At the intersection of Riverside Drive/Vintage Boulevard/Mendenhall Mall Road, the most common type of accident involves left turns. Many of these involve motorists traveling from southbound Riverside Drive into Mendenhall Mall.

In addition to the unsignalized intersection of Egan Drive/Vintage Boulevard, the other unsignalized intersection with a high number of accidents is Egan Drive/Yandukin Drive, which experienced 11 accidents from 1997-1999. More than half of the accidents in the five intersections mentioned above were injury-related. In addition, three intersections experienced accidents involving pedestrians or bicycles. There were no fatalities in the study area during the time period considered.

Existing Traffic Operations

Level of Service, volume-to-capacity ratios, and queuing are measurements used to define the performance of intersections. Brief definitions of these concepts are as follows:

- *Level of Service (LOS)*: This is a grading system that defines the operating conditions at intersections in terms of the average delay in seconds per vehicle. It is based on an analysis of characteristics such as the number and width of lanes, number of trucks, and type of traffic control. The range of LOS is from LOS A, very little average delay per vehicle, to LOS F, considerable average delay per vehicle. ADOT&PF has a general policy of trying to achieve LOS C for urban streets but recognizes that LOS C is difficult



(NOT TO SCALE)
NORTH

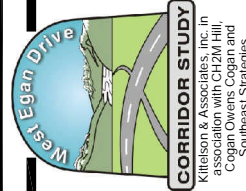
ACCIDENT TYPES AT KEY INTERSECTIONS

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FIGURE
3-5

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to achieve at high-volume signalized intersections such as those on Egan Drive. Likewise, it is frequently difficult to achieve LOS C or even LOS D for all movements at unsignalized intersections where installing a traffic signal is not appropriate. Therefore, for this project, LOS D or above is considered acceptable for signalized intersections, and LOS E or above is considered acceptable for minor movements at unsignalized intersections.

- *Volume-to-Capacity Ratio:* This is a measurement of “how full” an intersection is. It also is based on a number of factors, such as signal timing and phasing, the number of lanes, and the types of vehicles in the traffic stream. From this, a theoretical capacity for individual movements (e.g. through, left or right turn) and for the intersection as a whole is calculated. Dividing the volume by the theoretical capacity, a measurement of “how full” the intersection is derived. The closer the volume-to-capacity ratio is to 1.0, the greater the congestion at the intersection.
- *Vehicle Queuing:* This relates to the number of vehicles and the length of waiting lines, or queues, at different times of day. Intersection design considers this information to ensure that there is adequate physical space for the anticipated number of vehicles that will wait for the green phase of a traffic signal.

These performance measures were applied to existing weekday morning (7 to 8 a.m.) and afternoon (4:30 to 5:30 p.m.) peak hour traffic volume data and the physical characteristics of the identified study intersections (see Figure 3-6 and Figure 3-7). From the perspective of traffic operations, the following are considered the most critical intersections in the study area:

- **Industrial Boulevard/Glacier Highway:** During the afternoon peak hour, this intersection operates near capacity and at LOS F. Traffic moving southbound from the parking area opposite Industrial Boulevard onto Glacier Highway experiences the greatest delays. This intersection operates at LOS E and under capacity during the morning peak hour.
- **Egan Drive/Vintage Boulevard/Glacier Highway (North):** During the weekday afternoon peak hour, this intersection is over capacity and operates at LOS F. Motorists traveling from Glacier Highway onto Egan Drive experience the most delays and congestion. During the weekday morning peak hour this intersection operates at LOS D.
- **Egan Drive/Riverside Drive:** While this intersection operates at an acceptable LOS C during both the weekday morning and afternoon peak periods, the southbound left turn vehicle queue occupies nearly all of the available storage during the morning peak hour.
- **Egan Drive/Mendenhall Loop Road:** During the morning peak hour, the intersection operates under capacity and at LOS E; however, queuing frequently exists on southbound Mendenhall Loop Road from Egan Drive through the Mendenhall Mall Road/Atlin Drive intersection, and delays are greater than desired.

During the afternoon peak hour, the intersection operates at LOS E and at capacity. Queues extend well past Hurlock Avenue south of Egan Drive and to Mendenhall Mall Road north of Egan Drive.



