

Economic Assessment & Development Forecast

Dillingham Airport Master Plan Update

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Prepared for:



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1.0 Introduction

The Alaska Department of Transportation & Public Facilities (DOT&PF) is conducting an Economic Assessment and Development Forecast to support updates to the Dillingham Airport (DLG) Master Plan and DLG Airport Layout Plan (ALP). The last DLG Airport Master Plan (DLG AMP) was completed in 2005 and no longer serves as a timely guide for airport improvements. The updated DLG AMP and accompanying ALP will provide a plan for capital improvements, maintenance, and operations of DLG over the next 15-20 years. It will provide recommendations that allow DLG to continue to serve the City of Dillingham and its surrounding communities.

Dillingham is located at the extreme northern end of Nushagak Bay in northern Bristol Bay, at the confluence of the Wood and Nushagak Rivers. It lies two nautical miles west of the City of Dillingham, 327 miles southwest of Anchorage, and is a 6-hour flight from Seattle. The airport elevation, which is defined as the highest point on the runway, is 82 feet at Mean Sea Level. See [Figure 1. Project Location and Vicinity Map](#).

Economic indicators help establish a base for current use of airport facilities and predict future demand. Significant changes to the main sectors of economic activity in Dillingham could result in rise or decline of freight and passenger airport demand. This analysis provides population projections for the Dillingham Airport Study Area, including Dillingham Census Area, Bristol Bay Borough, and Lake & Peninsula Borough. This methodology differs from a forecast, which would account for specific, reasonably foreseeable economic and other factors that may have potential to affect population change. Information gathered from interviews with a cross section of community and business leaders, tribal entities, and service organizations is used, in addition to the population projections, housing, employment and income information to inform an economic forecast. Interviewees were asked a series of questions about how their businesses or organizations use the airport, how well the airport meets their needs, and how the airport could be improved.

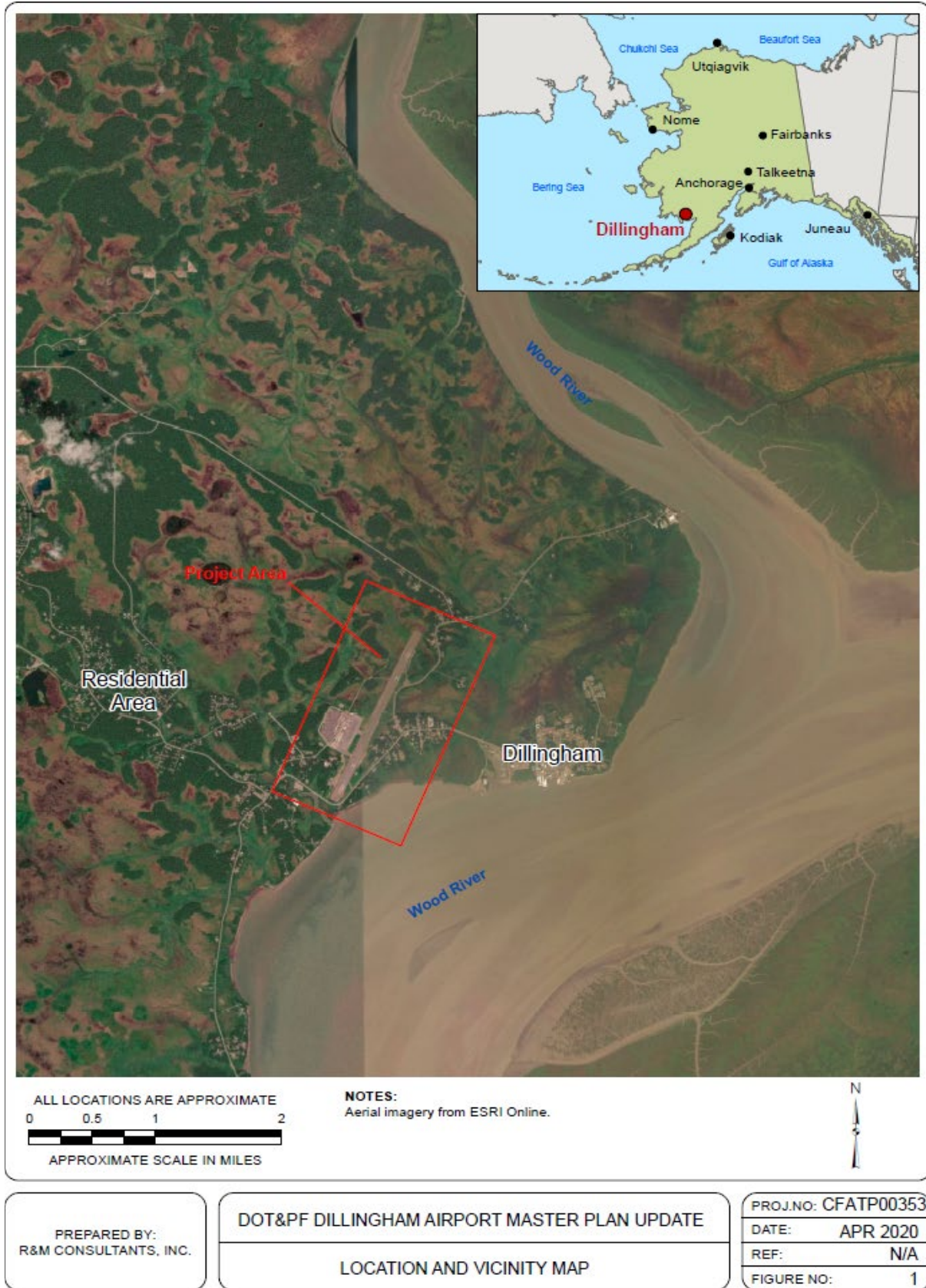


Figure 1: Project Location and Vicinity Map

1.1 Community Overview

The area around Dillingham, inhabited by both Yup'ik and Athabascans, became a trade center when Russians erected the Alexandrovski Redoubt Post in 1818. Local Native groups and Natives from the Kuskokwim Region, the Alaska Peninsula, and Cook Inlet mixed together as they came to visit or live at the post. The community was known as Nushagak by 1837, when a Russian Orthodox mission was established. In 1884, the first salmon cannery in the Bristol Bay region was constructed by Arctic Packing Co., east of the site of modern-day Dillingham. Ten more canneries were established within the next seventeen years. The Dillingham town site was first surveyed in 1947. The City was incorporated in 1963 and is a 1st class city.¹

Traditionally a Yup'ik area with Russian influences, Dillingham now has a highly-integrated population of non-Natives and Alaska Natives. The outstanding commercial fishing opportunities in the Bristol Bay area are the economic lifeblood of the region.

Today, Dillingham is the economic, transportation, and public service center for western Bristol Bay. Commercial fishing, fish processing, cold storage and support of the fishing industry are the primary economic activities, producing half of the world's sockeye salmon supply each summer. In 2018, the region saw a harvest of 152 million pounds of sockeye. After processing, this harvest was valued at \$688 million. The city's role as the regional center for government and services helps to stabilize seasonal employment. Many residents depend on subsistence activities, and some trap of beaver, otter, mink, lynx, and fox for supplemental cash income. Salmon, grayling, pike, moose, caribou, and berries are harvested.

2.0 Demographic Profile

The Dillingham airport largely serves residents in the Dillingham Census Area, and the wider regions of Bristol Bay Borough and Lake and Peninsula Borough.

2.1 Population

Ten communities are in the Dillingham Census Area totaling 4,887 residents in 2019. Population has been stable in recent years, fluctuating between approximately 4,850 and 5,060 residents since the 2010 census. The largest community is Dillingham (population: 2,327), followed by Togiak (873), Manokotak (483), and New Stuyahok (476), and Aleknagik (208). The remaining five communities have populations under 200.

In 2019, the Bristol Bay Borough was home to 869 residents. Current population levels are about 15% lower than the peak of 1,023 residents in 2011. Out of the three communities, the largest is Naknek (488), followed by King Salmon (301) and South Naknek (80).

¹ Alaska Community Database Online (Accessed March 2020).

The Lake and Peninsula Borough has also seen relatively stable population levels over the past decade. The 2019 population of 1,622 is comparable to the 2010 census of 1,631 residents. The largest of the 18 communities is Port Alsworth (226), followed by Newhalen (211), and Levelok (157).

Table 1: Population Counts, Dillingham Census Area, Bristol Bay Borough, and Lake and Peninsula Borough, 2010-2019²

| Year | Dillingham Census Area | Bristol Bay Borough | Lake and Peninsula Borough |
|------|------------------------|---------------------|----------------------------|
| 2010 | 4,847 | 997 | 1,631 |
| 2011 | 4,935 | 1,023 | 1,677 |
| 2012 | 4,978 | 983 | 1,679 |
| 2013 | 5,025 | 933 | 1,700 |
| 2014 | 5,063 | 943 | 1,687 |
| 2015 | 5,008 | 887 | 1,676 |
| 2016 | 4,958 | 875 | 1,642 |
| 2017 | 4,925 | 892 | 1,724 |
| 2018 | 5,007 | 877 | 1,658 |
| 2019 | 4,887 | 869 | 1,622 |

Population in the Dillingham Census Area has trended higher since the 1970s. Current population levels are slightly lower than the peak observed in 2000 at about 5,000 residents.

After formation of the Bristol Bay Borough in 1962 (the state’s first borough), the 1970 census recorded 1,147 residents. Its peak population was 1,410 residents in 1990; by 2010, the population had fallen by 29% (997 residents).

The Lake and Peninsula Borough population peaked in 2000 at 1,823 residents before declining about 11% to 1,631 in 2010.

Table 2: Population Counts, Dillingham Census Area, Bristol Bay Borough, and Lake and Peninsula Borough, by 1960-2010 Census Year³

| Census Year | Dillingham Census Area | Bristol Bay Borough | Lake and Peninsula Borough |
|-------------|------------------------|---------------------|----------------------------|
| 1970 | 3,892 | 1,147 | n/a |
| 1980 | 3,232 | 1,094 | 1,384 |
| 1990 | 4,012 | 1,410 | 1,668 |
| 2000 | 4,922 | 1,258 | 1,823 |
| 2010 | 4,847 | 997 | 1,631 |

² Alaska Department of Labor and Workforce Development, accessed 4/8/2020.

³ Alaska Department of Labor and Workforce Development, accessed 4/10/2020 Note: Prior to borough formation, census data is limited.

2.2 Demographics

Most residents of Dillingham Census Area and Lake and Peninsula Borough identify as American Indian/Alaska Native alone or in combination with other races (78.5% and 71.6%, respectively), followed by White alone or in combination with other races (23.3% and 27.9%, respectively). In Bristol Bay Borough, residents who identify as White alone or in combination with other races represent 63.7% followed by American Indian/Alaska Native (41.3%).

Table 3: Population by Race, Dillingham Census Area, Bristol Bay Borough, and Lake and Peninsula Borough, Percent of Population, 2014-2018 5-Year Estimates⁴

| Race (Alone or in Combination) | Dillingham Census Area | Bristol Bay Borough | Lake and Peninsula Borough |
|--|------------------------|---------------------|----------------------------|
| American Indian or Alaska Native | 78.5 | 41.3 | 71.6 |
| White | 23.3 | 63.7 | 27.9 |
| Asian | 2.3 | 1.6 | 4.4 |
| Black or African American | 2.0 | 0.9 | 0.7 |
| Native Hawaiian or Pacific Islander | 0.4 | 0.7 | 1.5 |
| Some Other Race | 0.7 | 0.9 | 0.1 |

In Dillingham Census Area, approximately 27% of the population is under age 15 (2019); this portion of the population is similar in the Lake and Peninsula Borough (26%). In Bristol Bay Borough, residents under age 15 represented 17% of the population. Dillingham Census Area and Lake and Peninsula Borough population age 65 and older represented 10% and 11%, respectively. In Bristol Bay, residents age 65 and older made up 14.2% of the population.

⁴ American Community Survey, 2014-2018 (5-year estimates), Alaska Department of Labor and Workforce Development, accessed 4/10/2020.

Table 4: Population by Age Cohort, Dillingham Census Area, Bristol Bay Borough, and Lake and Peninsula Borough, 2019⁵

| Age | Dillingham Census Area | Bristol Bay Borough | Lake and Peninsula Borough |
|-------|------------------------|---------------------|----------------------------|
| 0-4 | 9.1% | 6.6% | 9.6% |
| 5-9 | 9.7% | 5.8% | 8.2% |
| 10-14 | 8.5% | 4.5% | 7.8% |
| 15-19 | 6.9% | 6.4% | 6.4% |
| 20-24 | 6.8% | 4.7% | 5.7% |
| 25-29 | 8.4% | 6.8% | 7.4% |
| 30-34 | 6.6% | 8.2% | 8.3% |
| 35-39 | 6.2% | 5.3% | 7.6% |
| 40-44 | 4.0% | 4.8% | 5.3% |
| 45-49 | 4.5% | 6.6% | 3.6% |
| 50-54 | 5.8% | 4.7% | 5.5% |
| 55-59 | 6.7% | 10.8% | 7.6% |
| 60-64 | 6.8% | 10.8% | 6.6% |
| 65-69 | 4.2% | 6.8% | 5.1% |
| 70-74 | 2.2% | 2.8% | 2.2% |
| 75-79 | 1.8% | 2.4% | 1.4% |
| 80-84 | 1.1% | 1.3% | 1.1% |
| 85-89 | 0.4% | 0.7% | 0.6% |
| 90+ | 0.2% | 0.1% | 0.1% |

Males make up most of the population in Dillingham Census Area (51.7%), Bristol Bay Borough (59.1%), and Lake and Peninsula Borough (51.6%).

