CHAPTER 3 - AVIATION FORECASTS

AIRPORT MASTER PLAN UPDATE

Dickinson, ND

PREPARED FOR:
DICKINSON THEODORE ROOSEVELT REGIONAL AIRPORT
DICKINSON, ND

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Contents

Commercial Service Forecast

Introduction

The purpose of forecasting is to provide the airport a general idea of the magnitude of the growth anticipated over a 20-year forecast period. The Federal Aviation Administration (FAA) requires that all airport planning efforts be based upon approved forecast methodology. This assists in determining the facility needs of the airport in order to meet the future growth demand. For some airports, the process is a mere formality, as little growth is anticipated and the current facility will more than meet future needs. This has been particularly true of late for smaller US airports.

As detailed herein, Dickinson Theodore Roosevelt Regional Airport (DIK) at Dickinson, North Dakota and the entire region has experienced significant economic and population growth due to oil exploration and production of the Bakken oil shale present in the region. The dramatic rates of growth that have occurred over the past five years have created challenges in forecasting aviation activity.

To thoroughly analyze and develop a probable aviation forecast, utilization of multiple academic, economic and oil industry forecasts have been utilized to help quantify the potential aviation activity over the next 20 years.

Forecast Rationale

Forecasting the demand for airport services is a critical step in the development of an airport. It allows an airport to examine its ability to satisfy the needs of the aircraft and people it serves, and to determine the approximate timing of necessary improvements by projecting airport user activity levels.

Forecasts developed for airport master plans and/or federal grants must be approved by the Federal Aviation Administration (FAA). It is the FAA's policy, listed in AC 150/5070-6B, *Airport Master Plans*, that FAA approval of forecasts at non-hub airports with commercial service should be consistent with the Terminal Area Forecasts (TAF). Master plan forecasts for operations, based aircraft and enplanements are considered to be consistent with the TAF if they meet the following criteria:

> a) Forecasts differ by less than 10 percent in the five-year forecast and 15 percent in the 10-year or 20-year period, or
>
> b) Forecasts do not affect the timing or scale of an airport project, or
>
> c) Forecasts do not affect the role of the airport as defined in the current version of FAA Order 5090.3, Field Formulation of the National Plan of Integrated Airport Systems

Furthermore, in FAA Order 5090.3C*, Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)*, states:

3-2. FORECASTS

a. Forecasts should be:

(1) realistic,

(2) based on the latest available data,

(3) reflect the current conditions at the airport,

(4) supported by information in the study,

(5) provide an adequate justification for the airport planning and development.

b. Forecasts supplied by the airport sponsor should not vary significantly (more than 10%) from the FAA's forecast. When a sponsor's forecast does vary significantly from the FAA's forecast, the sponsor's methodology should be verified, the forecast coordinated with APO-110, and only after the difference is resolved and the FAA is satisfied that the sponsor's forecast is valid will the sponsor's forecast be included in the NPIAS. In the absence of other forecast information, data from the FAA's forecast are included in the NPIAS database. When FAA forecast data are not available (usually a proposed airport) the master plan forecast should be validated against FAA's regional forecasts, and if appropriate, coordinated with APO-110.

Standard practice is for the FAA TAF to be used for comparison purposes; however, the TAF can be used as the airport sponsor's forecast. According to the FAA, if the TAF is used as the airport sponsor's forecast, the sponsor should:

- Make a conscious decision to use the TAF;
- Understand how the TAF was developed for the airport including assumptions, methods and calculations used; and
- Document the decision to use the TAF, and the rationale, in the master plan or other planning document.

While the FAA traditionally requires airports to incorporate the FAA published TAF for planning purposes, it was identified during the scoping of this project that the TAF would not be an accurate or adequate forecasting method as the existing passenger enplanements had already exceeded the FAA's 30-year projection. Any variance exceeding 15% from the TAF requires further coordination and review with FAA Headquarters (both APP-400 and APO-110), in the development of an alternative forecast.

Factors Affecting Forecasts

The FAA AC 150-5070-6B, *Airport Master Plans*, states:

> *"Planners preparing forecasts of demand or updating existing forecasts should consider socioeconomic data, demographics, disposable income, geographic attributes, and external factors such as fuel costs and local attitudes towards aviation."*

Dickinson and western North Dakota have recently experienced a drastic increase in oil production and exploration which has caused the region's population, economy and need for infrastructure to grow rapidly.

In other recent aviation forecasts in western North Dakota airport markets, it was discovered that traditional aviation forecast methodologies based upon extrapolations of the linear and compounded annual growth rates of regional economic indicators from recent years do not depict what is considered to be realistic estimates of what has been experienced or is expected to occur in aviation activities.

These extrapolations of economic indicators lead to very low, or very high growth rates that do not reflect what has been experienced since 2010, or lead to extremely high passenger projections of nearly a million passengers in 10 to 20 years. The methodologies considered, but not included in this forecast, involve the following:

- Historical Growth Rates: These are forecasts based upon a direct extrapolation of passenger enplanements which assumes that trends in recent growth will continue into the future. For Dickinson, the recent enplanement growth has steeply increased as a result of oil exploration. While oil exploration is expected to continue in the near term, it is understood that the growth will level off and the economy will transform to include maintaining oil production and supporting a higher population base. The 3-year, 5-year and 10-year historic trends were used to create a forecast.
  Given the dramatic growth in population and economic activity in western North Dakota, forecasts based on historic growth rates show unrealistically high forecasts for passengers. An Addendum is provided at the end of this Chapter describing the Dickinson Historic Experience with airlines.
- Share of National Enplanements: This is based on a top-down model that uses national growth rates to determine local enplanements. Using a given share of national enplanements is a good benchmark for forecasting if a local economy is stable and reflective of national trends. For Dickinson, the local economy is undergoing a transformation that has both short and long-term implications.
  A forecast using share of national enplanements shows quickly that the usage in Dickinson has far exceeded projected national rates, and results in a forecast which is lower than currently being experienced in the market, and thus unrealistically low over longer periods. Also note that the TAF developed by the FAA for this market is based on application of national growth rates, and as such is lower than what is currently being experienced in the market.
- Population Variable: Local population is often a strong indicator of commercial passenger demand. The population figures analyzed included Stark County (Dickinson) and the 8-county region using Woods & Poole data as well as Western North Dakota Energy Project projections. When using the 2013 actual enplanements as a base, each population forecast followed a similar trend line which failed to capture the enplanement growth that is occurring. These rapid increases in population in a short period of time, combined with forecast rates of growth, do not account for unmet demand. The demand is primarily not being met due to the inability of the airport to accommodate growth because of infrastructure constraints. Therefore, the current correlation between enplanements and population is not an accurate baseline of actual demand.
- Petroleum Industry Jobs: Petroleum exploration is the strongest driver for growth in the Dickinson area at this time, and the immediate area is experiencing growth primarily in support for petroleum facilities and exploration. The petroleum jobs in the Dickinson area include

pipelines, petroleum equipment servicing, refining, storage and transport. These petroleum jobs[1] are projected to continue a growth trend then level off and remain steady. The forecast trend using petroleum industry jobs does not recognize the unmet passenger demand, which is why it does not properly reflect the future enplanements. This same unmet demand was noted previously in the Population Variable forecast.

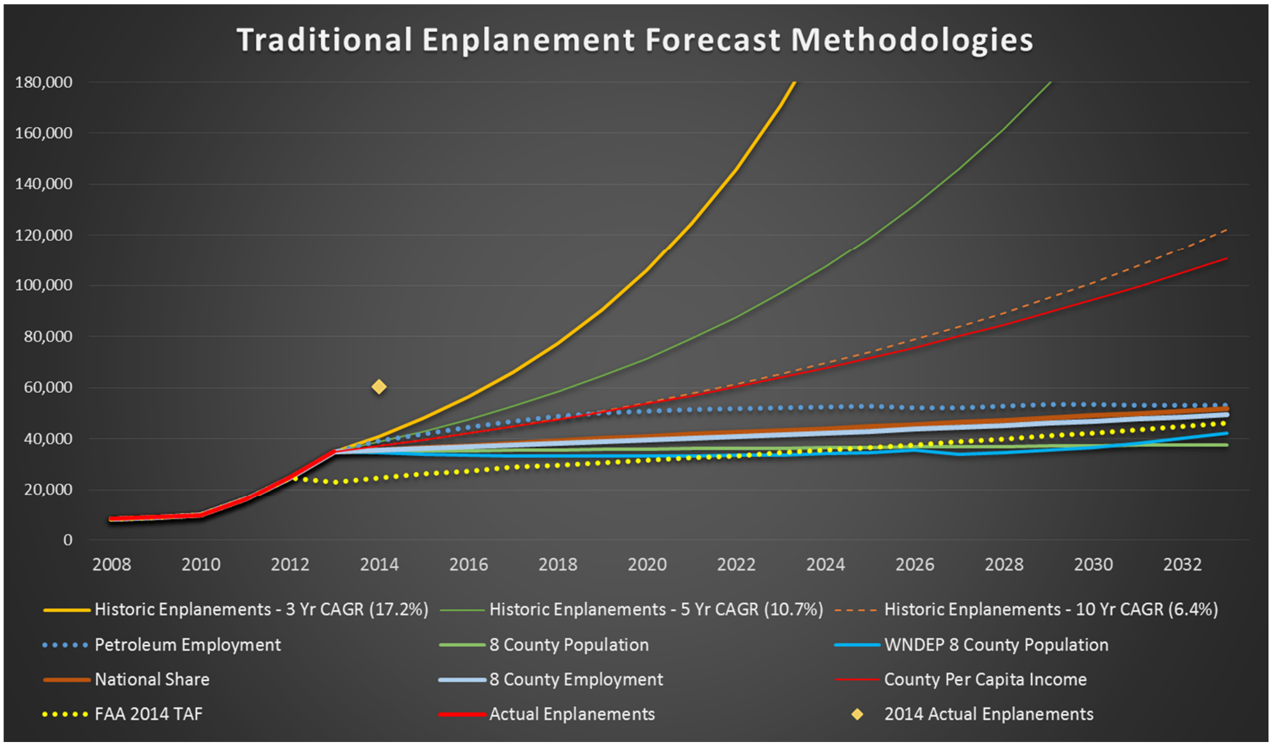
- Income Variable: Another socioeconomic factor often used is per capita income, which can impact levels of passenger activity. Typically, as incomes rise people are more likely to travel. However, as income is directly related to population and job growth, which it has already been noted do not account for unmet demand, forecasts based on income growth also project unrealistically low passenger forecasts. When the per capita income projections are included, the growth is higher but forecast trend is still lower than actual enplanements.

A chart has been prepared, **Figure 1** – **Traditional Enplanement Forecast Methodologies for Dickinson**, provides an overview of the methodologies noted above to forecast enplanements for Dickinson. As is apparent from the figure, there is no correlation between past growth and enplanements except those that produce either extraordinarily high or low forecasts in comparison to the actual enplanements. The red line shows actual enplanements from 2008 through 2013 and the yellow diamond shows actual enplanements for 2014. Each forecast used 2013 as the starting point and none of the forecasts were even close to predicting 2014.

Dickinson's socioeconomic and commercial airline growth in the past two years has emerged as one of four viable commercial airline markets in western North Dakota and is continuing to evolve. Past growth and projected socioeconomic growth provides no reliable indication of future growth and therefore forecasting for Dickinson enplanements will focus on the demand for this evolving commercial airline market.

[1] As of March 2015, oil is trading between $40-50/bbl, which is lower than what it has traded at in recent years. However, the trend for petroleum jobs in western North Dakota is still projected to increase by industry experts. This is due to the demonstrated recoverable oil in the region and current production levels. Also note that at the current lower prices of oil, large portions of the Bakken Shale play remain profitable for ongoing drilling and production. Continued low prices may cause a decline in the pace of growth; however, the total jobs to complete production and recovery in the Bakken Shale play are anticipated to ultimately occur.

FIGURE 1 – TRADITIONAL ENPLANEMENT FORECAST METHODOLOGIES FOR DICKINSON



Sources: FAA -- TAF 2014 and National Share; Woods & Poole Economic Forecasts -- 8 County Population, Employment and County Per Capita Income; Western North Dakota Energy Project -- Petroleum Employment and WNDEP 8 County Population; Airport Records -- Actual Enplanements and Historic Trends

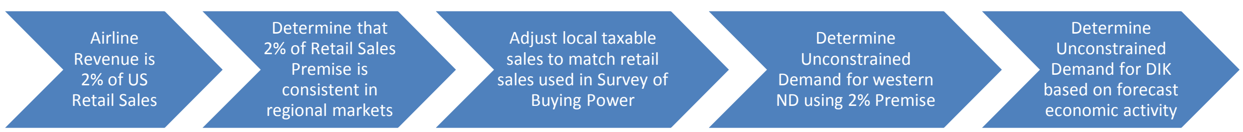
Note: 8-County Region includes Adams, Billings, Bowman, Dunn, Golden Valley, Hettinger, Slope and Stark and is in ***Exhibit 1***

Alternative Air Service Forecast

For purposes of developing a forecast methodology for Dickinson, several defining factors have been used. These will be explained further in the document but are summarized as follows:

1. Due to the rapidly changing economic indicators in this region, a "percentage of forecast retail sales" is the only methodology utilized for this passenger forecast as it assists in ascertaining the level of unmet demand in the market. In other recent regional aviation forecasts[2], this has been determined to be an acceptable methodology.
2. Recent projections of population, job growth and economic growth for North Dakota have been utilized to assist in determining retail sales projections for the future.
3. Calendar year 2013[3] has been used as the base year for most of the aviation forecast projections.
4. Communication with airlines, and understanding of how the airline industry accommodates demand have been applied.
5. The market area for Dickinson Theodore Roosevelt Regional Airport has been developed using data from Stark, Billings, Bowman, Dunn, Golden Valley, Grant, Slope and Adams Counties[4].

This forecast will focus upon western North Dakota in aggregate to determine the total forecasted demand for aviation activity, but will specifically identify the forecast for Dickinson Regional Airport (DIK). The diagram below shows the steps that will be taken in the next several pages to provide the reasoning for this Alternative Air Service Forecast.



As a region, western North Dakota is experiencing economic growth that is almost unparalleled in US history, particularly in the time period subsequent to the initiation of commercial aviation in the mid-20th century. Thus, estimating the effect between this type of economic growth and air travel demand is challenging at best. The Region is serviced by four commercial service airports: Dickinson (DIK), Williston (ISN), Minot (MOT), and Bismarck (BIS). BIS has sufficient gates and runway capability to accommodate its current and projected demand, but the other airports are constrained. MOT is constrained by a limited terminal; ISN and DIK are constrained by a lack of runway length and pavement strength. As all three airports (DIK, ISN and MOT) are currently in the process of being upgraded[5] to handle airline travel demand to the region, the challenge becomes to right-size the demands for the region and Dickinson specifically. That is the objective of this forecast.

Western North Dakota's growth has been driven in large part by the exploration and drilling of Bakken Shale and petroleum-industry growth tied to that. The risk in looking at future air travel demand growth

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[2] Williston Sloulin Field International Airport Feasibility Site Selection Study 2014 – FAA modified the TAF based on a forecast which used this relationship between retail sales and enplanements.

[3] Calendar Year 2013 is used in most instances; when Calendar year 2012 is used it is noted.

[4] These counties were identified for Dickinson with a proximity based allocation of counties to each of the four western North Dakota airports (Bismarck, Dickinson, Minot and Williston). A map is included in **Exhibit 1**.

[5] DIK improvements addressed in this master plan, MOT constructing new terminal, parking and apron, ISN relocating the entire airport.

for the region is to try to determine how long that trend will continue and once this growth is done, what, if any, declines take place. While the petroleum industry experiences boom and bust cycles over time, the Bakken Shale has proven to be a viable field for exploration and production. An example of this type of oil exploration and production through industry cycles is from Midland-Odessa in west Texas. An addendum has been added at the end of this chapter with the airline activity experience in Midland-Odessa over the past several decades through boom and bust cycles.

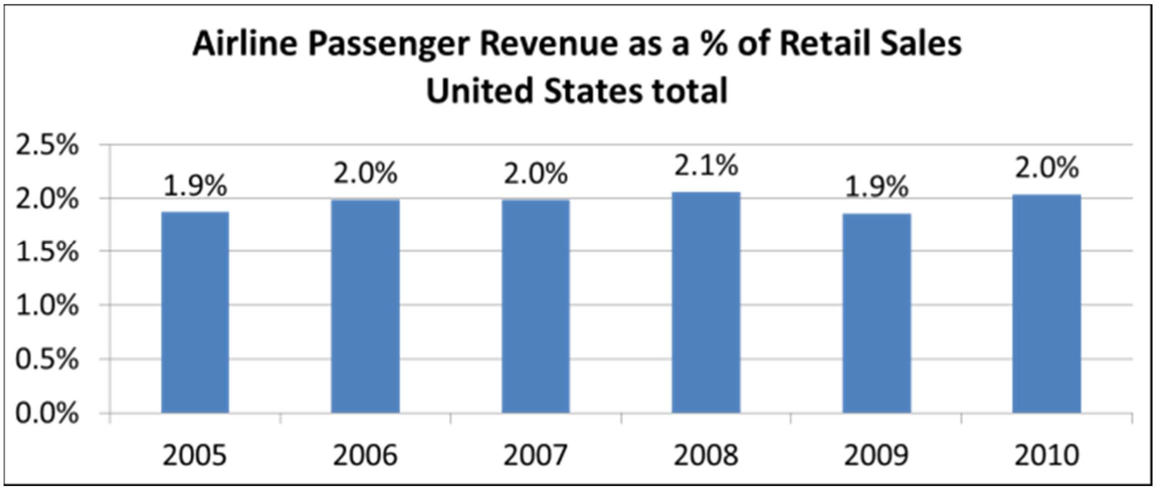
Forecast Methodology

The lack of accepted regional socioeconomic forecasts at this time has created numerous challenges to develop an acceptable alternative forecast methodology due to the unprecedented current growth rates in this region. Multiple methods were analyzed and portrayed in **Figure 1**, and it was finally determined that a linear model between retail sales and passenger volume would meet the variety of requirements:

- Timing – The State of North Dakota releases county-level taxable sales on an ongoing basis, typically within six months of the actual quarter. Given the recent high growth taking place in western North Dakota, having recent data available on an ongoing basis is very important.
- Level of Detail – As indicated previously, retail sales data is readily available at the county level. It is this sort of detail that will be required as the specific demand potential is determined for each airport within western North Dakota.
- Consistent Link – Historically, at the National level, there is a close link between retail sales and airline travel. **Figure 2** – **Airline Travel as % of Retail Sales for Top 150 US Airline Markets** illustrates this consistency from 2005 through 2010 in the "Survey of Buying Power" for retail sales. In addition, **Figure 3** – **Airline Travel as % of Retail Sales for Small Airline Markets** shows the same information for 2010 for specific markets of similar size to western North Dakota. **Figure 3** below shows the correlation between enplanements (shown as Originating and Departing (O&D) Passengers) and retail sales of the regions that each airport serves. This correlation has an R^2 value of .946. An R^2 value of 1.0 is a direct correlation, and therefore values approaching 1.0 provide confidence that the level of correlation is accurate and can be used for other projections.