NORTH
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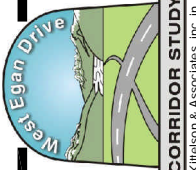
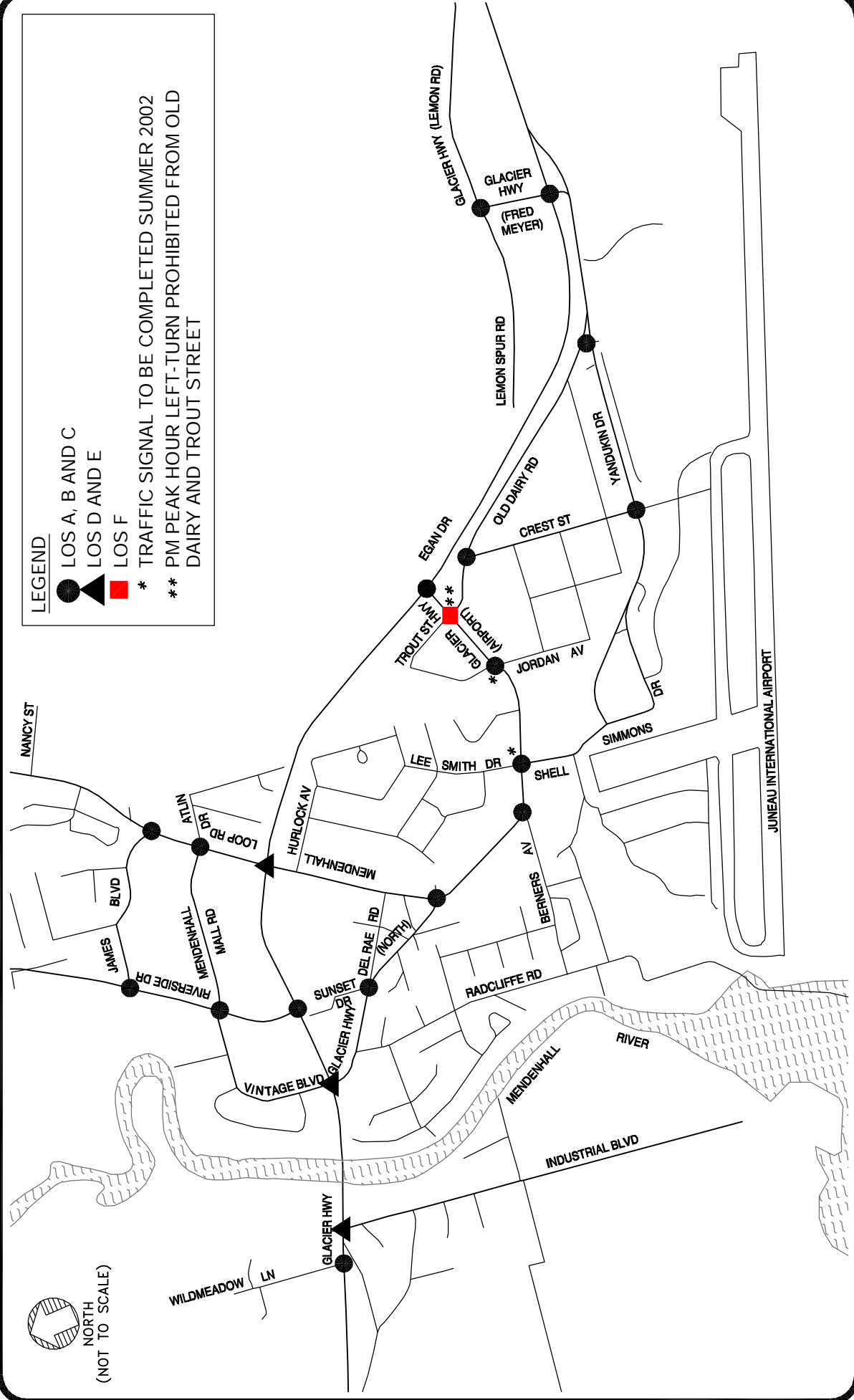
LEGEND