Table 5: Current Population by Sex, Dillingham Census Area, Bristol Bay Borough, and Lake and Peninsula Borough, 2014-2018 5-Year Estimates⁶

| Sex | Dillingham Census Area | Bristol Bay Borough | Lake and Peninsula Borough |
|--------|------------------------|---------------------|----------------------------|
| Male | 51.7% | 59.1% | 51.6% |
| Female | 48.3% | 40.9% | 48.4% |

The median annual household income was \$58,750 in Dillingham Census Area, \$84,688 in Bristol Bay Borough, and \$46,406 in Lake and Peninsula Borough. Persons living below the poverty level represented

⁵ Alaska Department of Labor and Workforce Development, accessed 4/10/2020.

⁶ American Community Survey, 2014-2018 (5-year estimates), Alaska Department of Labor and Workforce Development, accessed 4/10/2020.

17.2% of the Dillingham Census Area population, 5.8% of the Bristol Bay Borough population, and 15.9% of the Lake and Peninsula Borough population.

Table 6: Income and Poverty, Dillingham Census Area, Bristol Bay Borough, and Lake and Peninsula Borough, 2014-2018 5-Year Estimates⁷

| | Dillingham Census Area | Bristol Bay Borough | Lake and Peninsula Borough |
|--|------------------------|---------------------|----------------------------|
| Median Household Income: | \$58,750 | \$84,688 | \$46,406 |
| Median Family Income: | \$59,519 | \$98,475 | \$48,984 |
| Mean Household Income | \$72,873 | \$99,525 | \$60,837 |
| Mean Family Income | \$75,930 | \$105,765 | \$66,199 |
| Persons Below Poverty (% of population) | 17.2% | 5.8% | 15.9% |

2.3 Housing

The American Community Survey is the only source of housing and income information for the regions that make up the Dillingham Airport Study Area. The data provided below are subject to potentially high margins of error due to small sample sizes; high margins of error can make data less reliable particularly in areas with smaller populations.

According to the American Community Survey data, there are 4,807 housing units in the Dillingham Airport Study Area, with just over half (51%) located in the Dillingham Census Area. Single-family detached units make up 86% (4,129 units) of all housing units, with the remaining composed of 436 multi-family dwellings, 147 duplexes, and 95 mobile homes.

Table 7: Dillingham Airport Study Area Residential Housing Inventory, 2014-2018 Five-Year Estimates⁸

| | Dillingham Census Area | | Bristol Bay Borough | | Lake & Peninsula Borough | | TOTAL | |
|----------------------------|------------------------|---------|---------------------|---------|--------------------------|---------|--------------|---------|
| | Count | Percent | Count | Percent | Count | Percent | Count | Percent |
| Total housing units | 2,446 | | 940 | | 1,421 | | 4,807 | |
| Single-Family Units | 2,053 | 83.9 | 753 | 80.1 | 1,323 | 93.1 | 4,129 | 85.6 |
| Mobile Home | 40 | 1.6 | 43 | 4.6 | 12 | 0.8 | 95 | 2.0 |
| Multi-Family | 290 | 11.9 | 103 | 11.0 | 43 | 3.0 | 436 | 9.1 |
| Duplex | 63 | 2.6 | 41 | 4.3 | 43 | 3.0 | 147 | 3.1 |

Columns may not sum to 100 percent due to rounding.

⁷ American Community Survey, 2014-2018 (5-year estimates), Alaska Department of Labor and Workforce Development, accessed 4/10/2020.

⁸ American Community Survey, 2014-2018 (5-year estimates). Accessed July 23, 2020.

2.3.1 Housing Characteristics

Housing data for the Dillingham Airport Study Area suggests about 55% of housing units are unoccupied. This suggests many of the housing units in the study area are for seasonal purposes and were vacant at the time of the survey.

Table 8: Dillingham Airport Study Area Housing Units, Occupancy, and Vacancy Rates, 2014-2018 Five-Year Estimates⁹

| | Dillingham Census Area | | Bristol Bay Borough | | Lake & Peninsula Borough | | TOTAL | |
|----------------------------|------------------------|---------|---------------------|---------|--------------------------|---------|--------------|---------|
| | Count | Percent | Count | Percent | Count | Percent | Count | Percent |
| Total housing units | 2,446 | | 940 | | 1,421 | | 4,807 | |
| Occupied housing units | 1,420 | 58.1 | 333 | 35.4 | 425 | 29.9 | 2,178 | 45.3 |
| Vacant housing units | 1,026 | 41.9 | 607 | 64.6 | 996 | 70.1 | 2,629 | 54.7 |
| Homeowner vacancy rate | 0.9% | | 2.2% | | 2.0 | | | |
| Rental vacancy rate | 6.3% | | 22.3% | | 22.9 | | | |

Most housing units (51%) were built in the 1970s and 1980s, with construction peaking in the 1980s (30% of the housing units). Only 1.9% of housing was built since 2010.

Table 9: Dillingham Airport Study Area Housing Units, by Year Built, 2014-2018 Five-Year Estimates¹⁰

| | Dillingham Census Area | | Bristol Bay Borough | | Lake & Peninsula Borough | | TOTAL | |
|----------------------------|------------------------|---------|---------------------|---------|--------------------------|---------|--------------|---------|
| | Count | Percent | Count | Percent | Count | Percent | Count | Percent |
| Total housing units | 2,446 | | 940 | | 1,421 | | 4,807 | |
| Built 2010 or later | 46 | 1.9 | 19 | 2.0 | 25 | 1.8 | 90 | 1.9 |
| Built 2000 to 2009 | 296 | 12.1 | 83 | 8.8 | 197 | 13.9 | 576 | 12.0 |
| Built 1990 to 1999 | 500 | 20.4 | 207 | 22.0 | 230 | 16.2 | 937 | 19.5 |
| Built 1980 to 1989 | 695 | 28.4 | 268 | 28.5 | 494 | 34.8 | 1,457 | 30.3 |
| Built 1970 to 1979 | 562 | 23.0 | 184 | 19.6 | 253 | 17.8 | 999 | 20.8 |
| Built 1960 to 1969 | 233 | 9.5 | 62 | 6.6 | 93 | 6.5 | 388 | 8.1 |
| Built 1950 to 1959 | 33 | 1.3 | 36 | 3.8 | 33 | 2.3 | 102 | 2.1 |
| Built 1940 to 1949 | 37 | 1.5 | 19 | 2.0 | 65 | 4.6 | 121 | 2.5 |
| Built 1939 or earlier | 44 | 1.8 | 62 | 6.6 | 31 | 2.2 | 137 | 2.9 |

⁹ American Community Survey, 2014-2018 (5-year estimates). Accessed July 23, 2020.

¹⁰ American Community Survey, 2014-2018 (5-year estimates). Accessed July 23, 2020.

Columns may not sum to 100 percent due to rounding.

The following table indicates that 14 percent (+/- 5.1% margin of error) of occupied housing units in study area lack complete plumbing facilities, and 11 percent (+/- 5.0%) lack complete kitchen facilities.

Table 10: Dillingham Airport Study Area Occupied Housing Units, by Selected Utility Characteristics, 2014-2018 Five-Year Estimates¹¹

| | Dillingham Census Area | | Bristol Bay Borough | | Lake & Peninsula Borough | | TOTAL | |
|--------------------------------------|------------------------|---------|---------------------|---------|--------------------------|---------|--------------|---------|
| | Count | Percent | Count | Percent | Count | Percent | Count | Percent |
| Occupied housing units | 1,420 | | 333 | | 425 | | 2,178 | |
| Lacking complete plumbing facilities | 200 | 14.1 | 15 | 4.5 | 66 | 15.5 | 281 | 12.9 |
| Lacking complete kitchen facilities | 87 | 6.1 | 13 | 3.8 | 24 | 5.6 | 124 | 5.7 |

Columns may not sum to 100 percent due to rounding.

The median value of an owner-occupied unit in the Dillingham Airport Study Area is estimated at \$160,967. Almost a third (32%) of these units are estimated to be valued at less than \$100,000.

Table 11: Dillingham Airport Study Area Housing Units, by Value of Owner-Occupied Units, 2014-2018 Five-Year Estimates¹²

| | Dillingham Census Area | | Bristol Bay Borough | | Lake & Peninsula Borough | | TOTAL | |
|-------------------------------|------------------------|---------|---------------------|---------|--------------------------|---------|-------------------|---------|
| | Count | Percent | Count | Percent | Count | Percent | Count | Percent |
| Owner-occupied units | 856 | | 176 | | 294 | | 1,326 | |
| Less than \$50,000 | 124 | 14.5 | 9 | 5.1 | 46 | 15.6 | 179 | 13.5% |
| \$50,000 to \$99,999 | 155 | 18.1 | 19 | 10.8 | 76 | 25.9 | 250 | 18.9% |
| \$100,000 to \$149,999 | 94 | 11.0 | 27 | 15.3 | 34 | 11.6 | 155 | 11.7% |
| \$150,000 to \$199,999 | 86 | 10.0 | 42 | 23.9 | 54 | 18.4 | 182 | 13.7% |
| \$200,000 to \$299,999 | 239 | 27.9 | 57 | 32.4 | 42 | 14.3 | 338 | 25.5% |
| \$300,000 to \$499,999 | 128 | 15.0 | 17 | 9.7 | 33 | 11.2 | 178 | 13.4% |
| \$500,000 to \$999,999 | 30 | 3.5 | 5 | 2.8 | 4 | 1.4 | 39 | 2.9% |
| \$1,000,000 or more | -- | -- | -- | -- | 5 | 1.7 | 5 | 0.4% |
| Median Value (dollars) | \$183,200 | | \$179,500 | | \$120,200 | | \$160,967* | |

Notes: * Median values based on a weighted average of median values of the three sub-regions. Columns may not sum to 100 percent due to rounding.

¹¹ American Community Survey, 2014-2018 (5-year estimates). Accessed July 23, 2020.

¹² Ibid.

2.4 Personal Income

Personal income refers to all income collectively received by all individuals or households. Personal income has three components: income from salaries, wages, and proprietors' income; investment earnings; and government transfers (including the Alaska Permanent Fund dividend). Personal income tends to rise during periods of economic expansion and stagnate or decline slightly during recessionary times. In rural Alaska, where employment opportunities may be limited, transfer payments can be a relatively more important source of personal income growth. Additionally, certain industries, as seen in the commercial fishing industry, can generate large fluctuations in income based on seafood prices and catch rates.

Within the Dillingham Airport Study Area, the Dillingham Census Area accounts for most of the total personal income (adjusted for inflation) for the area (56% of total personal income in 2018), followed by Bristol Bay Borough (24%) and Lake & Peninsula Borough (20%).

Table 12: Dillingham Airport Study Area Total Inflation-Adjusted Personal Income Trends, 2010-2018 (in 2018 dollars)¹³

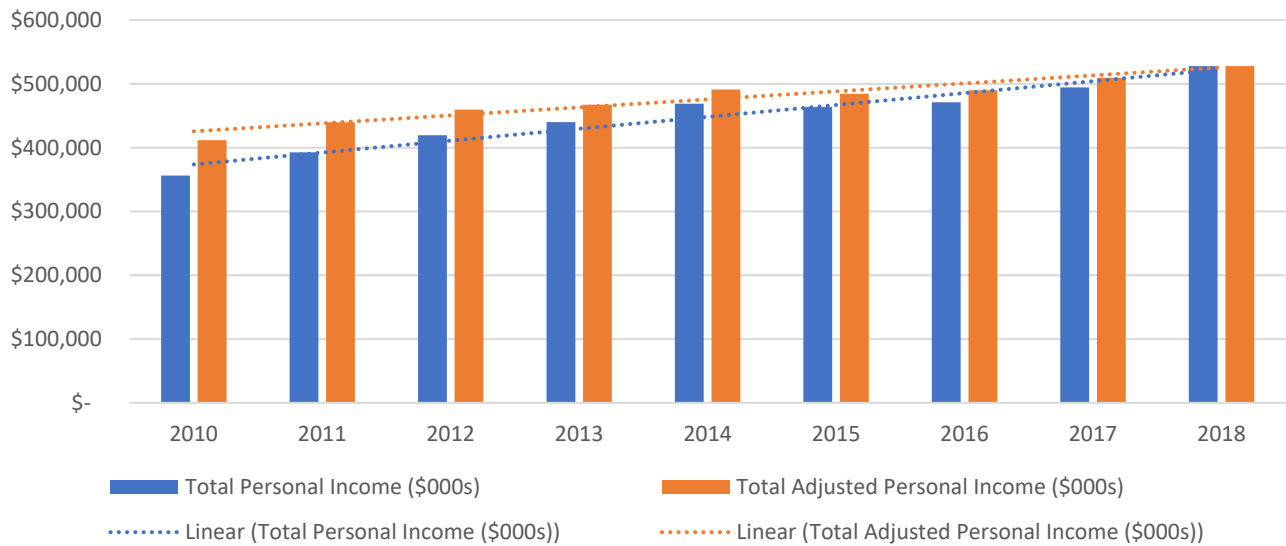
| YEAR | Dillingham Census Area | | Bristol Bay Borough | | Lake & Peninsula Borough | | TOTAL | |
|------|------------------------|-----------------|---------------------|-----------------|--------------------------|-----------------|---------------|-----------------|
| | Total (\$000) | Per Capita (\$) | Total (\$000) | Per Capita (\$) | Total (\$000) | Per Capita (\$) | Total (\$000) | Per Capita (\$) |
| 2010 | \$247,608 | \$51,053 | \$83,719 | \$83,552 | \$80,365 | \$49,033 | \$411,693 | \$54,858 |
| 2011 | \$262,098 | \$52,970 | \$91,974 | \$89,296 | \$85,585 | \$51,932 | \$439,656 | \$57,652 |
| 2012 | \$266,357 | \$53,799 | \$99,977 | \$102,018 | \$93,224 | \$56,602 | \$459,558 | \$60,644 |
| 2013 | \$263,828 | \$52,989 | \$111,560 | \$117,186 | \$91,931 | \$55,214 | \$467,319 | \$61,522 |
| 2014 | \$283,081 | \$56,809 | \$115,617 | \$121,830 | \$92,392 | \$56,165 | \$491,090 | \$64,813 |
| 2015 | \$286,328 | \$57,414 | \$104,435 | \$115,397 | \$93,717 | \$58,867 | \$484,480 | \$64,735 |
| 2016 | \$286,666 | \$57,680 | \$112,594 | \$124,689 | \$90,575 | \$56,680 | \$489,836 | \$65,565 |
| 2017 | \$295,168 | \$59,811 | \$112,686 | \$129,733 | \$101,378 | \$63,085 | \$509,413 | \$68,728 |
| 2018 | \$298,104 | \$59,621 | \$128,915 | \$143,575 | \$103,812 | \$65,414 | \$527,831 | \$70,717 |

Note: Based on Bureau of Economic Analysis population estimates (which differ slightly from ADOLWD estimates).

