APPENDIX B

AVIATION ACTIVITY AND FORECAST

FAA Approval

Airport User Interviews

Population Forecast

FAA Approval

From: gabriel.mahns@faa.gov
Sent: Monday, April 09, 2007 10:19 AM
To: judy_chapman@dot.state.ak.us
Subject: Fw: Kotzebue Forecast

----- Forwarded by Gabriel Mahns/AAL/FAA on 04/09/2007 10:17 AM -----

Gabriel Mahns/AAL/FAA
AAL-600, Airports Division

To donna_gardino@dot.state.ak.us
cc
Subject Kotzebue Forecast

03/09/2007 01:29 PM

Ms. Gardino,
We reviewed the Kotzebue Airport Forecast and is approved.
We note that the forecast is within the current TAF deviation tolerance. We are not planning to update the TAF unless you find it necessary.
Thank you,

Gabriel Mahns
Alaskan Airports Division, AAL-615
Federal Aviation Administration
222 W. 7th Ave. Box # 14
Anchorage, AK 99513-1587
907-271-3665, Fax 907-271-2851

Airport User Interviews

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Telephone Record

Project:	Kotzebue Airport MP Forecast	Project No:	
Date:	12/13/06 4:30 PM	Subject:	Aircraft operations
Call to:	USFWS - Kevin Fox	Phone No:	786-3433
Call from:	Carl Siebe	Phone No:	

Discussion, Agreement and/or Action:

Kevin said the USFWS flies about 350 hours per year at Kotzebue. He estimated that they would have 240 takeoffs and landings annually.

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Telephone Record

Project:	Kotzebue Airport MP Forecast	Project No:	
Date:	12/21/06 4:30 PM	Subject:	NPS Operations
Call to:	Lindy Miata	Phone No:	442-3890
Call from:	Carl Siebe	Phone No:	

Discussion, Agreement and/or Action:

I had called the NPS on December 13 and was put in contact with Lindy on December 14. She was going to research their records and get back to me.

I got the return call on December 21 with their data. She said the NPS had 320 operations last year.

Note: this data was received after the Kotzebue Airport operations estimate was finalized. The NPS was estimated in that calculation at 240 annual operations. The difference between the estimated and actual NPS operations is not reflected in the final calculation, but this phone record recognizes the effort the NPS put into the research.

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Notes

Subject:	Kotzebue Airport, OTZ		
Client:	PDC Engineers, Fairbanks, AK		
Project:	Kotzebue Airport Forecast	Project No:	000000000033978
Meeting Date:	8/16/2006	Meeting Location:	Telephone Call: (907) 249-5105
Notes by:	Heather Hasper		

Attendees: Discussion with Helen Swishner, Marketing Manager, Northern Air Cargo

Topics Discussed:
Helen indicated that she was not the person who completed the T-100 sheets for the BTS data but that she could obtain copies for me and send them to me to verify the amount of tonnage that Northern Air Cargo takes to Kotzebue.

Action/Notes:
Northern Air Cargo indicated that they primarily use the 727 when flying to Kotzebue as they stop in Fairbanks and Nome enroute to Kotzebue. The do not have any major concerns about operations at the airport. The air carrier uses a contract agent for ground support operations. Helen indicated that even with the acquisition of the ATR aircraft, the company plans to continue to use the 727 for future operations at this facility in the near and long term future.

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Notes

Subject:	Kotzebue Airport, OTZ		
Client:	PDC Engineers, Fairbanks, AK		
Project:	Kotzebue Airport Forecast	Project No:	000000000033978
Meeting Date:	8/17/2006	Meeting Location:	Telephone Call: (907) 249-4118
Notes by:	Heather Hasper		

Attendees: Discussion with **Jerry Stout, Director of Cargo, Lynden Air Cargo**

Topics Discussed:

Lynden Air Cargo service to Kotzebue.

Action/Notes:
Lynden Air Cargo has 3 scheduled flights per week to Kotzebue with L-382 aircraft. They also provide charter service to both the Bureau of Land Management and the National Park Service to this facility to support the surrounding national wildlife refuges. Jerry indicated that in 2005 they provided 12 charted flights to this community for BLM using an L-382 Hercules aircraft. Lynden has no plans for any fleet changes.

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Notes

Subject:	Kotzebue Airport, OTZ		
Client:	PDC Engineers, Fairbanks, AK		
Project:	Kotzebue Airport Forecast	Project No:	000000000033978
Meeting Date:	8/27/2006	Meeting Location:	(907) 243-0009
Notes by:	Heather Hasper		

Attendees: Discussion with Director of Operations Mick Gridley

Topics Discussed:

Everett's Airlines service to Kotzebue.

Action/Notes:

Everett's offers scheduled passenger and cargo service to Kotzebue from Fairbanks five days a week, Tuesday thru Saturday. The airline uses an older DC-6 for cargo operations in and out of Kotzebue. They are the primary fuel provider for most villages within the Northwest Arctic Borough and routinely fly C-46 aircraft to Kotzebue to be used to transport fuel from the larger aircraft to smaller village airports.

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Telephone Record

Project:	Kotzebue Airport MP Forecast	Project No:	
Date:	12/19/06 9:15 AM	Subject:	FSS Data
Call to:	Kelsey, OTZ FSS 442-3755 Randy Rogers. FAI AFSS 474-0388 Marshal Severson 271-5865	Phone No:	
Call from:	Carl Siebe	Phone No:	

Discussion, Agreement and/or Action:

I called Kelsey at the OTZ FSS, 3:20 PM on 12-18-06. Kelsey said that the FSS was indeed collecting operational data and differentiating it by air carrier, commercial, military, etc. He suggested that I call Randy Rogers in Fairbanks to get the data.

I talked to Randy Rogers, the FAI AFSS manager at 8:50 AM on 12-19-06. Randy said the FSS in his area of responsibility are recording data beyond what is required in the FSS operating handbook. He is trying to get recognition for the work his staff performs. They record aircraft contacted, advisories issued, NOTAMs issued, PIREPs taken, IFR clearances relayed, late notices for overdue aircraft and search and rescue, broadcasts, and weather observations. He said the aircraft contacted is probably what Kelsey was referring to, but those contacts are for every radio in the FSS area. There is no way to distinguish a FSS contact from Ambler or Point Hope from a radio contact at Kotzebue. He said they do not take operation data per say, just the activities listed above. I asked how we could get this data, and he said I should call Marshall Severson in Anchorage.

I called Marshall at 9:00 AM on 12-19-06. Marshall confirmed what Randy indicated. Marshall suggested that a listing of the airport advisories issued would probably be the best data for our use. Airport advisories are only issued for Kotzebue, not any of the outlying airports, since the FSS must be on the field to issue this service. While not every aircraft requests an airport advisory, most do. He offered to email the data to me.

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Notes

Subject:	Kotzebue Airport, OTZ		
Client:	PDC Engineers, Fairbanks, AK		
Project:	Kotzebue Airport Forecast	Project No:	000000000033978
Meeting Date:	8/17/2006	Meeting Location:	Telephone Call: (907) 443-5464
Notes by:	Heather Hasper		

Attendees: Discussion with David Olson, Director of Operations, Bering Air.

Topics Discussed:

Bering Air service to and from Kotzebue.

Action/Notes:
Bering Air is the primary air taxi service provider to Kotzebue and the surrounding village communities. The airline has a variety of aircraft that serve the region and is the primary US Postal Service 401 permit holder serving the communities. Their largest client is the Northwest Arctic Borough where they transport teachers, students and other borough employees to different communities.

David indicated that they very seldom have to divert from Kotzebue due to weather. He expressed great concern about the concept of relocating the airport. This would cause a lot of expense to the carrier to get in and out of the community with mail and freight services. Flights originate in Nome and Fairbanks with service from Kotzebue to all the villages throughout the borough. Bering air has a fleet of 22 aircraft with several aircraft types that serve different purposes. Their fleet includes multi-engine twin aircraft Beech 1900, a turbo-prop King Air, Cessna Caravan and 206 as well as Piper Navajo.

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Notes

Subject:	Kotzebue Airport, OTZ		
Client:	PDC Engineers, Fairbanks, AK		
Project:	Kotzebue Airport Forecast	Project No:	000000000033978
Meeting Date:	12/15/2006	Meeting Location:	Telephone Call: 800-478-3943
Notes by:	Heather Hasper		

Attendees: Discussion with Denny Hickerson, Station Manager, Kotzebue Airport for Bering Air.

Topics Discussed:

Bering Air service to and from Kotzebue.

Action/Notes:
Bering Air a primary air taxi service provider to Kotzebue and the surrounding village communities. Denny indicated that the winter and summer schedules for Kotzebue are the same. The Nome schedule changes, however the OTZ schedule did not change. Denny indicated that very few flights are completely cancelled due to weather. Many are delayed, however the flights due general continue on once the visibility clears up.

Denny indicated they have two flights per day to each village except on Sundays. Many routes are operated on one continued flight. The flight begins in Kotzebue and continues to one or two other villages before returning back to OTZ. The carrier averages approximately 18 – 20 flights per day with 12 of them being scheduled air taxi flight operations.

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Telephone Record

Project:	Kotzebue Airport MP Forecast	Project No:	
Date:	12/19/06 9:15 AM	Subject:	FSS Data
Call to:	Airport Manager	Phone No:	442-3147
Call from:	Carl Siebe	Phone No:	

Discussion, Agreement and/or Action:

I called the DOT in OTZ to talk to Kenny Gallahorn. Damon answered the phone and said Kenny is on vacation, but he offered to help me.

I asked for the number of private aircraft tied down on lease lots. Damon said he could not help me with that.
I asked how many military aircraft use Kotzebue. Damon said very few, maybe 12/year.
I asked how many state trooper aircraft use Kotzebue. He said they have a super cub in the park service hanger that is used in the summer only. He did not guess the number of flights.
I asked about the Guardian medical evacuation aircraft. He said it flies about 5 times/week.