● LOS A, B AND C

▲ LOS D AND E

■ LOS F

* TRAFFIC SIGNAL TO BE COMPLETED SUMMER 2002
** PM PEAK HOUR LEFT-TURN PROHIBITED FROM OLD DAIRY AND TROUT STREET



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EXISTING INTERSECTION LEVEL-OF-SERVICE WEEKDAY AM PEAK HOUR

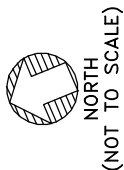
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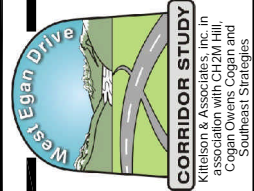
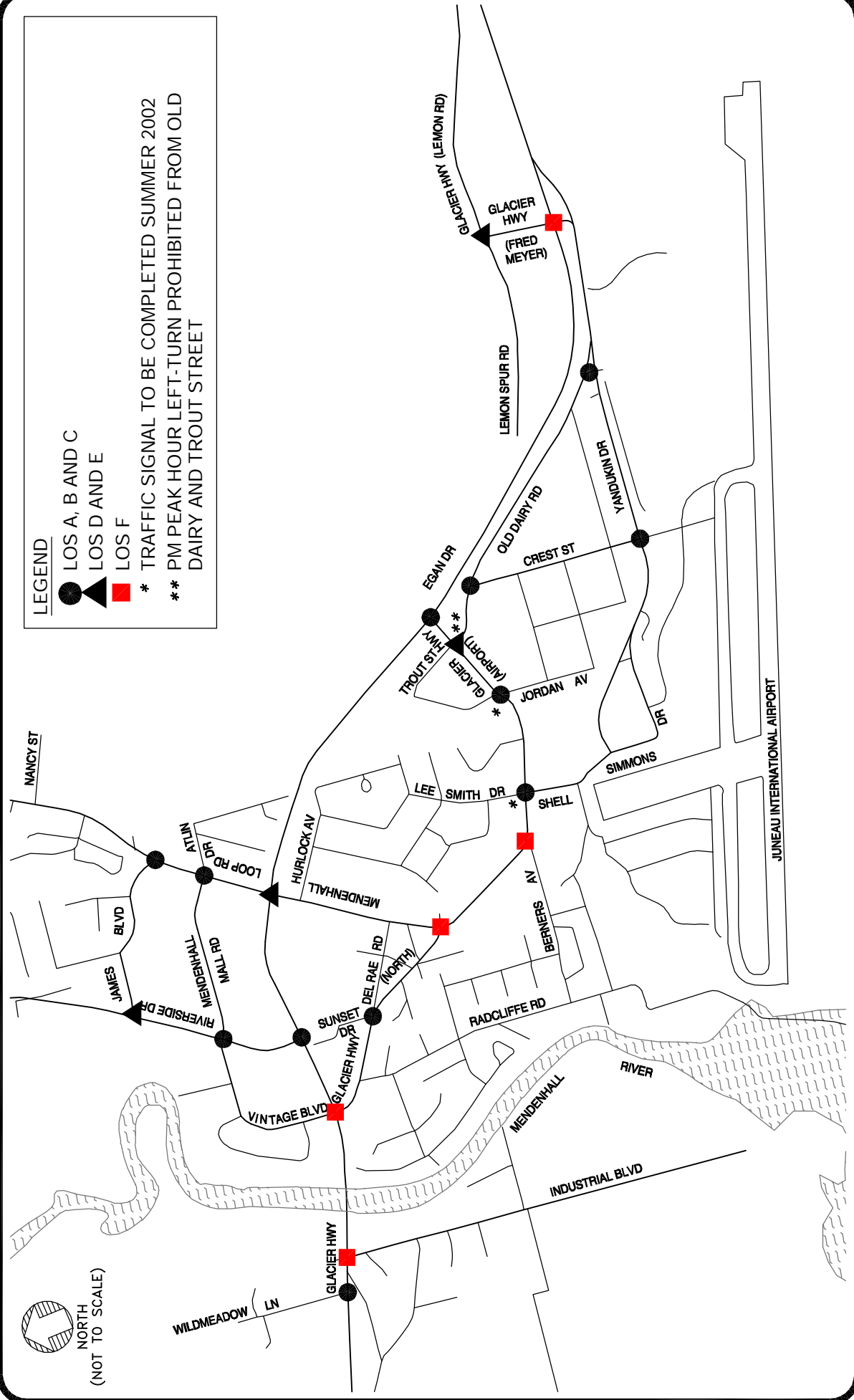
FIGURE
3-6