Since 2010, when adjusted for inflation, total personal income has grown from \$411.7 million to \$527.8 million in 2018, at an annual average growth rate of 3.2%. Over the past five years, the annual average growth rate slowed to 1.8%.

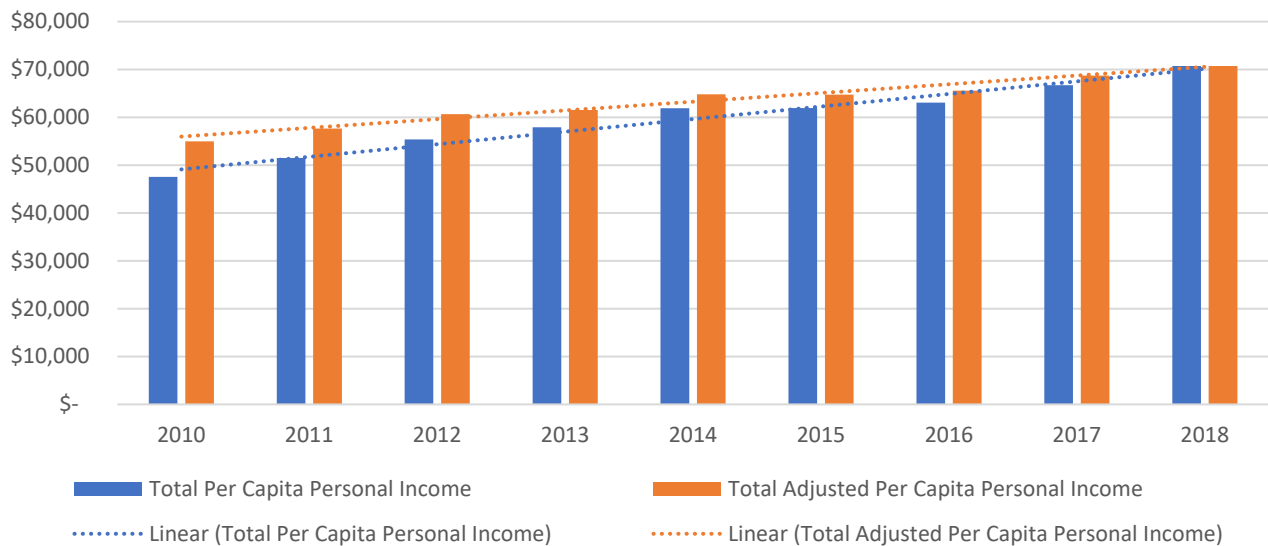
¹³ Bureau of Economic Analysis. Inflation adjusted calculations based on 2018 dollars by McDowell Group.

Figure 2: Dillingham Airport Study Area Total Personal Income Trends, 2010--2018, \$000s¹⁴



On a per capita basis, when adjusted for inflation, income grew from \$54,958 in 2010 to \$70,717 in 2018.

Figure 3: Dillingham Airport Study Area Per Capita Personal Income Trends, 2010-2018¹⁵



Note: Based on Bureau of Economic Analysis population estimates (which differ slightly from ADOLWD estimates).

¹⁴ Bureau of Economic Analysis, Inflation adjusted calculations based on 2018 dollars by McDowell Group.

¹⁵ Ibid.

2.5 Employment & Economy

Dillingham Census Area had an annual average of 2,600 jobs in 2018. Employment in Bristol Bay Borough totaled 1,314 jobs, and 1,004 jobs in Lake and Peninsula Borough.¹⁶ The economic base of the region is highly seasonal and predominantly driven by the harvest and processing of Bristol Bay salmon. Employment balloons in the summer, often ten times larger than in the winter. Other summer seasonal employment includes construction, mineral exploration, and other activity.

The city of Dillingham is the center of economic, transportation, government, public services, and social support infrastructure in the area.

The public sector is a key employer for the region, accounting for about 29% in Dillingham Census Area, 17% of employment in Bristol Bay Borough, and 44% in Lake and Peninsula Borough. Local government is the largest component of the region's public sector, followed by state and federal employment. Public sector employment includes employment in local school districts.

Educational and health services is another key sector. While sector data are withheld for Bristol Bay Borough and Lake and Peninsula Borough (due to confidentiality concerns), the sector contributes nearly a quarter of total employment in Dillingham Census Area. Employment in the sector includes a variety of outpatient, nursing and residential care, and social assistance organizations with Kakanak Hospital in Dillingham (operated by the Bristol Bay Area Health Corporation) supporting most employment.

Retail businesses serve residents year-round or seasonally in the summer to support the busy summer months. Of the three regions, retail employment in Dillingham Census Area is highest at 201 jobs.

The region's leisure and hospitality sector is composed primarily of accommodations, restaurants, and bars. In addition to businesses located in hub communities of Dillingham or King Salmon, the sector includes employment at high-end sport fishing lodges.

A variety of other sectors contribute to employment in the region, including professional & business services, transportation & warehousing, financial activities, and information, among others.

COVID-19 impacts on Alaska economy are expected to be considerable, including estimates that by:

- By the end the fourth quarter of 2020, Alaska's employment will be 92% of what it was in 2019, up from a low of 86% in April.
- In 2021, average annual employment will be 95% of 2019 levels, then increase to 96% in 2022.
- Summer employment will remain lower through 2022, with May-August employment averaging 93% of 2019 summer employment levels.

¹⁶ These employment figures do not include self-employed such as fishermen.

The forecast of pandemic impacts recognizes that sectors closely tied to tourism, oil and gas, and resident consumer spending are suffering the most total job losses. Airlines around the country have struggled to fill seats due to decreased travel associated with the pandemic. In the Dillingham region, Ravn Airgroup’s early April bankruptcy filing, somewhat related to COVID-19 impacts, had major impacts on air travel between Anchorage and Dillingham. This decreased travel caused Ravn to lay off all its employees and ground all planes. While Alaska Airlines eventually started a few flights per week from Anchorage to Dillingham in May, many residents and regional employers (including commercial fishermen, seafood workers, and others) were forced to schedule flights with smaller regional carriers operating twin engine aircraft. These seats were limited and ticket prices were high. Eventually, Alaska Airlines offered a daily flight, yet plan to return to a few flights each week once the summer travel rush slows this fall.

These pandemic-related travel disruptions have caused major hardships for all wanting to travel in and out of the Dillingham region. One common story, as told by a Dillingham-based commercial fisherman, is having to charter a flight this summer to bring in her crew members at \$1,000 per person. Many sport fishing lodges chose not to open this summer. Many of their scheduled clients preferred not to travel and those who may have been interested could not be accommodated given the unpredictable nature of scheduled flights in and out of Dillingham. To illustrate, a local lodge owner is hoping additional air carriers will operate between Anchorage and Dillingham next summer, stating, “It will be tough to operate on one flight per day.” There are concerns for important patient and other business travel, as longer stays in Anchorage will be necessary due to lack of seat availability to return to the Dillingham region in a timely manner.

Table 13: Employment by Sector in Number of Jobs, Dillingham Census Area, Bristol Bay Borough, and Lake and Peninsula Borough, 2018¹⁷

| | Dillingham Census Area | Bristol Bay Borough | Lake and Peninsula Borough |
|---|------------------------|---------------------|----------------------------|
| Educational & Health Services | 628 | * | * |
| Local Government | 620 | 158 | 394 |
| Retail | 201 | * | 30 |
| Leisure & Hospitality | 92 | 120 | 123 |
| State Government | 85 | 24 | 6 |
| Transportation & Warehousing | 74 | 85 | 118 |
| Federal Government | 44 | 46 | 44 |
| Professional & Business Services | 29 | 28 | 10 |
| Construction | * | * | 38 |
| Other | 1,455 | 853 | 241 |
| Total | 2,600 | 1,314 | 1,004 |

¹⁷ Alaska Department of Labor and Workforce Development, accessed 4/8/2020; * indicate withheld data.

2.5.1 Commercial Fishing Activity

In Dillingham Census Area, resident commercial permit holders have fluctuated slightly between 2012 and 2019 (high of 621 in 2012 and a low of 595 in 2015). Active permits (number of permit holders who fished) ranged between 407 (2016) 419 (2014).

In Bristol Bay Borough, resident commercial permit holder levels are stable (fluctuating between 148 and 157) between 2012 and 2018; active permits ranged from 126 (2017) and 142 (2014).

In Lake and Peninsula Borough, the number of Lake and Peninsula Borough resident commercial permit holders has fallen from 140 in 2012 to 121 in 2018; active permits also fell from 114 in 2012 to 72 in 2018.

Table 14: Residents' Commercial Fishing Participation and Earnings, Dillingham Census Area, Bristol Bay Borough, and Lake and Peninsula Borough, 2012-2018¹⁸

| | Number of Permit Holders | Number of Permit Holders that Fished | Estimated Gross Earnings (\$million) ¹⁹ |
|-------------------------------|--------------------------|--------------------------------------|--|
| Dillingham Census Area | | | |
| 2012 | 615 | 412 | \$13.7 |
| 2013 | 621 | 418 | <i>\$16.0</i> |
| 2014 | 609 | 419 | \$20.3 |
| 2015 | 595 | 411 | <i>\$10.9</i> |
| 2016 | 600 | 407 | <i>\$20.1</i> |
| 2017 | 599 | 415 | \$28.8 |
| 2018 | 604 | 416 | <i>\$33.3</i> |
| Bristol Bay Borough | | | |
| 2012 | 155 | 128 | <i>\$6.1</i> |
| 2013 | 157 | 137 | \$5.8 |
| 2014 | 154 | 142 | <i>\$10.8</i> |
| 2015 | 153 | 141 | <i>\$5.4</i> |
| 2016 | 154 | 138 | <i>\$6.8</i> |

¹⁸ Commercial Fisheries Entry Commission, accessed 4/10/2020.

¹⁹ Italicized values exclude confidential data.

| | | | |
|-----------------------------------|-----|-----|--------|
| 2017 | 152 | 126 | \$8.3 |
| 2018 | 148 | 131 | \$9.7 |
| Lake and Peninsula Borough | | | |
| 2012 | 140 | 114 | \$12.7 |
| 2013 | 135 | 108 | \$19.6 |
| 2014 | 124 | 104 | \$9.3 |
| 2015 | 126 | 106 | \$8.3 |
| 2016 | 124 | 104 | \$10.5 |
| 2017 | 129 | 112 | \$14.3 |
| 2018 | 121 | 72 | \$5.0 |

In Dillingham Census Area, there are three onshore fish processing facilities and several floating facilities east of Dillingham in Nushagak Bay and several more near Togiak and in different locations within Bristol Bay Borough and Lake and Peninsula Borough.

3.0 Economic & Community Indicator Interviews

McDowell Group was contracted to conduct telephone interviews with a cross section of the community and business leaders, tribal entities, and service organizations to understand DLG’s importance to the community and region, inquire about current and future use of DLG, and to provide input for the DLG AMP. A total of 23 interviewees were asked a series of questions about how their business or organizations use the airport, how well the airport meets their needs, and how the airport could be improved. Following are key themes. See Appendix A. Dillingham Airport Executive Interviews.

Everyone interviewed stated the importance of air travel to their operations. Each interviewee, no matter the sector in which they worked, identifies air travel as key to their success. With no roads in or out of the region and limited marine cargo service, air passenger and cargo services are vital to Dillingham and the region.

DOT&PF staff and business owners located at the airport are viewed favorably and acknowledged for their efforts to help the airport run smoothly. Whether it was assisting getting in or out of the gates, facilitating the delivery of thousands of pounds of fresh salmon, or picking up a group of students headed to a wrestling tournament, interviewees recognized these efforts ease the use of the airport and its services.

The summer commercial and sport fishing activities put a strain on infrastructure and services at the airport. All interviewees recognized the additional strain that thousands of commercial and sport fishermen, seafood processors, and others in the sector put on the Dillingham Airport. Bristol Bay’s seasonal economy requires robust infrastructure three months of the year but drops off significantly the remainder of the year.