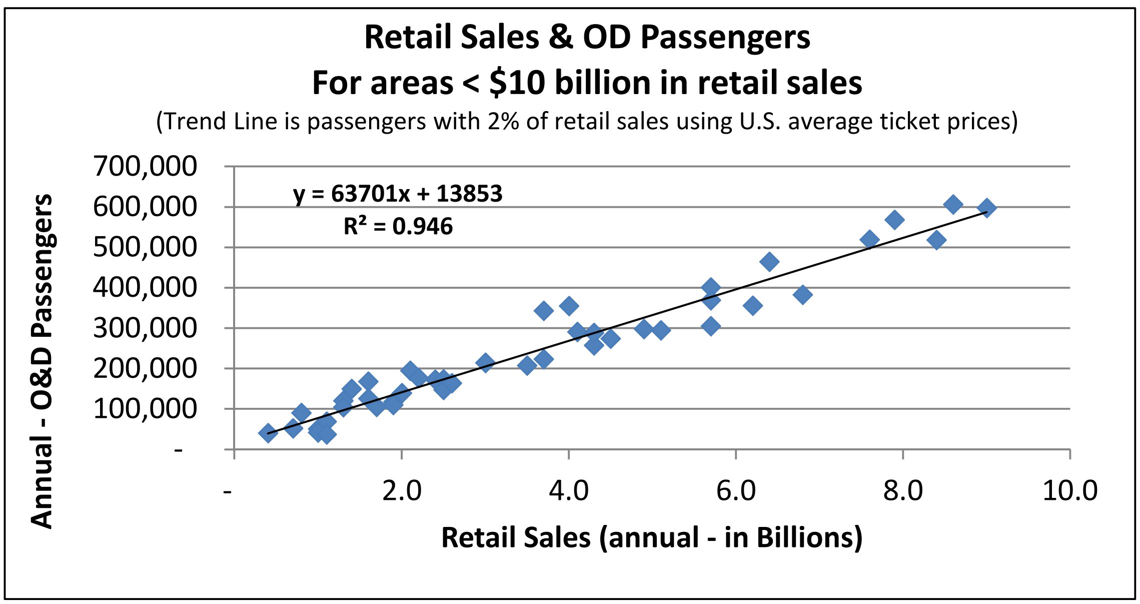
  Because of the high correlation of this relationship between retails sales and airline travel, the 2% of retail sales premise will be used in this forecast to determine unconstrained demand.

FIGURE 2 – AIRLINE TRAVEL AS % OF RETAIL SALES FOR TOP 150 US AIRLINE MARKETS



Sources: 2010 "Survey of Buying Power" for retail sales; US Department of Transportation Report DB1B for airline revenue

FIGURE 3 – AIRLINE TRAVEL AS % OF RETAIL SALES FOR SMALL AIRLINE MARKETS



ND Taxable Sales – Proxy for Retail Sales:

For North Dakota, economic data after 2010 is not readily available at the county and/or metropolitan level from the "Survey of Buying Power" or any related government sources. As such, "taxable sales", as reported by the State of North Dakota at the county level was used for western North Dakota.

Table 1 below shows both retail sales (as reported by "Survey of Buying Power") and State of North Dakota taxable sales for North Dakota's largest counties. As can be seen, taxable sales are (on average) approximately 24 percent less than "Survey of Buying Power" reported retail sales.

TABLE 1 – REPORTED RETAIL SALES AS COMPARED TO REPORTED TAXABLE SALES - 2010

Retail Sales versus Taxable Sales in largest N. Dakota counties						
			Retail Sales vs Taxable Sales			
County	Airport		Buying Power	ND Taxable Sales	% Diff.
Burleigh	BIS		$1,401,007	$1,159,541	-17%
Cass	FAR		$2,885,559	$2,172,261	-25%
Grand Forks	GFK		$1,238,204	$906,649	-27%
Stark	DIK		$403,392	$300,810	-25%
Ward	MOT		$1,118,967	$735,014	-34%
Williams	ISN		$453,600	$403,259	-11%
Total			$7,500,729	$5,677,534	-24%

Source: North Dakota State Tax Commissioner, 2010 "Survey of Buying Power" Sales and Marketing Management

Upon initial examination, these relative results appear counterintuitive. However, upon closer inspection, there are reporting discrepancies that pinpoint why these differences take place and generally why reported retail sales from the "Survey of Buying Power" will exceed reported taxable sales as reported by the State of North Dakota. There are two primary reasons for the relative results:

Tax exempt goods and services – Many goods are tax-exempt in the State of North Dakota and therefore are not included in Taxable Sales figures. These goods include several relatively large economic producers from North Dakota: prescription drugs, commercial fertilizer, livestock and poultry food, insecticides, farm machinery parts, gasoline/combustible fuels, containers, food products, medical devices/equipment, coal and the sale of automobiles. This is a small sample of the variety of goods and services which are exempt from North Dakota sales tax; they are not included in reported taxable sales figures, but are recorded as retail sales in the "Survey of Buying Power."

Consolidated sales – Taxable sales and taxable purchases from a limited number of permit holders are not accurately attributable to a city or county. Thus, the State of North Dakota does include these sales when reporting county/city-level data. The consolidated data includes certain permit holders who have more than one permanent location or sales agent in North Dakota, but file a combined return. Some industries (in particular, the oil and gas industry) are, by nature, not attributable to cities or counties because their sales cover large geographical areas. Therefore, the following North American Industrial Classification System Codes (NAICS Codes) per the 2002 Manual, have been included in the consolidated statewide line item for taxable sales in North Dakota and are not included at the county/metro level, but are recorded as retail sales in the "Survey of Buying Power":

NAICS Codes Business Activity

2121 Coal Mining

2211 Electrical Power Generation, Transmission, and Distribution

2212 Natural Gas Distribution

486 Pipeline Transportation

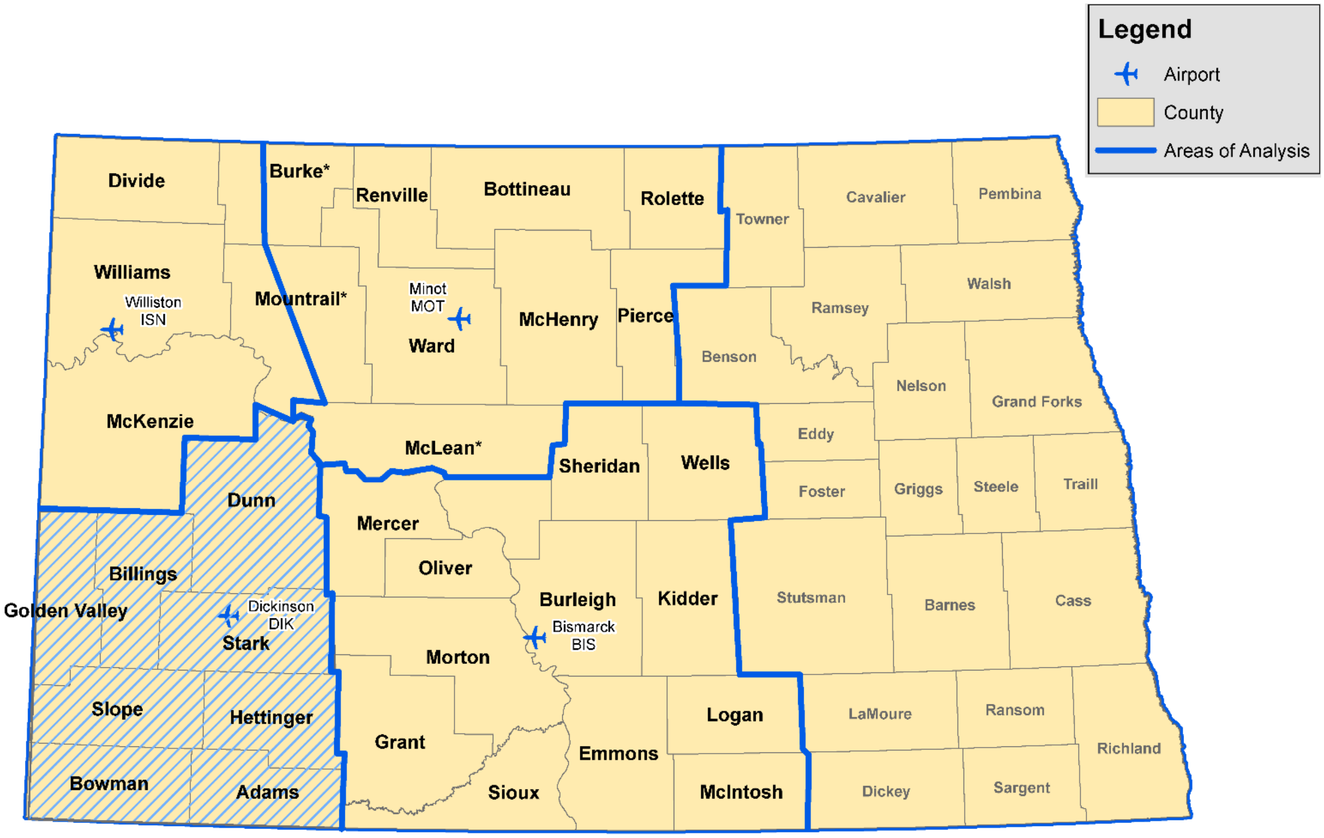
517 Telecommunications

Based upon the demonstrated variance between the reporting of "retail sales" and "taxable sales" in the six most populous counties in North Dakota in 2010 (see **Table 1**), taxable sales reported by the State of North Dakota have been increased by 24% to account for this variance. We believe this adjustment of taxable sales to retail sales as reported in the "Survey of Buying Power" provides an accurate basis upon which to determine the potential for air travel spending and thus quantify the current unmet demand in this market.

Unconstrained Baseline Demand Estimates: Western North Dakota

To assist in determining the potential demand for air service for western North Dakota, taxable sales from the counties surrounding Bismarck, Minot, Williston and Dickinson was collected. These counties were allocated geographically to each airport, with certain counties being split between two different airports where distance or geography provided a logical split between each airport. **Exhibit 1** depicts the allocation of counties between each airport that is used as a market area for purposes of this forecast. This allocation on a county by county basis has been used in lieu of a typical "catchment" area. The division of western North Dakota was prepared due to the fact that sales tax revenue is reported on a county by county basis, and therefore will aid in analysis of each market.

EXHIBIT 1 - AIRPORT MARKET AREAS



* 50% of retail sales in Burke, McLean and Mountrail counties were allocated to each of the two nearest airports

Once the market area for each airport was logically determined, the taxable sales reported in each county was collected and allocated to each airport. The taxable sales for each county, and the allocation to each airport market area is detailed in **Table 2.** For Burke, McLean and Mountrail Counties, 50% of the taxable sales were allocated to each of the two nearest airports.

TABLE 2 – 2013 TAXABLE SALES BY AIRPORT MARKET AREA ALLOCATION

		Airport Market Composition			
County	**Taxable Sales**	**BIS**	**DIK**	**MOT**	**ISN**
Adams	$ 24.3	$ -	$ 24.3	$ -	$ -
Billings	$ 27.5	$ -	$ 27.5	$ -	$ -
Bottineau	$ 86.3	$ -	$ -	$ 86.3	$ -
Bowman	$ 57.4	$ -	$ 57.4	$ -	$ -
Burke	$ 71.1	$ -	$ -	$ 35.6	$ 35.6
Burleigh	$ 1,892.9	$ 1,892.9	$ -	$ -	$ -
Divide	$ 38.8	$ -	$ -	$ -	$ 38.8
Dunn	$ 42.9	$ -	$ 42.9	$ -	$ -
Emmons	$ 21.3	$ 21.3	$ -	$ -	$ -
Golden Valley	$ 10.2	$ -	$ 10.2	$ -	$ -
Grant	$ 16.7	$ 16.7	$ -	$ -	$ -
Hettinger	$ 12.2	$ -	$ 12.2	$ -	$ -
Kidder	$ 11.9	$ 11.9	$ -	$ -	$ -
Logan	$ 14.5	$ 14.5	$ -	$ -	$ -
McHenry	$ 23.5	$ -	$ -	$ 23.5	$ -
McIntosh	$ 34.2	$ -	$ -	$ -	$ -
McKenzie	$ 242.5	$ -	$ -	$ -	$ 242.5
McLean	$ 72.2	$ 36.1	$ -	$ 36.1	$ -
Mercer	$ 57.5	$ 57.5	$ -	$ -	$ -
Morton	$ 293.7	$ 293.7	$ -	$ -	$ -
Mountrail	$ 269.3	$ -	$ -	$ 134.7	$ 134.7
Oliver	$ 5.0	$ 5.0	$ -	$ -	$ -
Pierce	$ 62.9	$ -	$ -	$ 62.9	$ -
Renville	$ 47.2	$ -	$ -	$ 47.2	$ -
Rolette	$ 38.8	$ -	$ -	$ 38.8	$ -
Sheridan	$ 2.6	$ 2.6	$ -	$	$ -
Sioux	$ 0.5	$ 0.5	$ -	$ -	$ -
Slope	$ 0.8	$ -	$ 0.8	$ -	$ -
Stark	$ 1,299.7	$ -	$ 1,299.7	$ -	$ -
Ward	$ 1,630.3	$ -	$ -	$ 1,630.3	$ -
Wells	$ 51.4	$ 51.4	$ -	$ -	$ -
Williams	$ 4,400.3	$ -	$ -	$ -	$ 4,400.3
Total =	**$ 10,825.3**	**$ 2,404.1**	**$ 1,475.0**	**$ 2,095.4**	**$ 4,851.8**

Source: 2013 North Dakota State Tax Commissioner and Trillion/KLJ Analysis

Determination of Unconstrained Passenger Demand

To determine the unconstrained passenger demand, utilizing the premise that 2% of retail sales is spent upon air travel, the following formula is used:

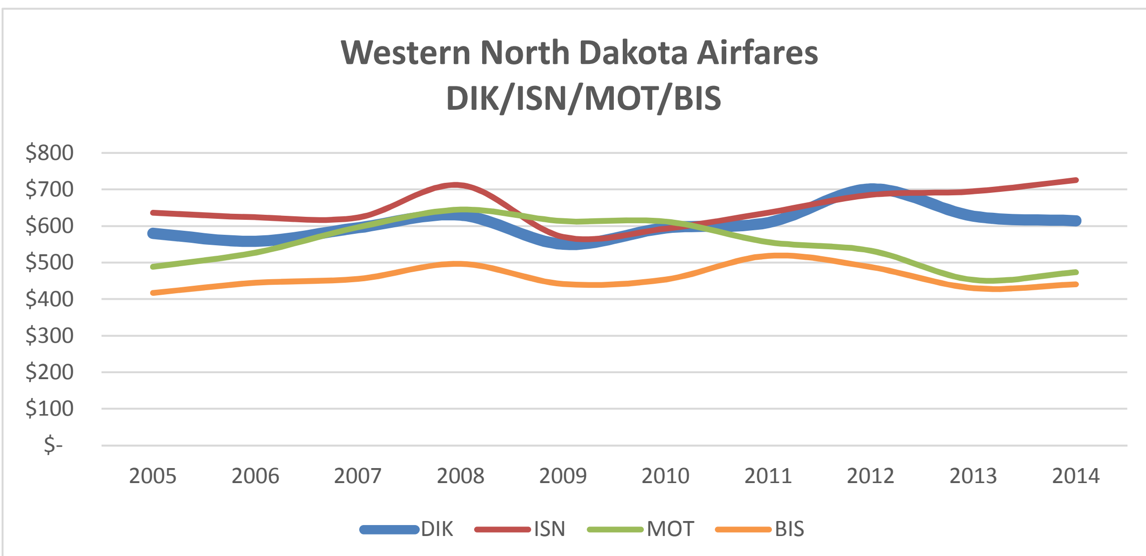
$$Unconstrained\ Passenger\ Demand = \frac{2\%\ Retail\ Sales}{Airfare}$$

The divisor in this equation, "airfare", is a variable that is key in determining passenger number. For purposes of this forecast, local, regional and national airfares were considered, as the difference in this divisor could significantly change the passenger number output. The source of airfares in this analysis is from the DOT Bureau of Transportation Statistics, and all historical airfares presented herein are in current dollars for the year reported.

Local Average Airfares – Western North Dakota:

The historical average fares from Dickinson, Williston, Minot and Bismarck were examined, and the following **Figure 4** shows the trends of these airfares:

FIGURE 4 – WESTERN NORTH DAKOTA AIRFARE TRENDS



Source: US DOT Bureau of Transportation Statistics DB1B Survey

All of these airfares have fluctuated between $430 and $730 in the past 10 years. Since the oil activity began in 2009, the average airfares at Dickinson and Williston have continued to increase, and are well above the airfare experienced in Minot and Bismarck. It is assumed that this is due to very high passenger demand compared to airline capacity, which has allowed airlines to charge some of the highest airfares in the region and country at Dickinson and Williston.

