4.0 Context for the Crossing Project

This section provides background information about key features of the North Douglas Crossing project area, and opportunities and constraints. This information is important to understanding the comments, analysis and recommendations presented in later sections.

4.1 Navigability of Gastineau Channel

Gastineau Channel is a navigable water body that separates mainland Juneau from Douglas Island. In 1945, federal law designated a navigable channel from Juneau to Fritz Cove, approximately 5.5 miles long and 75 feet wide with a depth of 0.0 feet mean lower low water.7

To maintain navigability, the U.S. Coast Guard will require the new crossing to meet the same navigational clearances as the Juneau Douglas Bridge, a minimum 51-foot clearance above mean high tide. This navigability requirement adds substantially to the structure’s size, height, embankment footprint, visual impact and cost. This study considers the options of a fixed span bridge or a movable span (either hinged or swing bridge) that would open to let vessels pass. If a movable span was built, the Coast Guard would determine the method and schedule for its operation, in consultation with the public.

Gastineau Channel’s navigability is currently restricted to high-tide passage over the Mendenhall Bar. Sediment deposition and rapid isostatic rebound continually reduce the channel’s depth. If the channel were to be dredged to deepen the navigable channel, borrow embankment material from the dredging would be available for construction of the crossing.

4.2 Juneau International Airport

The Juneau International Airport is located nine miles northwest of downtown Juneau, west of the Yandukin Drive area. The North Douglas Crossing project must not conflict with federal requirements to maintain unobstructed land and airspace around the runway and threshold, and must consider the potential for future expansion needs at the airport.

The JIA plans to extend the current Runway Safety Area, Object Free Area and Obstacle Free Zone further to the east, to meet Federal Aviation Administration (FAA) requirements. The airport is also planning to install tower-supported runway indicator lights that will extend further east. The height of objects in the vicinity of the airport is controlled by Federal Aviation Regulations (FAR) Part 77 (Objects Affecting Navigable Airspace), to ensure the safety and efficiency of airport operations and preserve future options for operations. The locations of the controlled surface and airspace will change with future changes in airport layout and facilities.

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7 Rivers and Harbors Act, March 2, 1945, House Doc. 325, 77th Congress, 1st Session.
All North Douglas Crossing alternatives considered in this study are outside of the areas restricted through these surface area and airspace controls. During the agency consultation meeting and the stakeholder interview with the JIA, the Airport Board and manager, FAA and Alaska Airlines recommended that the crossing be constructed with as low a profile and as far away from airport approaches as possible, to avoid conflicts with current and future Airport operations, safety requirements, and future space needs.

4.3 Mendenhall Wetlands State Game Refuge

Each of the three alternative crossing areas identified by the CBJ cross the Mendenhall Wetlands State Game Refuge. The Refuge is approximately 3,800 acres and extends about nine miles along Gastineau Channel, from Salmon Creek to the eastern side of the Mendenhall Peninsula. The Alaska Legislature established the Refuge in 1976 (AS 16.20.034) to protect natural habitat and wildlife populations, especially waterfowl, and to provide recreational opportunities. Uses include waterfowl hunting, hiking, wildlife viewing and photography, boating, fishing, scientific and educational studies, sightseeing, and other forms of recreation. The Alaska Department of Fish and Game (ADFG) manages the Refuge habitat, fish and wildlife, and human uses. The Alaska Department of Natural Resources (DNR) manages the surface and subsurface estate. The Mendenhall Refuge Citizens Advisory Group provides advice on issues related to Refuge management.