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Telephone Record

Project:	Kotzebue Airport MP Forecast	Project No:	
Date:	12/13/06 3:20 PM	Subject:	Aircraft operations
Call to:	Arctic Transportatioin Services - Wilford "Boyuck" Ryan	Phone No:	562-2227
Call from:	Carl Siebe	Phone No:	

Discussion, Agreement and/or Action:

Boyuck told me the URL for their web site and schedule. He will also have their computer tech download the actual flights next week.

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Telephone Record

Project:	Kotzebue Airport MP Forecast	Project No:	
Date:	12/13/06 3:14 PM	Subject:	Aircraft operations
Call to:	Arctic Air Guides - Buck Maxson	Phone No:	907-442-3030
Call from:	Carl Siebe	Phone No:	

Discussion, Agreement and/or Action:

Mr. Maxon said he flies mostly on floats. He estimates 300 operations on floats, and 100 on wheels annually

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Notes

Subject:	Kotzebue Airport, OTZ		
Client:	PDC Engineers, Fairbanks, AK		
Project:	Kotzebue Airport Forecast	Project No:	000000000033978
Meeting Date:	8/15/2006	Meeting Location:	Telephone Call: (206) 433-6874
Notes by:	Heather Hasper		

Attendees: Discussion with Ms. Lynae Jacobson, Manager, Air Traffic and Airfield Operations

Topics Discussed:

Alaska Airlines service to Kotzebue.

Action/Notes: Alaska Airlines has been serving Kotzebue airport since 1985 when they purchased the flight routes from Mark Air. They currently provide two daily flights to this community. These flights originate in Anchorage. The 737-200 and 727-400 have historically been the aircraft used for these flights. With the retirement of the 737-200 from the Alaska Airlines fleet, the 737-400 and 737-700 is anticipated to be the aircraft used at this facility.

Lynae has not heard of any major airline concerns about operations at this facility.

From: Lynae Jacobson [Lynae.Jacobson@AlaskaAir.com]
Sent: Tuesday, December 05, 2006 11:57 AM
To: Siebe, Carl F.
Subject: Fwd: Re: Kotzebue Airport

Hi Carl -Not sure what I was thinking when I sent you the phase out of the MD-80. We're taking it out of the fleet by the end of 2008, NOT 2011. Sorry for the error!

Lynae Jacobson
Manager, Air Traffic & Airfield Operations
(206) 392-6340

----- Original Message -----

Monday, November 27, 2006 5:34:48 PM
Message
From: Lynae Jacobson
Subject: Re: Kotzebue Airport
To: "Siebe, Carl F." <Carl.Siebe@hdrinc.com>

Hi Carl - I don't have answers to all of your questions, but will share what I do know and try to find answers to the rest.

1.) The 737-200 will be phased out in 2007; the MD-80 in 2011.
2.) Our fleet currently includes the 737-200/400/700/800/900 and MD-80. As noted above that will change to only the 737-4NG fleet.
3.) I'm not sure what aircraft we would use in 20 years. For the short term, the 737-400/400C/400F are most likely. (I'll ask about this further).
4.) I'm not familiar with TSA issues related to combi aircraft.
5.) I don't know if the landing distace issue has resulted in any canceled or diverted flights at OTZ this year. I'll check.
6.) Regarding runway length, for a full 737-400, we would want 6500' - 7500' of landing distance. We would need a minimum of 6500' on a contaminated runway.

Additionally...better approach lighting would help improve reliability, and brighter runway edge lights would make the runway more visible during snow/poor visibility conditions.

Lynae

"Siebe, Carl F." <Carl.Siebe@hdrinc.com> on Friday, November 17, 2006 at 3:28 PM -0800 wrote:
>Lynae, Hi.
>
>I am helping with a portion of the master plan for the Kotzebue Airport that
>is looking at a potential new airport for Kotzebue to overcome some of the
>deficiencies at the existing location. One of our staff (Heather Hasper)
>talked to you mid August about the project. I wanted to follow up on your
>conversation with Heather.
>
>When do you project the 737-200 will be phased out? The MD-83?
>
>Your fleet includes 737-400, 700, 800, and 900 in addition to MD-83 (did I
>miss any). What aircraft do you foresee flying to Kotzebue during the next 20
>year planning period? Will it include all models or just the 400 and 700?
>Should we plan on any occasional usage by the 800 and 900?

>
>What aircraft will fly the freight?
>What is the latest from TSA about flying passengers and freight on the same
>aircraft (combi)?
>If less than 60 seats does this change the security requirements?
>
>We have also been following the new stopping distance requirements. Has the
>15% for Mu < 20 caused you to miss any flights this year to OTZ? Given your
>current and projected fleet, what runway length would you like to see if a new
>runway is built at OTZ to allow unrestricted operations with the 15% rule?
>Which airframe is this based on?
>
>Thanks for your help. Please give me a call if I can ever be of assistance.
>
>Carl Siebe, PE
>Senior Aviation Consultant
>
>HDR ONE COMPANY | Many Solutions
>2525 C St Suite 305| Anchorage, Alaska | 99503
>Phone: 907.644.2163| Fax: 907.644.2022
>
>
>Email: carl.siebe@hdrinc.com
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>   This message has been checked for viruses by AAG MailScan
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Lynae Jacobson
Manager, Air Traffic & Airfield Operations
(206) 392-6340

Message has been checked for viruses by AAG MailScan

Pie ChartsFrom: Hasper, Heather C.
Sent: Friday, December 15, 2006 11:06 AM
To: 'patrickt@hageland.com'
Subject: KOTZEBUE AIRPORT

Mr. Thurston,

My name is Heather Hasper. I am an airport planner currently working on several airports for the State of Alaska DOT and FAA. I am currently working on the air traffic forecast for Kotzebue airport (OTZ). The FAA and the DOTPF are in the process of updating the airport facilities and we are trying to prepare a forecast that accurately reflects the current operations at OTZ.

What flight or terminal challenges or concerns do you have about operations in and out of Kotzebue? I was looking at your website at the Kotzebue flight schedule to multiple villages. It appears that you have approximately 110 scheduled flights out of Kotzebue on a weekly basis. Of those flights, how many would you estimate are delayed or cancelled due to poor weather at OTZ or the destination location?
Of the 110 scheduled flights, what type of fleet mix is Hageland using to serve the different communities?

Do you have many non scheduled Part 91 charter flights? If so, how many do you think are in/out of OTZ?

Any passenger enplanement data that you could provide to help us get an estimate of the number of passengers Hageland Air carries to different communities would be really helpful in demonstrating the needs of the air carriers to serve the airport.

Any assistance and input you could provide would be greatly appreciated so that we can prepare a more accurate forecast.

If you have any questions or would like more information, please feel free to contact me via email or via phone at 907-644-2056.
Thank you for your time and assistance.
Hope you have a good day.
Heather C. Hasper
Aviation Planner
HDR ONE COMPANY | Many Solutions
2525 C Street Suite 305 | Anchorage, AK | 99503-2569
Phone: 907-644-2000 | Fax: 907-644-2022 | Email: heather.hasper@hdrinc.com

Pie ChartsFrom: Hasper, Heather C.
Sent: Friday, December 15, 2006 12:29 PM
To: 'denny@beringair.com'
Subject: Kotzebue Airport Operations

Denny,

This is Heather Hasper, we spoke earlier today about OTZ operations. Thanks for taking time to talk to me about Kotzebue airport and Bering Air operations. We are helping DOT in Fairbanks with the master plan looking at a possible future relocation of OTZ. One of our tasks is looking at historical operations in order to forecast the future ops.

Looking at your published schedule, I extract 85 scheduled departures from OTZ weekly. You mentioned you travel twice daily to each community except on Sundays. (1) Can you extract, or if not extract provide a good guess, on how many of these scheduled flights are cancelled (due to wx and mechanicals probably)? (2) How many unscheduled or on demand flights does Bering provide?

Ramp space is another issue. How many and what types of aircraft do you park at OTZ? With your fleet how many hangers/lease lots/ramp space would you need to operate optimally if you could have all the space you needed.

Thanks for all your assistance. Hopefully this email better addresses any questions you might have and is easier to comprehend than telephone tag.

Please feel free to call 907-644-2056 or email me if you have any questions or would like further information. Thanks again for your input. Your help is greatly appreciated as we try and plan a facility that will meet your needs.
Have a great day.

Heather C. Hasper
Aviation Planner
HDR ONE COMPANY | Many Solutions
2525 C Street Suite 305 | Anchorage, AK | 99503-2569
Phone: 907-644-2000 | Fax: 907-644-2022 | Email: heather.hasper@hdrinc.com

From: wryan@atsak.com
Sent: Friday, December 15, 2006 11:30 AM
To: Siebe, Carl F.
Subject: Kotzebue departure activity

Carl:

It's good to be working on the industry capstone problems with you. I hope that we will be able to convince the FAA to install the 28 GBT's initially with statewide coverage in a realistic time frame thereafter.

Here is our departure activity out of Kotzebue:

2005	1,156 departures
2006 Jan through Nov	1,116 departures

We operate both a CASA 212 and a Cessna 207 out of our Kotzebue hub, but I did not break it down to aircraft type.

I hope that this helps with your analysis.

Merry Christmas,

Boyuck

Wilfred P. Ryan
President
Arctic Transportation Services, Inc.
(907)562-2227x30
wryan@atsak.com

From: Mike Moore [mmoore@nac.aero]
Sent: Saturday, November 25, 2006 7:47 AM
To: Siebe, Carl F.

Carl,

Bill Fowler asked me to respond to your question regarding our B-737 runway length requirement in OTZ.

