

Section 2 - Chapter 4

Draft Purpose and Need Statement





4 Draft Purpose and Need Statement

This draft purpose and need statement explains 1) why transportation improvements in the West Egan Drive Corridor (WEDCOR) study area are necessary and 2) the framework for evaluating a range of possible solutions. This document identifies the **Purpose of the Action** that is being taken, followed by **Need for the Action**. Additional detail is provided in the **Project Background**, and **Compatibility with Existing Plans** section of this chapter. A detailed summary of **Needs** and **Range of Alternatives** is also provided.

Purpose of the Action

The purpose of the improvements is to improve traffic flow, capacity, efficiency, safety and accessibility for all modes of travel in the study area. More specifically, they should:

- Decrease travel time and delay at identified locations,
- Improve the efficiency of local trips on or across Egan Drive as well as traffic traveling through the area along Egan Drive,
- Improve access to and from the Juneau International Airport,
- Improve safety at high accident locations, and
- Improve or add pedestrian and bicycle facilities where needed.

Need for the Action

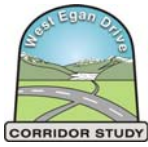
The needs that the planned improvements address are based on a detailed assessment of the existing conditions and future projections for the transportation system in the WEDCOR study area. The assessment considered the existing roadway, pedestrian and bicycle system, transit services, and accident rates. Projected population and employment growth rates were used to estimate future traffic volumes and related operational deficiencies that can be expected by the year 2025. The discussion below is based on that assessment.

Capacity and Level of Service assesses how well a roadway or intersection accommodates vehicles within an acceptable range of delay. A number of needs have been identified as follows:

- By the year 2025, unacceptable delay is anticipated at 16 of the 21 intersections in the area. They include every intersection on Egan Drive in the study area: Industrial Boulevard, Vintage Boulevard, Riverside Drive, Mendenhall Loop Road, Glacier Highway (McNugget), and Yandukin Drive. (Please refer to the Needs section for a complete list.)

The close spacing on traffic signals on Mendenhall Loop Road at Egan Drive and Mendenhall Mall Road/Atlin Drive creates congestion and queuing as well as unsafe weaving conditions.

System Linkage identifies how well Egan Drive serves both regional and local trips in and around the study area. A number of needs are as follows:



- While vehicles traveling through the study area along Egan Drive are accommodated adequately now and in the future, it is anticipated that by 2025, local trips leaving, entering, and crossing Egan Drive will be delayed unduly. This delay is created in part by the use of Egan Drive for local trips where other facilities are not available or convenient.
- Many local trips within the study area require the use of Egan Drive because no alternatives exist, such as between the Mendenhall Valley and Fred Meyer and between Glacier Highway (North) and Riverside Drive.

Airport Access is critical in the Egan Drive corridor due to the critical function that Juneau International Airport plays in the regional economy. The study assesses how well Egan Drive and the surrounding transportation system accommodate the movement of people between and among air, ground, and sea transportation in and around the study area. The specific need is as follows:

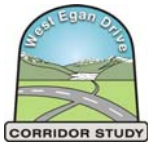
- Travel between Juneau International Airport and other key destinations in the Juneau area (e.g., downtown Juneau, Auke Bay Ferry Terminal) often requires the use of a network of local streets that is not intuitively obvious to visitors. The resulting confusion creates unnecessary out-of-direction travel.

Safety needs have been identified within the study area as follows:

- The intersections with the highest accident rates are Egan/Vintage; Egan/Mendenhall Loop; Riverside/Vintage/Mendenhall Mall; Mendenhall Loop Road/Mendenhall Mall Road/Atlin Drive; and Egan/Glacier (McNugget). These intersections have accident rates that rank among the highest in southeast Alaska.
- Other safety problems include inadequate or marginal sight distance at Egan Drive/Yandukin Street/Glacier Highway (Fred Meyer) and Egan Drive/Industrial Boulevard and poor intersection alignment at Mendenhall Loop Road/Mendenhall Mall Road/Atlin Drive.

Pedestrian and Bicycle Facilities are deficient at a variety of locations:

- The unsignalized intersections on Egan Drive at Vintage Boulevard/Glacier Highway (North) and Yandukin Drive are of particular concern. Additional lanes on Egan to accommodate more vehicles would make access by pedestrians even more difficult unless adequate alternate pedestrian and bicycle facilities are provided.
- Narrow pedestrian bridges are a safety concern on paths along Egan Drive and Mendenhall Loop Road.
- There are many transit stops at unsignalized intersections that are dangerous for pedestrians. Examples are the stops on Egan Drive at Industrial Boulevard and on Glacier Highway at Fred Meyer.