Regional Airfares – North Central United States:

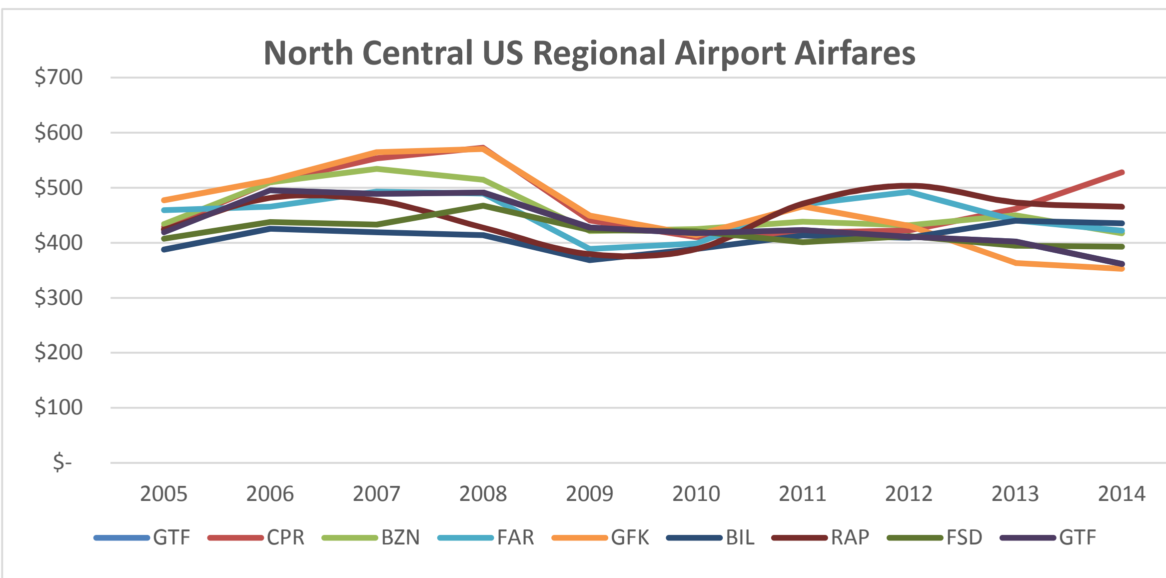
To examine the regional historical airfares, average airfares at nine regional airports were collected. Commonalities of these airports include:

- Not directly impacted by North Dakota oil activity (DIK, ISN, MOT, BIS)
- Within a 400-mile radius of Dickinson (ND, SD, MT, WY)
- Not receiving subsidized Essential Air Service (EAS)
- Enplanements ranging from approximately 50,000 to 450,000 annual enplanements
- Currently have legacy airline turbo jet service
- No airfield constraints limiting aircraft usage
- Several have or have had in the past decade, limited service, low cost carriers service (such as Frontier or Allegiant Airlines)

The airports in the North Central US Region used in the analysis are in **Figure 5** and are listed in following:

- Fargo, ND (FAR)
- Grand Forks, ND (GFK)
- Rapid City, SD (RAP)
- Sioux Falls, SD (FSD)
- Casper, WY (CPR)
- Billings, MT (BIL)
- Great Falls, MT (GTF)
- Bozeman, MT (BZN)

FIGURE 5 – NORTH CENTRAL US REGION'S AIRFARE TRENDS



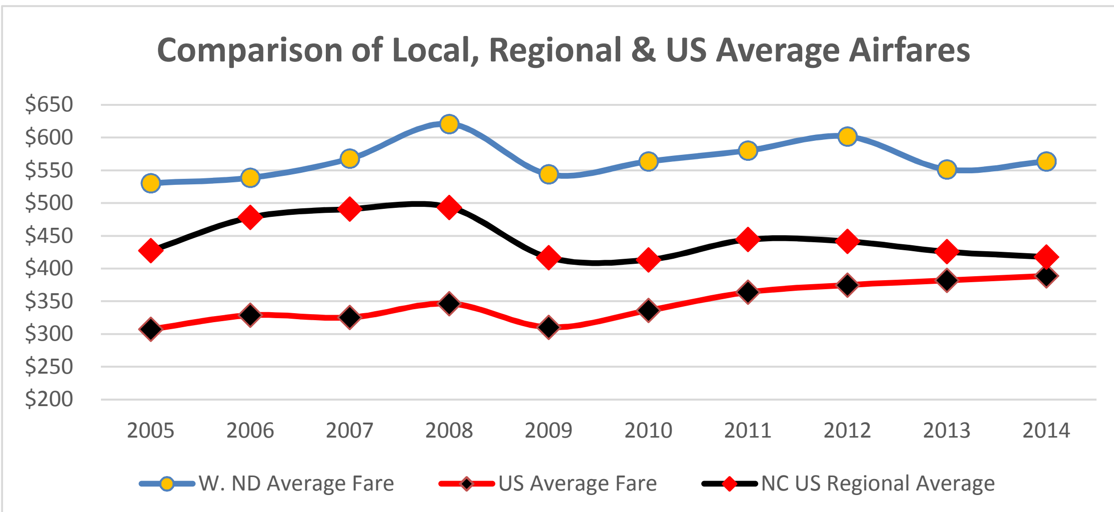
Source: US DOT Bureau of Transportation Statistics DB1B Survey

All of these average airfares in the North Central Region of the US have fluctuated between $350 and $570 in the past decade. The composite of these airfares can provide us with an estimate of which airfares have been experienced at airports in relatively close proximity to Dickinson, and have had no impacts on airfares due to oil activity or airfield constraints. Essentially, these markets provide a perspective of airfares without constraints upon competition in the region.

US Average Airfares:

Examination of US Average Airfares provides a perspective of how airfares have changed over time for the industry, without local fluctuations and a baseline upon which to compare local and regional performance. For purposes of this analysis, the average of the local and regional airfares have been compared to the US average airfare and are reflected in **Figure 6** below:

FIGURE 6 – COMPARISON OF AIRFARE TRENDS



Source: US DOT Bureau of Transportation Statistics DB1B Survey

Traditionally, it has been common knowledge that “spoke” markets in the US, such as those in the regional airport pool analyzed for this forecast, generate airfares that are higher than those experienced at hub markets and the national average for airfares. Occasionally, these “regional” or “spoke” airports will have a low cost carrier enter a market, which will lower airfares due to competitive forces.

The spread seen in the figure above, between the “US Average Fare” and the “NC US Average” in years 2005 and 2008 demonstrates this common knowledge of airfare pricing. From the years 1995 to 2008, the average airfare for this composite airport group was 37% higher than the national average airfares. However, from 2009 to 2014, an interesting phenomenon has occurred. The spread between these two average airfares has decreased remarkably to only 7.4%, as the regional airfares have decreased and national airfares have increased.

Airfares for Unconstrained Passenger Demand:

For purposes of this forecast, US Average Airfares will be used in calculating the unconstrained passenger demand in western North Dakota, and specifically for Dickinson. The reason for doing this is three-fold: 1) the 2% expenditure on retail spending on air travel is a national average, and as such, a divisor that is a national average is more suitable, 2) as the physical constraints on the airfield at Dickinson are mitigated, and oil activity moderates, it is assumed that Dickinson will have airfares closer to the regional average, and 3) the regional average has been on a trend to match national airfares, and it is assumed that this region will experience airfares more in line with the national average in the future.

Growth of National Average Airfares in the future:

As reported by the USDOT, Bureau of Transportation Statistics, the US average airfare has increased at a compound annual growth rate of 1.5% since 1995 in current dollars. This 1.5% compound annual growth rate will be used to determine the airfare divisor for determined unconstrained passenger demand through the planning period.

Historical Analysis of Unconstrained Demand in Western North Dakota

Based upon regression analysis, the model was developed and an estimate derived to determine the recent/current “unconstrained” demand for air travel in western North Dakota and the four airports serving this region. This was accomplished by multiplying total taxable sales by 124%, to adjust for the difference between taxable sales and retail sales (from **Table 1**, then determining the amount that would be spent on air travel (based on US average of 2% of total retail sales spent on air travel). This average unconstrained spending amount was then divided by the average US Airfare for each year (as reported by DOT Bureau of Transportation Statistics) to determine the “potential” passenger and then it was compared to actual enplanements. **Table 3** illustrates these findings from 2002 to 2013.

TABLE 3 – UNCONSTRAINED PASSENGER DEMAND WESTERN NORTH DAKOTA (BIS/MOT/DIK/ISN COMBINED)

	W. ND Taxable Sales (Mil)	Adjusted to Retail Sales[6] (+24%)	*2% of Retail (Mil)[7]*	*US Average Airfare*	Enplaned Passenger Comparison			
					Unconstrained [8]	Actual	Diff.	%Diff.
2002	$2,434.9	$3,019.3	*$60.4*	*$312.53*	*193,218*	224,314	31,096	13.9%
2003	$2,494.67	$3,093.3	*$61.9*	*$ 315.47*	*196,109*	231,020	34,911	15.1%
2004	$2,616.9	$3,245.0	*$64.9*	*$ 305.88*	*212,175*	249,476	37,301	15.0%
2005	$2,884.3	$3,576.5	*$71.5*	*$ 307.19*	*232,859*	261,613	28,754	11.0%
2006	$3,174.5	$3,936.4	*$78.7*	*$ 328.30*	*239,804*	268,104	28,300	10.6%
2007	$3,488.8	$4,326.1	*$86.5*	*$ 325.14*	*266,108*	271,877	5,769	2.1%
2008	$4,365.0	$5,412.6	*$108.3*	*$ 346.16*	*312,725*	270,927	(41,798)	-15.4%
2009	$4,245.6	$5,264.5	*$105.3*	*$ 310.61*	*338,981*	271,445	(67,536)	-24.9%
2010	$5,509.7	$6,832.0	*$136.6*	*$ 335.83*	*406,871*	314,261	(92,610)	-29.5%
2011	$8,525.5	$10,571.6	*$211.4*	*$ 363.63*	*581,445*	395,808	(185,673)	-46.9%
2012	$10,998.3	$13,637.9	*$272.8*	*$ 374.73*	*727,873*	525,602	(202,271)	-38.5%
2013	$10,828.8	$13,427.7	*$268.6*	*$382.23*	*702,605*	589,350	(113,255)	-19.2%

Source: FAA TAF, DOT BTS, North Dakota Aeronautics Commission (2013 Enplanements), North Dakota State Tax Commissioner and Trillion/KLJ Analysis; Note: Red indicates a deficiency

Table 3 shows that prior to 2008, the actual passenger volumes exceeded the national average of spending on air travel, and the difference by which it exceeded the national average was relatively stable from 2002 to 2007. The excess began to decrease in 2007, and disappeared in 2008. This ties exactly to when western North Dakota began to experience significant increases in retail sales due to economic growth related to oil exploration and production. The lag in relative traffic growth worsened in 2011, as the economy grew at even faster rates. Based upon this analysis, these four airport markets in 2012 generated 525,602 enplaned passengers, based upon retail sales in 2012, enplaned passenger volume would have been expected to be approximately 727,873 passengers – a shortfall of more than 200,000 passengers. This demonstrates that western North Dakota has been constrained from an air service capacity perspective from 2008 to 2013, but the shortfall between actual and estimate, or unconstrained demand, improved in 2013 due to additional airline capacity at Dickinson, Williston and Bismarck and a slight decrease in retail sales between 2012 and 2013.

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[6] This column accounts for the difference between ND taxable sales and Retail Sales, in Millions, from the *Sales and Marketing Survey of Retail Spending* for North Dakota cities.

[7] Reflects estimated retail spending on Air Travel in western North Dakota, based upon the average percentage of spending (2% of all retail) from the *Sales and Marketing Survey of Retail Spending.*

[8] Unconstrained passengers were developed by dividing the regions 2% of retail sales amount, by US average airfare.

TABLE 4 – UNCONSTRAINED MARKET DEMAND ACTUAL VS. POTENTIAL TRAFFIC BASED ON 2013 TAXABLE SALES

	Retail Sales Adjusted (Mil)[9]	Unconstrained[10]	Enplaned Passengers 2013 Actual Passengers	Diff.	%Diff.
Dickinson	$1,829.0	95,702	35,125	(60,577)	-172.5%
Bismarck	$2,981.1	155,985	237,683	81,698	34.4%
Minot	$2,601.4	136,118	222,083	85,965	38.7%
Williston	$6,016.2	314,799	94,459	(220,340)	-233.3%
Total	$13,427.7	702,605	589,350	(113,255)	-19.2%

Source: 2013 North Dakota Aeronautics Commission and North Dakota State Tax Commissioner; Note: Red indicates a deficiency

Table 4 highlights and quantifies some of the specific issues facing western North Dakota with regard to economic growth and air service at the four western North Dakota airports. Specifically, demand is underserved at Dickinson and Williston if national averages for air travel spending and air fares were applied.

In meeting passengers' specific destination demands, particularly at Dickinson and Williston, actual enplanements strongly lag behind Estimated Enplanements per Retail Sales. This constraint is 172.5% and 233.3% for Dickinson and Williston respectively.

In this analysis, both Minot and Bismarck appear to be benefiting by enplaning more passengers than each market's retail sales analysis shows demand. Western North Dakota's air service still appears to be constrained by roughly 19.2%, or 113,255 enplaned passengers for 2013. It is likely that the underserved demand generated in Dickinson and Williston is being accommodated by other means of transportation, spillage to other airports or by people choosing not to travel by air.

Dickinson Specific Socioeconomic Factors

The Western North Dakota Energy Project, sponsored by Dickinson State University, updated economic projections based on oil industry growth through 2013 and utilized North Dakota State University economic researcher's employment and population forecasts for the region. The analysis includes the demand for petroleum, exploration methodology, number of projected wells, projections of Bakken, Three Forks and Tyler formation reserves and subsequent direct and secondary employment, and population as reflected in **Figures 7** and **8**.

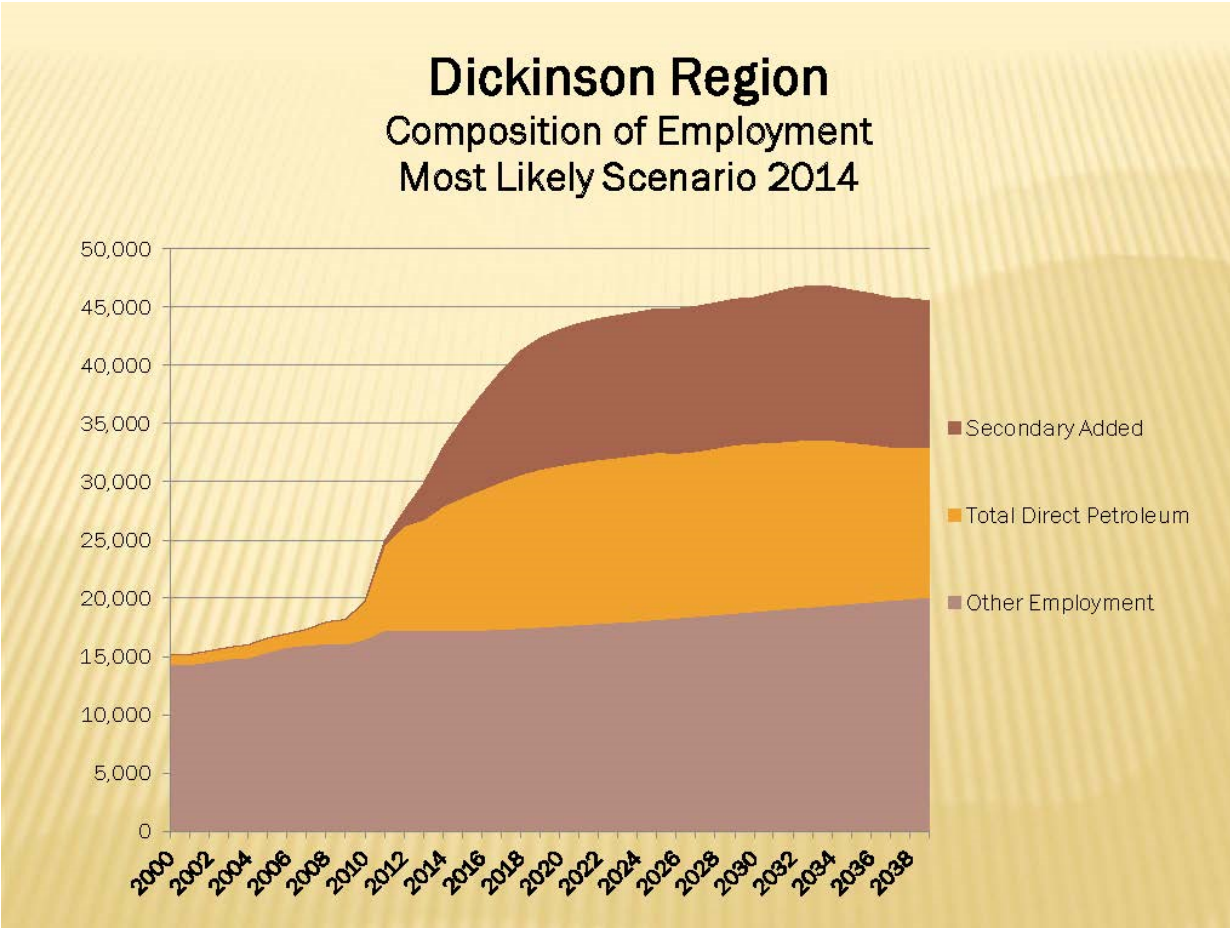
The petroleum sector employment in the Dickinson market is estimated to continue to rise and be sustained at high levels, peaking in 2026, then leveling off once expansion of the oil field has been completed, and the region moves into a longer term production phase. For Dickinson specifically, the employment levels show a continued increase through 2038 as portrayed in **Figure 7 –Dickinson Region Employment** and subsequently retail activity is estimated to continue to increase through 2038 as well. It is noted by the analysts that Dickinson will be somewhat insulated from the anticipated downturn in

[9] This column accounts for the difference between ND taxable sales and Retail Sales from the *Sales and Marketing Survey of Retail Spending* for North Dakota cities. The areas are based on the counties in **Exhibit 1**.

[10] Unconstrained passengers were developed by dividing the regions 2% of retail sales amount, by US average airfare.

2026 due to the industrial manufacturing base that is present in the community. These manufacturing jobs will not be as susceptible to oil production swings as other communities in western North Dakota, and demand should remain constant through the planning period.