The state law that established the Refuge anticipated the need for a future transportation corridor to cross through it. AS 16.20.034(i) specifies that “the City and Borough of Juneau may acquire land, by sale, exchange or otherwise, for purposes of … establishing additional transportation corridors…” in the Refuge, but did not specify a location for the transportation corridor. The Mendenhall Wetlands State Game Refuge Management Plan (ADFG, 1990) requires that impacts to the Refuge be avoided, minimized and/or mitigated. The plan states:

“The City and Borough of Juneau may acquire land for a public transportation corridor … only after the following have been demonstrated: 1) that there is a significant public need for the corridor which cannot reasonably be met off-refuge; 2) that the use of the refuge lands are avoided or minimized to the maximum extent feasible …., 3) that public access to the refuge is maintained; and 4) that all unavoidable impacts to the refuge and to refuge resources are fully mitigated through restoration, replacement and/or compensation.”

Federal transportation law includes a similar requirement, which would apply to the project if federal highway funding were used. Section 4(f) of the Department of Transportation Act (1966) states that the Federal Highway Administration (FHWA) may approve a transportation corridor within the MWSGR only if there is no prudent and feasible alternative to the use of that land; and all possible planning is done to minimize impacts. In April 2004, the FHWA stated that Section 4(f) would apply to the North Douglas Crossing project, regardless of state law’s recognition that a transportation
4.0 Context for the Crossing Project

corridor crossing the Refuge would eventually be needed. Section 4(f) would also apply
to city-owned park land on Douglas Island.

4.4 North Douglas Highway and Residential Area

The North Douglas Crossing will cross from Egan Drive to a new intersection on the
North Douglas Highway, a two-lane, paved state highway. The North Douglas Highway
serves the low-density residential area that extends on both sides of the road, and
provides access to areas used by the entire community for recreation and tourism,
including the Eaglecrest ski area, the North Douglas boat ramp, and area beaches, trails
and scenic areas. There is no sidewalk, separated pedestrian pathway, bicycle lane or
pullouts on the highway.

CBJ population estimates for 2006 show 1,687 people live in the linear neighborhood that
extends from the Juneau Douglas Bridge to the road’s end. In addition to providing for
vehicle transit, the highway shoulder is used for walking, biking, running, scenic
enjoyment and other recreation. Many North Douglas residents and the North Douglas
Neighborhood Association are concerned about increased traffic and other changes
associated with construction of the North Douglas crossing and future development on
Douglas Island; their comments are presented in Section 6.0.

4.5 West Douglas New Growth Area

A key objective of the crossing project is to enhance access to the West Douglas Island
New Growth Area, located on northwest Douglas Island. The CBJ has consistently
planned that much of Juneau’s future growth will occur at West Douglas. The New
Growth Area was designated in the Comprehensive Plan of the City and Borough of
Juneau (CBJ, 1995), to serve residential, industrial, port, commercial and recreation uses.
The February 2007 draft update to the Comprehensive Plan retains the New Growth Area
designation, stating that “Douglas Island has the most ‘buildable’ land in the Borough.”

On February 12, 2007, the CBJ Assembly unanimously adopted Chapter 6 of the West
Douglas Conceptual Plan (CBJ & Goldbelt, 1997) into the city’s Comprehensive Plan.
The conceptual plan identifies five compact development areas, including 300-350 total
acres over 8.5 miles of coastline. The areas would feature mixed land uses at
urban/suburban densities, including up to 2,000 new residential units (low, medium and
high densities), commercial, industrial and recreational uses, and open space. The CBJ
must approve a Master Plan for the New Growth Area before any significant
development can occur. Initial steps that have been taken toward development of the
area include extension of an electrical power intertie to far North Douglas (to serve
Greens Creek on Admiralty Island), and issuance of a CBJ land lease to Totem Creek for
construction of a golf course and associated housing. The CBJ, area landowners and
prospective area developers consider construction of the North Douglas Crossing to be
essential to facilitating future development of the New Growth Area.

8 CBJ Community Development Department, 2006 CBJ Population Estimates.
The City has considered construction of a road on a natural bench above the North Douglas Highway. Such a by-pass road would route West Douglas traffic off of the North Douglas Highway and away from the residential corridor. In October 2005, the CBJ Assembly reaffirmed its support for the bench road as a “necessary transportation improvement in the future, to address long-term traffic needs associated with West Douglas.” However, the CBJ is not linking the bench road with the North Douglas Crossing project, due to the high cost involved in pursuing these two major transportation projects concurrently.