Project Background

History

Egan Drive is the major transportation corridor between downtown Juneau and the Mendenhall Valley. Egan Drive is the primary transportation corridor within the City and Borough of Juneau (CBJ), with direct or indirect access to all major population and commercial centers within the CBJ. Egan Drive also is the primary route to Juneau International Airport and the Alaska Marine Highway System's Auke Bay Ferry Terminal.

Traffic congestion along Egan Drive and adjacent roadways has increased due to population growth and the growth in tourism-related activities. Since completion of Egan Drive in the mid 1970's, Average Daily Traffic volumes (ADT) have more than doubled from 9,500 vehicles per day in 1975 to 24,000 vehicles per day in 2000, with daily peaks as high as 33,000. Today Egan Drive carries the highest traffic volumes and has the greatest number of accidents of any roadway in Southeast Alaska.

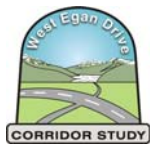
Egan Drive was designed as an expressway to bypass overcrowded and accident-prone Glacier Highway. While access on Egan Drive continues to be limited, the free flow of traffic is impeded by signals at several intersections; three are in the study area. Additionally, some intersections on side streets are too close to those on Egan Drive, causing further delays and safety problems. This is expected to worsen at all major intersections on Egan Drive within the next twenty years.

Egan Drive is a limited access arterial between Yandukin and downtown. It serves an additional function between Yandukin and Industrial Boulevard: to collect and distribute valley traffic and provide access to destinations near both sides of the expressway. Through trips comprise less than half of the traffic moving through the six intersections along this two-mile segment. Planning for the future of this segment must consider Egan Drive's role to accommodate local trip within the immediate area, as well as its role to provide for through trips to and from outlying areas.

Social and Economic Factors

As noted previously, Egan Drive is the primary transportation corridor for residential, recreational and business trips within the CBJ. Downtown Juneau accommodates many state and federal office buildings as well as a significant tourism industry, while most Juneau residents live and shop in the Mendenhall Valley. This is evident by the increase, not only in commuter traffic to and from downtown, but also in the commercial vehicles traveling between the harbors in and near downtown to the retail and industrial areas south and west of Egan Drive. Hotels, stores and other businesses along Glacier Highway draw traffic from the Juneau International Airport to the south, the upper Mendenhall Valley to the North, the Downtown/Douglas Island area and the areas west of the Mendenhall River. Inbound traffic from the Mendenhall Valley turning left across Egan Drive to Fred Meyer and the Lemon Creek area (with K-Mart and Costco) also has grown.

Employment and population are expected to grow by about one percent annually in and around the study area. By 2020, the population within the Mendenhall Valley is expected to increase by



about 3,700 from the current figure of approximately 19,000. The original expectation that Egan Drive would primarily serve commuter trips to downtown has changed due to the population growth in and around the Mendenhall Valley.

Public recognition of these factors on Egan Drive within the project area is found in the following descriptors¹:

- High traffic volumes
- Congested and busy
- A bottleneck
- Confusing, especially to visitors
- Critical to jobs

Some of these factors are more easily quantified than others. They are all being examined at the technical level and through a public process that includes working with a Citizens Advisory Committee (CAC), distributing written questionnaires and newsletters, and sponsoring public meetings. The following project goals were adopted by the CAC during the first meeting:

Develop a safe and efficient transportation system for automobiles, bicycles, commercial vehicles, pedestrians and transit on or across Egan Drive within the study area.

- Balance connectivity and efficiency for all users.
- Integrate the transportation system with existing and future development in the area.
- Avoid creating new barriers to travel.
- Provide reasonable access for existing and projected development, both locally and within the surrounding transportation system.
- Improve safe and efficient access for emergency vehicles.
- Minimize and mitigate for impacts to natural resources.
- Minimize and mitigate social, economic and aesthetic impacts.
- Meet engineering standards, while being sensitive to the needs of all users.
- Develop and prioritize cost-effective solutions that can be carried out by ADOT&PF and the City and Borough of Juneau.
- Reduce impacts to and from maintenance activities.

Project Compatibility with Existing Plans

Following are goals and needed projects identified by the CBJ and ADOT&PF that are relevant to this study.