FIGURE 7 – DICKINSON REGION EMPLOYMENT



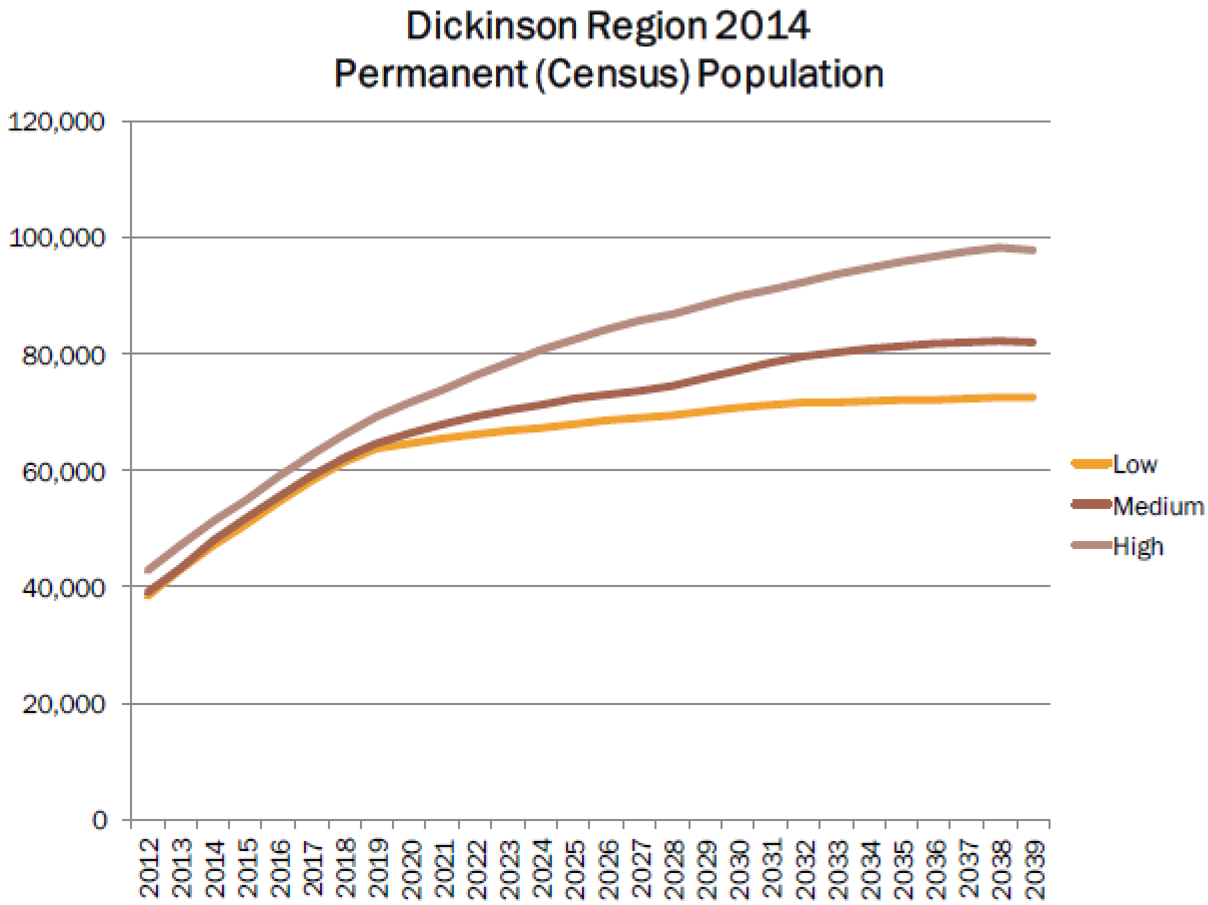
Source: Western North Dakota Energy Project, North Dakota State University, 2014 Projections

The Western North Dakota Energy Project also updated the forecast population growth for the Dickinson region in 2014, based upon documented growth in 2013. They noted in their report,

"The region is in the midst of a protracted increase in employment and population that will change the region for decades. These projections are the latest comprehensive scenarios for the future given by the most knowledgeable local experts. Western North Dakota is changing so fast that the medium scenario presented in 2013 is similar to this year's low."

The Western North Dakota Energy Project also anticipates that population in the region will effectively double in the next 25 years, and is depicted in **Figure 8**.

FIGURE 8 – DICKINSON POPULATION PROJECTION

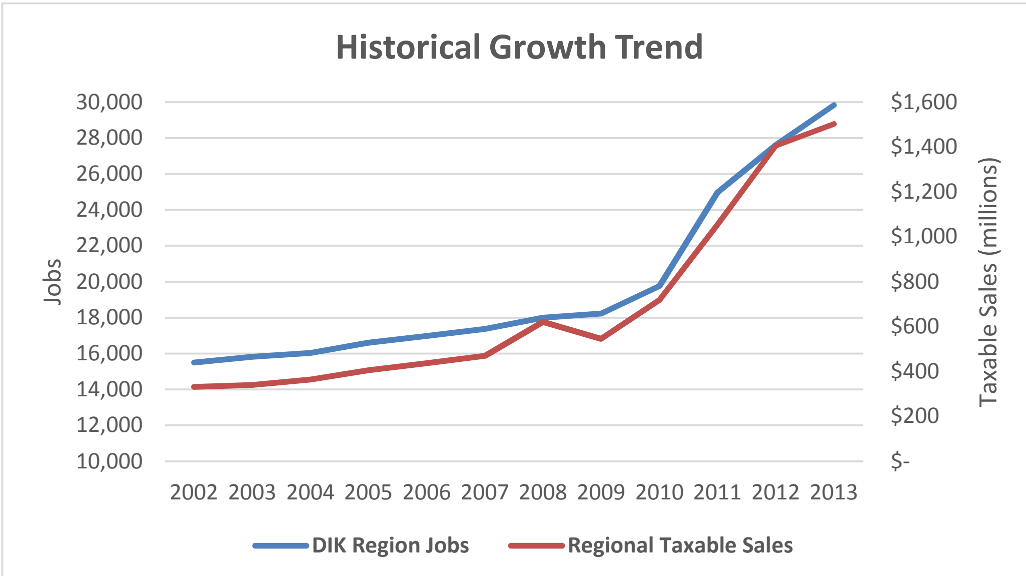


Source: Western North Dakota Energy Project, North Dakota State University, 2014 Projections

Correlation between Regional Jobs and Regional Retail Sales

Over the past 10 years, there has been a very strong correlation between the sales generated in the region, and the number of jobs in the region. When comparing the rates of growth over that time period, as shown in **Figure 9**, it is clear they follow a very similar trend.

FIGURE 9 - GROWTH TREND COMPARISON BETWEEN REGIONAL JOBS AND SALES



Source: Western North Dakota Energy Project, North Dakota State University; and North Dakota State Tax Commissioner

A linear regression model to determine the correlation coefficient of the regional sales generated and regional jobs for each of the past 10 years was developed. This regression model returns an R^2 coefficient of .9901 as depicted in **Figure 10**. This high value provides us with confidence that these two economic factors have a high level of correlation.

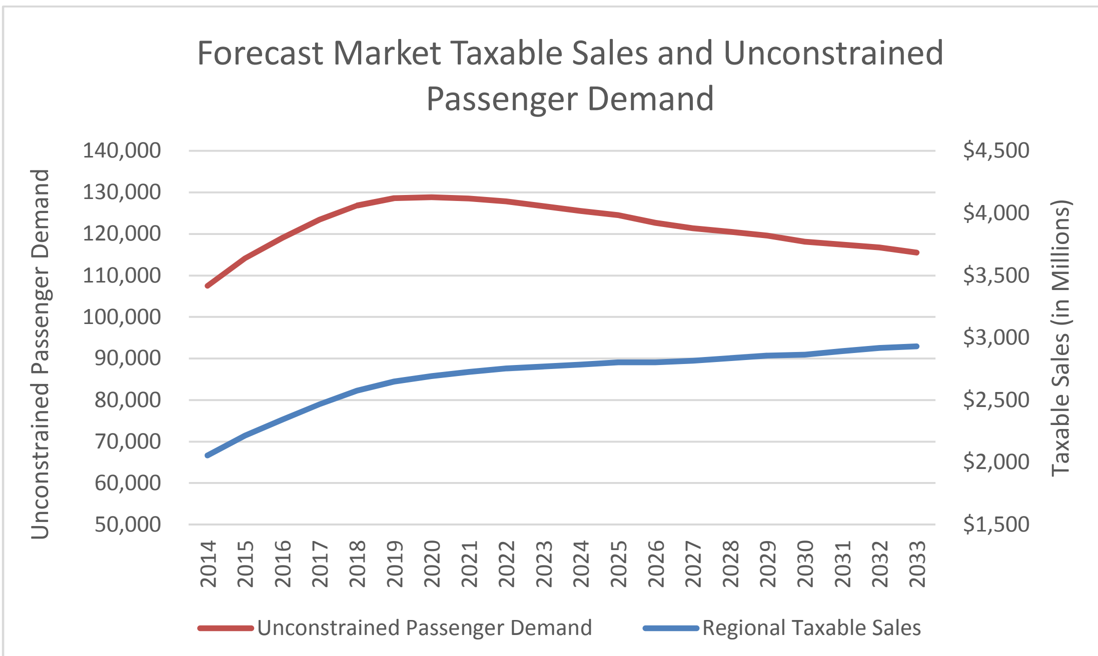
FIGURE 10 – DICKINSON MARKET REGION SALES TO JOBS CORRELATION

Source: Western North Dakota Energy Project, North Dakota State University; and North Dakota State Tax Commissioner

Given this historical correlation between Dickinson regional sales and jobs, the analysis then utilized the job growth projections developed in the Western North Dakota Energy Project to determine retail sales over the next 20 years. The growth rate of jobs developed was then directly applied to the 2013 retail sales for the Dickinson region and extrapolated over the next 20 years. From this projection of retail sales in the Dickinson market, the analysis then applied the 2% average of retail sales being spent on air travel for each year. This figure was then divided by the average US airfare for each year to determine the potential passengers the market area could yield. As mentioned earlier, the US average airfare has increased at a compound annual growth rate of 1.5% since 1995. The airfare used to determine the unconstrained demand utilizes this growth rate over the planning period.

As airfares rise in the future, the unconstrained demand for air travel begins to decrease as depicted in **Figure 11**.

FIGURE 11 – RETAIL SALES AND UNCONSTRAINED PASSENGER DEMAND



Source: Western North Dakota Energy Project, North Dakota State University, 2014 Projections

This decrease in unconstrained passenger demand occurs due to a mathematical projection of the variables utilized in this analysis, as the market's retail sales are forecast to grow at 0.8%, while airfares grow at 1.5% during the period, and therefore a convergent pattern appears. While unconstrained demand is key in the determination of the growth in the Dickinson market, it is not the sole factor utilized to determine the enplanement forecast for Dickinson.

DICKINSON ENPLANEMENT FORECAST

This forecast is based upon the quantification of the current and anticipated air travel demand, and application of knowledge of the airline industry and its response to unmet demand. This forecast has been developed by utilizing:

- Demonstrated correlation between retail sales and air travel spending
- Recent taxable sales reports, adjusted to retail sales
- Demonstrated correlation between job growth and retail sales in the Dickinson market
- Projections of job growth based upon the most relevant estimates available considering the oil industry's impacts on western North Dakota
- Application of US averages for air fares and historical rates of air fare growth
- Assumption of airline response to the unmet demand in the Dickinson market
- Direct communication from the airlines currently serving Dickinson and airlines which have expressed interest

An Addendum has been provided at the end of this chapter with the story of airline activity in western Texas at Midland International Airport (MAF). The airport experienced a similar boom period and their experience provides a good example of what the airline activity looks like after the boom period.

Preferred Forecast Methodology

As highlighted earlier, the dramatic increases in population, income, traffic and jobs in the Dickinson area are directly related to the oil industry growth in western North Dakota, and have led to demand for air service which exceeds current capacity.

The previously demonstrated unconstrained demand for air service in Dickinson is a key factor in the development of the passenger enplanement forecast. It is also understood that many external factors will impact how the airlines will attempt to capitalize upon this unmet demand.

The methodology used for this forecast is a hybrid of statistical analysis of the history and future projections (discussed previously). This is balanced with a demonstration of the assumed response by the airlines serving Dickinson in how that future demand would be met, external factors, and known facts which influence airline service development.

The growth trends demonstrated in this preferred forecast have been developed by establishing the anticipated airline service, which is estimated to be present at Dickinson in 2018, 2023, 2028 and 2033; the resultant compound annual growth rate (CAGR) has been calculated and is explained for each period on pages 22 to 25. It is assumed that service and capacity adjustments by the airlines and passenger reactions to adjustments between those years will not result in the linear trend lines that are reflected in this forecast.

Methodology Development Considerations:

In developing this preferred alternative forecast, the following were taken into consideration:

- The basis for determining unconstrained passenger demand in the market is based upon the average of 2 percent of total regional retail sales being spent on airline travel
- Given the high correlation of regional jobs to regional sales over the past decade, academic and industry consensus on the forecast regional jobs allow for an extrapolation of the regional sales, based on sales growing at the same rate as jobs during the planning period
- Airlines will continue to maximize revenue potential in the market and add capacity as soon as such additions are practical according to their business models
- Additional airline capacity and fleet changes in this market will not provide straight line linear growth rates, and future airline services will have to be assumed as airlines will not provide specific service projections beyond currently published schedules

Key Assumptions:

In addition to the analysis that led to development of the assumed growth in retail sales and its correlation to passenger demand, there are other assumptions – either directly or indirectly tied to this forecast as discussed below:

- This forecast inherently assumes that most of current “spillage” (passengers who would fly out of Dickinson, but cannot due to capacity constraints, will in the future fly from Dickinson.
- The forecast assumes that airlines manage revenues in western North Dakota more in line with national averages. While relatively high fares/yields are still expected in western North Dakota in the near future, the recent 25%-40% fare premiums are not expected to continue once unmet demand is being met.
- Airlines will manage Load Factors in the 75%-80% range. Any excess demand will be managed through higher yields/fares.
- Airlines are assumed to aggressively reduce their smaller (<= 50 seats) regional jet fleets. It is assumed these aircraft types will essentially be eliminated within 10 years, indicating that capacity will be flown with 70+ seat jets. Currently, Delta, United and their regional partners are significantly reducing the 50-seat regional jet fleet.
- Economic growth is anticipated to continue to occur until all oil wells within the Bakken formation have been drilled (current estimate is 20+ years), albeit at a much slower rate than has been experienced in the past five years.
- The Bakken is now a proven domestic oil reserve, with high levels of production expected to continue for the foreseeable future.
- Inherently this forecast assumes no major changes in environmental policy from the EPA restricting the oil industry.
- Oil prices are expected to fluctuate in similar range to what has been experienced in recent years.

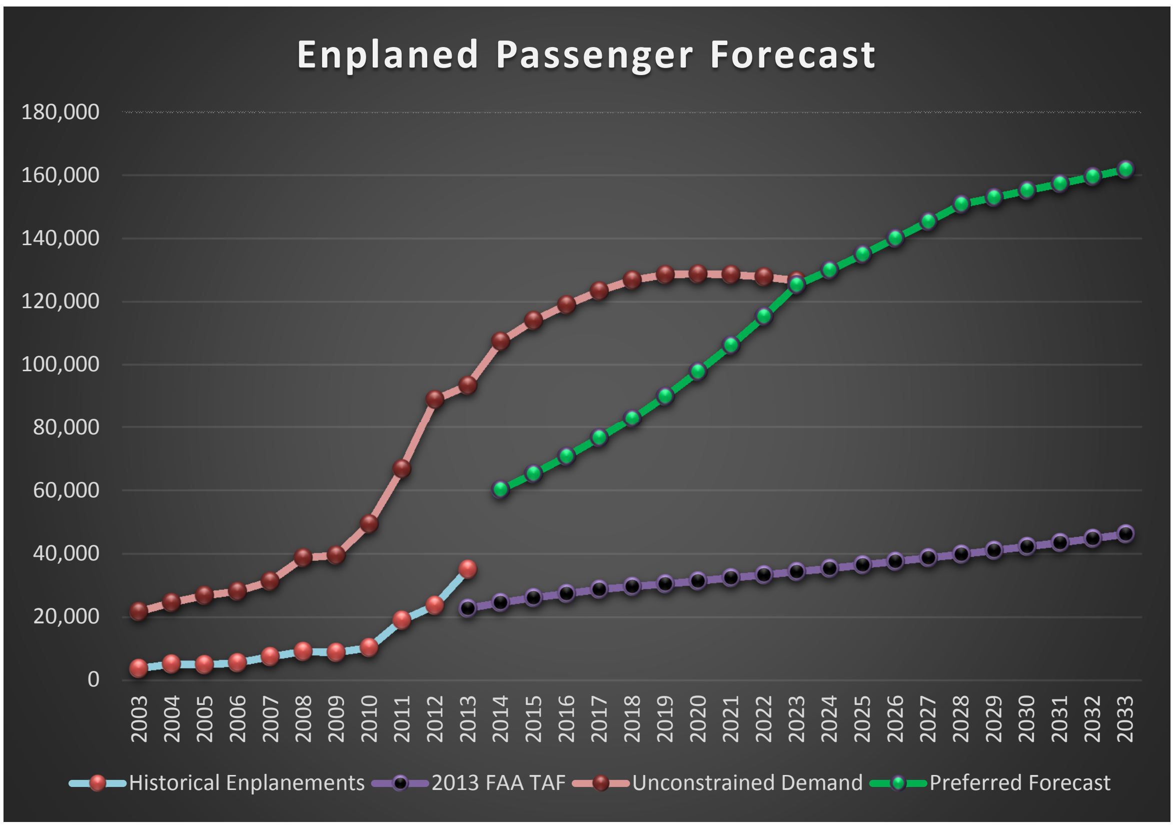
Specific Factors used in Forecast Development:

The preferred forecast utilized specific known factors which impacted its development:

- The current airport does not meet FAA standards (e.g. Runway Safety Area and Object Free Area) for the airline aircraft serving the market
- Weight bearing capacity of the runway restricts the use of aircraft larger than 50 seats
- Delta has expressed specific interest in serving the airport with 70-seat and larger aircraft
- Allegiant Airlines has expressed interest in serving the market once airfield constraints are addressed (see **Exhibit 2**)
- Current Airline fleet and expected changes to the airline fleet in the future – because of limited runway length and pavement strength few airline aircraft can operate off of the existing pavements and even those are weight restricted

The Preferred Forecast chart is depicted in **Figure 12.**

FIGURE 12 – ENPLANED PASSENGER FORECAST



Source: FAA TAF and KLJ Analysis

EXHIBIT 2 – ALLEGIANT SUPPORT FOR DICKINSON EXPANSION

allegiant®

December 18, 2014

Mr. Kelly Braun
Dickinson Airport Authority
11120 42nd St SW
Dickinson, ND 58601-9282

Subject: Allegiant Support of DIK Expansion

Dear Mr. Braun:

The purpose of this correspondence is to state Allegiant Air's interest in Dickinson Theodore Roosevelt Airport (DIK). Allegiant Air would be interested in exploring the possibility of providing commercial air service to DIK, but improvements to the facilities would have to be made before this could happen.