The current length of 5900 feet is adequate, but 6500 would provide a better safety margin

Regards

Mike Moore
Director of Operations
NAC

From: marshall.g.severson@faa.gov
Sent: Tuesday, December 19, 2006 10:43 AM
To: Siebe, Carl F.
Subject: OTZ Airport Advisories

Carl: For Fiscal Year 2006, the Kotzebue FSS provided approximately 39,144 airport advisories for the Kotzebue airport.

Marshall Severson
Alaska Flight Services Information Office
Safety and Operations
907-271-5865

From: Lynae Jacobson [Lynae.Jacobson@AlaskaAir.com]
Sent: Monday, November 27, 2006 4:35 PM
To: Siebe, Carl F.
Subject: Re: Kotzebue Airport

Hi Carl - I don't have answers to all of your questions, but will share what I do know and try to find answers to the rest.

1.) The 737-200 will be phased out in 2007; the MD-80 in 2011.
2.) Our fleet currently includes the 737-200/400/700/800/900 and MD-80. As noted above that will change to only the 737-4NG fleet.
3.) I'm not sure what aircraft we would use in 20 years. For the short term, the 737-400/400C/400F are most likely. (I'll ask about this further).
4.) I'm not familiar with TSA issues related to combi aircraft.
5.) I don't know if the landing distace issue has resulted in any canceled or diverted flights at OTZ this year. I'll check.
6.) Regarding runway length, for a full 737-400, we would want 6500' - 7500' of landing distance. We would need a minimum of 6500' on a contaminated runway.

Additionally...better approach lighting would help improve reliability, and brighter runway edge lights would make the runway more visible during snow/poor visibility conditions.

Lynae

   "Siebe, Carl F." <Carl.Siebe@hdrinc.com> on Friday, November 17, 2006 at 3:28 PM -0800 wrote:
>Lynae, Hi.
>
>I am helping with a portion of the master plan for the Kotzebue Airport that
>is looking at a potential new airport for Kotzebue to overcome some of the
>deficiencies at the existing location. One of our staff (Heather Hasper)
>talked to you mid August about the project. I wanted to follow up on your
>conversation with Heather.
>
>When do you project the 737-200 will be phased out? The MD-83?
>
>Your fleet includes 737-400, 700, 800, and 900 in addition to MD-83 (did I
>miss any). What aircraft do you foresee flying to Kotzebue during the next 20
>year planning period? Will it include all models or just the 400 and 700?
>Should we plan on any occasional usage by the 800 and 900?
>
>What aircraft will fly the freight?
>What is the latest from TSA about flying passengers and freight on the same
>aircraft (combi)?
>If less than 60 seats does this change the security requirements?
>
>We have also been following the new stopping distance requirements. Has the
>15% for Mu < 20 caused you to miss any flights this year to OTZ? Given your
>current and projected fleet, what runway length would you like to see if a new
>runway is built at OTZ to allow unrestricted operations with the 15% rule?
>Which airframe is this based on?
>
>Thanks for your help. Please give me a call if I can ever be of assistance.
>
>Carl Siebe, PE
>Senior Aviation Consultant
>

>HDR ONE COMPANY | Many Solutions
>2525 C St Suite 305| Anchorage, Alaska | 99503
>Phone: 907.644.2163| Fax: 907.644.2022
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>
>Email: carl.siebe@hdrinc.com
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Lynae Jacobson
Manager, Air Traffic & Airfield Operations
(206) 392-6340

Message has been checked for viruses by AAG MailScan

From: William Fowler [wfowler@nac.aero]
Sent: Friday, November 17, 2006 3:16 PM
To: Siebe, Carl F.
Cc: David W. Karp; Mike Moore; Stephanie Holthaus; Keven Schlosstein; Jeff Landrum
Subject: RE: Kotzebue Airport Master Plan

Carl:

I will answer a few of your questions and get back to you on the others.

We will be flying 3 737-200's, 4 DC6's and perhaps 1 727-100 as of March 2007. This sould be our fleet for 7 to 10 years.

Regarding the 15% braking adjustment for landing, I will get with Mikr Moore and get you a solid answer in a day or two.

Runway length - I will get back with you on that also.

Regards,

Bill Fowler

From: Siebe, Carl F. [mailto:Carl.Siebe@hdrinc.com]
Sent: Friday, November 17, 2006 2:54 PM
To: William Fowler
Subject: Kotzebue Airport Master Plan

Bill, I am working on a portion of the Kotzebue Airport Master Plan. Could you please help with just a few questions. We want our planning efforts to accommodate the needs of Northern Air Cargo.

Our staff has talked to Helen Swishner and Mike Moore and have gotten somewhat different answers. So I thought I should go to you for the final answer.

One of the issues being looked at is the runway length. This of course depends on the aircraft that will use the runway. Your fleet currently has DC-6, ATR 42, and B-727. Will NAC continue to fly these aircraft to Kotzebue during the planning period (20 years)?
Which model of 727 do you have (100 or 200 series)?
Do you plan on any additional ATR purchases?

Mike Moore indicated a future purchase of 737-200 aircraft. When do you project the 737s will be in service? Will this acquisition retire any other aircraft in your fleet?

The FAA has instituted a new braking/runway length requirement of 15% when the Mu is < 20. How has this requirement affected NAC? Given the most demanding aircraft in your fleet that will use Kotzebue in the next 20 years, what runway length would NAC desire (please include the 15% if you are affected by the new rule)?

Bill, thank you for your assistance. Please call me if I can ever be of assistance.

Carl Siebe, PE
Senior Aviation Consultant

HDR ONE COMPANY | Many Solutions
2525 C St Suite 305| Anchorage, Alaska | 99503
Phone: 907.644.2163| Fax: 907.644.2022

Email: carl.siebe@hdrinc.com

From: Bob Hajdukovich [bob@frontierflying.com]
Sent: Friday, December 15, 2006 2:30 PM
To: Siebe, Carl F.
Subject: Re: Kotzebue Airport Operations Forecast
Carl,

are you asking the weather question from a reliability standpoint? or from an infrastructure or instrument approach standpoint. For the month of November, we had the following departures from Kotzebue;

BE-99 9
BE1900 82
PA-31-350 149

October

BE-99 7
BE1900 75
PA-31-350 157

We base a PA31 there year round and we not only have local from Kotz to villages, but have service from Nome, Fairbanks, and Barrow.

We have one hangar that we house the PA31 in. I would say our needs to grow a bit if we had a second aircraft but that aircraft would not likely be any larger than a caravan or PA31.

I would say that we have maybe ten percent cancellation due to weather which can be accompanied with a light load. For example if we only have one reservation and the weather is marginal, we would not wait it out, but rather just cancel the flight for the day. Another operation would be to combine flights due to loads. For example, you may have found that we have service from OTZ to each village, but this may be accomplished by a milk run with one departure serving 4 destinations as opposed to four departures with direct service.

Let me know if you need anything else.

Take care

Bob

On Dec 15, 2006, at 12:04 PM, Siebe, Carl F. wrote:

Bob, I called and left a couple of fractured messages on your phone, then had the light bulb thought to send you an email. We are helping PDC engineering in Fairbanks with the master plan looking at a possible future relocation of OTZ.

One of our tasks is looking at historical operations in order to forecast the future ops.

Looking at your published schedule, I extract 477 scheduled departures from OTZ weekly. (1) Can you extract, or if not extract provide a good guess, on how many of these scheduled flights are cancelled (due to wx and mechanicals probably)? (2) How many unscheduled or on demand flights do you provide?

Ramp space is another issue. How many and what types of aircraft do you park at OTZ? With your fleet how many hangers/lease lots/ramp space would you need to operate optimally.

Hope this is a better request than the fractured phone messages - but it is always fun to actually talk too. Your help is appreciated as we try and plan a facility that will meet your needs.

Carl Siebe, PE
Senior Aviation Consultant

HDR ONE COMPANY | Many Solutions
2525 C St Suite 305| Anchorage, Alaska | 99503
Phone: 907.644.2163| Fax: 907.644.2022

Email: carl.siebe@hdrinc.com

From: marshall.g.severson@faa.gov
Sent: Wednesday, December 20, 2006 6:07 AM
To: Siebe, Carl F.
Subject: RE: OTZ Airport Advisories

Carl: Yes it would per our current order.

--Marshall S.

"Siebe, Carl F." <Carl.Siebe@hdrinc.com>
12/19/2006 04:13 PM
To Marshall G Severson/AAL/FAA@FAA
cc <randy.rogers@faa.gov>
Subject RE: OTZ Airport Advisories

Marshall, I have a follow up question please. When I fly into a busy airport with a FSS I usually can acquire the airport advisory by listening to it being issued to other aircraft. Then all I have to say is that "I have traffic and numbers". Would this still be counted as having issued an airport advisory?

Carl Siebe, PE
Senior Aviation Consultant

HDR ONE COMPANY | Many Solutions
2525 C St Suite 305| Anchorage, Alaska | 99503
Phone: 907.644.2163| Fax: 907.644.2022

Email: carl.siebe@hdrinc.com

From: marshall.g.severson@faa.gov [mailto:marshall.g.severson@faa.gov]
Sent: Tuesday, December 19, 2006 10:43 AM
To: Siebe, Carl F.
Subject: OTZ Airport Advisories

Carl: For Fiscal Year 2006, the Kotzebue FSS provided approximately 39,144 airport advisories for the Kotzebue airport.

Marshall Severson
Alaska Flight Services Information Office
Safety and Operations
907-271-5865

From: Mike Moore [mmoore@nac.aero]
Sent: Friday, December 01, 2006 12:07 PM
To: Siebe, Carl F.
Subject: RE: Planning Runway length for Kotzebue

A 6500 ft minimum runway would be ideal for both the B-727 and B-737 operation, but we can live with the current length.

mm

-----Original Message-----
From: Siebe, Carl F. [mailto:Carl.Siebe@hdrinc.com]
Sent: Monday, November 27, 2006 8:32 AM
To: Mike Moore
Subject: RE: Planning Runway length for Kotzebue

Mike, thank you for the answer. Actually what I asked Bill Fowler was of all the aircraft in your fleet, what runway length do you need especially considering the FAA's new requirement for a 15% landing distance increase when it is slick. My Boeing book says the B-727 requires more runway than the B-737. Bill says NAC will keep the B-727 for several more years. If the use of the B-727 can be scheduled to avoid the slick runways, then it is probably not an issue.