Infrastructure improvement needs are identified. Interviewees provided numerous suggestions for improving airport infrastructure and design. None is considered more critical than the need for sewer and water systems to meet an adequate level of health and safety.

Infrastructure improvements will open the door for improved services. The potential for new or improved services for passengers, freight operations, and private pilots are envisioned; however, most improved services require infrastructure changes to accomplish this potential.

3.1 Community & Economic Importance

All interviewees described air travel as vital to their operations. With no roads into the region, and only seasonal marine freight services, air travel is the only way to access Dillingham and the surrounding region. Air cargo is also vitally important to move most goods into the region and fresh fish (fetching premium prices) out. Words such as “vital,” “critical,” and “essential” were used to describe air transportation.

Local tribes and city governments rely on air transportation between Dillingham and Anchorage and to surrounding villages for several reasons, including medical appointments, meetings, business, education, school sports, and visits to family and friends in other communities. The ability to fly between communities provides for an interconnectedness that allows the region to function and thrive.

Healthcare professionals at the regional hospital and the public health department recognized the essential services of medivac flights from surrounding villages to Dillingham, and if further medical attention is needed, from Dillingham to Anchorage. Air travel is vital to the interconnectedness of the region’s healthcare system. With clinics in every village in the Bristol Bay Area Health Cooperation service area, medical, behavioral health, and dental teams must travel by air to villages to provide direct care. Air travel is also required for staff training and delivery of drugs and medical equipment. Regional travel is provided by numerous small local carriers. In general, interviewees are pleased with the unscheduled, yet, predictable, system of regional air travel and freight transportation.

State and federal agencies, such as the Alaska State Troopers (AST), Department of Fish and Game (ADF&G), and U.S. Fish and Wildlife Service, fly extensively to carry out their mandates. AST, the principal law enforcement agency serving the region, operate their own aircraft stationed at DLG. AST and other agencies use local commercial operations extensively. Prisoners are transported by air from regional villages to Dillingham and Anchorage. ADF&G brings seasonal data technicians, plus freight, into the region by air. Those technicians then fly out to remote rivers and lakes by floatplane to collect data used to manage the billion-dollar Bristol Bay sockeye salmon fishery. ADF&G also flies aerial surveys with fixed wing and rotary aircraft to count herring and salmon in regional bays, rivers, and lakes. The Togiak National Wildlife Refuge has a hangar at DLG; staff use their aircraft to conduct biological surveys as well as patrol and visit local villages.

Commercial and sport fishermen fly into the region by the thousands each summer. Beginning in late May and continuing through September, fishermen and processors reach Dillingham from across the globe to

enjoy and profit from the region's incomparable fishing resource. Sport fishermen transit through Dillingham, continuing to remote lodges by floatplane. Commercial fishermen and processors become part of the summer community until fishing wraps up and they return home.

Peter Pan Seafoods and Icicle Seafoods each operate a local salmon processing plant in Dillingham and rely heavily on DLG for successful operations. Their plant management arrives in town in May by regularly scheduled and charter aircraft. Large processing crews arrive in early to mid-June, also via scheduled and charter flights. Managers at both plants report large volumes of fresh fish being flown out during the summer season. One plant manager reported as much as 2.5 million pounds being flown out each summer.

This highly seasonal component to Dillingham's economy puts large strains on infrastructure for short durations of time. It is a constant struggle to balance building up the necessary infrastructure for increased summer capacity while justifying those investments during times of considerably lower demand. This dynamic is magnified at DLG.

Interviewees across all sections operating in Dillingham year-round relayed the importance of safe, reliable, and affordable air travel to and from Anchorage, particularly for employee recruitment and retention. They shared specific examples of qualified professionals turning down offers of employment after traveling to the region and experiencing unpredictable travel and seeing high air-fare prices. One interviewee who manages an organization in Dillingham recently moved his family to Southcentral Alaska because they could not reliably access medical services in Anchorage.

3.2 Airport Design & Infrastructure

The airport size and amenities currently meet the community's needs for nine months out of the year, but are reportedly inadequate for travel and air freight during the short summer salmon season, when millions of pounds of salmon are shipped out of the region. Interviewees offered suggestions on accommodating growth in air travel and cargo and increasing efficiency.

Fresh fish air freight and an expanded sport fishing industry are relatively new and have put added pressure on existing freight infrastructure. Growth in air freight has led, in part, to larger aircraft, which need more space and strain the limits of the current design and infrastructure during the summer. Current fish storage areas, the runway, taxiway space, buildings, and space in front of the terminals are all stretched beyond their capacity by larger aircraft and growth in air travel.

3.2.1 Cold Storage

Sportfishing businesses cited a need for larger freezer space, or multiple spaces, to keep fresh-caught fish chilled while waiting to ship out. Fish are typically packed in 50lb plastic-lined waxed 'fish boxes' with gel packs or ice inside. The time between dropping fish off at a cargo carrier and the flight arriving can be many hours or even a day. Interviewees said keeping the fish chilled is a constant challenge. A similar challenge faces visiting hunters and transfer of their game meat. The commercial processing plant fish storage needs

are currently being met as the fish is delivered inside large insulated totes with frozen gel packs to keep them cool; therefore, no refrigerated space needs to be provided by the airport for these operations.

3.2.2 Runway & Taxiway Improvements

Lengthening and widening the runway were also stated as safety improvements for incoming flights, especially larger planes. Tight turning space necessitates current turning maneuvers that damage the runway surface. One taxiway used by smaller aircraft is not wide enough for planes to pass each other. As one interviewee stated, "pilots make it work," but the taxiway also needs to be widened.

Among the suggestions was a full-length taxiway to the north end. Other safety suggestions included building a cross strip and even a shorter gravel runway for small aircraft to land to make way for larger aircraft using the existing runway. Charter aircraft also need more parking space at the north end of the commercial apron. Another area for improvement is the fencing on the south end of the runway, where the fence causes snow to drift onto the adjacent road.

One of the local fish processing plant managers reported a desire to fly processing crews directly from Seattle to DLG to save money and logistical hassles. This is not possible as DLG's runway is not long enough to accommodate the aircraft size necessary for such a long flight.

3.2.3 Buildings, Parking, & Loading Areas

Many interviewees noted old and deteriorating hangar and terminal buildings and said improvements are needed. The Alaska Airlines terminal is too small to accommodate a full jet load of people. The airport lacks adequate space for Transportation Security Administration (TSA) screening, and the baggage area is congested. Multiple interviewees suggested building a public terminal that could accommodate airlines flying in from Anchorage and out to surrounding villages. This could result in numerous efficiencies for the airlines and increased convenience and comfort for passengers. It was also identified as a potential economic benefit to the community, making Dillingham an easier community to travel in and out of and allowing space for gift shops and food service concessions.

Some interviewees, including private pilots and one fish processing plant manager, expressed interest in building new hangar facilities at the airport, but cited lack of adequate space to build. It was stated that "leases to build private hangars would be taken advantage of in a heartbeat."

Passenger vehicle parking space was described as insufficient when the airport gets busy. Loading space for both passengers boarding an Alaska Airlines jet, and for offloading large totes of fresh salmon are limited and could be expanded.

3.2.4 Water & Sewer Needs

Addressing inadequate water and sewer was a top priority for some interviewees. Many noted the water is contaminated with Per- and Polyfluoroalkyl substances and not safe to consume. Bathrooms are often out

of service. One interviewee's examination of the airport's sewage system indicated it needs replacing, noting "either a large, property sized, septic system needs to be built at the airport, or city sewer (lines) need to be brought to the airport." The city sewer system currently ends directly across the runway from the airport along Kanakanak Road.

Given the many areas identified for infrastructure improvement and challenges posed by the current airport design, one interviewee suggested that "it may be easier to simply start over." The interviewee suggested "the limited space around the airport would only allow for so much expansion, and it might not only be simpler," but also financially sensible to find a new location and build a new airport meeting the needs of Dillingham and the region. A new airport would have larger runways, taxiways, and parking areas, a common public terminal, leasable space for private hangar construction, and improved passenger services.

3.3 Airport Services

Interviewees were happy with many of the services offered at the airport. DOT&PF airport staff are approachable and professional, doing what they can to help passengers and pilots. A group of longstanding business owners at the airport have a history of providing good customer service and doing what they can to meet the needs of businesses and the public.

Many of the infrastructure improvements mentioned would naturally lead to improved services for pilots and passengers, if implemented. A recurring theme among interviewees was the need to accommodate passengers waiting at the airport for long periods of time. A three-hour wait at an airport with no bathroom facilities, no drinkable water, and no restaurants or cafes can be challenging.

Gift shops and restaurants have come and gone from DLG. One interviewee mentioned, "The Twin Dragon restaurant is the only operating restaurant at the airport. It is open sporadically and does good business when available." Improvements to sewer and water would make food service, gift shops, and adequate restroom facilities more feasible. A visitor's center was specifically mentioned as a welcome addition to the airport. "Like the one in King Salmon," was a common refrain by several interviewees. A common public terminal building would also facilitate more passenger services. These services, besides being convenient for passengers, were mentioned as possible areas of economic growth for the community.

A long-term parking area is located on the west side of the road coming into the airport. The parking area is free of charge and there is no limit to how long vehicles can remain there. Some passengers have taken advantage of that opportunity and have left vehicles parked for years. Instances of vandalism have occurred at the long-term parking location, with one interviewee who reported her vehicle being vandalized twice while parked there. Numerous interviewees mentioned this as an airport service they would like to see improved. Ideas for improvement include moving the parking areas closer to terminals and DOT&PF offices to allow for more visibility of the area. Suggestions also included fencing the parking area and installing a security system.

According to multiple interviewees, constructing more hangar space could also lead to increased services for pilots at the airport. Currently there are limited aircraft mechanical services at the airport. One mechanic, carrying tools in his vehicle, is available to park next to a plane and offer services. Additional hangar space would allow a mechanic to set up shop and offer the mechanical services many Dillingham pilots need.

4.0 Projections

4.1 Factors Affecting Population Trends

This analysis provides population projections for the Dillingham Airport Study Area, including Dillingham Census Area, Bristol Bay Borough, and Lake & Peninsula Borough. This methodology differs from a forecast, which would account for specific, reasonably foreseeable economic and other factors that may have potential to affect population change.

While it is beyond the scope of this analysis to quantify the potential impact of the full range of forces that may affect population growth in the Dillingham Airport Study Area over the next 20 years, it is useful to briefly note some of the key drivers of potential population change. These include the following:

- **Economic conditions in Alaska** – including factors such as oil prices and related government revenues, gas line development, and other events in the oil and gas industry (responsible for about a quarter of Alaska’s economy). In general, at a statewide level, increases in economic activity are accompanied by increases in population. Conversely, if economic activity contracts, population growth tends to slow or decline.
- **Local employment opportunities** – To the extent the local economy grows (or declines) in response to local events, related or unrelated to statewide or national economic trends, Dillingham Airport Study Area’s population could be affected.

- **Salmon resource abundance and values** – The single largest driver of economic activity is the Bristol Bay sockeye fishery. Changes in environmental or market conditions could have temporary or long-term effects on the economy and population.
- **The condition of the U.S. economy** – Changes in the U.S. economy typically have an inverse effect in Alaska. A weakening U.S. (Lower 48) economy can cause in-migration to Alaska, as the unemployed come to Alaska seeking work. Conversely, strong growth in the U.S. economy can lead to out-migration from Alaska.
- **Cost of living** – As the study region’s cost of living increases (typically associated with rising fuel prices), some people may choose to leave to live in communities with lower housing prices, utility costs, and better employment opportunities.
- **Natural growth and other demographic trends** – Changes in birth and death rates, aging of the population, and other demographic forces may also affect local population trends.
- **COVID-19** – The long-term effects of COVID-19 on local and regional populations are uncertain. It appears unlikely that Alaska’s mortality rates will be altered; however, migration is uncertain. In the short-term, a pandemic means fewer people will move both into and out of Alaska, but the biggest shift will be among summer migrant workers (such as those serving in the seafood processing and visitor industry sectors), who are largely nonresidents.

Statewide and local population projections prepared by the Alaska Department of Labor and Workforce Development (ADOLWD) can be used as the basis for Dillingham Airport Study Area-specific projections.

ADOLWD periodically prepares long-term population forecasts for Alaska overall and for local areas. The most recent projections, published in April 2020, indicate slow growth (0.5% annually) over the next 20 years for the state overall.²⁰ Between 2020 and 2040, Anchorage is expected to have a 0.3% annual growth rate (see Table 1). Within the Dillingham Airport Study Area, Bristol Bay Borough’s population is expected to decline 0.5% annually on average between 2020 and 2040; Dillingham Census Area’s and Lake & Peninsula Borough’s populations are expected to increase slowly, at 0.2% and 0.3%, respectively.

ADOLWD projections indicate essentially no significant population growth can be expected in the study area. This is consistent with long-term historical trends in the area, which actually reflect a downward trend. The combined population of Bristol Bay Borough, Dillingham Census Area, and Lake and Peninsula Borough in 2000 was 8,003, about 8% above the most recent (2019) population estimate or 7,375. The study area’s population in 2005, 15 years ago, was 7,617.