Allegiant Air evaluates many markets each year for their viability in our network of airports. Our analysis shows that the Dickinson market could be a great addition to the Allegiant Air network. Our service plan would likely utilize 166 seat MD80 aircraft. To initiate service, Allegiant would need a runway of approximately at least 7,700 ft. in length and 150 ft. in width, and a passenger terminal commensurate to the stated aircraft size.

Allegiant Air would be interested in exploring commercial service, but any launch is contingent on factors outside of our control. Such factors include, but are not limited to the runway being expanded or constructed, the terminal being expanded or constructed, and airport compliance with all applicable federal and state regulations. We are excited about the possibility of Allegiant service at DIK; please feel free to contact me with any further questions.

Sincerely,

Eric Fletcher
Manager of Airport Planning
Allegiant Travel Company
1201 N. Town Center Drive
Las Vegas, NV 89144
702.830.8161
Eric.fletcher@allegiantair.com

Travel is our deal.
1201 North Town Center Drive, Las Vegas, Nevada 89114

Preferred Forecast Discussion – Allegiant Impact

The trend shown in **Figure 12** depicts a forecast that intersects and exceeds the unconstrained demand forecast. The primary reason for this is the anticipated entrance of Allegiant Airlines into the market. An ancillary factor, as discussed earlier, is the calculation of the unconstrained demand, which utilized a 1.5% growth rate in the average airfares to calculate the unconstrained demand.

Allegiant Airlines is a low cost, low fare airline which has demonstrated the ability to stimulate air travel to the vacation destinations that it serves. This has been observed in many of the neighboring regional markets that it serves, specifically Bismarck, Rapid City, Billings and Minot. All four of those markets have service to both Las Vegas and Phoenix. Given the continued success of the destinations at those four airports, it is anticipated that Allegiant would provide service to both of those destinations from Dickinson as well.

Given the low fares that Allegiant offers, demand to Las Vegas and Phoenix exceeded expectations when using traditional air service development metrics, such as historical O&D reports. By offering these low fares, Allegiant has stimulated demand in excess of what has traditionally been expected in each of these markets.

Therefore, it is anticipated that similar performance will be experienced in Dickinson, and the passengers stimulated by Allegiant will meet and exceed the unconstrained demand trend line which was statistically developed for this forecast.

Four Periods of the Preferred Forecast

The preferred forecast can be broken into four distinct periods. The growth rates for each period have been developed by determining the compound annual growth rates between the start of each period and the end of each period. The end period depicts the anticipated service that will be present during that year at the end of the period. These annual snapshots use the airline industry assumptions discussed previously.

In the description of each period below, the key factors impacting service, demand and actions by the airlines serving Dickinson are discussed. This is a route level analysis that predicts the potential hubs to be served, frequency of service and equipment utilized on each route, and load factors anticipated to be acceptable by the airlines.

Period 1 – 2014 to 2018 – Compound Annual Growth Rate 8.31%

- The current airport location has significant constraints on the airfield and related terminal facilities. The runway length limits airline seat capacity from May through September when the temperatures exceed 78 degrees.
- The runway strength is limited due to its previous design for smaller aircraft. The airport has signed agreements with the airlines to restrict access to only CRJ200 and EMB-145 aircraft (each 50-seat regional jets) which are allowed to operate at maximum takeoff weight despite this weight being in excess of the current pavement strength.
- During the period the airport will be making improvements to the airfield and terminal to allow for larger aircraft to operate from the airport.
- It is anticipated the airline's frequency will remain stable through 2018, and growth will occur by increasing load factors. The rate of growth will be constrained due to lack of available space in the terminal and vehicle parking at the terminal.

DIK Carrier/Route Level Forecast: 2014						
					Annual	Daily
Airline	Hub	Aircraft	Enplaned	LF	Seats	Departs
Delta	MSP	CRJ200	30,981	74%	41,936	2.3
United	DEN	E145	28,838	65%	44,050	2.4
Great Lakes	DEN	E120	490	13%[11]	3,900	0.5
(Jan-Mar Only)						
Total			**60,309[12]**	**67%[13]**	**89,886**	**5.2**

DIK Carrier/Route Level Forecast: 2018						
					Annual	Daily
Airline	Hub	Aircraft	Enplaned	LF	Seats	Departs
Delta	MSP	CRJ200	41,496	84%	49,400	2.7
United	DEN	E145	41,496	84%	49,400	2.7
Total			**82,992**	**84%**	**98,800**	**5.4**

[11] Great Lakes Airlines operated a route with Williston and Dickinson combined to Denver as a 'tagged' market which ended in March 2014. As a 'tagged' market, only a portion of the seats were available for Dickinson and the flights to/from Williston are included in the annual seats. The details of the historic service at Dickinson are an addendum to this chapter.

[12] 2014 Actual Enplanements reported to the airport were 58,943 including Delta, Great Lakes and United.

[13] 2014 Actual Load Factors were Delta – 68.4% , United – 73.8% and Great Lakes – 12.5% (for 3 months of service) for an average load factor of 68.5%

Period 2 – 2019 to 2023 – Compound Annual Growth Rate = 8.59%

- The runway and terminal improvements will be completed during the beginning of this period.
- The airlines will not be limited to operating only 50-seat aircraft; this will provide additional capacity in the market.
- 70-seat aircraft will be operated by both Delta and United into Dickinson.
- Delta and United will operate 3x daily service, 5 to 7 days per week with traditional reductions to 2x daily service on Saturdays and Sundays in response to typical domestic airline demand.
- Allegiant Airlines will initiate service. Given correspondence from Allegiant, it is assumed that once the runway is capable of handling their aircraft, they will be operating at Dickinson.
- Allegiant will begin and maintain 2x weekly service to Las Vegas and Phoenix, with typical load factors being achieved.
- During this period, the number of operations of 50-seat aircraft will decline, as the number of these aircraft in both Delta and United's fleet significantly decreases.
- By 2023, the unconstrained passenger demand developed for this forecast will be met.

DIK Carrier/Route Level Forecast: 2023

Airline	Hub	Aircraft	Enplaned	LF	Annual Seats	Daily Departs
Delta	MSP	CRJ200	13,832	76%	18,200	1.0
	MSP	CRJ900	33,197	76%	43,680	1.7
United	DEN	E145	13,832	76%	18,200	1.0
	DEN	E175	33,197	76%	43,680	1.7
Allegiant	LAS	MD83	15,538	90%	17,264	0.3
	IWA	MD83	15,538	90%	17,264	0.3
Total			**125,133**	**79%**	**158,288**	**6.0**

Period 3 – 2024 to 2028 – Compound Annual Growth Rate = 3.78%

- Economic growth in the market is anticipated to stabilize, and as such, demand for air service will begin to reflect this stabilization.
- The fleet of 50-seat regional jets will have reached the end of their economic life and will be phased out of service in this market.
- Delta Airlines will continue to provide service to Minneapolis, in 70-seat aircraft.
- Delta will operate 3x daily service, 6 days per week with traditional reductions to 2x daily on Saturdays due to reduced demand on this day.
- United Airlines will add service to Houston using 70 seat aircraft, with 1x daily service, 5 days a week to respond to oil industry demand.
- United service to Denver will be 3x daily with 70-seat aircraft, with 2x daily service on Saturdays
- Allegiant Airlines 2x weekly service to Las Vegas and Phoenix will continue during this period.
- While unconstrained demand developed for this forecast is surpassed during this period, this is largely due to Allegiant Airline's impact on the market, as they will account for nearly 30,000 enplanements.

DIK Carrier/Route Level Forecast: 2028

Airline	Hub	Aircraft	Enplaned	LF	Annual Seats	Daily Departs
Delta	MSP	CRJ900	53,872	74%	72,800	2.9
United	DEN	E175	53,872	74%	72,800	2.9
	IAH	E175	13,468	74%	18,200	0.7
Allegiant	LAS	MD83	14,847	86%	17,264	0.3
	IWA	MD83	14,847	86%	17,264	0.3
Total			**150,906**	**76%**	**198,328**	**7.0**

Period 4 – 2029 to 2033 – Compound Annual Growth Rate = 1.41%

- Enplanements and economic activity during this period are anticipated to reflect slower growth rates as the oil industry stabilizes into a production cycle.
- The activity at the airport will be approaching anticipated national average growth rates.
- Airline service (hubs, aircraft, and load factors) will be similar to Period 3.
- United will transition from 5x weekly service to Houston, to 6x weekly.
- Allegiant will add an additional weekly flight.

DIK Carrier/Route Level Forecast: 2033						
					Annual	Daily
Airline	Hub	Aircraft	Enplaned	LF	Seats	Departs
Delta	MSP	CRJ900	53,872	74%	72,800	2.9
United	DEN	E175	53,872	74%	72,800	2.9
	IAH	E175	16,162	74%	21,840	0.9
Allegiant	LAS	MD83	15,192	88%	17,264	0.3
	IWA	MD83	22,788	88%	25,896	0.4
Total			**161,886**	**77%**	**210,600**	**7.3**

Enplanement/Operations Peak Load Forecasts

Table 5 provides a summary of Dickinson peak day forecast. 2013 actual/estimates are not indicative of future results. Peak month (%) forecasts are for 8.7% of the annual monthly average. This ties to Dickinson (July) results for 2012. It also reflects the assumption that Dickinson will be more of a business travel market, with less seasonality than most markets.

Tied to the business nature of the Dickinson market, Dickinson peak hour activity in future years will typically be centered on early morning originating flights. While this is somewhat normal for relatively smaller spoke markets, it is particularly true for business markets such as Dickinson.

TABLE 5 – AIR SERVICE PEAK ACTIVITY

Summary of Commercial Peaking Activity						
	2013*	2014	2018	2023	2028	2033
Passenger Enplanements						
Annual Enplanements	35,082	60,309[14]	82,992	125,133	150,906	161,886
Peak Month (8.7%)	3,052	5,247	7,220	10,887	13,129	14,084
Design Day	98	169	233	351	424	454
% During Peak Hour	50%	50%	50%	40%	35%	35%
Peak Hour	49	85	116	140	148	159
Commercial Aircraft Departures						
Annual Commercial Departures	1,857	1,900	1,981	2,190	2,555	2,659
Peak Month	162	165	172	191	222	231
Design Day	5	5	6	6	7	7
% During Peak Hour	40%	40%	30%	30%	30%	30%
Peak Hour	2	2	2	2	2	2

* 2013 Enplanement data is for FFY2013, from US DOT T-100 reports

[14] 2014 Actual Enplanements reported to the airport were 58,943 including Delta, Great Lakes and United.

Dickinson Preferred Passenger Forecast Summary

This forecast reflects the fact that there is a relatively high probability of continued strong economic and subsequent air travel demand over the next 15 years, before growth moderates. This is a function of expected oil well development and employment tied to that development. Most oil industry experts are consistent in forecasting this trend.

This forecast demonstrates that once the airfield constraints at Dickinson are removed, and adequate infrastructure is present, artificial market constraints will be removed and the market will be able to meet the demand.

Essentially, the anticipated service in Dickinson from 2018 through 2033 will be:

- Delta with 3x daily service to MSP with 70-seat aircraft
- United with 3x daily service to DEN with 70-seat aircraft
- United with 1x daily service to IAH with 70-seat aircraft
- Allegiant with 2x weekly service to LAS and IWA

Variation of growth rates in this forecast have been projected with minor adjustments to frequency and load factors based on the forecaster's projection of airlines response to economic activity expected in Dickinson.

As mentioned earlier, an addendum follows this chapter that outlines the experience at Midland International Airport (MAF) during and after an oil boom. The addendum also provides a summary of issues that specifically relate to Dickinson. **Table 6** below summarizes 5, 10, 15 and 20-year activity forecasts for Dickinson (for commercial airline activity).

TABLE 6 – DICKINSON AIR SERVICE FORECAST

Preferred Commercial Service Forecast Overview								
							CAGR	
	2013*	2014[15]	2018	2023	2028	2033	10-yr	20-yr
Enplanements	35,082	60,309	82,992	125,133	150,906	161,886	13.56%	7.95%
Operations	3,713	3,799	3,963	4,380	5,110	5,319	1.67%	1.81%
Seats (one-way)	64,530	89,886	98,800	158,288	198,328	210,600	9.39%	6.09%
Load Factor	54.4%	67.0%	84.0%	79.1%	76.1%	76.9%		

* - 2013 Data is for FFY13, and reported on T-100 to US DOT

To summarize, the preferred forecast projects 125,133 enplaned passengers by 2023, peaking at 161,886 enplanements in 2033. This reflects a 7.95% compounded annual growth rate (CAGR) over 20 years.

[15] The Actual performance for 2014 was 58,943 enplanements; 3,548 operations; 86,080 Seats (one-way) and a load factor of 68.5%

General Aviation (GA) Demand Forecasts

The greatest problem with any aviation forecast is that no one knows with absolute certainty what the future will bring. We can estimate ranges of aviation activity with some degree of certainty, but unpredictable events happen in the world that shatter projected activity levels. The price of crude oil can change by a simple statement or threat to the market. No action is needed. No change in production, delivery, or consumption. Yet market fears can create enormous volatility in oil prices, which, in turn, impact the economic viability of aviation activity. This is particularly true in an oil-producing state such as North Dakota. In this market environment, all forecasting faces the same problem: there are no forecasts of independent variables that are absolutely accurate. Unprecedented local population and workforce growth, natural disasters, political events, wars, etc., can change plans for the future in a very short time.

It is against this backdrop that general aviation forecasting for the Dickinson Theodore Roosevelt Regional Airport is undertaken. This forecast is organized to include the following sections:

- Forecasting Issues
- Forecasting Methods
- Forecast Results
- Summary

GA Forecasting Issues

Like the passenger forecast addressed already, there are a number of forecasting issues that are encountered in any endeavor that attempts to predict future events. These issues include, but are not limited to:

- Future Uncertainty
- Looking Backward to See Forward
- Estimating True Causality Between Variables
- Potential Differences in Regional Demand Metrics
- Accurate Data

Future Uncertainty

The introduction mentioned oil prices as one future uncertainty. There are many others and for purposes of this forecast, the following major uncertainties have been identified:

- ***Infrastructure Development in Dickinson:*** The rapid population growth in Dickinson has put a strain on the development of adequate community infrastructure and services needed to sustain the population. This would include the need for capital development for roads, housing, utilities, schools, etc. While Dickinson is currently keeping up with demand, there are significant challenges foreseen in the future.
- ***Price Variations in Fuel:*** If prices are not predictable, historical relationships cannot be used to predict future activity.
- ***New Energy Sources or Types:*** If new sources of low cost energy are discovered or invented, reduced prices for oil could reduce exploration or production in North Dakota significantly.
- ***World Economy:*** If the world economy is depressed, the demand for aviation and air travel will likewise be reduced. Economic recessions cause companies to cut air travel. Instead of sending

two sales people on assignment, only one will go. Similarly, vacation travel and other discretionary flying are reduced. For Dickinson, a sluggish world economy translates into reduced oil consumption and thus, less air travel into the area.

- ***Shifts in Demand:*** Sometimes shifts in demand occur that are not predictable. Such shifts are not related to price, but instead represent an actual change in the demand curve to the right or left of its current equilibrium, due to changing tastes and preferences of air travelers.

Looking Backward to See Forward

While hindsight is 20/20, foresight is hit or miss. A fundamental problem with most forecasting is it must rely on historical data to predict future activity. The disadvantage with using historical data is that it can be like driving while using the rearview mirror to stay on the road. Aviation demand forecasting uses historical operations, based aircraft, enplanements, etc., to predict future growth. While this is generally safe in the short run, there are problems with long-term forecasting using this method. For example, unforeseen events such as the attacks of 9/11/2001 can send shockwaves through the industry, reducing demand and making well-developed forecasts invalid.

Estimating True Causality

When variables are correlated to each other, it doesn't always mean that there is a *causal* relationship between the variables. When true causality cannot be determined in forecasting, variables that have traditionally had strong correlations may show decreasing correlations in the future. For example, the growth of certain socioeconomic variables such as population, income, and employment in the 1970s was highly related to the growth of general aviation aircraft. When product liability suits reduced or eliminated the manufacture of single engine aircraft in the 1980s, these relationships were changed significantly. Good forecasting requires knowledge of the actual dependence and causality of variables used as inputs in the forecasting process.

For the Dickinson area, the energy industry growth has spurred aviation activity growth. In fact, this one industry is largely responsible for the growth in population, employment and income in the region. Thus, there are indirect relationships between socioeconomic variables and the demand for aviation facilities and services. However, the direct relationship in the growth of air travel may be from petroleum industry growth.

Even if true causality cannot be determined, there are statistical methods that can establish relationships between variables. These methods work by subjecting all of the potential variables to a stepwise multiple regression analysis to establish relationships between the variables.

Potential Differences in Regional Demand Metrics

General aviation demand metrics differ in various parts of the US. For example, the need for air travel is generally greater in the western US due to the large distances between major population centers. Rail transportation is viable in the northeastern corridor between Washington D.C. and Boston due to the high population concentrations and relatively short travel distances between major metro areas. Forecasting demand using national averages is not always effective due in large part to these regional differences. In Dickinson, general aviation travel for petroleum companies is significant and may not resemble other areas in the US that do not have oil exploration and production activities.

Accurate Data

Another issue facing forecasters is the availability of accurate data. Operational data that is taken from sources other than Airport Traffic Control Tower (ATCT) reporting can be flawed. Even ATCT data can be inaccurate if the tower is closed overnight (therefore not reporting those nighttime operations). Similarly, based aircraft data that repeats year after year may not represent actual fluctuations during the year, but are snapshots in time. If aviation data is inaccurate, forecasts will exaggerate the inaccuracies.

Conventional Forecasting Methods

There are three general methods of forecasting that are typically used to develop forecasts of aviation demand:

- Share of the Market Projection
- Socioeconomic Regression Projection
- Trend Analysis Projection

In addition to these methods, the role of judgmental input to the forecasting process is very important. Each of these forecasting techniques along with a description of the role of judgmental input are briefly presented below.