Comprehensive Plan of the City and Borough of Juneau —The WEDCOR project area is within the CBJ CDP Subarea 4 as well as a small section at the border of Subarea 3, from Industrial Blvd to the Mendenhall River. According to the guidelines and considerations of the CDP, ADOT&PF's evaluation of improvements to major roads within these subareas will be part of the 1995 Mendenhall Valley Transportation Plan. Although that plan was not finalized,

¹ From Citizen Advisory Meeting #1, April 10, 2002.



transportation issues raised during that evaluation are covered in the CBJ Area Wide Transportation Plan (AWTP). Other transportation issues in the CDP within the project area include:

- As part of the ADOT&PF improvements to Glacier Highway from Egan Drive (McNugget) to Del Rae Road substantial pedestrian accommodations should be provided. (This is ongoing²).
- Beautification and buffering efforts along major roadways and between conflicting land uses should be encouraged.³
- The bus barn park site should be developed, retaining, as much as possible, the natural condition, with maximum tree retention.

CBJ Area Wide Transportation Plan (AWTP) —Components pertinent to the WEDCOR project area are the following:

- Restore Egan Drive to free flow between 10th Street and Riverside Drive.
- Develop Mendenhall Loop Road as a 4-lane boulevard.
- Widen and realign the multi-use path along Egan; create transition with the southbound bike lane along Mendenhall Loop Road.
- Reconstruct Glacier Highway North from Duck Creek to Egan.
- Improve/widen Brotherhood Bridge; construct intersection and traffic flow improvements in the vicinity of Industrial Blvd.
- Create a pedestrian crossing of Egan Drive at Brotherhood Bridge during bridge improvements.
- Acquire from private owner and bring Mendenhall Mall Road into compliance with public roadway standards.
- Coordinate all appropriate transportation projects with airport growth projects.
- Improve Glacier Highway from Egan Drive to Glacier Highway North (this is ongoing⁴).
- Consider connection between sections of Glacier Highway, terminating in the vicinity of the McNugget intersection.

Riverside Drive Transportation Plan (adoption pending)—This plan includes an assessment of the Dimond Complex and how best to design traffic controls for future development. It also evaluates the entire corridor. There are several recommendations that are pertinent to the WEDCOR project area:

- Provide/improve pedestrian walkways between Egan and Mendenhall Mall Road.

² Note from author.

³ Visual impacts and landscaping has been identified as a priority by the CAC.

⁴ Note from author.



- Consider revisions to the intersection of Vintage, Mendenhall Mall, and Riverside Drive to reduce traffic accidents.

Outside the project area, at the north end of Riverside Drive, the Plan concurs with the AWTP recommendation either to extend Riverside Drive to Back Loop road or build a new bridge across the Mendenhall River at Melvin Park. This could change the traffic flow patterns at the Egan Drive intersections with Riverside Drive and Mendenhall Loop Road.

Statewide Transportation Improvement Program (STIP)

The following projects on the list for implementation in 2001-2006 are within the study area:

- Egan Drive and Glacier Highway: Yandukin to Industrial Intersections (\$8,000,000 FFY⁵ 2006, \$65,000,000 in construction beyond 2006).
- Build Nugget Mall Transit Center (\$300,000 FFY 2006).
- Resurface Old Dairy Road Resurfacing and Widen Shoulder, Phase 2 (\$330,000 FFY 2002).
- Resurface Old Glacier Hwy North and Widen Shoulder (\$550,000, construction beyond 2006).
- Improve Mendenhall Valley Multi-use Path reconstruct pathways along Mendenhall Loop and Egan Expressway (\$900,000 FFY 2006).

Needs

The transportation improvements that will be addressed in the WEDCOR study area will be based on a detailed assessment of the existing conditions and future projections.

Capacity and Level of Service

Two measures are commonly used to assess how well a transportation system operates: capacity and Level of Service. Capacity is the ability of a facility to accommodate traffic demand. Level of Service (LOS) is a national system for rating the quality of traffic flow, or how easily traffic moves through an intersection or along a highway. LOS C is the minimum desired rating for intersections in urban arterials such as Egan Drive. Of the 21 intersections within the study area, 4 are rated LOS D or lower for the current morning peak hour, while 9 intersections are rated LOS D or lower for the current afternoon peak hour. (See Chapter 4 Appendix A, Table 1, for the current year.)