²⁰ <https://laborstats.alaska.gov/trends/may20art4.pdf>

Table 15: Alaska Statewide and Local Area Population Annual Average Growth Rate Projections, 2020-2040 (Percent Change)²¹

| Location | 2020-2025 | 2025-2030 | 2030-2035 | 2035-2040 | 2020-2040 |
|--------------------------|------------|------------|------------|------------|------------|
| Dillingham Census Area | 0.1 | 0.1 | 0.2 | 0.3 | 0.2 |
| Bristol Bay Borough | -0.5 | -0.8 | -0.4 | -0.4 | -0.5 |
| Lake & Peninsula Borough | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 |
| Anchorage | 0.4 | 0.3 | 0.2 | 0.1 | 0.3 |
| Statewide | 0.6 | 0.5 | 0.4 | 0.3 | 0.5 |

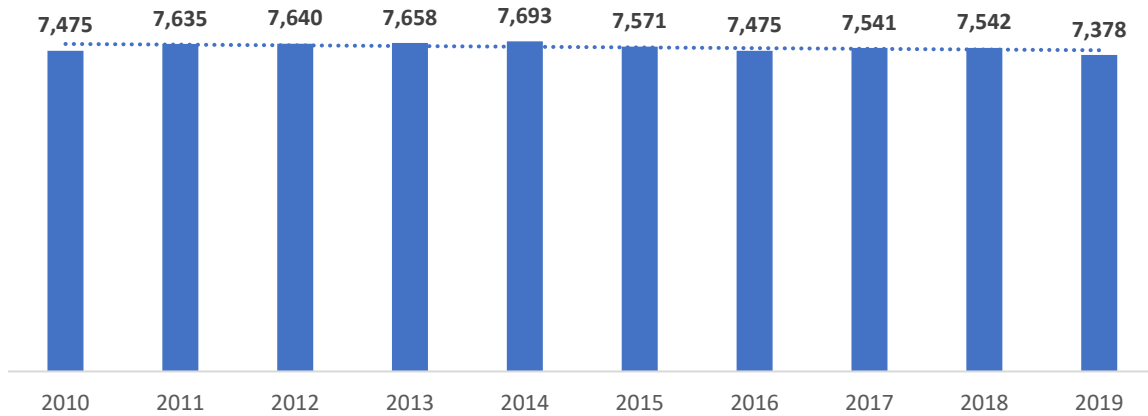
ADOLWD uses a “cohort component” methodology, separating the population of each gender into age groups and aging them forward in time, then adding projected births and in-migrants and subtracting projected deaths and out-migrants. ADOLWD assigns each borough/census area its own unique mortality, fertility, and migration rates “based on recent data and knowledge of the specific populations.” Again, these projections do not consider particular events that might affect the economy (such as COVID-19, Alaska’s current state government budget deficits or low oil prices in general).

4.2 Population Trends

In 2019, the Dillingham Airport Study Area population totaled 7,378. Overall, the region has seen an average annual population decline of 0.1% from 2010 to 2019. Within the study area, over the past decade, Bristol Bay Borough has had an annual average decline of 1.5%; Lake & Peninsula Borough population has also declined, by an annual average rate of 0.1%. While very slight, Dillingham Census Area has experienced growth, at an annual average rate of 0.1%. Dillingham Census Area represents about two-thirds (66%) of the Dillingham Airport Study Area.

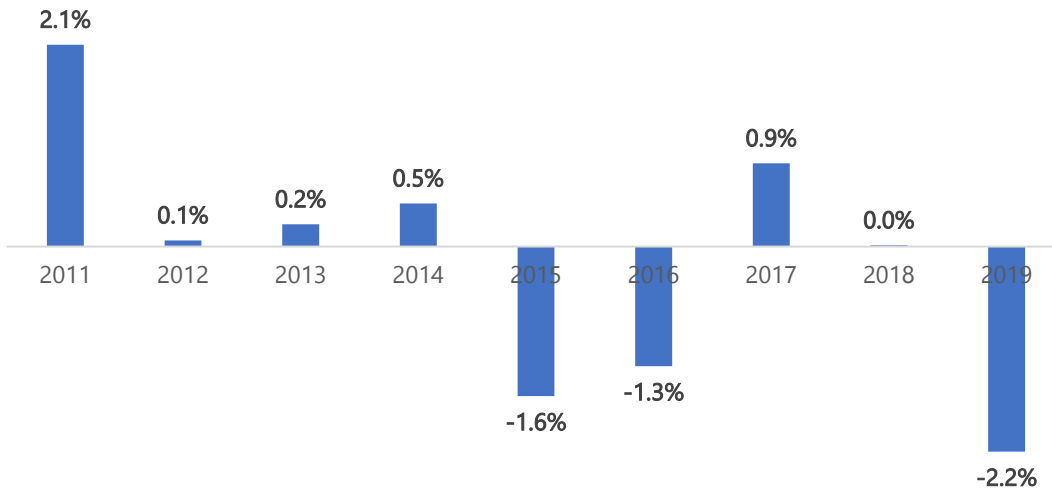
²¹ Alaska Department of Labor and Workforce Development.

Figure 4: Dillingham Airport Study Area Population Trend, 2010-2019²²



Note: Includes Bristol Bay Borough, Dillingham Census Area, and Lake & Peninsula Borough population estimates.

Figure 5: Annual Dillingham Airport Study Area Population Growth Rate, 2010-2019²³



²² Alaska Department of Labor and Workforce Development.

²³ Ibid.

Figure 6: Bristol Bay Borough, Dillingham Census Area, and Lake & Peninsula Borough Population Trends, 2010-2019²⁴

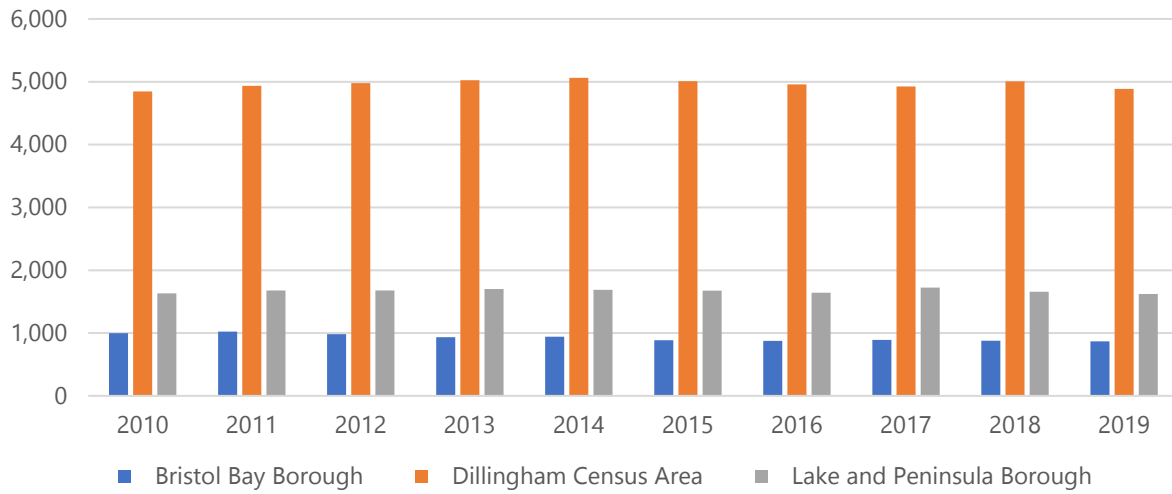
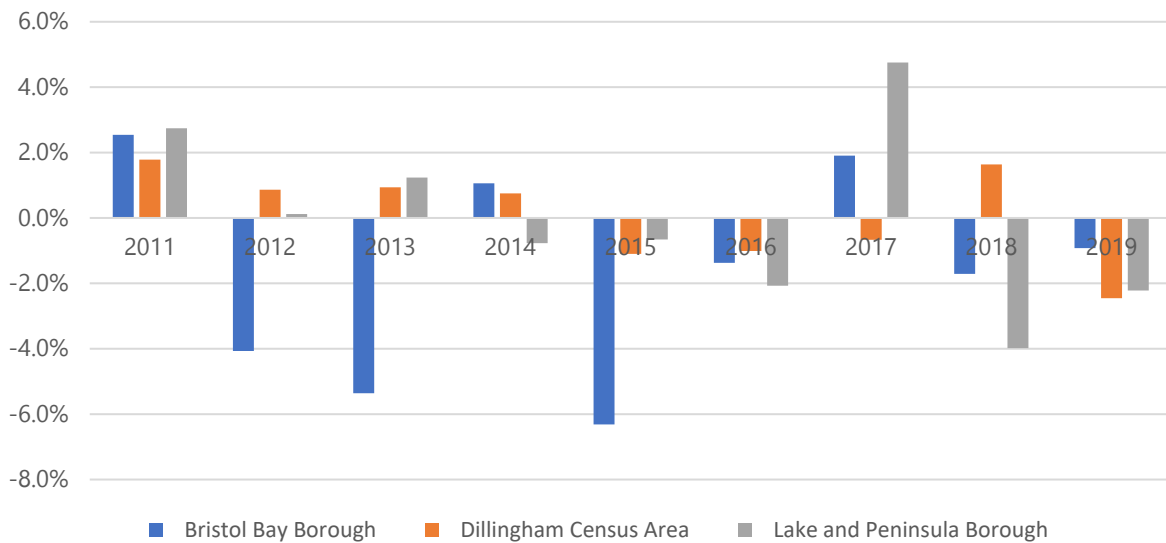


Figure 7: Annual Bristol Bay Borough, Dillingham Census Area, and Lake & Peninsula Borough Population Rates of Change, 2010-2019²⁵



²⁴ Alaska Department of Labor and Workforce Development.

²⁵ Ibid.

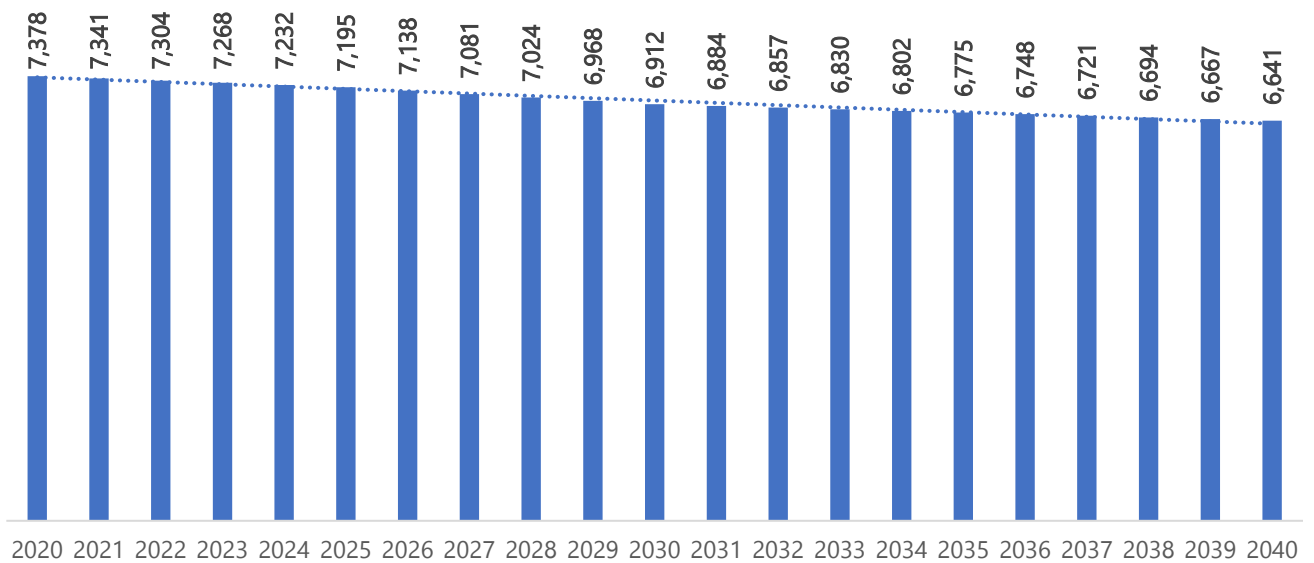
4.3 Population Projections

For purposes of this study, three growth scenarios have been defined, including a low-growth, base-growth, and high-growth projection. These projections are described, below.

4.3.1 Low Growth Scenario

The Low Growth Scenario assumes the Dillingham Airport Study Area’s projected growth between 2020 and 2040 will be similar to the average rate of change for Bristol Bay Borough over the past 10 years (2010-2019). Over that period, the study area’s population declined an average annual rate of 1.5%. Under this scenario, the study area’s population would decrease by 737 persons between 2020 and 2040 for an overall decline of 10.0% during that time period.

Figure 8: Low Growth Scenario, Projected Annual Population, Dillingham Airport Study Area, 2020-2040²⁶



²⁶ McDowell Group calculations.