Share of the Market Projection

Share of the market projections are developed by calculating historical shares of national or regional aviation activity and then projecting these respective shares into future time frames. By using the share of the market technique, regional or national trends can be reflected in the local forecasts. Socioeconomic and per capita projections, on the other hand, are usually based on local factors.

The share of the market methodology is indirectly endorsed by the Federal Aviation Administration since this projection technique has been used in their Terminal Area Forecasts (TAF). Share of the market projections are useful for based and registered aircraft projections. These projections reflect historical trends and therefore may include increasing, constant or decreasing future market shares.

A primary concern regarding market share forecasting revolves around the confidence that is placed in the overall "market" forecast. If the overall market forecast is accurate, it follows that projected market shares can be accurate as well. For many aviation forecasting studies, FAA forecasts are used as the market indicators for active registered aircraft. These forecasts are updated annually and thus maintain relative accuracy.

At the local level, the market share methodology can be used as well. In this regard, forecasts of county-wide registered aircraft can be used as a "market" for distributing based aircraft to an individual airport. In a similar fashion, general aviation aircraft operations can be forecast using a market share ratio called Operations-Per-Based-Aircraft (OPBA). In a sense, each based aircraft represented a "share" of the total operations at a particular airport.

Socioeconomic Regression Projection

The socioeconomic regression projection is based upon an assumed causal relationship between population, income or employment and aviation activity in a particular area. To obtain this projection of demand, socioeconomic data are related via regression analysis to aviation activity. The resulting set of regression equations, coupled with independent projections of future socioeconomic data, produces a projection of aviation activity. The measures of socioeconomic activity are typically focused on population, per capita personal income and employment.

Trend Analysis Projection

A projection based upon trend analysis of historical data is one means of forecasting aviation activity. Typically, trend analysis fits historical data to classical growth curves and extends the demand element into future periods. The most common growth curves are in the form of linear, exponential and logarithmic equations.

Most forecasters believe that prior events have an influence on current and future activities. The methods described thus far make little assumption about the way in which the past influences the future. In fact, the time series least squares analysis assumes that all past events will influence the future with equal weight. Such an assumption quickly loses credibility in the light of dramatic changes that have occurred in the airline industry since 9/11/2001, dramatic fuel price increases, cuts in single engine aircraft production, and product liability limit legislation. For this study, then, two trend analysis projection methods are suggested: exponential smoothing and time series least squares.

Exponential Smoothing

The exponential smoothing process offers a method of weighting the historical data to avoid a simplified view of each past event. This process is based on a weighted average of past events, constructed with geometrically declining weights. Thus, the original data values are replaced with a smoothed series.

Time Series Least Squares

A very simple method that can be used in the forecasting procedure is the time series, least squares analysis. Often, a forecaster can use a time series least squares trend line as a starting point for further analysis. Time series least squares analysis extrapolates historical trends through the forecast period. One shortcoming of this projection technique is that no causal factors are considered, and all historical data points are weighted equally. This method assumes that historical trends will repeat themselves in the future. Another possible shortcoming is that the historical data may not fit a linear trend line.

Role of Judgmental Forecasting Input

There are a number of methods that formalize the role of using judgmental input in the forecasting process. The Delphi Method was developed as a structure that relies on input from knowledgeable people to predict outcomes. For this study, input from the Airport review of technical material will be included as input to the forecasts themselves.

Application of Selected Forecasting Methodology

The forecasting techniques described above can be used for any of the general aviation activity elements. Described below are the detailed methods of forecasting each element of aviation demand that may be included in this Airport Master Plan.

Aircraft Fleet

A forecast of registered aircraft can be performed for the Airport's general aviation service area, which is assumed to be Stark County since Dickinson is the only public use airport in the county and the next closest public use airports are more than 35 miles away. While other counties can be added, the geography favors the limitation to one county. A confirmation that using only Stark County is the fact that the Airport has 33 based aircraft while there are 50 registered aircraft in Stark County (2014), indicating the Airport may not be drawing aircraft from other counties. The data used will include the FAA Aerospace Forecasts series and historic airport based aircraft and Stark County registered aircraft.

Aircraft Operations

Aircraft operations are split into two categories: local and itinerant. Local operations are performed by aircraft that remain in the local traffic pattern, execute simulated instrument approaches or low passes at the airport, or perform activities to/from the airport and a designated practice area within a 20-mile radius. Itinerant operations are performed by an aircraft that lands at an airport, arriving from outside the airport area, or departs an airport and leaves the airport area.

To determine the growth rate of general aviation operations, a static ratio of operations per based aircraft can be utilized, based upon generally accepted ranges or those reflected in FAA Terminal Area Forecast. In the case of Dickinson with the dramatic expansion of the oil industry, a strong correlation between regional job growth and IFR aircraft has been demonstrated.

Data from FAA Air Traffic Control documenting IFR arrivals and departures from Dickinson has been acquired for this forecast from 2010 through 2013 from FlightAware.com and FAA Performance Data Analysis and Reporting System (PDARS) for June 1, 2011 through May 31, 2012.

To forecast total operations, an estimate of VFR operations to be added with IFR operations is needed. The estimate was developed using FAA Air Traffic Activity System (ATADS) analysis of total operations handled by air traffic controllers across the Great Lakes region (AGL). During the previous five calendar years (January 1, 2008 through December 31, 2012) it was found that 59.6% of total operations were VFR, and 40.4% of total operations were IFR. During the same time period, North Dakota IFR operations were 41.5% and VFR operations were 58.5%. For purposes of this forecast, the North Dakota IFR/VFR operations split will be used to determine total itinerant operations.

Forecast Results

General aviation activity is defined as civil aviation aircraft takeoffs and landings not classified as commercial or military. Activity indicators include the number and fleet mix types of based aircraft and type and number of aircraft operations. As such, the following general aviation elements were forecast:

- Study Area Registered Aircraft
- Based Aircraft
- Based Aircraft Fleet Mix
- Aircraft Operations
- GA Operational Fleet Mix
- Peak Period Operations

Study Area Registered General Aviation Aircraft

A registered aircraft is defined as either fixed or rotary wing, operated in non-airline service with a current registration. The number of aircraft based at Dickinson Theodore Roosevelt Regional Airport (DIK) is dependent, in part, upon the nature and magnitude of aircraft ownership in the study area surrounding the airport. The Airport service area for general aviation users was limited to Stark County, ND. Other counties adjacent to Stark were not included in the service area for two primary reasons. First, general aviation service areas are usually within 30 to 45 minutes driving time for aircraft owners. The size of other adjacent counties is so large that some portions are more than 100 miles from

Dickinson. Second, the economic activity occurring in Dickinson is anticipated to drive the demand for aviation facilities and services at the Airport. Oil exploration and production activities in other counties may have a small impact on Dickinson, but those in Stark County will have a significant impact.

Historical information used to develop the registered aircraft forecast is based on data compiled by private vendors (Avantext, Hi-Tech Marketing) for the years 2001-2010, and the FAA database for 2011 and 2012. These sources provide aircraft information, by type for the service area county on an annual basis.

To arrive at an acceptable forecast of study area registered aircraft, several projections were made using market share, socioeconomic regression and trend analysis methodologies. Once tabulated, two derivative "reasonable" projections were developed – a high/low average and a multiple projection average. Both of these derived projections were above the constant market share projection, (meaning that the Dickinson market is anticipated to significantly exceed the US trend). Of the two derivative projections, the Multi-Average was selected as the preferred forecast. **Table 8** presents a summary of the different projections of registered aircraft for the Dickinson general aviation service area.

TABLE 8 – FORECAST OF REGISTERED GA AIRCRAFT

Projection/Forecast	2012	2017	2022	2032	R Squared
Market Share					
Constant	39	39	40	44	N/A
Dynamic	39	50	58	66	N/A
Socio-Economic					
Population	39	94	84	76	0.93
Employment	39	64	54	52	0.89
Income	39	49	52	67	0.90
Trend Analysis					
Linear Trend	39	46	57	78	0.83
Exp Smoothing	39	56	73	107	N/A
Derived Projections					
High/Low Average	39	67	62	76	
Multi-Average	39	57	60	70	
Selected Forecast	**39**	**57**	**60**	**70**	

The resulting forecast indicates a slow growth of registered aircraft in the region from 39 in 2012 to 70 by the year 2032. This forecast recognizes a 79.5 percent growth over the forecast period (about a 3 percent annual growth rate).

Based Aircraft

By definition, a based aircraft is a general aviation aircraft that is stationed at an airport. Forecasting based aircraft at Dickinson used the same process as all other demand elements: an analysis of historical data followed by forecasting into future years. The based aircraft population at Dickinson was projected using a market share methodology. To generate the historical data for based aircraft, the FAA's Form 5010-1 and airport records of existing based aircraft were used. Those numbers were compared to the

Stark County registered aircraft totals. It is believed that for the future, much (but not all) of the growth in County registered aircraft will occur at Dickinson. Thus, roughly three quarters of the incremental forecast growth in registered aircraft were assigned as based aircraft at Dickinson. The forecast of study area registered aircraft was used as the "market" and the based aircraft at Dickinson constituted the "share." By the end of the forecast period, a total of 70 percent of Stark County's registered aircraft are anticipated to be based at the Airport (see **Table 9)**.

TABLE 9 – FORECAST OF BASED AIRCRAFT

Year	DIK Based Aircraft	Service Area Registered Aircraft	Market Share
2007	21	23	91.3%
2008	20	23	87.0%
2009	18	28	64.3%
2010	20	31	64.5%
2011	20	36	55.6%
2012	24	39	61.5%
2013[1]	24	50	48.0%
2014[1]	33	50	66.0%
Forecast			
2018	39	57	67.6%
2023	41	60	68.4%
2028	44	65	67.6%
2033	49	70	70.0%

[1] *Actual Based Aircraft from Airport records and Registered Aircraft from FAA Database*

The forecast shows growth from the current 24 based aircraft to 49 by the year 2032 – an average growth rate of 3.6 percent annually.

Based Aircraft Fleet Mix

An aircraft fleet mix refers to the type of aircraft. General aviation aircraft are classified with regard to specific physical traits such as aircraft type (whether fixed wing or rotorcraft), their weight, wingspan, approach speed, and number and type of engines. Aircraft having dissimilar physical and operating traits require varying types and amounts of airport facilities.

In the forecasting process, the based aircraft fleet mix is used as one component to determine fleet mix forecasts. It is also used to determine the future design category for the airport. Fleet mix categories included: single engine, multi-engine, turbojet, rotorcraft, and "other." This information was collected from Airport Management and compiled for the initial forecast period. Projecting the based aircraft fleet mix involved considering the effects of the national trends in aircraft manufacturing, and the service area registered aircraft fleet mix. Because the total number of based aircraft at Dickinson is expected to double over the forecast period, fleet mix changes will occur as a result of new aircraft at the airport. **Table 10** presents the forecast of based aircraft fleet mix anticipated for Dickinson. As shown, most aircraft will continue to be single engine into the future, with gains in multi-engine and turbo-jet aircraft.

TABLE 10 – FORECAST OF BASED AIRCRAFT FLEET MIX

Year	Single Engine	Multi Engine	Jet	Rotorcraft	Other	Total
2013	21	2	1	0	0	24
2014	28	3	1	1	0	33
Forecast						
2018	30	6	2	1	0	39
2023	29	7	3	2	0	41
2028	32	7	3	2	0	44
2033	35	8	4	2	0	49

Aircraft Operations

An aircraft operation is defined as either a takeoff or a landing. A takeoff and landing are two operations. As mentioned earlier, the historical growth in IFR operations at Dickinson has a strong correlation to the total job growth rate in the region.

For this forecast, historical data from the FAA's Terminal Area Forecast concerning OPBA ratios was utilized for local operations. Itinerant operations were developed with the most recent data concerning IFR flight plans filed with FAA (via Flightaware.com) for the years 2010 through 2013 for itinerant operations, and reflect forecast job growth rates. OPBA for both forecast Local and Itinerant operations and trends are shown below in **Table 11**.

TABLE 11 – FORECAST OF LOCAL AND ITINERANT GENERAL AVIATION OPERATIONS

Year	Based Aircraft	Local		Itinerant		Total	
		Ops	OPBA	Ops	OPBA	Ops	OPBA
2010	20	1,440	72	3,456	173	4,896	245
2011	20	1,847	92	4,432	222	6,279	314
2012	24	2,400	100	6,000	250	8,400	350
2013	24	1,728	72	10,828	516	12,962	540
2014	33	2,376	72	11,234	340	13,610	412
Forecast							
2018	39	2,808	72	14,243	365	17,051	437
2023	41	2,952	72	15,392	375	18,344	447
2028	44	3,168	72	15,630	355	18,798	427
2033	49	3,528	72	15,883	324	19,411	396

Peak Period Operations

Since many of the Airport's facility needs are related to the levels of activity during peak periods, forecasts were developed for peak month, design day and design hour. Ideally, a comprehensive historical data pool should be analyzed to determine the peaking characteristics. Without an airport traffic control tower, much of the data concerning peak period demand must be gained through interviews with Airport Management and the FBO. There is also an alternative approach that can be used in developing these activity descriptions:

Peak Month Operations: This level of activity is defined as the calendar month when peak aircraft operations occur. Peak Month percentages for general aviation activity at airports such as Dickinson are typically 15 percent busier than an average month operations.

Design Day Operations: This level of operations is defined as the average day within the peak month. This indicator can be easily developed by dividing peak month operations by either 30 or 31. A 31-day peak month was assumed for design day operations at Dickinson.

Peak Hour Operations: This level of operations is defined as the peak hour within the design day. Typically, these operations will range between 20 and 30 percent of the design day operations for airports with the activity profile similar to Dickinson. A 30 percent peaking factor was used for this forecast.

Table 12 presents the forecast of peaking characteristics for general aviation operations at Dickinson.

TABLE 12 – FORECAST OF GENERAL AVIATION OPERATIONAL FLEET MIX

Year	Annual GA Operations	GA Peak Month Operations	GA Design Day Operations	GA Peak Hour Operations
2011	6,279	602	19	6
2012	8,400	805	26	8
2013	12,606	1,051	35	11
2014	13,660	1,138	38	11
Forecast				
2018	17,101	1,425	48	14
2023	18,394	1,533	51	15
2028	18,848	1,571	52	16
2033	19,461	1,622	54	16

Summary

Table 13 presents a summary of the various forecasts of general aviation activity indicators for Dickinson through 2032. Included in summary are registered and based aircraft numbers, along with operations totals, enplanements and peak period activity projections.

TABLE 13 – SUMMARY OF GENERAL AVIATION ACTIVITY FORECASTS

Forecast Element	2013	2014	2018	2023	2028	2033
Registered Aircraft[16]	50	50	57	60	65	70
Based Aircraft	24	33	39	41	44	49
Total Annual Operations	12,606	13,660	17,101	18,394	18,848	19,461
Local Operations	1,728	2,376	2,808	2,952	3,168	3,528
Itinerant Operations	14,591	15,542	18,245	20,434	20,984	21,445
Peak Period Operations	11	11	14	15	16	16

[16] Stark County Registered Aircraft

CONCLUSION

The economic growth that has been experienced in the Dickinson region in recent years is unprecedented in modern United States history. These forecasts are based upon the most current estimates of anticipated socioeconomic growth factors in the region: population, oil industry job and economic indicators. The growth trends do not follow traditionally accepted “normal” growth curves. It is assumed by industry experts and economic researchers that the growth rates experienced in the “boom” will not continue for the foreseeable future.

Future development of the Bakken shale and Three Forks oil extractions has been thoroughly analyzed; growth of the local economy, and thus aviation at Dickinson, has been forecasted with the most up-to-date estimates available.

Growth above the rates forecasted could occur if improved oil and gas extraction technologies are discovered in the future, or if oil recovery from additional layers of shale is found to be economically and technologically feasible. Growth rates below the rates forecasted could occur if market forces (decrease in petroleum prices) or increased governmental regulations cause extraction to no longer become economically feasible.

These factors and variables have been included in the referenced socioeconomic forecasts. The consensus of the industry, educational institutional researchers and governmental officials believe the factors utilized in this forecast to be the best estimate of anticipated growth in the Williston Basin and aviation activity and the Dickinson Theodore Roosevelt Regional Airport.

Thus, almost all aviation metrics analyzed in this forecast exceed the variance from the FAA Terminal Area Forecast that is allowed for acceptance of this forecast by the FAA at the local Airports District Office level, and will require regional and headquarters review.

To summarize the aviation forecast, two tables have been provided. The Summary of Aviation Forecast is reflected in **Table 14**. Comparison of the Preferred Forecast to FAA Terminal Area Forecast is provided in **Table 15**.