Projections into the year 2025 indicate that 16 intersections within the study area will operate at a LOS of D or lower: 10 for the morning peak hour and 15 for the afternoon peak hour. (See Chapter 4 Appendix A, Table 2, for Year 2025 Intersection Operations.)

⁵ Projects are programmed in Federal Fiscal Years (FFY) that run from October 1 through September 30.



As the volume of traffic in the Mendenhall Valley area increases, all intersections on Egan Drive within the study corridor will operate over capacity and at unacceptable Levels of Service (LOS of D or less) during the weekday morning, weekday afternoon, or both peak hours.

Off Egan Drive, the following intersections will operate over capacity and/or at LOS D or worse during the weekday morning, weekday afternoon, or both peak hours:

- Mendenhall Mall Road/Vintage Boulevard/Riverside Drive,
- Mendenhall Loop Road/Atlin Drive/Mendenhall Mall Road,
- James Boulevard/Riverside Drive,
- James Boulevard/Mendenhall Loop Road,
- Glacier Highway (Airport)/Glacier Highway (North)/Mendenhall Loop Road,
- Glacier Highway (Airport)/Shell Simmons Drive,
- Glacier Highway (Fred Meyer)/Glacier Highway (Lemon Road),
- Glacier Highway/Berners Avenue, and
- Glacier Highway/Old Dairy Road/Trout Street.

In addition to the operation of individual intersections, other attributes of the transportation system such as signal spacing have created operational deficiencies within the study area. Signal spacing affects the flow of traffic through the signals and the number of vehicles that can be “stored” at an intersection 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. The short signal spacing also creates a severe weaving pattern caused by vehicles turning right from Egan Drive onto Mendenhall Loop Road and crossing through traffic lanes to get into the left turn lane onto Mendenhall Mall Road.

In addition to the above items, the super-elevation (cross slope) of Egan Drive at its intersection with Glacier Highway (North) decreases the efficiency of turning movements to and from Glacier Highway (North).

System Linkage

Egan Drive is the main roadway serving the City and Borough of Juneau and the only continuous transportation link between downtown Juneau/Douglas Island and the Mendenhall Valley, Juneau International Airport, the Auke Bay area, the Alaska Marine Highway Ferry Terminal, Lena Point, and beyond. The largest population center within the CBJ is in the Mendenhall Valley on the north side of Egan Drive while there are significant commercial and retail services on the south side. Thus, considerable traffic moves back and forth between the residential and commercial areas across Egan Drive, and many of those trips today are required to use Egan Drive because no alternatives exist.

A number of specific needs are as follows:



- As noted in the previous section, all intersections on Egan Drive are expected to operate unacceptably by 2025. As a result, local trips leaving, entering, and crossing Egan Drive will be delayed unduly. This delay is created in part by the use of Egan Drive for local trips where other facilities are not available or convenient.
- Many local trips within the study area require the use of Egan Drive because no alternatives exist. Examples include trips between Fred Meyer and Atlin Drive or Mendenhall Loop Road, Fred Meyer and Glacier Highway (Airport area), and Riverside Drive to Glacier Highway (North). As noted in the previous bullet, the absence of these links requires traffic to use Egan Drive, which contributes to capacity and level of service deficiencies.
- Accidents or other incidents on Egan Drive adversely affect local circulation and emergency vehicle response due to the lack of alternative routes.
- As noted in the section on pedestrian and bicycle facilities, there is a lack of adequate facilities for pedestrians and bicycles to cross Egan Drive at Vintage Boulevard/Glacier Highway (North) and Yandukin Drive. As a result, pedestrians and bicycles are required to use alternative routes that are inconvenient and out-of-direction.

Airport Access

Many different means of transportation are used in and around the study area to serve the Mendenhall Valley, Downtown Juneau, Douglas Island, Auke Bay, and other locations within the CBJ. Each of these needs clear access to Juneau International Airport due to the airport's critical function as a link to the rest of southeast Alaska and beyond. The Juneau International Airport at the southernmost part of the Mendenhall Valley creates travel demand on and across Egan Drive, on Glacier Highway, and on other streets in the vicinity of the airport.

Juneau International Airport serves foreign and domestic commercial air travel, general aviation, fixed wing and helicopter charters and excursions, and rental car agencies. These various modes linking to the airport need a clear and intuitive transportation system to enable visitors to efficiently navigate to and from the airport.