4.3.2 Base Growth Scenario

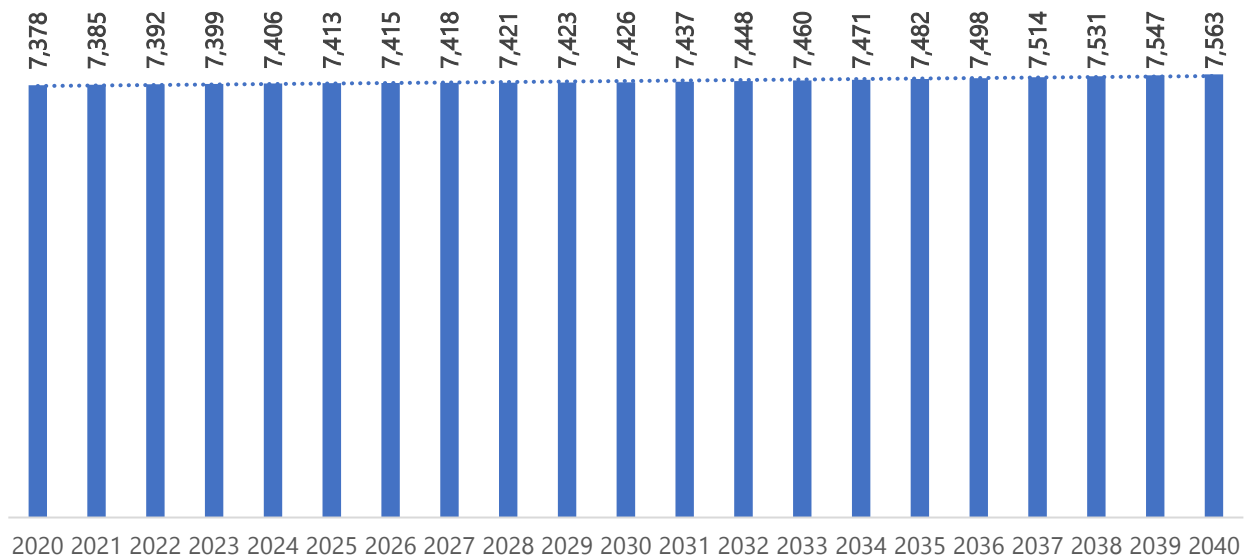
The State Demographer’s projection for the study area is used as the Base Growth Scenario. The growth rate is a weighted average for the three sub-regions (Dillingham Census Area, Bristol Bay Borough, and Lake & Peninsula Borough) as projected by the ADOLWD. Under this scenario, it is estimated that the Dillingham Airport Study Area’s population will grow by 185 persons between 2020 and 2040, or 2.5% growth overall.

Table 16: Base Growth Scenario, Projected Annual Average Growth Rates, Dillingham Airport Study Area, 2020-2040, 5-year Increments (Percent Change)²⁷

| Years | Annual Growth Rate |
|-----------|--------------------|
| 2020-2025 | 0.09 |
| 2025-2030 | 0.04 |
| 2030-3035 | 0.15 |
| 2035-2040 | 0.22 |

Source: McDowell Group calculations.

Figure 9: Base Growth Scenario, Projected Annual Population, Dillingham Airport Study Area, 2020-2040²⁸



²⁷ McDowell Group calculations.

²⁸ Ibid.

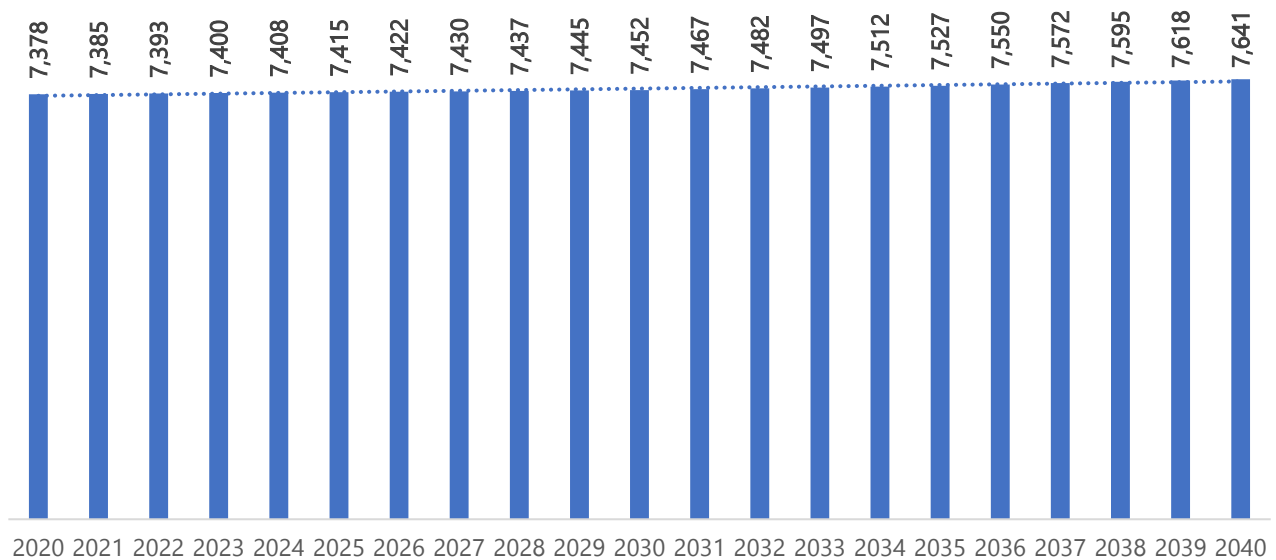
4.3.3 High Growth Scenario

The High Growth Scenario assumes the Dillingham Airport Study Area matches average growth rate projected for the Dillingham Census Area as projected by ADOLWD (see Table 1). Under this scenario, it is estimated that the Dillingham Airport Study Area’s population will grow by 263 persons between 2020 and 2040, for overall growth of 3.6% over the 20-year period.

Table 17: High Growth Scenario, Projected Annual Average Growth Rates, Dillingham Airport Study Area, 2020-2040, 5-year Increments (Percent Change)²⁹

| Years | Annual Growth Rate |
|-----------|--------------------|
| 2020-2025 | 0.1 |
| 2025-2030 | 0.1 |
| 2030-3035 | 0.2 |
| 2035-2040 | 0.3 |

Figure 10: High Growth Scenario, Projected Annual Population, Dillingham Airport Study Area, 2020-2040³⁰



²⁹ McDowell Group calculations.

³⁰ Ibid.

4.3.4 In Summary

Table 18: Low, Base, and High Growth Scenarios, Projected Population, Dillingham Airport Study Area, 2020, 2025, 2030, 2040³¹

| Years | Low Growth Scenario | Base Growth Scenario | High Growth Scenario |
|------------------|---------------------|----------------------|----------------------|
| 2020 (base year) | 7,378 | 7,378 | 7,378 |
| 2025 (5-year) | 7,195 | 7,413 | 7,415 |
| 2030 (10-year) | 6,912 | 7,426 | 7,452 |
| 2040 (20-year) | 6,641 | 7,563 | 7,641 |

4.4 Factors Affecting Housing Demand

Housing demand will grow (or decline) with changes in population. However, demographic trends can also have specific impacts on housing demand. Demographic factors affecting future housing demand in the Dillingham Airport Study Area include:

- Aging:** the aging of the study area population will result in changes in household characteristics and housing preferences. For example, householders aged under 34 years and over 64 are more likely to live in rental or multifamily units, and householders between age 35 and 64 are more likely to live in owner-occupied single-family detached housing. Additionally, one of the important demographic questions in the coming years is how baby boomers will behave when they reach retirement age. Will they leave Alaska? Move from the region? Older households will make a variety of housing choices. Many will choose to remain in their homes if they are able. Some may downsize to smaller single-family homes; these will be a mixture of owner and renter units. Some may choose to move away from the area to be closer to assisted living opportunities, specialized medical facilities, or to be closer to family caregivers.
- Household Composition:** The Dillingham Airport Study Area may be impacted by similar state and national trends in decreasing household size over time due to aging of the householders and smaller families. For example, as householders age, fewer households include children under age 18.
- Household Size:** Housing in rural Alaska is often over-crowded with multi-generations under one roof. For example, in Anchorage, the average household size is 2.71, compared to Dillingham Census Area’s household size of 3.25 (American Community Survey 2014-2018 5-year Average). According to Alaska Housing and Finance Corporation, more than half of all households in rural

³¹ McDowell Group calculations.

Alaska are overcrowded, and the statewide percentage is more than double the national average.³² These household sizes may not be most desired, but are, in practice, often due to lack of land access, investment, community infrastructure (i.e., water, septic, energy), and construction skills available locally.

- **Income Levels and Home Affordability:** Income levels also affect demand for different types of housing. For example, families with lower incomes may tend toward higher density housing (such as duplex, two-family townhouse, and some types of multifamily housing) and are more likely to be renters.
- **Seasonal Housing Needs:** Another factor affecting housing in the study area is the potential for increased demand for seasonal properties, particularly for seasonal fishermen (commercial, sport, and subsistence). Year-round housing demand includes intense housing needs during the summer fishing/harvesting season. These summer peaks are not necessarily noted in the American Community Survey or Census data based on the off-peak survey timing.
- **Role of Regional Housing Authorities:** In rural areas of Alaska, housing development is expensive and difficult. Most housing, particularly for the Alaska Native population, is largely developed through regional housing authorities. An authority's ability to receive federal grants to support housing is uncertain and may be insufficient to keep pace with projected population growth. Additionally, authorities must prioritize their spending across multiple communities based on a variety of needs beyond new housing development.
- **COVID-19:** The long-term effects of COVID-19 on local and regional populations are uncertain, which adds uncertainty to demand for housing. These impacts may be short-term or having longer, structural impacts related to the import of summer migrant workers (such as those serving in the seafood processing and visitor industry sections), who are largely nonresident and require temporary housing- often in dormitories.

While many factors can impact housing demand, shifts in population are the main driving force.

4.5 Housing Projections

Based on low-, base-, and high-population-growth scenarios, housing units needed in Dillingham Airport Study Area to accommodate changes in demand can be estimated.

³² https://www.ahfc.us/application/files/3115/1638/5454/2018_Statewide_Housing_Assessment_-_Part_1_-_Executive_Summary_and_Housing_Needs_011718.pdf (Accessed July 23, 2020).

4.5.1 Low-Growth Scenario

Under a low-growth scenario, population is expected to decline 1.5% annually through 2040. This decline suggests there will be no new housing demand over that period. Between 2020 and 2040, housing demand is projected to drop by 592 occupied units.

Table 19: Low-Growth Scenario, Housing Demand, Dillingham Airport Study Area, 2020-2040, 5-year Increments (Percent and Demand Change)³³

| Years | Annual Growth Rate | Number of Occupied Housing Units | Change in Occupied Housing Units |
|-----------|--------------------|----------------------------------|----------------------------------|
| 2020-2025 | -1.5% | 2,019 | -159 |
| 2025-2030 | -1.5% | 1,872 | -147 |
| 2030-2035 | -1.5% | 1,736 | -136 |
| 2035-2040 | -1.5% | 1,586 | -151 |

4.5.2 Base-Growth Scenario

Under a base-growth scenario, the Dillingham Airport Study Area growth rate is 0.09% from 2020-2025, followed by a 0.04% in 2025-2030, 0.15% in 2030-2035, and 0.22% in 2035-2040. Under the assumption household size does not shift significantly over this time, the number of occupied housing units will increase by 60 occupied units.

Table 20: Base-Growth Scenario, Housing Demand, Dillingham Airport Study Area, 2020-2040, 5-year Increments (Percent and Demand Change)³⁴

| Years | Annual Growth Rate | Number of Occupied Housing Units | Change in Occupied Housing Units |
|-----------|--------------------|----------------------------------|----------------------------------|
| 2020-2025 | 0.09 | 2,188 | +10 |
| 2025-2030 | 0.04 | 2,192 | +4 |
| 2030-2035 | 0.15 | 2,209 | +16 |
| 2035-2040 | 0.22 | 2,238 | +29 |

4.5.3 High-Growth Scenario

Under a high-growth scenario, the Dillingham Airport Study Area growth rate is 0.1% from 2020-2030, followed by 0.2% in 2030-2035, and 0.3% in 2035-2040. Under the assumption household size does not shift significantly over this, the number of occupied housing units will increase by 84 occupied houses.

³³ McDowell Group calculations.

³⁴ Ibid.

Table 21: High-Growth Scenario, Housing Demand, Dillingham Airport Study Area, 2020-2040, 5-year Increments (Percent and Demand Change)³⁵

| Years | Annual Growth Rate | Number of Occupied Housing Units | Change in Occupied Housing Units |
|-----------|--------------------|----------------------------------|----------------------------------|
| 2020-2025 | 0.1 | 2,189 | +11 |
| 2025-2030 | 0.1 | 2,200 | +11 |
| 2030-3035 | 0.2 | 2,222 | +22 |
| 2035-2040 | 0.3 | 2,262 | +40 |

4.5.4 In Summary

Table 22: Low, Base, and High Growth Scenarios, Projected Housing Demand, Dillingham Airport Study Area, 2020, 2025, 2030, 2040³⁶

| Years | Low-Growth Scenario | Base-Growth Scenario | High-Growth Scenario |
|------------------|---------------------|----------------------|----------------------|
| 2020 (base year) | 2,019 | 2,188 | 7,378 |
| 2025 (5-year) | 1,872 | 2,192 | 7,415 |
| 2030 (10-year) | 1,736 | 2,209 | 7,452 |
| 2040 (20-year) | 1,586 | 2,238 | 7,641 |

4.6 Factors Affecting Personal Income

Personal income will grow (or decline) with changes in population, as well as several other factors, including:

- Wage and Salary Employment Growth:** The growth or decline of the Dillingham Airport Study Area personal income is dependent on the growth or decline of wage and salary employment in the region, in the public-sector employment (tribal, local, state, and federal government employment) and private sector (health services, retail, leisure and hospitality, transportation, professional services, construction, and other sectors). New sector growth, such as mining, could also be a significant factor.
- Commercial Industry Proprietor Income:** The region has a large seasonal commercial fishing industry, including many self-employed fishermen. The gross income generated by commercial fishing is based on the number of active permits fished by residents, catch volumes, and prices paid for their fish. Net income is income after expenses.

³⁵ Ibid.

³⁶ McDowell Group calculations.