4.6 Traffic Modeling and Transportation Planning

As part of ADOT&PF’s studies of the North Douglas Crossing, a transportation analysis was conducted that compared the relative performance of different crossing locations in meeting the project’s transportation objectives. The analysis modeled future traffic volumes and patterns for the year 2035 (comparing them to 2002) for five scenarios, including a No Build scenario and a crossing built in one of four general areas:

- Crossing Area A – vicinity of Salmon Creek/Channel Drive;
- Crossing Area B – area including Vanderbilt Hill Road and Sunny Drive;
- Crossing Area C – vicinity of Yandukin Drive east of the Airport; and
- Crossing Area D – vicinity of the Mendenhall Peninsula west of the Airport.

The traffic modeling and analysis was intended to give a relative comparison of how each of the four crossing areas and the No Build scenario would function under different growth scenarios, but not an exact prediction of traffic volumes, travel routes or patterns in 2035. Another objective of the analysis was to determine if where the crossing was located would affect the number of travel lanes required on the bridge and connecting roadways.

Relative traffic volumes and travel patterns expected in 2035 were modeled for each of the five crossing scenarios. The traffic model considered the number of vehicle trips, where vehicles would be traveling to and from, and what route they would take between mainland Juneau and Douglas Island. The model was run for three different population and employment growth rates for Juneau between 2002 and 2035 (low=0.5% growth, medium=1.0%, high=1.5%). It also input planners’ projections for where Juneau’s future population and jobs would be geographically distributed under each of the five crossing scenarios.

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11 CBJ population trends show average annual growth rates of 3.3% from 1981-1990; 1.4% per year from 1991-2000; and 0.7% per year from 2001-2005. (Sources: Census Bureau and Department of Labor and Workforce Development).
12 An expert panel with local knowledge of community and transportation planning and land management developed projections for distribution of population and employment for 2035 under the five crossing scenarios. They based projections on the availability of private and CBJ land for development, and the relative attractiveness of land and cost of development.
Projecting ahead to 2035, the transportation analysis found that a crossing in either the Vanderbilt Hill Road or Sunny Point areas (Crossing Area B) or the Yandukin Drive area (Crossing Area C) would work equally as well to:

- Relieve traffic on the existing Juneau Douglas bridge;
- Reduce traffic on North Douglas Highway between the existing bridge and the new crossing;
- Increase traffic on North Douglas Highway west of the new crossing (as West Douglas Island develops); and
- Provide effective access to north and west Douglas Island and stimulate and serve planned development of these areas.

A crossing at Vanderbilt Hill or Sunny Point (Area B) would result in shorter travel times from North Douglas to Lemon Creek and downtown Juneau. A Yandukin Drive crossing (Area C) would result in shorter travel times from North Douglas to the airport, Mendenhall Valley and areas north.

The analysis was instrumental to the 2005 Summary Report’s conclusion that a crossing at Salmon Creek (Crossing Area A) or west of the Airport (Crossing Area D) would not effectively meet the project’s objectives. It found that a crossing at Salmon Creek would foster future land development and growth on North Douglas Highway between the existing bridge and the new crossing (closer to downtown Juneau), and would substantially increase traffic on that section of the highway compared to a No Build option. It would not as effectively carry vehicles to future development on far north and west Douglas Island.

The model showed that a crossing west of the Airport would attract the least vehicle use of the four crossing areas, due to the length of the routes. Traffic volume on the existing bridge would increase compared to a No Build option. The analysis found that the No Build scenario would result in little additional land use development on Douglas Island, due to capacity limitations of the current bridge and adjacent intersections, and in increased traffic on the existing bridge.

The traffic model also determined that the location of the crossing would not affect the sizing of the bridge and connecting roadways. It found that two-lane crossing structure and connecting roadways would be sufficient to carry projected traffic volumes.