We just want to design the airport to best meet your requirements.

Carl Siebe, PE
Senior Aviation Consultant

HDR ONE COMPANY | Many Solutions
2525 C St Suite 305| Anchorage, Alaska | 99503
Phone: 907.644.2163| Fax: 907.644.2022

Email: carl.siebe@hdrinc.com

-----Original Message-----
From: Mike Moore [mailto:mmoore@nac.aero]
Sent: Saturday, November 25, 2006 7:47 AM
To: Siebe, Carl F.
Subject:

Carl,

Bill Fowler asked me to respond to your question regarding our B-737 runway length requirement in OTZ.

The current length of 5900 feet is adequate, but 6500 would provide a better safety margin

Regards

Mike Moore
Director of Operations
NAC

From: Siebe, Carl F.
Sent: Friday, November 17, 2006 2:54 PM
To: 'wfowler@nac.aero'
Subject: Kotzebue Airport Master Plan

Bill, I am working on a portion of the Kotzebue Airport Master Plan. Could you please help with just a few questions. We want our planning efforts to accommodate the needs of Northern Air Cargo.

Our staff has talked to Helen Swishner and Mike Moore and have gotten somewhat different answers. So I thought I should go to you for the final answer.

One of the issues being looked at is the runway length. This of course depends on the aircraft that will use the runway. Your fleet currently has DC-6, ATR 42, and B-727. Will NAC continue to fly these aircraft to Kotzebue during the planning period (20 years)?
Which model of 727 do you have (100 or 200 series)?
Do you plan on any additional ATR purchases?

Mike Moore indicated a future purchase of 737-200 aircraft. When do you project the 737s will be in service? Will this acquisition retire any other aircraft in your fleet?

The FAA has instituted a new braking/runway length requirement of 15% when the Mu is < 20. How has this requirement affected NAC? Given the most demanding aircraft in your fleet that will use Kotzebue in the next 20 years, what runway length would NAC desire (please include the 15% if you are affected by the new rule)?

Bill, thank you for your assistance. Please call me if I can ever be of assistance.

Carl Siebe, PE
Senior Aviation Consultant

HDR ONE COMPANY | Many Solutions
2525 C St Suite 305| Anchorage, Alaska | 99503
Phone: 907.644.2163| Fax: 907.644.2022

Email: carl.siebe@hdrinc.com

From: Siebe, Carl F.
Sent: Monday, November 27, 2006 8:32 AM
To: 'Mike Moore'
Subject: RE: Planning Runway length for Kotzebue

Mike, thank you for the answer. Actually what I asked Bill Fowler was of all the aircraft in your fleet, what runway length do you need especially considering the FAA's new requirement for a 15% landing distance increase when it is slick. My Boeing book says the B-727 requires more runway than the B-737. Bill says NAC will keep the B-727 for several more years. If the use of the B-727 can be scheduled to avoid the slick runways, then it is probably not an issue.

We just want to design the airport to best meet your requirements.

Carl Siebe, PE
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Email: carl.siebe@hdrinc.com

-----Original Message-----
From: Mike Moore [mailto:mmoore@nac.aero]
Sent: Saturday, November 25, 2006 7:47 AM
To: Siebe, Carl F.
Subject:

Carl,

Bill Fowler asked me to respond to your question regarding our B-737 runway length requirement in OTZ.

The current length of 5900 feet is adequate, but 6500 would provide a better safety margin

Regards

Mike Moore
Director of Operations
NAC

From: Siebe, Carl F.
Sent: Friday, December 15, 2006 12:56 PM
To: 'lynae.jacobson@alaskaair.com'
Subject: OTZ Operations Forecast

Hi Lynae. We have a couple of follow on question on Kotzebue. Your schedule shows 21 scheduled flights per week, which equals 1092 scheduled flights per year. Can you extract from your data base the actual number of flights that occurred in a past year? Some flights are cancelled due to weather or mechanical. That would be useful to factor in. Sometimes you dispatch unscheduled extra sections. I would like to be able to add those to the totals. I don't know if this is easy to extract from your data base, or if not, can you give me your best guess on how to adjust the scheduled flights.

Hope you have been up to ski, we have some great snow.
Carl Siebe, PE
Senior Aviation Consultant

HDR ONE COMPANY | Many Solutions
2525 C St Suite 305| Anchorage, Alaska | 99503
Phone: 907.644.2163| Fax: 907.644.2022

Email: carl.siebe@hdrinc.com

From: Siebe, Carl F.
Sent: Monday, November 20, 2006 9:47 AM
To: 'reverts@evertsair.com'
Subject: Kotzebue Airport Master Plan

Robert, our firm is working on a portion of the Kotzebue Airport Master Plan. We want our plan to reflect the airport needs of the three Everts Air companies.

Do you foresee any of your companies offering passenger service to or from Kotzebue? If so what would be the origin/destination cities and what aircraft would you utilize?

Everts Air Cargo and Everts Air Fuel are currently flying DC-6 and C-46 aircraft. Do you plan on acquiring any additional aircraft in the 20 year planning period?

It appears that most of your Kotzebue flights are the scheduled Everts Air Cargo flights from Anchorage and Fairbanks. Do you foresee the need for Everts Air Fuel to fly to Kotzebue, and if so is there any planning we should do to accommodate your loading and unloading?

Thank you for your input to the Kotzebue Airport Master Plan.

Carl Siebe, PE
Senior Aviation Consultant

HDR ONE COMPANY | Many Solutions
2525 C St Suite 305| Anchorage, Alaska | 99503
Phone: 907.644.2163| Fax: 907.644.2022

Email: carl.siebe@hdrinc.com

Population Forecast

Population Forecast, Kotzebue Airport

Prepared for

PDC, Inc. Engineers and Alaska Department of Transportation and Public Facilities

November 2006

PROFESSIONAL CONSULTING SERVICES IN APPLIED ECONOMIC ANALYSIS

Anchorage

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Team Member	Project Role	Company
Mike Fisher	Project Manager	Northern Economics, Inc.
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Contents

Executive Summary

This report presents a population forecast for use in the socioeconomic evaluation of the potential relocation of the airport at Kotzebue. The report also examines the social and economic drivers of that forecast. The forecast is concerned with users of the airport, namely the residents of the Northwest Arctic Borough, the City of Kotzebue, and the other communities in the Borough.

The City of Kotzebue is the largest community in the Northwest Arctic Borough. It constitutes over 40 percent of the Borough's residents and its airport serves as an air passenger and air cargo hub for the region. From 2002 through 2004, it handled a total annual throughput of more than 100,000 passengers and 30 to 40 million pounds of mail and freight. The number of passengers enplaning and deplaning has grown 1.4 percent annually, while weight of cargo passing through the airport has grown 4.7 percent annually. Passenger use has grown at roughly the same rate as the Borough's population (1.3 percent), while cargo handling has grown at more than three times that rate.

The primary economic activities in the Northwest Arctic Borough are government, mining, health care, transportation, services, and construction, with seasonal employment provided by commercial fishing, fish processing, fire fighting, construction, and barge operations. These activities are likely to remain the dominant economic factors and drivers of population change in the future. Some of the major economic activities considered in creating this forecast are ongoing extraction and development of the region's resources, including the Red Dog Mine, gold in the Arctic Deposit, and coal at Deadfall Syncline. Continued resource development will be a primary driver for population in the Borough.

The population forecast uses three growth cases: high, medium, and low. The high case shows linear growth, which is optimistic and would require continued growth in the resource extraction industry. Largely, resource development in the Borough depends on world commodity prices and the relative cost of developing the region's resources. Continued growth of this nature is possible but not likely.

The high case is also impacted by the tendency of residents to move to Anchorage or other locations after being hired by resource extraction companies such as the Red Dog Mine (Stoops, 2006). While these residents continue to use the Kotzebue airport to fly to and from work, they are no longer residents of the Borough. The forecasts do not reflect this tendency for residents to relocate, which means the actual population may be lower than that shown in the forecast to the extent the population is driven by resource-related employment.

The medium case, which represents the most likely case, suggests the population will peak around 2045 and decline during the remainder of the forecast period. The decline is due to the shutdown of the Red Dog Mine. Other resource extraction activities would increase the population from where it is today, but the closure of the mine would affect the population in later years. The population decline is not expected to affect Kotzebue as much as it would affect other communities in the Borough.

The low case shows the population declining, starting in the 2030s. This decline would result from the eventual closure of the Red Dog Mine and a lack of other resource development activities to maintain the population. The population decline is not expected to affect Kotzebue as much as other communities in the Borough.

While there is some seasonal variation in the population of these regions, insufficient data exists to incorporate that seasonality in the forecast. However, information on the seasonality of employment (see the economic profile prepared by Northern Economics, Inc.) is useful as a proxy for population seasonality.

Another factor that could affect air traffic demand is the cost of fuel. If fuel costs remain high, travelers may reduce the amount of travel they do and the amount of cargo transported to and from

the region might decline. However, other factors may partially or completely override these effects and the net effect cannot be determined by a study of this size.

Figure ES - 1 and Table ES - 1 show the historical and forecasted population for the Northwest Arctic Borough, City of Kotzebue, and other areas in the Borough. Historical population numbers are shown from 1980 to 2004, and the forecast covers 2005 through 2055. The chart presents three cases.