- **Alaska Permanent Fund Dividend Payments:** The Alaska Permanent Fund Dividend is a significant contributor to individual personal income (\$992 in 2020). The future of the Permanent Fund Dividend is unclear in the absence of a sustainable state fiscal plan.
- **Alaska Native Corporation Dividends:** Most of the study area’s population are shareholders in Alaska Native Corporations. The Bristol Bay Native Corporation distributed \$10.86 per share to each of its shareholders in February 2020. The corporation also processes dividends for several village corporations in the region. The dividend is based on corporate revenue and other factors.

4.7 Personal Income Projections

While there are several factors to consider when projecting growth, projects were based on analysis of personal growth trends over various time periods.

4.7.1 Low-Growth Scenario

The low-growth scenario assumes that the nominal (not inflation adjusted) personal income rate will remain flat over the next 20 years. The low-growth scenario for personal income is based on low-growth population estimates presented under the population projections section. Under this scenario, per capita personal income for the Dillingham Airport Study Area would stay at \$71,541.

Table 23: Low-Growth Scenario, Total and Per Capita Personal Income, Dillingham Airport Study Area, 2020-2040, 5-year Increments (Dollars)³⁷

| Years | Population Projected | Personal Income (\$000) | Per Capita (\$) |
|------------------|----------------------|-------------------------|-----------------|
| 2020 (base year) | 7,378 | \$527,831 | \$71,541 |
| 2025 (5-year) | 7,195 | \$522,574 | \$71,541 |
| 2030 (10-year) | 6,912 | \$517,369 | \$71,541 |
| 2040 (20-year) | 6,641 | \$507,114 | \$71,541 |

4.7.2 Base-Growth Scenario

The base-growth scenario assumes annual growth of 1.8%, the real (inflation adjusted) average annual personal income growth rate for the past five years (2014-2018). The base-growth scenario for personal income is based on base-growth population estimates presented under the population projections section. Under this scenario, per capita personal income for the Dillingham Airport Study Area would grow from \$71,541 in 2020 to reach \$99,885 in 2040.

³⁷ McDowell Group calculations.

Figure 11: Base-Growth Scenario, Projected Per Capita Personal Income, Dillingham Airport Study Area, 2020-2040³⁸

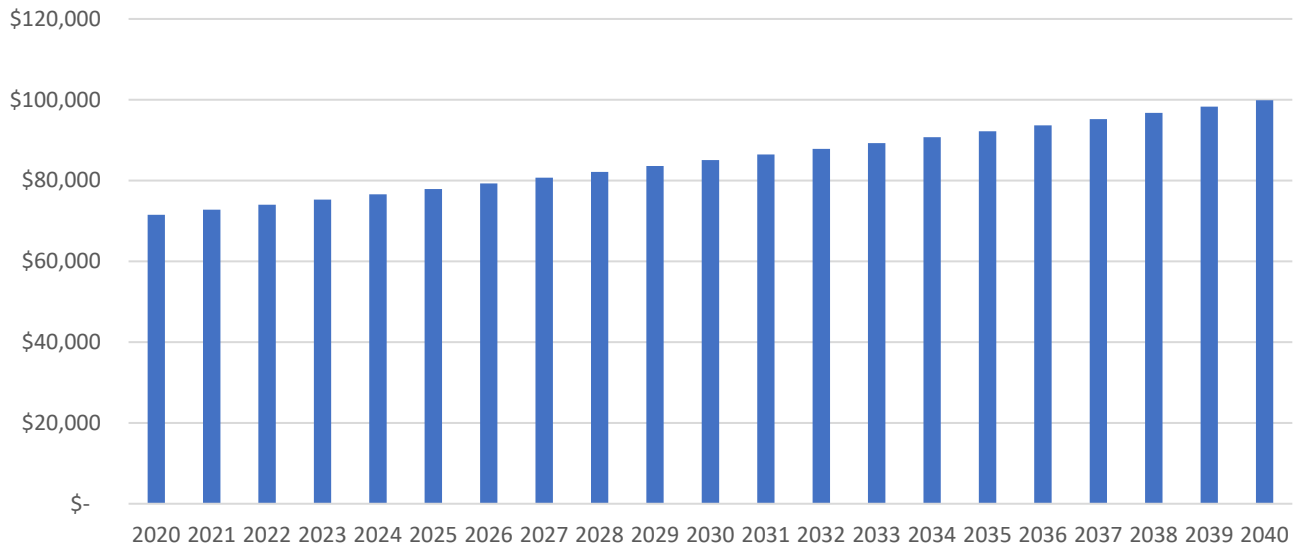


Table 24: Base-Growth Scenario, Total and Per Capita Personal Income, Dillingham Airport Study Area, 2020-2040, 5-year Increments (Dollars)³⁹

| Years | Population Projected | Personal Income (\$000) | Per Capita (\$) |
|------------------|----------------------|-------------------------|-----------------|
| 2020 (base year) | 7,378 | \$527,831 | \$71,541 |
| 2025 (5-year) | 7,413 | \$577,644 | \$77,902 |
| 2030 (10-year) | 7,426 | \$632,158 | \$85,084 |
| 2040 (20-year) | 7,563 | \$757,106 | \$99,885 |

4.7.3 High-Growth Scenario

The high-growth scenario assumes an annual growth of 3.2%, the real (inflation adjusted) average annual personal income growth rate for the past nine years (2010-2018). The high-growth scenario for personal income is based on high-growth population estimates presented under the population projections section. Under this scenario, per capita personal income for the Dillingham Airport Study Area would grow from \$71,541 in 2020 to reach \$129,708 in 2040.

³⁸ McDowell Group calculations.

³⁹ Ibid.

Figure 12: High-Growth Scenario, Projected Per Capita Personal Income, Dillingham Airport Study Area, 2020-2040)⁴⁰

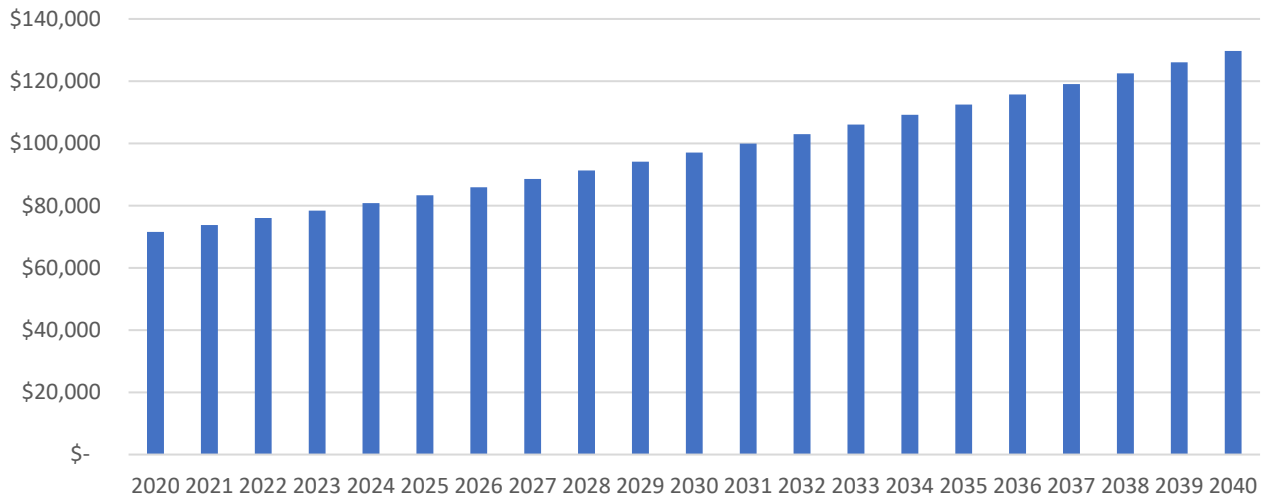


Table 25: High-Growth Scenario, Total and Per Capita Personal Income, Dillingham Airport Study Area, 2020-2040, 5-year Increments (Dollars)⁴¹

| Years | Population Projected | Personal Income (\$'000) | Per Capita (\$) |
|------------------|----------------------|--------------------------|-----------------|
| 2020 (base year) | 7,378 | \$527,831 | \$71,541 |
| 2025 (5-year) | 7,415 | \$617,865 | \$83,327 |
| 2030 (10-year) | 7,452 | \$723,256 | \$97,054 |
| 2040 (20-year) | 7,641 | \$991,035 | \$129,708 |

4.7.4 In Summary

Table 26: Low, Base, and High Growth Scenarios, Projected Total Personal Income and Per Capita Income, Dillingham Airport Study Area, 2020, 2025, 2030, 2040⁴²

| Years | Low-Growth Scenario | | Base-Growth Scenario | | High-Growth Scenario | |
|------------------|---------------------------|-----------------|---------------------------|-----------------|---------------------------|-----------------|
| | Personal Income (\$'000s) | Per Capita (\$) | Personal Income (\$'000s) | Per Capita (\$) | Personal Income (\$'000s) | Per Capita (\$) |
| 2020 (base year) | \$527,831 | \$71,541 | \$527,831 | \$71,541 | \$527,831 | \$71,541 |
| 2025 (5-year) | \$522,574 | \$71,541 | \$577,644 | \$77,902 | \$617,865 | \$83,327 |
| 2030 (10-year) | \$517,369 | \$71,541 | \$632,158 | \$85,084 | \$723,256 | \$97,054 |
| 2040 (20-year) | \$507,114 | \$71,541 | \$757,106 | \$99,885 | \$991,035 | \$129,708 |

⁴⁰ McDowell Group calculations.

⁴¹ Ibid.

⁴² Ibid.

5.0 Forecast

Considering population projections, economic indicator trends, and the insight gained from interviews, the economic outlook for the Dillingham Airport Study Area is positive, with a corresponding expected increase in demand for DLG facility capacity and quality during the 20-year planning horizon.

The population in Dillingham is anticipated to remain stable and experience slight growth over the next 20 years under the base- and high-growth scenarios. Additionally, inflation-adjusted, per capita personal income has trended upward, indicating an increasing capacity for consumption and future import demand.

Innovations and new markets dependent on fisheries have created more demand for DLG facilities and services. Desire for increased lease space allowing for private hangar development indicates a strong continued demand for airport real-estate and use of DLG. There is a strong desire for infrastructure improvements to make water and sewer accessible at DLG, which can further increase the possibilities for facility development.

Despite the challenges COVID-19 is bringing to the residents and businesses of Dillingham, the economic outlook is strong, and DLG plays an essential role in its success.

Appendix A

Dillingham Airport Executive Interviews

Key Themes

The Dillingham Airport is updating its Airport Master Plan. McDowell Group was contracted to conduct telephone interviews with a cross section of community and businesses leaders, tribal entities, and service organizations to provide input for that plan. A total of 23 interviewees were asked a series of questions about how their businesses or organizations use the airport, how well the airport meets their needs, and how the airport could be improved. Following are key themes.

Everyone interviewed stated the importance of air travel to their operations. Each interviewee, no matter the sector in which they worked, identifies air travel as key to their success. With no roads in or out of the region and limited marine cargo service, air passenger and cargo services are vital to Dillingham and the region.

Alaska Department of Transportation and Public Facilities (DOT&PF) staff and business owners located at the airport are viewed favorably and acknowledged for their efforts to help the airport run smoothly. Whether it was assisting get in or out of gates, facilitating the delivery of thousands of pounds of fresh salmon, or picking up a group of students headed to a wrestling tournament, interviewees recognized these efforts ease the use of the airport and its services.

The summer commercial and sport fisheries activity put a strain on infrastructure and services at the airport. All interviewees recognized the additional strain that thousands of commercial and sport fishermen, seafood processors, and others in the sector put on the Dillingham Airport. Bristol Bay's seasonal economy requires robust infrastructure three months of the year but drops off significantly the remainder of the year.

Infrastructure improvement needs are identified. Interviewees provided numerous suggestions for improving airport infrastructure and design. None is considered more critical than the need for sewer and water systems to meet an adequate level of health and safety.

Infrastructure improvements will open the door for improved services. The potential for new or improved services for passengers, freight operations, and private pilots are envisioned; however, most improved services require infrastructure changes to accomplish this potential.

Introduction and Methodology

The Dillingham Airport serves as the transportation hub for the west side of Bristol Bay. With no roads leading to the region, marine and air transportation are the only means to move people and freight in and out of the Bristol Bay area. Passenger travel and air freight are highly seasonal with commercial and sport fishing in the summer months placing a large demand on services. This report describes the findings of interviews with leaders of Dillingham businesses and organizations, and serves to describe the economic and social importance of the Dillingham Airport to the community and the region.

McDowell Group designed the interview protocol in conjunction with R&M Consultants and Alaska Department of Transportation & Public Facilities (DOT&PF). The protocol included questions to assess economic importance of the Dillingham Airport to the community and the region. It also explored the effectiveness of the airport as it currently exists and explored possible areas for improvement. A copy of the interview protocol can be found in Appendix A.

Twenty-three interviews were conducted between May 19 and June 19, 2020. Interviewees represented a cross section of community and regional businesses and organizations, including school districts, university, tribal and public health care, tribal government and services, law enforcement, hospitality and tourism, sport and commercial fishing industries, and community development. A list of interviewees is included in Appendix B.

Findings Summary

To better understand the Dillingham Airport's importance to the community and region, McDowell Group conducted a series of phone interviews with business and community leaders. Following are key findings.

Community and Economic Importance

All interviewees described air travel as vital to their operations. With no roads into the region, and only seasonal marine freight services, air travel is the only way to access Dillingham and the surrounding region. Air cargo is also vitally important to move most goods into the region and fresh fish (fetching premium prices) out. Words such as "vital," "critical," and "essential" were used to describe air transportation.