TABLE 14 – AVIATION FORECAST SUMMARY

Dickinson Theodore Roosevelt Regional Airport - Aviation Forecast Summary

A. Forecast Levels and Growth Rates	Actual (4)	Forecast					Average Annual Compound Growth Rates				
	2013	**2014**	**2018**	**2023**	**2028**	**2033**	**2013 to 2014**	**2013 to 2018**	**2013 to 2023**	**2013 to 2028**	**2013 to 2033**
Commercial Passenger Enplanements											
Total	35,082	60,309	82,992	125,133	150,906	161,886	71.91%	18.79%	13.56%	10.22%	7.95%
Operations											
Itinerant											
Air carrier	0	0	0	2,912	5,096	5,304	N/A	N/A	N/A	N/A	N/A
Commuter	3,713	4,258	3,952	1,456	0	0	14.68%	1.26%	-8.94%	-100.00%	-100.00%
Total Commercial Operations	3,713	4,258	3,952	4,368	5,096	5,304	14.68%	1.26%	1.64%	2.13%	1.80%
Air Taxi/General aviation (1)	10,828	11,234	14,243	15,392	15,630	15,883	3.75%	5.63%	3.58%	2.48%	1.93%
Military	50	50	50	50	50	50	0.00%	0.00%	0.00%	0.00%	0.00%
Itinerant Operations =	14,591	15,542	18,245	19,810	20,776	21,237	6.52%	4.57%	3.11%	2.38%	1.89%
Local											
General aviation	1,728	2,376	2,808	2,952	3,168	3,528	37.50%	10.20%	5.50%	4.12%	3.63%
Local Operations =	1,728	2,376	2,808	2,952	3,168	3,528	37.50%	10.20%	5.50%	4.12%	3.63%
TOTAL OPERATIONS =	**16,319**	**17,918**	**21,053**	**22,762**	**23,944**	**24,765**	9.80%	5.23%	3.38%	2.59%	2.11%
Instrument Operations (2)	9,223	9,906	11,028	12,605	13,105	13,568	7.41%	3.64%	3.17%	2.37%	1.95%
Peak Hour Operations	11	11	14	15	16	16	8.36%	6.29%	3.85%	2.72%	2.19%
Cargo/mail (enplaned + deplaned tons) (3)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Based Aircraft											
Single Engine (Nonjet)	21	28	30	29	32	35	33.33%	7.39%	3.28%	2.85%	2.59%
Multi Engine (Nonjet)	2	3	6	7	7	8	50.00%	24.57%	13.35%	8.71%	7.18%
Jet Engine	1	1	2	3	3	4	0.00%	14.87%	11.61%	7.60%	7.18%
Helicopter	0	1	1	2	2	2	N/A	N/A	N/A	N/A	N/A
Other	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
TOTAL	**24**	**33**	**39**	**41**	**44**	**49**	**37.50%**	**10.20%**	**5.50%**	**4.12%**	**3.63%**

B. Operational Factors	**2013**	**2014**	**2018**	**2023**	**2028**	**2033**
Average aircraft size (seats)						
Air carrier	N/A	N/A	N/A	83.7	77.8	79.4
Commuter	30.3	42.2	50.0	50.0	N/A	N/A
Average enplaning load factor						
Air carrier	N/A	N/A	N/A	79.96%	76.09%	76.87%
Commuter	54.4%	67.1%	84.00%	76.00%	N/A	N/A
GA/Air Taxi operations per based aircraft (1)	523	412	437	447	427	396

1) Due to lack of ATCT at DIK, accurate count of Air Taxi operations could not be ascertained. Therefore, Air Taxi operations have been included with GA Itinerant operations.
2) 2013 Instrument operations based upon IFR operations counts recorded by FAA ATC from FlightAware.com
3) No cargo tonnage information has been recorded by the airport, therefore there is no basis for forecasting.
4) Enplanements as reported by airport management for CY2013. Aircraft size and load factor calculations are for scheduled service carriers.

TABLE 15 – FORECAST COMPARISON TO FAA TAF

Dickinson Theodore Roosevelt Regional Airport
Preferred Forecast Comparison to TAF Forecast

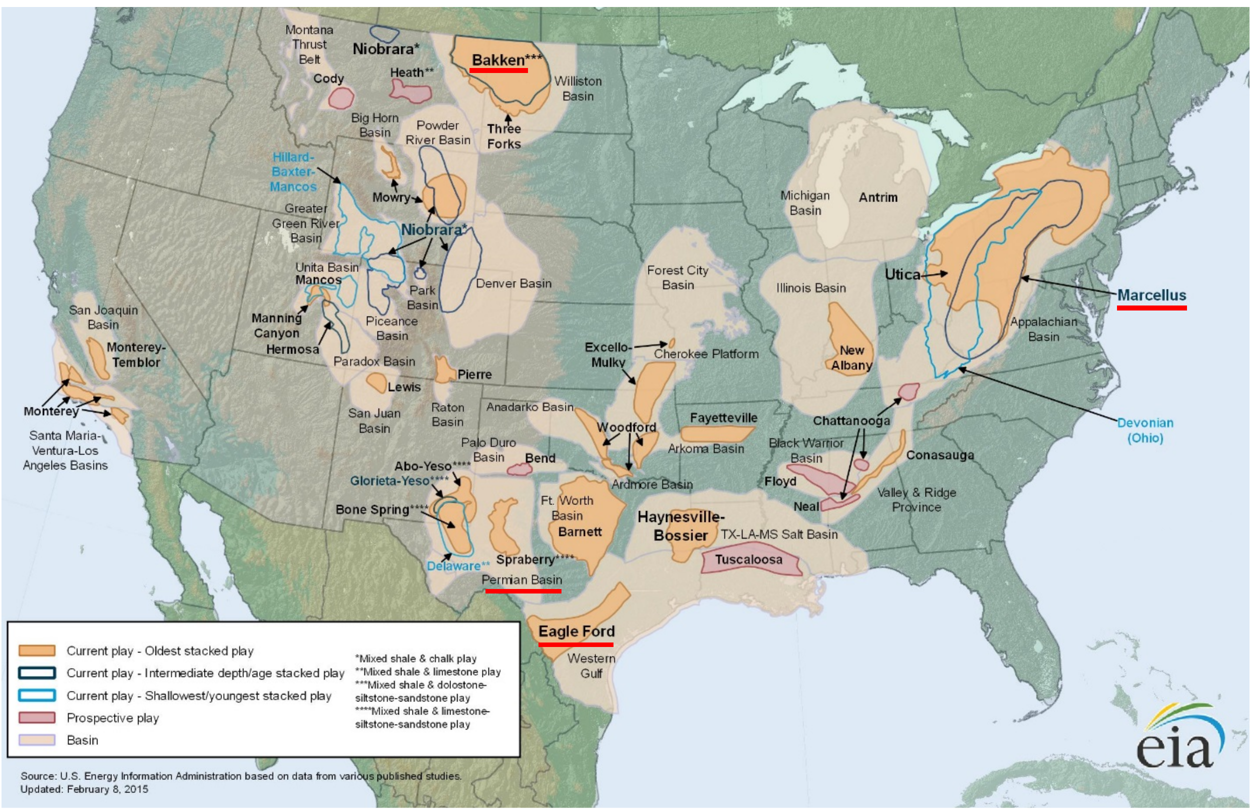
Passenger Enplanements	Year	Airport Forecast	Feb-14 TAF	AF/TAF (% Difference)
Base yr.	2013	*35,125*	22,840	**53.79%**
Base yr. +1 yr	2014	60,309	24,667	**144.49%**
Base yr. + 5yrs.	2018	82,992	29,691	**179.52%**
Base yr. + 10yrs.	2023	125,330	34,418	**264.14%**
Base yr. + 15yrs.	2028	150,906	39,895	**278.26%**
Base yr. + 20yrs.	2033	161,886	46,247	**250.05%**
Itinerant Operations				
Base yr.	2013	14,591	7,132	**104.59%**
Base yr. +1 yr	2014	15,542	7,326	**112.15%**
Base yr. + 5yrs.	2018	18,245	7,837	**132.80%**
Base yr. + 10yrs.	2023	19,810	8,312	**138.33%**
Base yr. + 15yrs.	2028	20,776	8,837	**135.10%**
Base yr. + 20yrs.	2033	21,237	9,417	**125.52%**
Local Operations				
Base yr.	2013	1,728	1,440	**20.00%**
Base yr. +1 yr	2014	2,376	1,440	**65.00%**
Base yr. + 5yrs.	2018	2,808	1,440	**95.00%**
Base yr. + 10yrs.	2023	2,952	1,440	**105.00%**
Base yr. + 15yrs.	2028	3,168	1,440	**120.00%**
Base yr. + 20yrs.	2033	3,528	1,440	**145.00%**
Total Operations				
Base yr.	2013	16,319	8,572	**90.38%**
Base yr. +1 yr	2014	17,918	8,766	**104.40%**
Base yr. + 5yrs.	2018	21,053	9,277	**126.93%**
Base yr. + 10yrs.	2023	22,762	9,752	**133.41%**
Base yr. + 15yrs.	2028	23,944	10,277	**132.98%**
Base yr. + 20yrs.	2033	24,765	10,857	**128.11%**

Note: TAF data is on a Federal fiscal year basis (October through September). 2013 Enplanement Data based upon FFY, Operations data from 2013 is CY from Airport Records, Reported IFR traffic, KLJ Analysis

Forecast Addendum

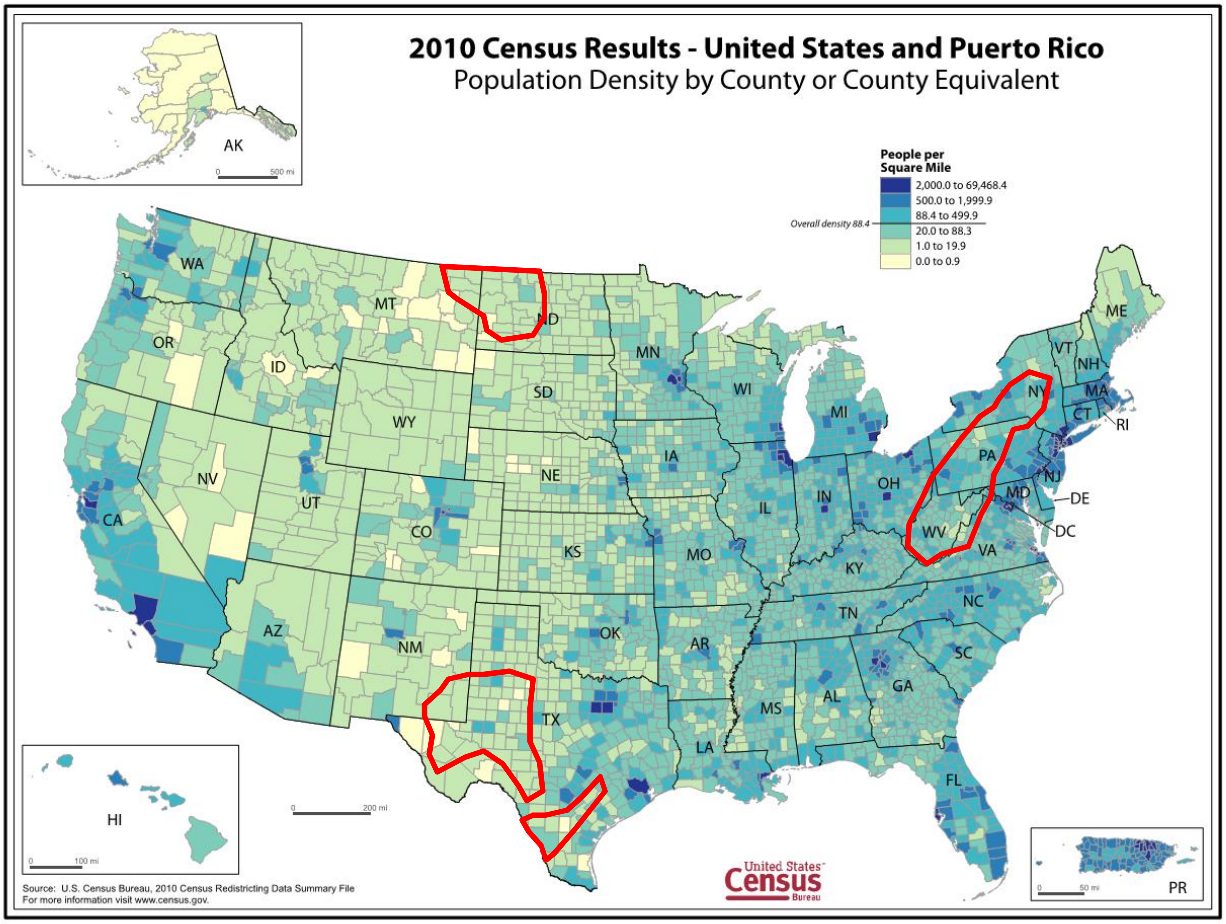
It is important to put petroleum-driven economic activity within context of how it will impact airline enplanements. While it is understood that there will be increases and decreases in petroleum prices, it has been found that once an oil exploration area has been identified there will be continued exploration and production even through fluctuations in pricing of this commodity. In recent years there are three key shale play areas that are under development: the Eagle Ford Shale (in south Texas), the Marcellus Shale (in the northern Appalachian region) and the Bakken Shale (in western North Dakota) identified in **Exhibit A-1**. The Permian Basin (west Texas) is also identified in **Exhibit A-1** since it is an established oil exploration area with similar location attributes as the Bakken Shale. The Eagle Ford Shale and Marcellus Shale are within close driving distance from to major population centers for labor as can be seen **Exhibit A-2.** This is compared to the relative isolation of the Bakken Shale and Permian Basin.

Exhibit A-1 – Shale Play and Basin Areas



Note: Bakken, Eagle Ford, Marcellus and Permian Basin underlined in Red

Exhibit A-2 – Population Density 2010



Note: Bakken, Eagle Ford, Marcellus and Permian Basin outline in Red

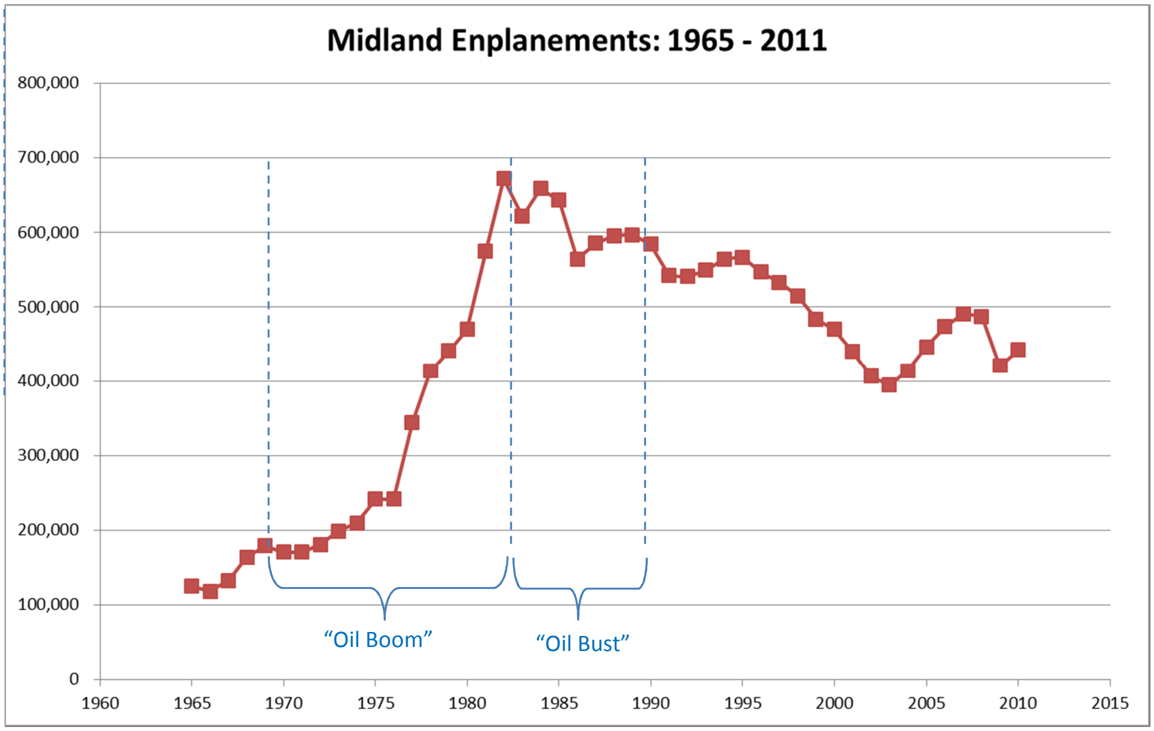
The Permian Basin in west Texas was therefore determined a comparable region with a longer history of oil development. Given the commonalities of this region with western North Dakota, the demands for aviation activities can be compared, at least from an anecdotal basis. The experience of Midland International Airport in Midland-Odessa, Texas, the center of the Permian Basin, is provided as follows.

Midland-Odessa (MAF) Experience

West Texas, particularly Midland-Odessa[17], was in the heart of the oil boom in the late 1970s and into the early 1980s. While this region is not a perfect comparison to western North Dakota, there are at least some issues to consider when analyzing what western North Dakota looks like after the boom years end. **Figure A-1** illustrates historical Midland-Odessa enplaned passenger trends over the past 45+ years. The oil boom ran from roughly the mid-1970s to early 1980s.

[17] MSA Population for Midland and Odessa from 2010 Census was a combined amount of 278,801.

FIGURE A-1 – MIDLAND-ODESSA AIRPORT HISTORICAL ENPLANEMENTS

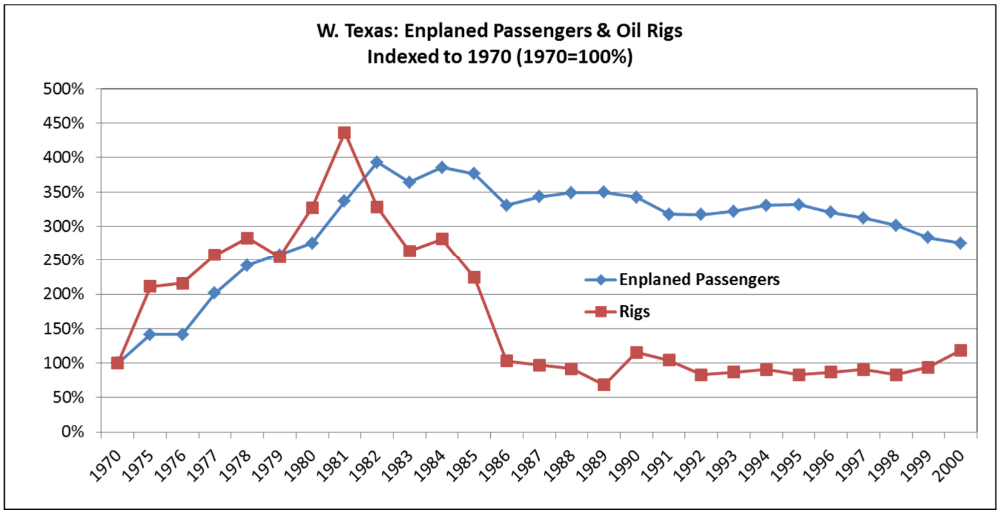


Source: Midland-Odessa Airport Administration (MAF)

Figure A-1 illustrates that Midland-Odessa did in fact experience sharp enplaned passenger growth before and certainly during the oil boom that ran roughly from the early 1970s to the early-to-mid 1980s.

Figure A-2 illustrates relative changes in enplaned passenger volumes and the number of oil rigs (which should be an indication of oil exploration activity). The trend tracked as the initial rig count rose but enplanements remained high after the rig count began to drop recognizing the activity associated with maintaining petroleum production after the major drilling was completed.