Figure ES - 1. Population Historical Trends and Forecasts, 1980—2055

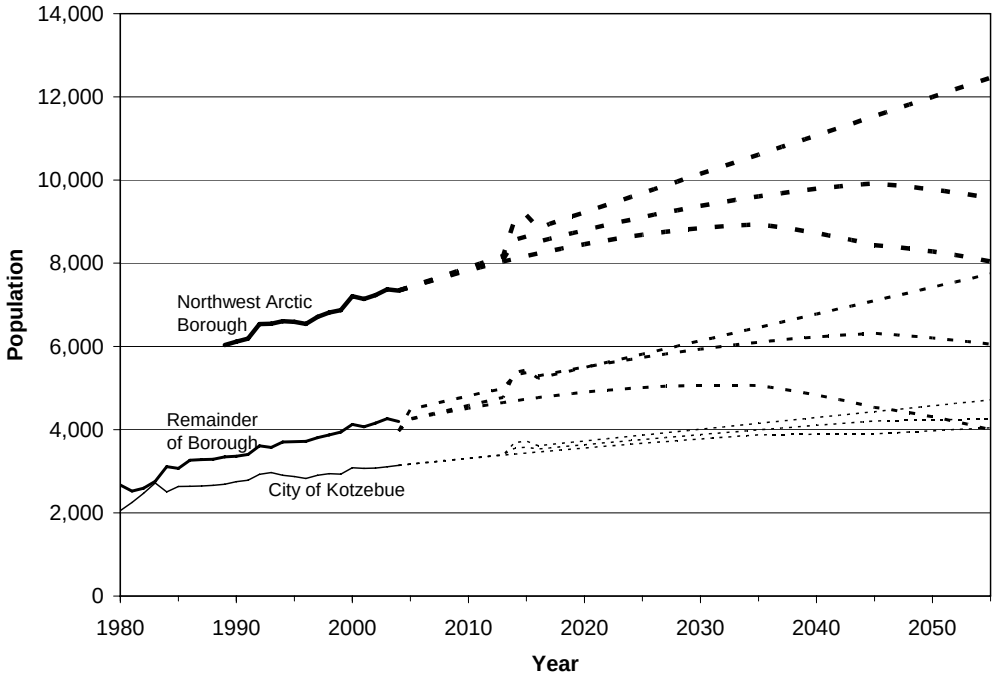


Table ES - 1. Population Forecasts, 2005—2055

	High Case			Medium Case			Low Case		
Year	NWAB	Kotzebue	Others	NWAB	Kotzebue	Others	NWAB	Kotzebue	Others
2005	7,434	3,172	4,261	7,429	3,172	4,493	7,427	3,172	4,255
2006	7,526	3,200	4,326	7,517	3,200	4,558	7,511	3,200	4,311
2007	7,619	3,229	4,390	7,602	3,228	4,623	7,593	3,228	4,365
2008	7,711	3,257	4,454	7,687	3,256	4,687	7,673	3,255	4,417
2009	7,804	3,285	4,519	7,770	3,283	4,750	7,750	3,282	4,468
2010	7,896	3,313	4,583	7,852	3,311	4,812	7,826	3,309	4,517
2015	9,159	3,721	5,438	8,641	3,577	5,371	8,171	3,438	4,733
2025	9,684	3,869	5,815	9,107	3,763	5,736	8,684	3,672	5,012
2055	12,460	4,715	7,744	9,569	4,254	6,058	8,043	4,043	3,999

1 Introduction

This report provides population forecasts for the Northwest Arctic Borough, the City of Kotzebue, and other communities in the Borough. The forecast is concerned with users of the airport, namely the residents of and visitors to the Borough.

When looking at the feasibility of a proposed action, it is important to understand what factors drive population changes and therefore changes in the demand for different modes of transportation. Typically, population centers occur where people can maintain their lifestyles and satisfy the need for food and shelter. In Western economies, this means population centers form around areas in which employment and services are available. In rural Alaska, population centers form from a combination of employment, services, and the ability to participate in subsistence activities. While the Internet has the potential to change population patterns, it is not clear that it has had an impact in rural Alaska.

The document provides forecasts for future populations based on linkages between population and industrial activity.

This report is divided into four sections:

- Introduction
- Role of Air Service in the Communities
- Population Forecast
- References

This report relies on information in the economic profile prepared by Northern Economics, Inc. as part of this study. The profile contains the background economic information considered in developing these forecasts. The reader should refer to the profile for detailed economic information.

The References section at the end of the report details the sources of information used in the analysis.

The next section, Role of Air Service in the Communities, describes air service to and from the Kotzebue airport as a proxy for activity within the Borough.

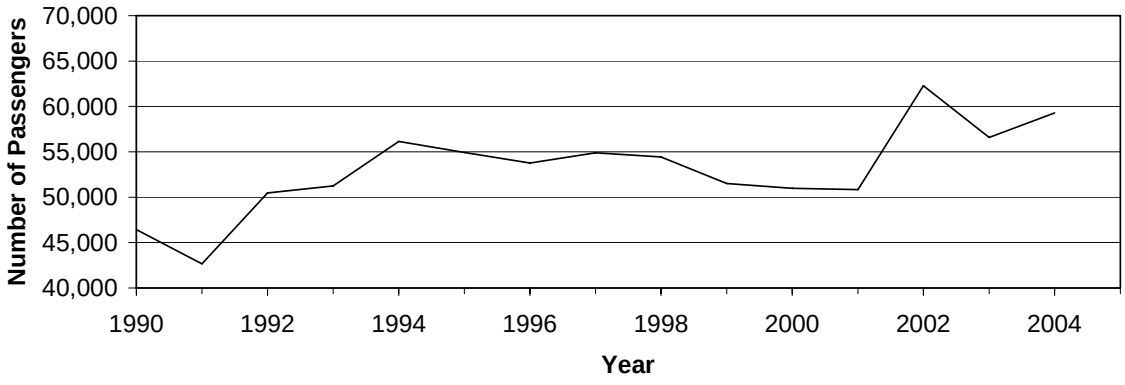
2 Role of Air Service in the Communities

Air service is a critical transportation component in the Northwest Arctic Borough. None of the Borough's communities are connected by road. Personal vehicles can transport small numbers of people and small amounts of cargo, but air travel is often the only option for transporting large numbers of passengers and large amounts of cargo. The City of Kotzebue is the main hub for air transport in the region and serves 10 nearby villages. It has year-round jet service to and from Anchorage.

2.1 Passengers

The number of passengers using the Kotzebue airport has increased steadily over the past several years. From 1990 through 2004, the number of passengers enplaning and deplaning grew at an annual rate of 1.4 percent, as shown in Figure 1.

Figure 1. Number of Passengers on Kotzebue Flights



Source: U.S Bureau of Transportation Statistics
Note: The number of passengers shown is an average of the enplanements and deplanements for each year.

2.2 Mail and Freight

Freight and mail volumes moving through the Kotzebue airport have increased from 1990 to 2004 at a rate of about 4.7 percent annually. This growth has mostly occurred since 1999 and exceeds the population growth rate of the entire Borough. On a per-capita basis, 5,096 pounds of freight and mail per person were sent through the airport in 2004, compared with 4,237 pounds per person in 2000 and 3,566 pounds per person in 1990. This rapid growth could have been caused by a variety of factors[1] and is beyond the scope of this study to determine.

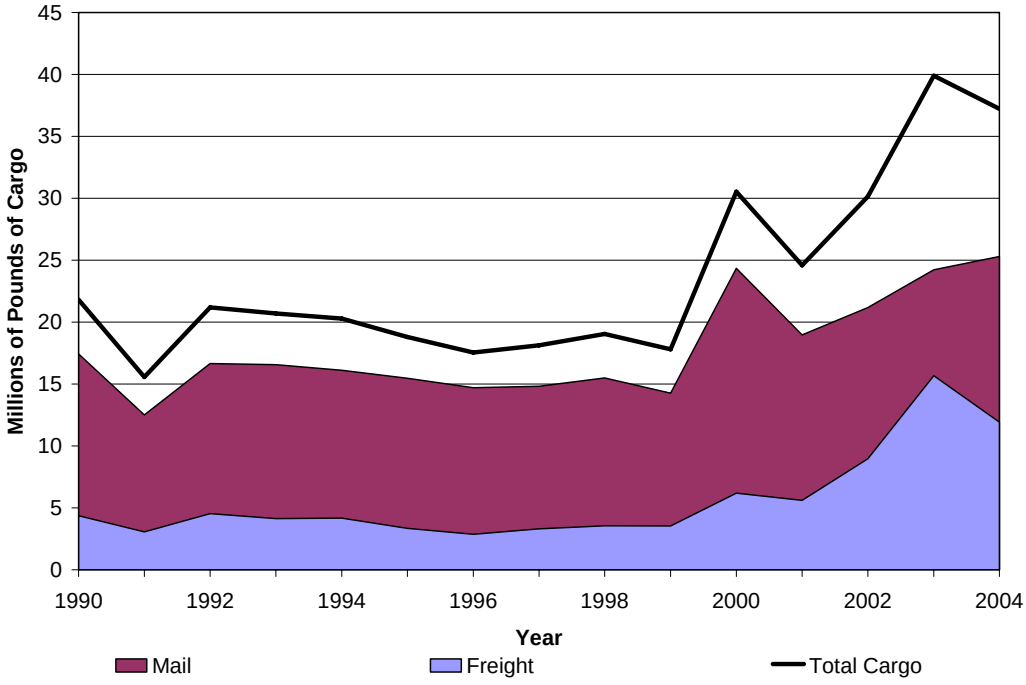
Most cargo is moved as mail because of the bypass mail program, which provides very low shipping rates for goods mailed from hubs in Anchorage or Fairbanks to rural communities. Freight shipments likely represent items sent by air that were too large to be sent through the United States Postal Service and had to be sent through a carrier as freight. Note that waterborne cargo shipments, which

[1] Possible factors may include changes in the relative costs of air and barge transportation, changes in household income and spending patterns due to larger Permanent Fund Dividend checks, convenience of ordering items from Internet companies, and/or an increase in the number of companies in Anchorage offering Bush shipping.

likely account for the majority of non-mail cargo shipments, especially for larger and heavier items, are not included.