4978dwws\Task-8\FIG_3-1_9.dwg



LEGEND

- LOS A, B AND C
- ▲ LOS D AND E
- LOS F
- * TRAFFIC SIGNAL TO BE COMPLETED SUMMER 2002
- ** PM PEAK HOUR LEFT-TURN PROHIBITED FROM OLD DAIRY AND TROUT STREET



EXISTING INTERSECTION LEVEL-OF-SERVICE WEEKDAY PM PEAK HOUR

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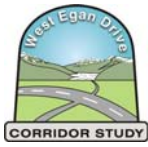
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FIGURE
3-7

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- **Egan Drive/Yandukin Drive:** During the afternoon peak hour, this intersection operates over capacity and at LOS F. Motorists traveling from Egan Drive toward Fred Meyer experience the most delays and congestion.
- **Glacier Highway (Airport)/Glacier Highway (North)/Mendenhall Loop Road:** Motorists traveling to Glacier Highway (North) from Glacier Highway (Airport Area) experience high levels of delay. However, the intersection is operating under capacity.

Additionally, the intersections of Glacier Highway with Shell Simmons, Jordan Avenue, and Old Dairy Road operate over capacity and at LOS F during the afternoon peak hour. However, the traffic control changes completed in summer 2002 will improve peak hour traffic operations for all three intersections.

Future No-Build Traffic Operations

In order to be able to identify the purpose and need for a project and evaluate the relative merits and impacts of the forthcoming alternative solution concepts, a “future no-build analysis” is required. This consists of a traffic operations analysis for a designated future year assuming no significant changes to the transportation system beyond those improvements already committed for construction. These committed improvements include traffic signals at the intersections of Glacier Highway with Shell Simmons and Jordan Avenue and traffic flow changes at Old Dairy Road, completed in summer 2002.

Future (year 2025) morning and afternoon peak hour traffic volumes were prepared using a number of sources, including historic traffic volume data, existing and projected future population data, and existing and projected employment data provided by the City and Borough of Juneau.

In the WEDCOR study area the future no-build analysis shows the following:

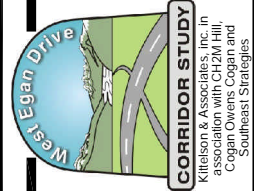
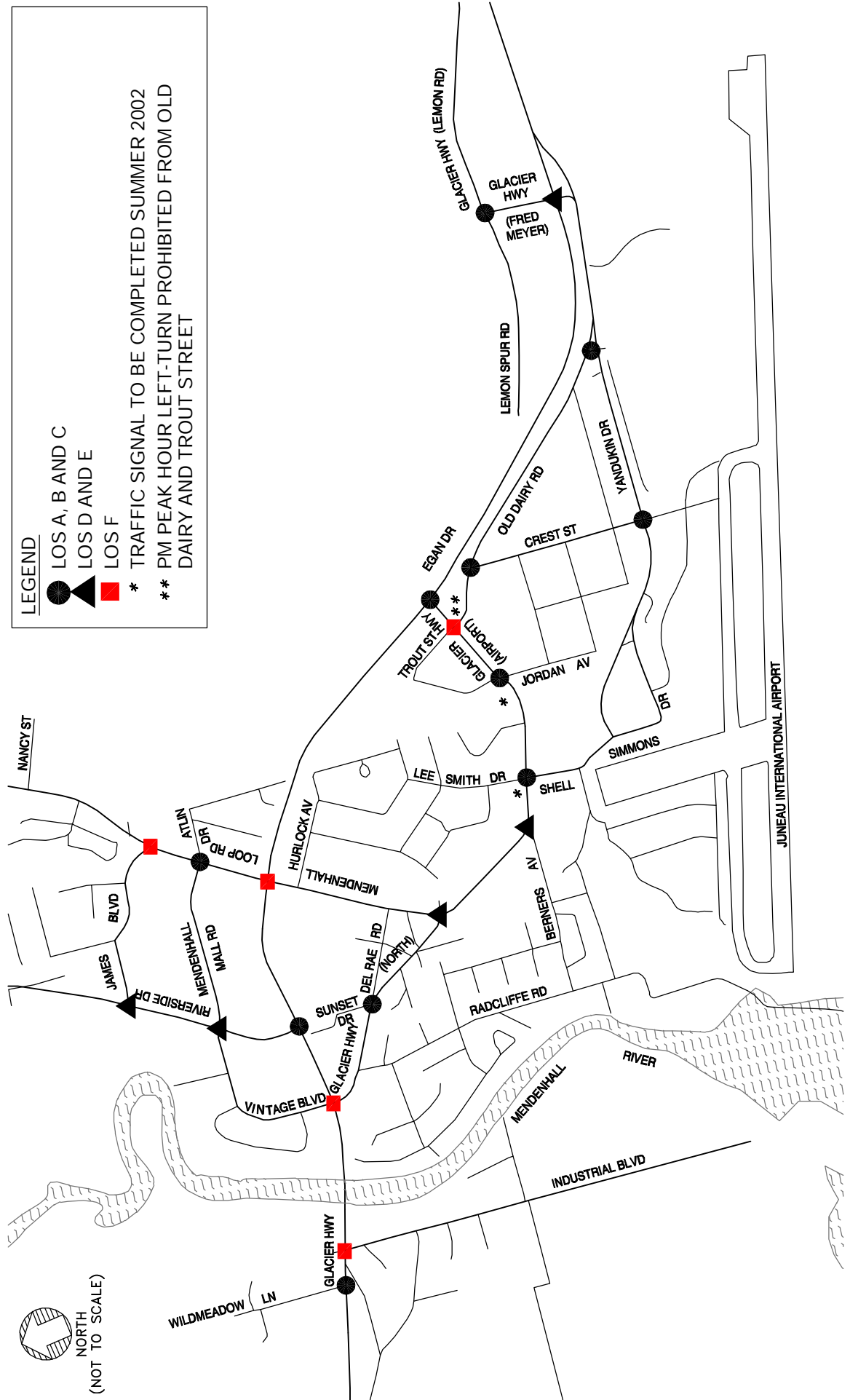
- During the future afternoon peak period *all* of the intersections with Egan Drive (Industrial Boulevard, Vintage Boulevard, Riverside Drive, Mendenhall Loop Road, Yandukin Drive) will operate over capacity and at LOS E or F.
- During the future morning peak period the following Egan Drive intersections will operate at LOS F (i.e., with intolerable delays):
 - Glacier Highway/Industrial Boulevard,
 - Egan Drive/Vintage Boulevard,
 - Egan Drive/Mendenhall Loop Road, and
 - Egan Drive/Yandukin Drive.

Discussion of future no-build traffic operations at intersections not on Egan Drive is included in the Chapter 3 Technical Memo in the Chapter 3 Appendix. Figure 3-8 and Figure 3-9 summarize future weekday morning and afternoon peak hour traffic throughout the study area.



LEGEND

- LOS A, B AND C
- ▲ LOS D AND E
- LOS F
- * TRAFFIC SIGNAL TO BE COMPLETED SUMMER 2002
- ** PM PEAK HOUR LEFT-TURN PROHIBITED FROM OLD DAIRY AND TROUT STREET