At the present, travel between Juneau International Airport and other key destinations (downtown Juneau, Auke Bay Ferry Terminal) sometimes requires the use of streets that are not intuitively obvious to visitors. For example, although the east end of the airport is near the Egan Drive/Yandukin Drive intersection, no left turns are possible from Yandukin Drive onto Egan Drive. Therefore, the only feasible route between the east end of the airport and Auke Bay uses Yandukin Drive, Shell Simmons Drive, Glacier Highway (Airport Area), and either Mendenhall Loop Road or Glacier Highway (North). This creates unnecessary use of local streets and increases confusion for visitors. Likewise, there is no direct route between the east end of the airport and Fred Meyer, even though the two facilities are directly opposite each other along Egan Drive.

Safety

According to 1997-1999 data, the most unsafe intersections in the study area 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, and
- Egan Drive/Glacier Highway (McNugget).

They also rank among the top fifteen worst accident locations in the Southeast Region, according to ADOT&PF's 1999 Southeast Region Traffic and Safety Report.

With one exception, the most common occurrences are rear-end accidents. In more than half, injuries but no fatalities were reported. Three involved pedestrians or bicycles. This is typical of congested intersections and signalized intersections on high-speed roadways. At the unsignalized 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.

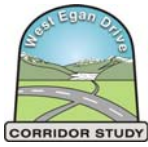
The other unsignalized intersection with a high number of accidents (11 between 1997-1999) is Egan Drive/Yandukin Drive, even though some movements at this intersection have been restricted.

The following geometric deficiencies in the study area have been identified:

- Egan Drive/Yandukin Drive/Glacier Highway (Fred Meyer): Drivers of vehicles turning left from eastbound Egan Drive onto Glacier Highway (Fred Meyer) often have an obstructed view of traffic due to vehicles opposite them waiting to turn left onto Yandukin Drive.
- Industrial Boulevard/Glacier Highway: The sight distance is marginal for southbound vehicles turning left onto Glacier Highway due to the curve on the Brotherhood Bridge.
- 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.
- Mendenhall Loop Road between Egan Drive and Atlin Drive/Mendenhall Mall Road: As noted previously, the short signal spacing between these intersections creates a weaving pattern caused by vehicles turning right from Egan Drive onto Mendenhall Loop Road and crossing through traffic lanes to get into the left turn lane onto Mendenhall Mall Road.

Pedestrian and Bicycle Facilities

Much of the study area has sidewalks or multi-use paths on one or both sides of the roadway. Signalized crossings for pedestrians are provided at each of the five signalized intersections.



- Two traffic signals completed in summer 2002 on Glacier Highway (Airport) at Shell Simmons Drive and at Jordan Avenue provide additional protected pedestrian crossings across the highway.
- The unsignalized intersections on Egan Drive at Vintage Boulevard/Glacier Highway (North) and Yandukin Drive encourage vehicles to travel at high speeds and are barriers to the safety of pedestrians and bicyclists attempting to cross at these unprotected locations.
- Signalized intersections along Egan Drive include Riverside Drive, Mendenhall Loop Road, and Glacier Highway (McNugget). All have crosswalks for pedestrians, although the width of Egan Drive poses a concern for those who need more time crossing
- There are many transit stops at unsignalized intersections encourage difficult unprotected street crossings by pedestrians. Examples are the stops on Glacier Highway at Industrial Boulevard and on Egan Drive at Fred Meyer.
- The existing pathways along Egan Drive and Mendenhall Loop Road are eight feet wide. They are currently being widened to ten feet. Pathway bridges on the north side of Egan and along the west side of Mendenhall Loop Road are only five feet wide and are being replaced to match the pathway width.

Other Needs

There are no apparent alignment problems along Egan Drive that could cause safety or operational difficulties. However, there are some other needs, including the following:

- **Maintenance:** All the facilities should be evaluated routinely in terms of any needs for resurfacing, rehabilitation, and restoration, according to the anticipated performance of similar facilities in Juneau and their life cycle costs.
- **Routine replacement:** The Brotherhood Bridge is eligible for replacement, according to ADOT&PF's established bridge assessment and program and Federal Highway Administration (FHWA) guidelines.

This WEDCOR study will identify transportation projects needed to 2025 and a comprehensive plan to design and build them. Some needs are noted in previous studies and planning documents, while others are being identified in the WEDCOR analysis. The Purpose and Need presented in this document is the basis for identifying and evaluating a range of alternatives. The final action will be to select and prioritize projects that can be implemented within the Statewide Transportation Improvement Program (STIP).