Figure 2 shows the growth in mail and freight shipments from 1990 to 2004.

Figure 2. Shipments of Mail and Freight on Kotzebue Flights, 1990—2004



Source: U.S Bureau of Transportation Statistics

2.3 Air Carriers

From 1990 to 2004, 32 air carrier companies flew to or from Kotzebue, carrying a combination of passengers, freight, and mail. The regular carriers that operated throughout that 15-year period were Alaska Airlines, Baker Aviation, Bering Air, Cape Smythe Air Service, and Frontier Flying Service. Other carriers have begun to serve Kotzebue in recent years.

In 2004, ten carriers provided passenger service and eighteen carriers provided freight and mail service. The carriers responsible for transporting the largest number of passengers were Alaska Airlines, Bering Air, and Hageland Aviation Service. Combined, those three carriers transported over 50,000 passengers, or almost 85 percent of the total. Bering Air, Arctic Transportation, and Hageland Aviation Service transported over 20 million pounds of cargo (freight and mail), representing almost 55 percent of the total for the year.

A summary of the air carriers that serviced Kotzebue from 1990 to 2004 is shown in Table 1. The letters shown in the table indicate the type of service offered for carriers flying from Kotzebue. Carriers shown with a P transported passengers. An M indicates mail and an F indicates freight.

Table 1. Air Carriers Transporting Passengers, Freight, and Mail on Flights Departing from Kotzebue

Carrier	Year														
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Alaska Airlines Inc.	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM
Alaska Central Express								FM	FM	FM	FM	FM	FM	FM	M
Alaska Island Air, Inc.			P M	PFM	PFM	PFM									
Arctic Circle Air Service														PF	PF
Arctic Transportation												FM	PFM	FM	FM
Baker Aviation, Inc.	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM
Bellair, Inc.										FM	FM	FM	FM	FM	FM
Bering Air, Inc.	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM
Cape Smythe Air Service	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM
Era Aviation													P		
Evergreen Int'l Inc.													M		
Express One Int'l Inc.						F									
Frontier Flying Service	PF	PFM	PFM	PFM	PFM	PF	PFM	PFM	PFM	PFM	FM	P M	P M	PFM	PFM
Grant Aviation									PFM	PFM	PFM	FM	PFM	PFM	
Hageland Aviation Service						PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM
Iliamna Air Taxi													P		
Larry's Flying Service			FM	PF			M	FM	PFM	PFM	PFM	P M	PFM	P M	PFM
Lynden Air Cargo Airlines													FM	FM	FM
Markair Express					PFM	PFM									
Markair Inc.		PF	PFM	PFM	PFM	PF									
Merlin Express							P	PF	PF						
Northern Air Cargo Inc.													F	FM	FM
Olson Air Service							P		P						
Peninsula Airways, Inc.									PFM	PF			P	P	
Ryan Air Service, Inc.	PFM	PFM	PFM	PFM	PFM	FM	FM	FM	FM	FM	FM				
Servant Air, Inc.											FM	M	M	P M	
Tanana Air Service									PFM	PFM	PFM	PFM	PFM	PFM	PFM
Tatonduk Flying Service											PFM	FM	FM	FM	FM
Village Aviation								FM	PFM	PFM	FM	FM	FM	FM	FM
Warbelow														P	
Wright Air Service													PF		PF
Yute Air *aka* Flight Alaska		P M	PFM	PFM	PFM	PFM	PFM	PFM	PFM	PFM	FM		PFM	FM	

Source: U.S Bureau of Transportation Statistics
Note: Letters indicate if the carrier transported any quantity of passengers (P), freight (F), or mail (M) in the years shown.

2.4 Other Modes of Transportation

Common modes of transportation for individuals within the Northwest Arctic Borough include snowmachines, ATVs, and boats to travel between communities. Automobiles are available in some communities for local travel. Because of the lack of transportation infrastructure, air travel is the only option for transporting large numbers of passengers and large amounts of freight or cargo.

The Northwest Alaska Transportation Plan, adopted in early 2004, discusses the transportation challenges faced by the region, including the Northwest Arctic Borough (ADOT&PF, 2004). The plan

discusses the high importance of air transportation for moving passengers and cargo, followed by waterborne transportation, which is used during the five months each year when Kotzebue Sound is free of ice. During the winter months, dog sleds and snowmachines are able to use winter roads to travel between the communities. A limited number of road projects are planned for the Borough. Residents recognize the demand for year-round roads between communities, but there are concerns about the negative impacts that transportation linkages would have on subsistence resources. The Northwest Arctic Borough has the second highest dependence on subsistence harvests in the state, with an annual harvest of more than 600 pounds per person.

3 Population Forecast

This section provides a population forecast for 5, 10, 20, and 50 years from present that can be used to forecast air traffic in the Northwest Arctic Borough and Kotzebue. Supporting information is provided on historical and anticipated future population growth factors.

The next section, Section 3.1, discusses the approach used to develop the population, passenger, and cargo forecasts.

3.1 Forecast Methodology

Population forecasts are uncertain. Precision declines as a forecast extends further and further into the future. Population data is available for the 25-year period of 1980 to 2005, suggesting that a forecast period of up to 25 years could be reasonably precise. Beyond this period, roughly between 2025 and 2030, the forecast becomes less useful and more susceptible to error. For this reason, the 50-year forecast is highly uncertain.

To develop these forecasts Northern Economics first examined past trends in population and considered factors that have contributed to the growth. Second, it looked at factors that would continue to influence population changes in the future. Third, it considered the possibility of new factors that could contribute to population changes in the future.

After evaluating the factors that could influence future population changes, analysts developed high, medium, and low scenarios. The high and low scenarios represent reasonable bounds for the forecast, while the medium scenario represents the most likely case. The scenarios were used to generate high, medium, and low case population forecasts.

The high, medium, and low cases are described in terms of the population effects in the next section, Section 3.2. Section 3.3 discusses factors contributing to the historical population estimates. Factors affecting the population forecast for each case are discussed further in Section 3.4. The population forecast is shown in Section 3.5.

3.2 Population Growth Cases

This section briefly describes the three growth cases used to generate the population forecast.

The high case shows linear growth, which is optimistic and would require continued growth in the resource extraction industry. Largely, resource development depends on world commodity prices and the relative attractiveness of the Borough's resources. Continued growth of this nature is conceivable, but not the most likely case.

The high case is affected by the tendency of residents to move to Anchorage or other locations after being hired by resource extraction companies such as the Red Dog Mine (Stoops, 2006). While these residents may continue to use the Kotzebue airport to visit relatives, they are no longer residents of the Borough and would fly directly to and from the Red Dog Mine's air strip. The forecasts do not reflect this tendency for residents to relocate, which means the actual population may be lower than that shown in the forecast to the extent the population is driven by resource-related employment.

The medium case suggests the population will peak around 2045 and decline during the remainder of the forecast. The medium forecast reflects the most likely case. The decline is due to the shutdown of the Red Dog Mine. Other resource extraction activities would increase the population from where it is

today, but the closure of the mine would impact the population. The population decline is not expected to affect Kotzebue as much as it would affect other communities in the Borough, because of its more diversified economy and the presence of the NANA Regional Corporation.

The low case shows the population declining, starting in the 2030s. This decline would result from the eventual closure of the Red Dog Mine and a lack of other resource development activities to maintain the population. The population decline is not expected to affect Kotzebue as much as it would affect other communities in the Borough.

3.3 Historical Population Growth Factors

This section discusses the major employers and socioeconomic factors that have affected the future population of the Borough. The third subsection summarizes existing information about the Kotzebue airport from planning efforts.

3.3.1 Economic Factors

The primary economic activities in the Northwest Arctic Borough are government, mining, health care, transportation, services, and construction, with seasonal employment provided by commercial fishing, fish processing, fire fighting, construction, and barge operations (ADCCED, 2005).

3.3.1.1 Primary Employers

The Borough's largest employers in 2004 were Maniilaq Association, the Northwest Arctic Borough School District, and Teck Cominco Alaska. Those three employers accounted for 1,476 employees. A list of the employers in the Borough with 20 or more employees is presented in the economic profile.

3.3.1.2 Red Dog Mine

The following information is based on the report, *Economic Assessment of Noatak Road and Airport Development Alternatives* (Northern Economics, Inc., 2005).

The Red Dog zinc mine is a primary driver of employment in the Northwest Arctic Borough. The mine opened in December 1989 and is operated by Teck Cominco through an agreement with NANA Regional Corporation, which owns the land on which the mine is located. The mine operates year-round and has milled an average of 3.1 million tons of ore concentrates annually since 1999.

In December 2004, 192 of the 467 regular employees and contractors working at the mine lived in the Northwest Arctic region. Currently, 56 percent of the employees and contractors at the mine are NANA shareholders. Profits from the mine are shared with NANA at a rate of 4 percent until Teck Cominco's capital investment is paid off. From that point forward, the percent of profits shared with NANA increases depending on the life of the mine, which promises to be at least 40 more years. This analysis assumes these profits would be used for NANA's operations or its business and capital investments, so there would not be any large, direct payments to shareholders.

Red Dog's 467 regular employees and contractors rotate in and out of the mine in a 21-day cycle that includes 14 days at the mine working (typically) 12-hour shifts followed by 7 days off. In December 2004, 192 employees and contractors lived in the region. Of those Red Dog employees who live in the Northwest Arctic Borough, the rough estimate of what percentage live in each community is shown in Table 2.