Local tribes and city governments rely on air transportation between Dillingham and Anchorage and to surrounding villages for several reasons, including medical appointments, meetings, business, education, school sports, and visits to family and friends in other communities. The ability to fly between communities provides for an interconnectedness that allows the region to function and thrive.

*Air travel is essential.
Absolutely imperative.*

Health care professionals at the regional hospital and the public health department recognized the essential services of medivac flights from surrounding villages to Dillingham, and if further medical attention is needed, from Dillingham to Anchorage. Air travel is vital to the interconnectedness of the region's health care system. With clinics in every village in the Bristol Bay Area Health Corporation service area, medical, behavioral health, and dental teams must travel by air to villages to provide direct care. Air travel is also required for staff training and delivery of drugs and medical equipment. Regional travel is provided by numerous small local carriers. In general, interviewees are pleased with the unscheduled, yet predictable, system of regional air travel and freight transportation.

*[We] could not do public safety
in the area without air travel.*

State and federal agencies, such as Alaska State Troopers (AST), Department of Fish & Game (ADF&G), and U.S. Fish and Wildlife Service, fly extensively to carry out their mandates. The Troopers, the principal law enforcement agency serving the region, operate their own aircraft stationed at the Dillingham Airport. AST and other agencies use local commercial operators extensively. Prisoners are transported by air from regional villages to Dillingham and Anchorage. ADF&G brings seasonal data technicians, plus freight, into the region by air. Those technicians then fly out to remote rivers and lakes by floatplane to collect data used to manage the billion-dollar Bristol Bay sockeye salmon fishery. ADF&G also flies aerial surveys with fixed wing and rotary aircraft to count herring and salmon in regional bays, rivers, and lakes. The Togiak National Wildlife Refuge has a hangar at the Dillingham Airport; staff uses their aircraft to conduct biological surveys, as well as patrol and visit local villages.

Commercial and sport fishermen fly into the region by the thousands each summer. Beginning in late May and continuing through September, fishermen and processors reach Dillingham from across the globe to enjoy and profit from the region's incomparable fisheries resource. Sport fishermen transit through Dillingham, continuing to remote lodges by floatplane. Commercial fishermen and processors become part of the summer community until fishing wraps up and they return home.

Couldn't operate in Dillingham without it.

Peter Pan Seafoods and Icicle Seafoods each operate a local salmon processing plant in Dillingham and rely heavily on the Dillingham Airport for successful operations. Their plant management arrives in town in May by regularly scheduled and charter aircraft. Large processing crews arrive in early to mid-June, also via scheduled and charter flights. Managers at both plants report large volumes of fresh fish being flown out during the salmon season. One plant manager reported as much as 2.5 million pounds being flown out each summer.

This highly seasonal component to Dillingham's economy puts large strains on infrastructure for short durations of time. It is a constant struggle to balance building up the necessary infrastructure for increased summer capacity while justifying those investments during times of considerably less use. This dynamic is magnified at the Dillingham Airport.

Interviewees across all sectors operating in Dillingham year-round relayed the importance of safe, reliable, and affordable air travel to and from Anchorage, particularly for employee recruitment and retention. They shared specific examples of qualified professionals turning down offers of

[We] couldn't run schools without air transport.

Having reliable transportation in and out of Anchorage is an issue with staff retention.

employment after traveling to the region and experiencing unpredictable travel and seeing high air-fare prices. One interviewee who manages an organization in Dillingham recently moved his family to Southcentral Alaska because they could not reliably access medical services in Anchorage.

Airport Design and Infrastructure

The airport's size and amenities currently meet the community's needs for nine months out of the year, but are seriously inadequate for travel and air freight during the short summer salmon season, when millions of pounds of salmon are shipped out of the region. Interviewees offered suggestions on accommodating growth in air travel and cargo and increasing efficiency.

Fresh fish air freight and an expanded sport fishing industry are relatively new and have put added pressure on existing freight infrastructure. Growth in air freight has led, in part, to larger aircraft, which need more space and strain the limits of the current design and infrastructure during the summer. Current fish storage areas, the runway, taxiway space, buildings, and space in front of terminals are all stretched beyond their capacity by larger aircraft and growth in air travel.

Cold Storage

Sportfishing businesses cited a need for large freezer space, or multiple spaces, to keep fresh-caught fish chilled while waiting to ship out. Fish is typically packed in 50-pound plastic-lined waxed "fish boxes" with gel packs or ice inside. The time between dropping fish off at a cargo carrier and the flight arriving can be many hours or even a day. Interviewees said keeping the fish chilled is a constant challenge. A similar challenge faces visiting hunters and transfer of their game meat.

The commercial processing plant fish storage needs are currently being met due as the fish is delivered inside large insulated totes with frozen gel packs to keep them cool and therefore no refrigerated space provided by the airport is needed.

Lack of cold storage prevents me from direct marketing my catch.

Runway and Taxiway Improvements

Lengthening and widening the runway were also stated as safety improvements for incoming flights, especially larger planes. Tight turning space necessitate certain turning maneuvers that damage the runway surface. One taxiway used by smaller aircraft is not wide enough for planes to pass each other. As one interview state, "pilots make it work," but the taxiway also needs to be widened.

Among the suggestions was a full-length taxiway to the north end. Other safety suggestions included building a cross strip and even a shorter gravel runway for small aircraft to land to make way for larger aircraft using the large runway. Charter aircraft also need more parking space at the north end of the apron. Another area for improvement is the fencing on the south end of the runway, where the fence causes snow to drift onto the adjacent road.

Aircraft landing in Dillingham are getting larger and this makes some improvements necessary.

One of the local fish processing plant managers reported a desire to fly processing crews directly from Seattle to Dillingham to save money and logistical hassles. This is not possible as the Dillingham runway is not long enough to accommodate the size aircraft such a long flight requires.

Buildings, Parking, and Loading Areas

Many interviewees noted old and deteriorating hangar and terminal buildings, and said improvements are needed. The Alaska Airlines terminal is too small to accommodate a full jet load of people. The airport lacks adequate space for Transportation Security Administration (TSA) screening and the baggage area is congested. Multiple interviewees suggested building a public terminal that could accommodate airlines flying in from Anchorage and out to surrounding villages. This could result in numerous efficiencies for the airlines and increased convenience and comfort for passengers. It was also identified as a potential economic benefit to the community, making Dillingham an easier community to travel in and out of and allowing space for gift shop and food service concessions.

Some interviewees, including private pilots and one fish processing plant manager, expressed interest in building new hangar facilities at the airport, but cited lack of adequate space to build as an issue.

Leases to build private hangars would be taken advantage of in a heartbeat.

Passenger vehicle parking space was described as insufficient when the airport gets busy. Loading space for both passengers boarding an Alaska Airlines jet, and for offloading large totes of fresh salmon are limited and could be expanded.

Water and Sewer Needs

Addressing inadequate water and sewer was a top priority for some interviewees. Many noted the water is contaminated with Per- and Polyfluoroalkyl Substances and not safe to consume. Bathrooms are often out of service. One interviewee's examination of the airport's sewage system indicated it needs replacing, noting "either a large, properly sized, septic system needs to be built at the airport, or city sewer (lines) need to be brought to the airport." The city sewer system currently ends directly across the runway from the airport along Kanakanak Road.

There are serious deficits for sanitation in terms of functioning toilets and sinks.

Given the many identified areas for infrastructure improvement and challenges posed by the current airport design, one interviewee suggested that "it may be easier to simply start over." The interviewee suggested "the limited space around the airport would only allow for so much expansion and it might not only be simpler," but also financially sensible to find a new location and build a new airport meeting the needs of Dillingham and the region. A new airport would have larger runways, taxiways, and parking areas, a common public terminal, leasable space for private hangar construction, and improved passenger services.

Airport Services

Interviewees were happy with many of the services offered at the airport. DOT&PF airport staff are approachable and professional, doing what they can to help passengers and pilots. A group of longstanding business owners at the airport have a history of providing good customer service and doing what they can to meet the needs of businesses and the public.

It is doing a good job, especially when compared to other rural communities.

Many of the infrastructure improvements mentioned above naturally lead to improved services for pilots and passengers. A recurring theme among interviewees was the need to accommodate passengers waiting at the airport for long periods of time. A three-hour wait at an airport with no bathroom facilities, no drinkable water, and no restaurants or cafes can be challenging.

A place to get something to eat and drink would be good.

Gift shops and restaurants have come and gone from the Dillingham Airport. One interviewee mentioned, "The Twin Dragon restaurant is the only operating restaurant at the airport. It is open sporadically and does good business when available." Improvements to sewer and water would make food service, gift shops, and adequate restroom facilities more feasible. A visitor's center was specifically mentioned as a welcome addition to the airport. "Like the one in King Salmon," was a common refrain by several interviewees. A common public terminal building would also facilitate more passenger services. These services, besides being convenient for passengers, were mentioned as possible areas of economic growth for the community.

A long-term parking area is located on the west side of the road coming into the airport. The parking area is free of charge and there is no limit to how long vehicles can remain there. Some passengers have taken full advantage of that opportunity and have left vehicles parked for years. Instances of vandalism have occurred at the long-term parking location. One interviewee reported her vehicle being vandalized twice while parked there. Numerous interviewees mentioned this as an airport service they would like to see improved. Ideas for improvement included moving the parking area closer to terminals and DOT&PF offices to allow for more visibility of the area. Suggestions also included fencing the parking area and installing a security system.

According to multiple interviewees, constructing more hangar space could also lead to increased services for pilots at the airport. Currently there is limited aircraft mechanical services at the airport. One mechanic, carrying tools in his vehicle, is available to park next to a plane and offer services, but additional hangar space would allow a mechanic to set up shop and offer mechanical services many Dillingham pilots need.

Currently there are few options for guys to get their planes out of the weather and get them worked on.

Appendix A: Interview Protocol

Dillingham Airport Interview Guide

INTRODUCTION

Hello, my name is _____ and I'm with McDowell Group. We are a research and consulting firm based in Anchorage. We are working on a project for the State of Alaska Department of Transportation and Public Facilities (DOT&PF), preparing an update to the Dillingham Airport Master Plan.

The state is interested in learning more about the current and future economic conditions that may impact infrastructure support at the airport. Also, how the airport contributes to the economy and potential business development opportunities of Dillingham and the surrounding region.

As you know [community/industry/region] well, we value your perspective about the economic and community infrastructural needs for the airport's planning purposes. If now is a good time, we would like to ask you a few question [or if you prefer, we can set up a time to chat]?

As stakeholder that is invested in the community, our firm values your perspective about the economic and community infrastructure needs while preparing the updated Dillingham Airport Master Plan.

OPENERS/AWARENESS:

- Can you please describe your [*business/organization/community*] relationship with the airport and air passenger (or cargo travel)? [Probe: carrier, passenger/resident, cargo supplier, business, etc., frequency of use?]

OTHER QUESTIONS

- How important is air transportation to your [*business/organization/community*]? Can you please explain.
- Do you think the airport as it currently operates is doing a good job of serving the needs of your [*business/organization/community*]? Why [or why not]?
- What improvements to the airport could increase access for your [*business/organization/community*]? [*Probe for specific information.*]
- What improvements to the airport could help expand or enhance your [*business/organization/community*] [*business/community/economic*] development potential?
- Can you think of examples where businesses or other types of development were not feasible because of airport design or features? Can tell us about this?
- In your opinion, how will population changes in Dillingham and the region impact Dillingham airport development?
- What other economic conditions do you think will impact airport planning? [Probe: such as commercial fishing activity, visitor industry promotion, COVID-19 market impacts, health care service delivery, etc.]

CLOSER:

- Do you have any other comments for us?

- Do you have suggestions about other people we should talk with regarding Dillingham airport?

[If requested] If you are interested in learning more about this project, please contact: Jessica Wuttke-Campoamor, DOT&PF Aviation Planning & Programs Manager at 907-269-0519 or jessica.wuttke-campoamor@alaska.gov

Appendix B: Interviewees

Kay Andrew, Mayor, City of Aleknagik

Sarah Andrews, Director, University of Alaska Fairbanks Bristol Bay Campus

Gerry Ball, Owner, Freshwater Adventures

Gina Carpenter, Public Health Nurse, Alaska Department of Health and Social Services

Courtenay Carty, Tribal Administrator, Curyung Tribal Council

Danny Clark, Manager, Icicle Seafoods (Wood River Plant)

Rebecca Coupchiak CHAP Manager, Bristol Bay Area Health Corporation

Jennifer Gardiner, Director of Administrative Services, Bristol Bay Native Association

Sergeant Mike Henry, Alaska State Troopers

Bud Hodson, Owner, Tikchik Narrows Lodge

Liz Hulsing, Dental Clinic Manager, Bristol Bay Area Health Corporation

Gordan and Susan Isaacs, Owners, Beaver Creek bed and Breakfast and Alaska West Supply

Dr. Jason Johnson, Superintendent, Dillingham City School District

Gregg Marxmiller, Commercial Fisherman

Kenton Moos, Manager, Togiak National Wildlife Refuge, U.S. Fish and Wildlife Service

Steve Noonkesser, Superintendent, Southwest Region School District

Lance Nunn, CEO, Aleknagik Natives Limited

Travis Roenfranz, Plant Manager, Peter Pan Seafoods

Tim Sands, Commercial Fisheries Area Manager, Alaska Department of Fish and Game

Jon Taylor, Foreman, Dillingham Airport

Wassallie Tugatuk, President, Manokotak Village Council

Norman Van Vactor, CEO, Bristol Bay Economic Development Corporation

Peter Von Jess, Owner, Nushagak River Adventures Lodge