FUTURE NO-BUILD CONDITIONS YEAR 2025 INTERSECTION LEVEL-OF-SERVICE WEEKDAY AM PEAK HOUR

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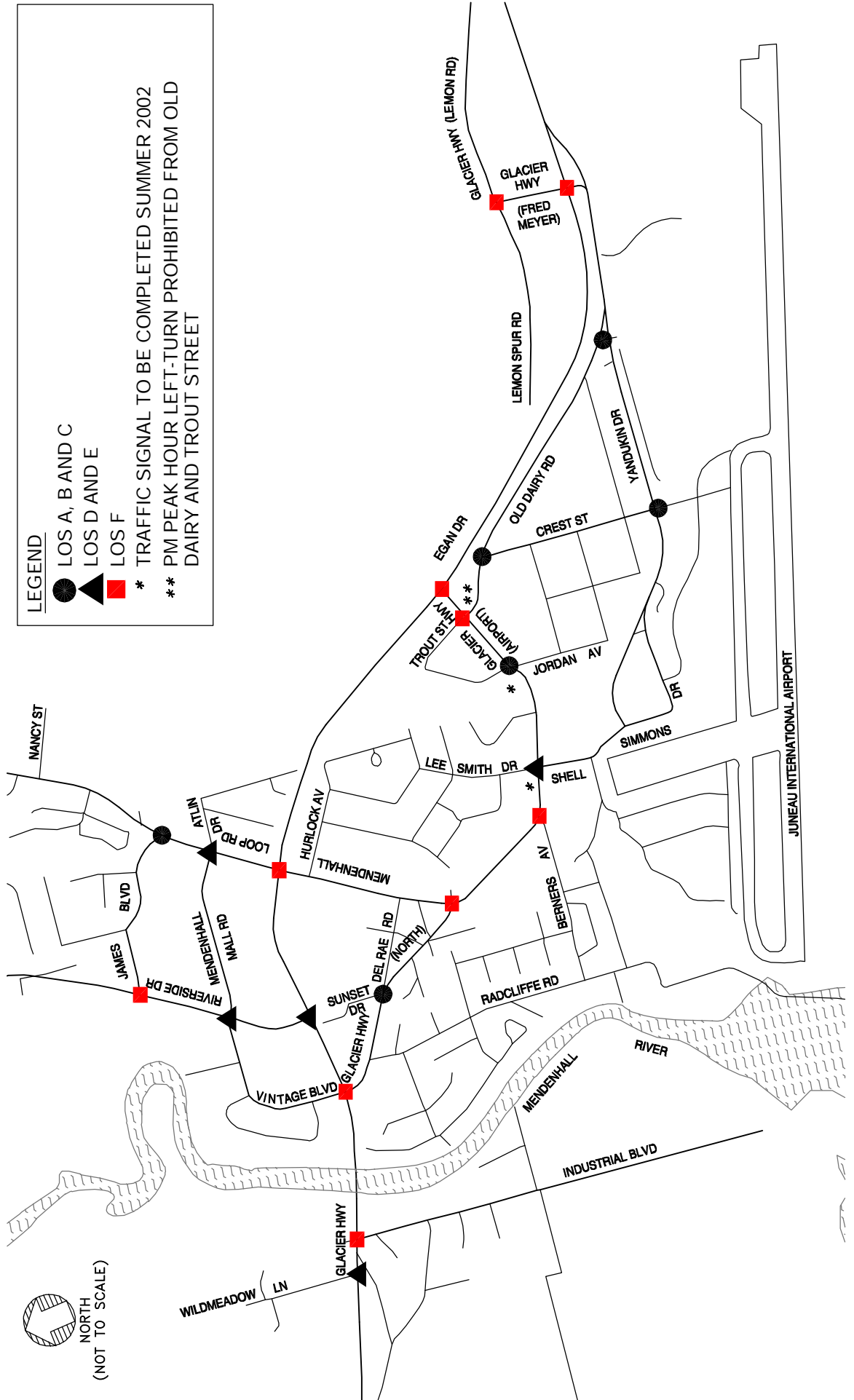
DATE
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FIGURE
3-8

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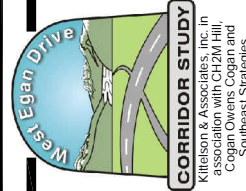


NORTH
(NOT TO SCALE)



LEGEND

- LOS A, B AND C
- ▲ LOS D AND E
- LOS F
- * TRAFFIC SIGNAL TO BE COMPLETED SUMMER 2002
- ** PM PEAK HOUR LEFT-TURN PROHIBITED FROM OLD DAIRY AND TROUT STREET



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**FUTURE NO-BUILD CONDITIONS
 YEAR 2025 INTERSECTION LEVEL-OF-SERVICE WEEKDAY PM PEAK HOUR**

West Egan Drive Corridor Study

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FIGURE
3-9

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