Table 2. Percent of Red Dog Employees in NWAB by Community

Community	Percent of NWAB Employees
Ambler	4.8
Buckland	7.8
Deering	0.6
Kiana	9.0
Kivalina	8.4
Kobuk	0.6
Kotzebue	16.8
Noatak	15.6
Noorvik	16.8
Selawik	12.6
Shungnak	7.2

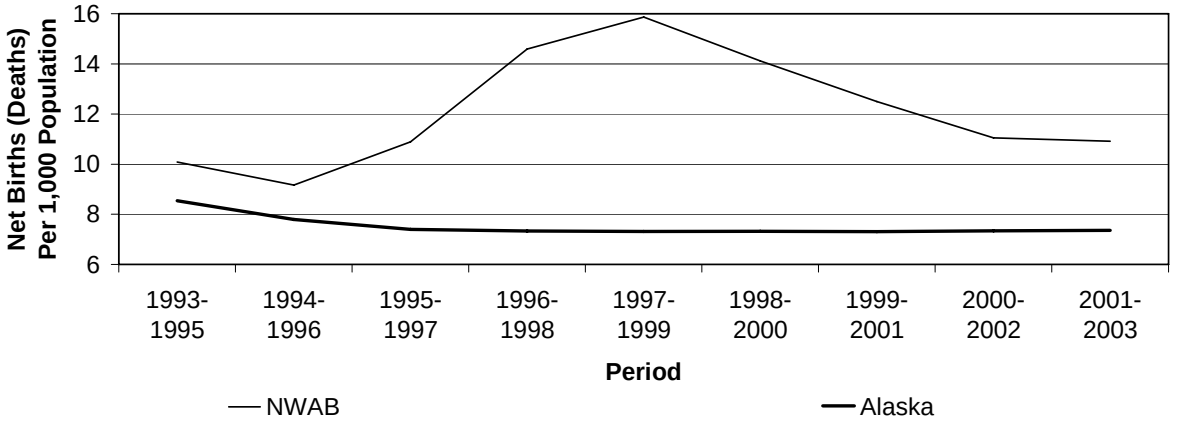
Source: Northern Economics, Inc., 2005

3.3.2 Socioeconomic Factors

Historically, the population of the Northwest Arctic Borough has grown at a faster rate than the State of Alaska as a whole. While the death rate is higher in the Borough than it is for the State, the net effect still favors growth. This trend has remained true since 1993.

From 2001 to 2003, the net population increase due to births and deaths was almost 10.9 people per 1,000 in the Northwest Arctic Borough, compared with 7.4 in all of Alaska. The difference between the two areas' net increase rates was large in the mid- to late-1990s, peaking between 1997 and 1999, when there was an increase of nearly 15.9 people per 1,000 in the Borough, compared with 7.3 in the state. A chart showing the net population increase due to births and deaths per 1,000 people is found in Figure 3.

Figure 3. Net Birth (Death) Rate for NWAB and Alaska per 1,000 Residents, 1993 through 2003



Source: Department of Health and Human Services, 2005

3.3.3 Previous Planning Efforts

This section provides an overview of economic development plans that are currently in place for the City of Kotzebue and the NWAB. A review of the plans provides an indication of potential areas of economic strength in the region and the importance of Kotzebue's airport to its economy.

3.3.3.1 City of Kotzebue's Comprehensive Plan

The *City of Kotzebue Comprehensive Plan* was adopted on December 7, 2000 (City of Kotzebue, 2000). This plan was the culmination of a planning effort that began in 1971 when Comprehensive Plan and Land Use designations and plans were developed but not implemented. Over the intervening years, several variations and updates of the plan were undertaken but never implemented. In 1999, a new City Council, City Manager, and City Planner Engineer reviewed previous planning efforts and held new hearings in 1999 to identify problems/needs/issues of Kotzebue. The hearings identified nine issues: housing, land, gravel, freight, energy, enterprise development, safety, transportation, and infrastructure. A strategic planning guide was developed and issue papers were circulated to stimulate community interest. Public meetings were held June 14 and 15. On August 15 and 16, 2000, a second planning session was conducted. The Borough received the plan in September 2000 and adopted it on December 7. Significantly, the first goal on the list was "Move airport."

3.3.3.2 Ralph Wien Memorial Airport Master Plan Update

The master plan for the airport was last updated in 1998 (ASCG Incorporated, 1998). The update was financed in part by a planning grant from the Federal Aviation Administration. ADOT& PF owns and maintains the airport. The airport encompasses 1,805 acres south of the City of Kotzebue. Four general airport alternatives were evaluated including a No-Action Alternative. The evaluation started with an operations feasibility study. One alternative evaluated in this plan was relocation of the airport.

3.3.3.3 Other Development Plans

The Northwest Arctic Borough prepares and implements platting and zoning ordinances, administers the Alaska Coastal Management Plan, and provides technical support and training to Village Planning Committees. However, beginning in 2005, the Denali Commission will require a local comprehensive community plan before funding infrastructure projects (Denali Commission, 2004).

The Northwest Arctic Borough has an Economic Development Commission that meets six times a year. Village resource specialists make up part of the Commission, which has developed a Borough-wide economic development plan. Some of the objectives of the plan include creating new job opportunities by:

- Assisting communities with development and implementation of comprehensive plans for local development
- Procuring lands that provide maximum potential for future development in the Borough
- Utilizing the municipal entitlement process for selection of an additional 300,000 acres of land within the region

The Northwest Arctic Borough and its communities are also subject to the Northwest Alaska Transportation Plan adopted in February 2004 (Alaska Department of Transportation and Public

Facilities, 2004). The plan identifies the Northwest Arctic Borough as a subregion and Kotzebue as the subregion hub. This hub serves 11 communities in the Borough. The main air carrier routes in Northwest Alaska include Kotzebue to Noatak to Kivalina to Point Hope, a 331-mile round trip route.

According to the Comprehensive Economic Development Strategy (CEDS) for the Northwest Arctic Borough, the primary industrial development project in the Borough is the Red Dog Mine, the world's largest zinc and ore mine (Northwest Arctic Borough, 2004). The Red Dog Mine has been in operation since 1989. A mill expansion was completed in 2001, and has increased in the efficiency of the zinc and ore recovery. Recently, several new deposits have been found, which will extend the life and increase the amount of available ore concentrate. This also translates into long-term, stable jobs for local residents, who, under a local-hire employment agreement, are trained and hired to work at the mine.

The CEDS document also provides detail about other resource extractive industries that may experience growth in the future. Other deposits have been identified including gold, jade, copper, and other minerals. There are also large deposits of natural gas and possibly oil within the Northwest Arctic Borough.

Other economic development efforts include the development of arts and craft industries. Small business grants and loans have been provided to artists within the Borough to help them obtain tools, materials, and supplies (Northwest Artic Borough, 2004).

3.4 Future Population Growth Factors

The following subsections discuss the major economic and socioeconomic factors that are anticipated to affect the future population of the Northwest Arctic Borough.

3.4.1 Economic Factors

The primary economic activities in the Northwest Arctic Borough are likely to remain the same as they are now. The following subsections provide more detail on the major economic activities anticipated to occur in the Borough during the study period.

3.4.1.1 Red Dog Mine

The Red Dog zinc mine is expected to operate for another 40 years. Under the medium growth case, the analysis assumes that the mine will operate at full employment levels through 2045 and then slowly reduce employment over the next 10 years. Under the high growth case, this analysis assumes that the mine operates during the entire study period with steady employment levels similar to those at present. Under the low growth case, the analysis assumes that the mine's employment remains steady for 30 years to 2035, declines for 10 years to 2045, and closes in 2045.

3.4.1.2 Development of the Arctic Deposit

The following discussion is based on a telephone interview with Doug Nicholson of NovaGold (Nicholson, 2006).

NovaGold is in a Joint Venture with Rio Kintu on the Arctic Deposit, located 20 miles northeast of Kobuk. The deposit is world-class and contains copper, zinc, lead, silver, and gold.

In 2004, they drilled to confirm deposits. In 2005, they initiated an initial transportation study and a power study. The first phase of the initial transportation study is complete. They looked at 57 options including roads and railroads to Kotzebue, to Noatak linking up with DMTS, as well as air transportation options.

Because of the distances involved (175 miles to either Noatak or Kotzebue), it appears that building an airport may be the best option. The airport would be either 747 or A380 capable. They would either fly ore out to smelter or reduce on site.

In the next several years, they will ramp up their studies. The permitting process might begin as soon as 2011, and initial construction might begin in 2014, with mining operations beginning in 2016.

The mine would probably be an underground mine (but an open pit is an option). It would produce 7,000 metric tons per day of product to go into processing. The mine would employ 300 to 400 people over three shifts. Employment in construction and infrastructure development would be at least twice the mine employment, depending on options. The known resource would be feasible for at least 20 years, but additional deposits exist and they are hoping to work the mine for up to 50 years.

The market for metal looks very strong for the long run, fueled by demand from India and China. The company is not very concerned about a glut of product if the Pebble mine opens. Given the costs and potential environmental issues, the company estimates the mine has a 50 percent chance of opening.

Under the medium growth case, the analysis assumes that there is a 50 percent chance that the mine will open in 2016, following construction in 2014. It would operate at full employment levels through the end of the study period, but the employment would be treated as one-half of the actual employment because of the 50 percent chance that the mine would not open. Under the high growth case, this analysis assumes that the mine would open in 2016 after two years of construction, and would operate at full employment levels through the study period. Under the low growth case, the analysis assumes that the mine would not open. In all cases, it is assumed that 40 percent of the employees would be residents of the Northwest Arctic Borough.

3.4.1.3 Coal Development at Deadfall Syncline

The Deadfall Syncline coal deposit is located in the North Slope Borough to the north of Red Dog Mine, about five miles inland from the Chukchi Sea. The deposit contains adequate resources to support mining of one million tons annually for 20 years. The coal has high energy content and is low in moisture and sulfur. Development of the coal resource may affect the Northwest Arctic Borough and could use the existing road extending from Red Dog to the coast (Rural Action Energy Council, 2005).

Development at Deadfall Syncline is one of the economic drivers that takes place in the future under the high case and contributes to continued population growth.

3.4.1.4 Economic Development Activities of the Northwest Arctic Borough

Resource-related activities will continue to be the major economic drivers in the Borough. A number of potential resource developments include copper, gold, and silver in the Ambler Mining District (Stoops, 2006). Section 3.4.1.2 provided more detail on potential NovaGold developments.

3.4.2 Socioeconomic Factors

Historically, the population growth rate for the Northwest Arctic Borough has exceeded that of the entire state of Alaska, as measured by births and deaths per unit of population. This rate difference should decline over this study period as population growth in the Borough slows. This appears in the forecast chart with flattening population projections in the medium and low cases.

3.5 Population Forecast

This section presents the population forecast for 5, 10, 20, and 50 years from present. Population is shown for the entire Northwest Arctic Borough, the City of Kotzebue, and all other areas combined. In the high and medium growth cases, the population in all three areas is expected to increase over the next fifty years.

Figure 4 and Table 3 show the historical and forecasted population for the Northwest Arctic Borough, City of Kotzebue, and other areas in the Borough. Historical population numbers are shown from 1980 to 2004, and the forecast covers 2005 through 2055. The chart presents three cases: high, medium, and low. The bumps shown around 2015 in the high and medium cases reflect the additional population associated with construction at the Arctic Deposit.

Figure 4. Population Historical Trend and Forecast, 1980—2055

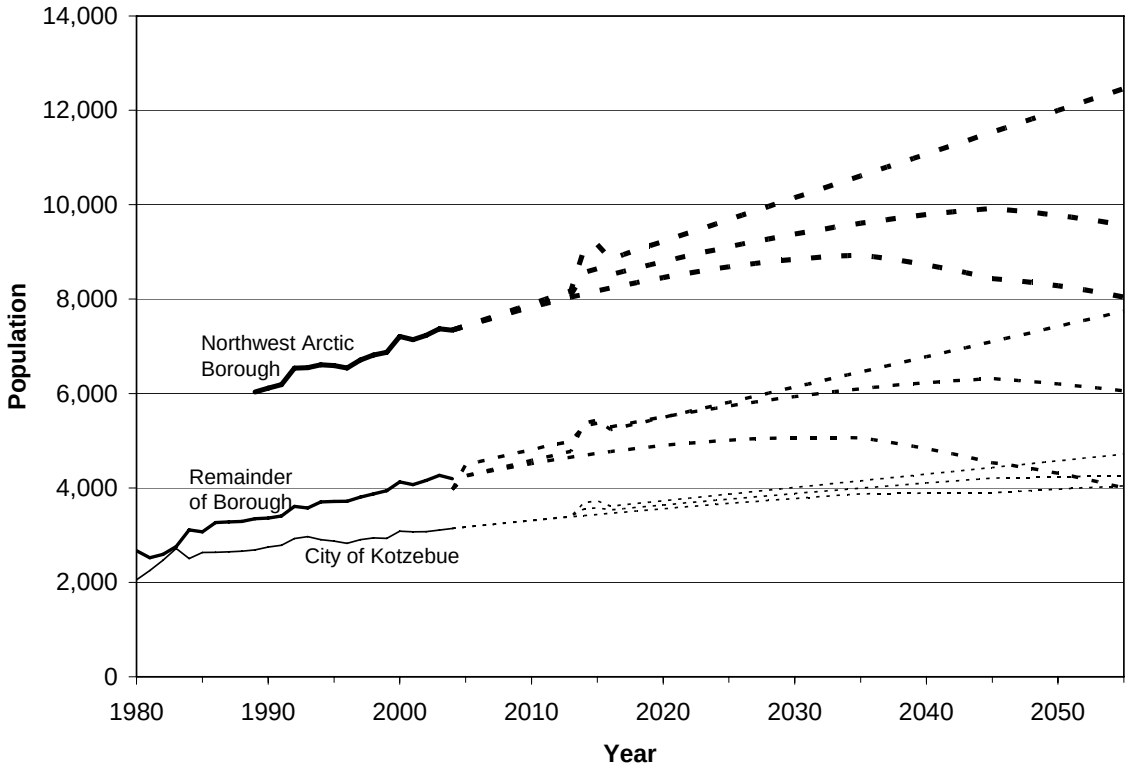


Table 3. Population Forecast, 2005—2055

Year	High Case			Medium Case			Low Case		
	NWAB	Kotzebue	Others	NWAB	Kotzebue	Others	NWAB	Kotzebue	Others
2005	7,434	3,172	4,261	7,429	3,172	4,493	7,427	3,172	4,255
2006	7,526	3,200	4,326	7,517	3,200	4,558	7,511	3,200	4,311
2007	7,619	3,229	4,390	7,602	3,228	4,623	7,593	3,228	4,365
2008	7,711	3,257	4,454	7,687	3,256	4,687	7,673	3,255	4,417
2009	7,804	3,285	4,519	7,770	3,283	4,750	7,750	3,282	4,468
2010	7,896	3,313	4,583	7,852	3,311	4,812	7,826	3,309	4,517
2011	7,989	3,341	4,647	7,933	3,338	4,872	7,900	3,335	4,564
2012	8,081	3,370	4,712	8,012	3,365	4,932	7,971	3,362	4,609
2013	8,174	3,398	4,776	8,090	3,391	4,990	8,040	3,387	4,653
2014	9,066	3,693	5,374	8,566	3,551	5,315	8,107	3,413	4,694
2015	9,159	3,721	5,438	8,641	3,577	5,371	8,171	3,438	4,733
2016	8,851	3,616	5,236	8,514	3,537	5,293	8,233	3,463	4,771
2017	8,944	3,644	5,300	8,586	3,563	5,347	8,293	3,487	4,806
2018	9,036	3,672	5,364	8,657	3,588	5,400	8,351	3,512	4,839
2019	9,129	3,700	5,429	8,726	3,614	5,451	8,406	3,535	4,870
2020	9,221	3,728	5,493	8,793	3,639	5,502	8,459	3,559	4,900
2021	9,314	3,757	5,557	8,859	3,664	5,551	8,509	3,582	4,926
2022	9,406	3,785	5,622	8,924	3,689	5,599	8,556	3,605	4,951
2023	9,499	3,813	5,686	8,987	3,714	5,646	8,602	3,628	4,974
2024	9,591	3,841	5,750	9,048	3,738	5,692	8,644	3,650	4,994
2025	9,684	3,869	5,815	9,107	3,763	5,736	8,684	3,672	5,012
2026	9,776	3,898	5,879	9,165	3,787	5,779	8,722	3,694	5,028
2027	9,869	3,926	5,943	9,221	3,811	5,820	8,756	3,715	5,041
2028	9,962	3,954	6,008	9,276	3,834	5,861	8,788	3,736	5,052
2029	10,054	3,982	6,072	9,329	3,858	5,900	8,818	3,757	5,061
2030	10,147	4,010	6,136	9,380	3,881	5,937	8,844	3,778	5,067
2031	10,239	4,039	6,200	9,429	3,904	5,973	8,868	3,798	5,070
2032	10,332	4,067	6,265	9,477	3,927	6,008	8,889	3,818	5,071
2033	10,424	4,095	6,329	9,522	3,950	6,041	8,907	3,837	5,070
2034	10,517	4,123	6,393	9,566	3,973	6,072	8,922	3,856	5,066
2035	10,609	4,151	6,458	9,608	3,995	6,102	8,934	3,875	5,059
2036	10,702	4,180	6,522	9,648	4,017	6,131	8,898	3,879	5,019
2037	10,794	4,208	6,586	9,687	4,039	6,158	8,859	3,882	4,977
2038	10,887	4,236	6,651	9,723	4,061	6,183	8,817	3,885	4,932
2039	10,979	4,264	6,715	9,757	4,083	6,207	8,772	3,888	4,884
2040	11,072	4,292	6,779	9,790	4,104	6,229	8,724	3,890	4,833
2041	11,164	4,321	6,844	9,820	4,125	6,250	8,672	3,893	4,780
2042	11,257	4,349	6,908	9,848	4,146	6,269	8,618	3,894	4,723
2043	11,349	4,377	6,972	9,874	4,167	6,286	8,560	3,896	4,664
2044	11,442	4,405	7,037	9,899	4,188	6,301	8,498	3,897	4,601
2045	11,534	4,433	7,101	9,921	4,209	6,315	8,434	3,898	4,535
2046	11,627	4,462	7,165	9,896	4,214	6,296	8,411	3,914	4,497
2047	11,719	4,490	7,230	9,868	4,219	6,276	8,384	3,929	4,455
2048	11,812	4,518	7,294	9,839	4,224	6,255	8,354	3,945	4,409
2049	11,904	4,546	7,358	9,807	4,229	6,231	8,320	3,959	4,361
2050	11,997	4,574	7,423	9,773	4,234	6,205	8,283	3,974	4,309

Year	High Case			Medium Case			Low Case		
	NWAB	Kotzebue	Others	NWAB	Kotzebue	Others	NWAB	Kotzebue	Others
2051	12,090	4,602	7,487	9,737	4,238	6,178	8,242	3,988	4,254
2052	12,182	4,631	7,551	9,698	4,242	6,148	8,198	4,002	4,195
2053	12,275	4,659	7,616	9,657	4,247	6,118	8,149	4,016	4,133
2054	12,367	4,687	7,680	9,614	4,251	6,088	8,097	4,030	4,068
2055	12,460	4,715	7,744	9,569	4,254	6,058	8,043	4,043	3,999

While there is some seasonal variation in the population of these regions, insufficient data exists to incorporate that seasonality in the forecast. However, information on the seasonality of employment (see the economic profile) may be used as a proxy for population seasonality.

Another factor that could affect air traffic demand is the cost of fuel. If fuel costs remain high, travelers may reduce the amount of travel they do and the amount of cargo transported to and from the region, or a per capita basis, might decline. However, other factors may partially or completely override these effects and the net effect cannot be determined by a study of this size.

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