FIGURE A-2 – COMPARISON OF OIL RIGS TO PASSENGER LEVELS



Source: Midland Odessa Airport (MAF) & Texas Drilling Statistics

A few points based upon a brief analysis of Midland-Odessa:

- Midland-Odessa enplaned passenger volume roughly tripled during the oil boom years, increasing from approximately 220,000 in 1975 to approximately 670,000 in 1982.
- During the following 10-year period (through about 1995), Midland-Odessa enplanements fell by approximately 100,000, or less than 20% versus peaks.
- After 1995, Midland-Odessa enplanements fell sharply, eventually bottoming out at about 400,000 enplaned passengers. This is about 40% below peak levels in the early 1980s.
- Looking at the bottom graph, it is clear there was good correlation between oil activity (rigs) and enplaned passenger growth throughout the 1970s and into the early 1980s.
- However, when oil prices started to fall and oil exploration dried up, enplaned passenger volume declined moderately (less than 20%), but didn't fall near as sharply as oil activity.
- While enplaned passenger volumes did fall further in the long-term, it is arguable whether this was due to reduced oil activity (which had already fallen below 1970s levels). Even then, these declines were still not as great as the decline in oil activity.

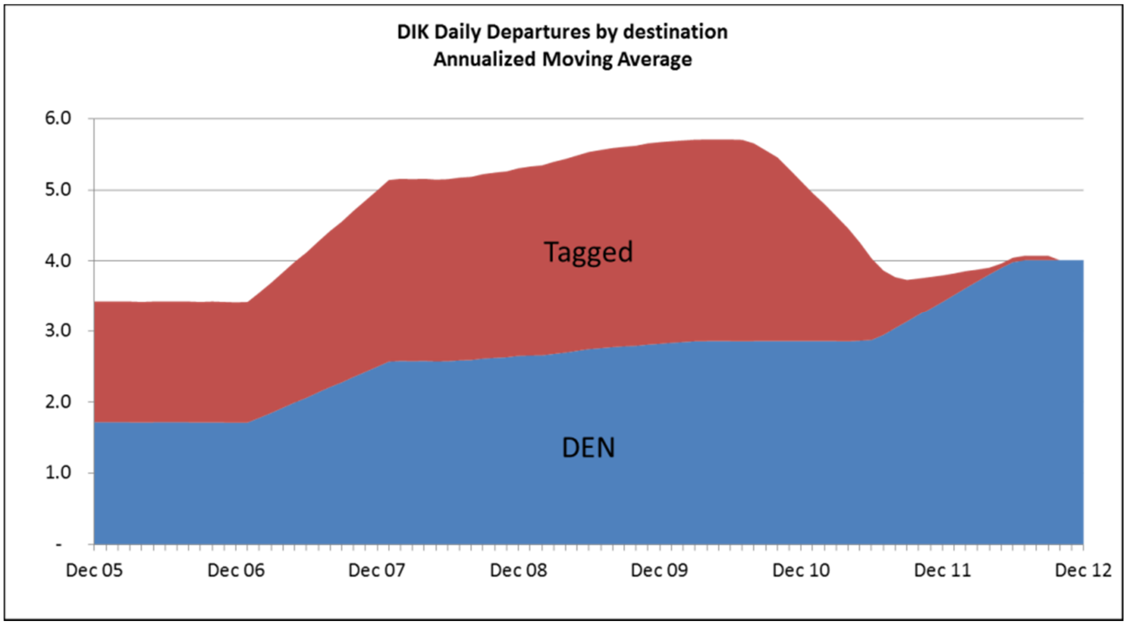
Hence, to summarize, there was an apparent close correlation between regional oil industry growth and Midland-Odessa enplaned passenger growth during the 1970s and 1980s. But, while there was a moderate decline in Midland-Odessa enplaned passengers subsequent to the boom period, it was not a drastic decline and did not compare to declines in oil activity. This would appear to substantiate studied scenarios where traffic declines were more moderate and not drastic after oil activity slows. Still, there are some additional things to consider:

- Airline de-regulation occurred in 1978. During the following three years, there was a market share war within the industry. During this time period, most airports experienced fairly sharp traffic increases, only to see those gains erased during the 1980s and 1990s.
- Air travel in general was a growth industry during the 1980s (most people hadn't flown), relative to today, when air travel is considered a very mature industry with little growth.
- During the oil slump in west Texas, oil prices fell sharply, bottoming out at around $10/barrel. Given the growth in third-world economies around the world, this type of scenario is not expected to occur in the near future.
- Low cost carrier Southwest has had a large presence at Midland-Odessa since the early 1970s, insulating potential traffic declines.
- New technologies (fracking shale) make wells more productive today and therefore have longer life spans relative to drilling of oil pockets during the 1970-80s around Midland.
- While there are both advantages and disadvantages pertaining to the Midland-Odessa example, the key point appears to be this: while Midland-Odessa experienced some traffic declines subsequent to the oil boom of the 1970s-80s, it can be described as a relatively moderate decline. It should be expected that Dickinson will respond in a somewhat similar manner, as reflected in the baseline forecast.

Dickinson Historic Market Performance – Prior to 2013

Dickinson was historically an Essential Air Service (EAS)[18] market, subsidized by the US Department of Transportation. Dickinson experienced a mixture of nonstop Denver service through tagged flights[19] (as with other EAS markets in North Dakota, Wyoming and Nebraska). All flights were operated by Great Lakes Aviation, which had a marketing agreement with United Airlines and Frontier Airlines. All flights were initially 19-seat Beech 1900s and eventually were operated with 30-seat, EMB-120 turboprop aircraft. Annualized departure trends depicting these through 2012 are shown in **Figure A-3**.

FIGURE A-3 – DICKINSON DAILY DEPARTURES BY DESTINATION



Source: Innovata (published airline flight schedules)

Loads and Leakage

While total flights declined versus 2010 peaks, the effective number of flights/seats, as operated on nonstop Denver flights, increased over time: nonstop Denver flights increased from approximately 1.7 (50 percent of capacity) in 2005 to 4.0 daily nonstop flights in 2012. Dickinson had all Denver nonstop service with Great Lakes from summer 2011 to winter 2014 when they left the market. From a market perspective, the number of seats allocated to Dickinson increased from approximately 65 per day in 2005 to 120 in 2012 and 300 in the spring of 2014. This includes the loss of Great Lakes in the winter of

[18] The airline service for Dickinson began in the fall of 1993 through the Essential Air Service program.

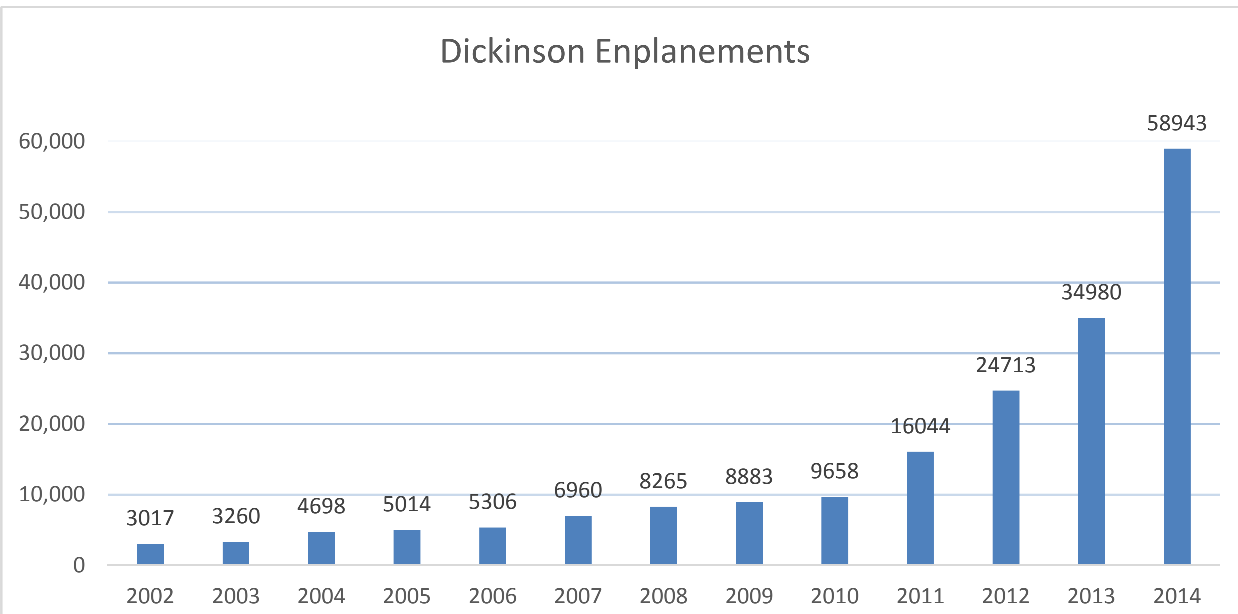
[19] A "Tagged" flight is a flight to and from a hub airport which is shared with at least two non-hub destination airports. These airports, such as Williston and Dickinson, would share a single aircraft that departed Williston then stopped in Dickinson then continued to Denver. The flight would return from Denver to Dickinson and then continue on to Williston. All seats to and from Denver were shared with Williston and Dickinson resulting in theoretically no more than 50% of the seats available for a single market. This also doubled the aircraft operations with no resulting increase in airline capacity.

2014, and the introduction of nonstop service on Delta to MSP, and United to Denver in the summer of 2013.

While being served by Great Lakes, Dickinson was underserved based on recent economic activity (Retail Sales) and leakage of 66% of potential passengers to other airports. When looking at Dickinson's Revenue per Available Seat Mile (RASM) results, as compared to other markets served through Denver, Dickinson is a relatively strong market. Through 2013, DIK-DEN generated average unit revenue and was certainly better than other markets of similar stage lengths. This was particularly true when considering that Dickinson historically relied on Great Lakes' Beech 1900 and eventually EMB-120 service with the following issues: 1) operational constraints, creating unpredictable seat availability, 2) high rate of cancellations, and 3) air service with limited connecting options due to the nature of airline agreements from Dickinson's incumbent airline. The result was high leakage, mostly to Bismarck and somewhat to Rapid City, SD.

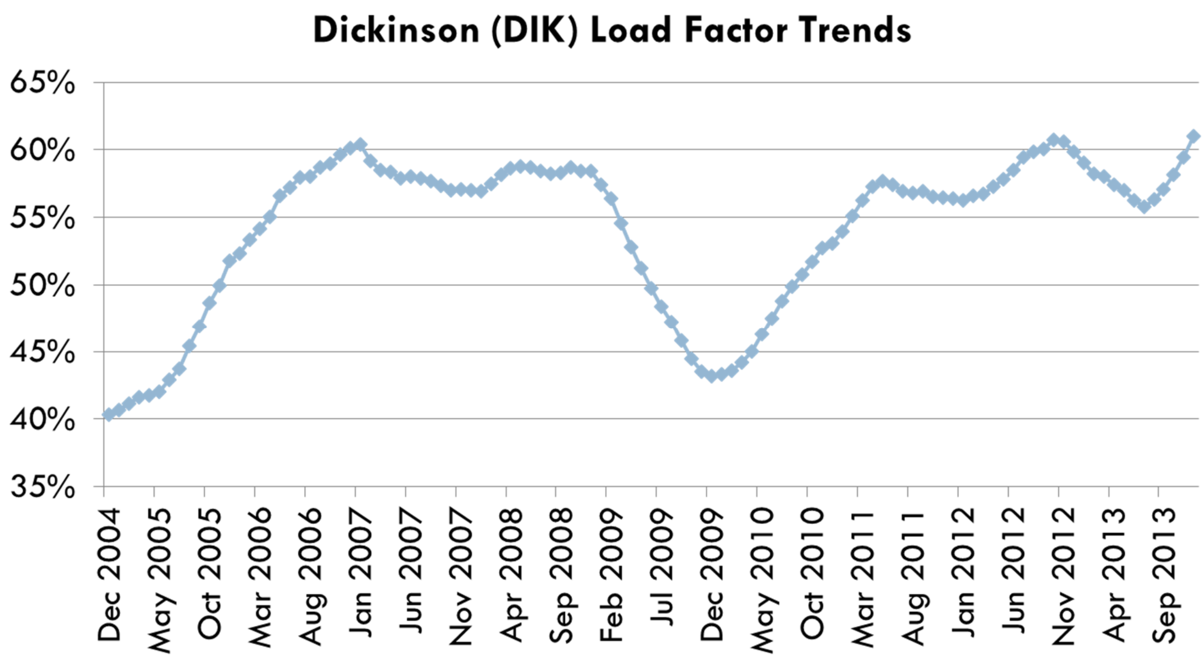
As with other western North Dakota markets, Dickinson began to see significant traffic gains during summer 2010 as shown in **Figure A-4**. Traffic increased from roughly 9,000 in 2009 to 34,980 in 2013. Since 2009, Load Factors increased from the mid-40 percent range to more than 60 percent through 2013 as shown in **Figure A-5**. In Q1 2014, Load Factors continued to climb past 70 percent.

FIGURE A-4 – DICKINSON ENPLANED PASSENGERS



Source: 2002-12 FAA TAF; 2013-14 DIK Airport

FIGURE A-5 – DICKINSON LOAD FACTOR

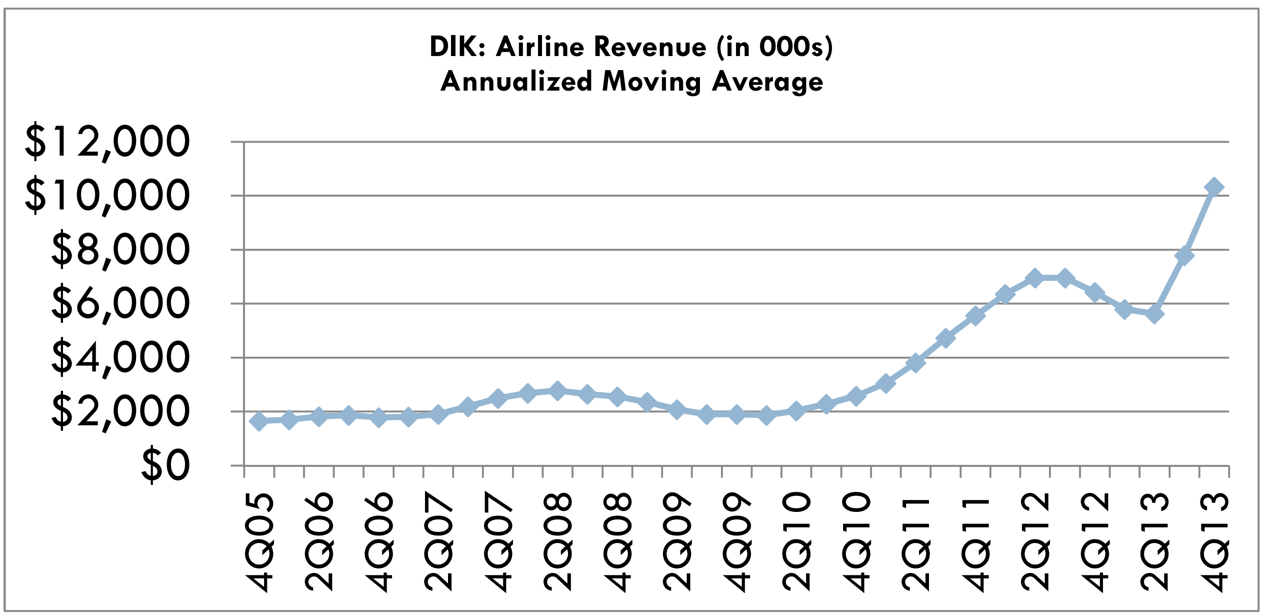


Source: US Department of Transportation Report T100

Airline Revenue, Fares and Comparative Performance

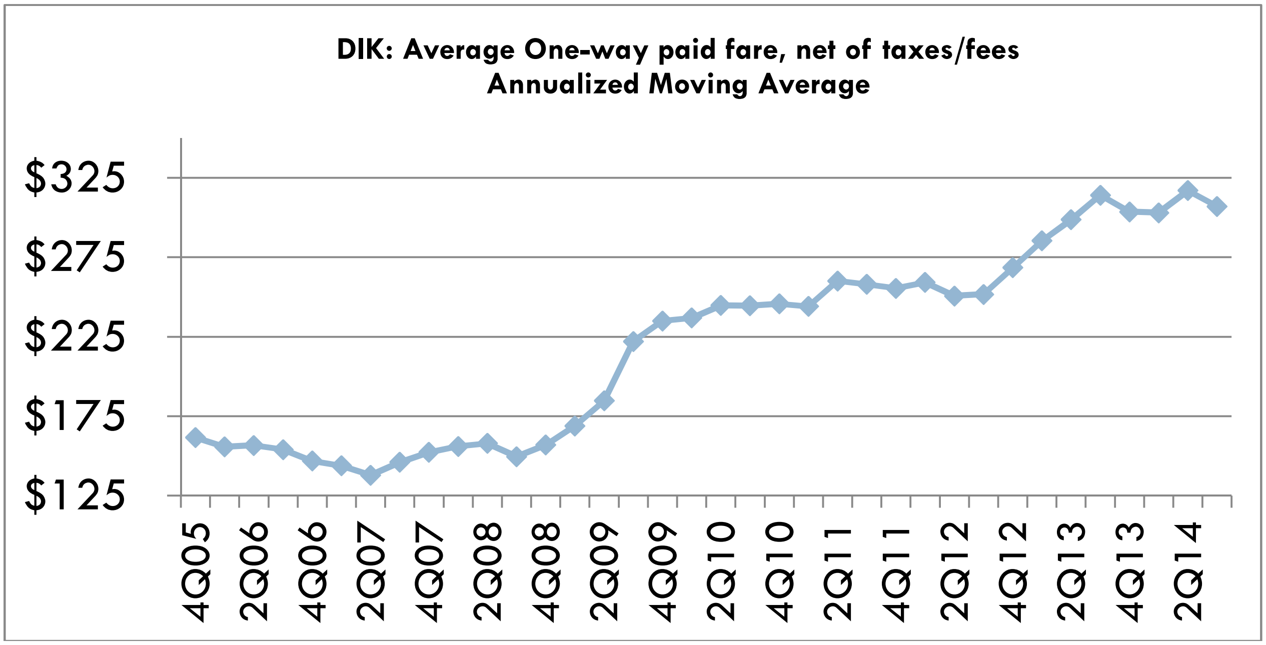
Focusing on traffic and load factors do not tell the entire Dickinson situation. **Figure A-6** depicts the change in airline revenue, and **Figure A-7** shows the change in average one-way airfare.

FIGURE A-6 – DICKINSON AIRLINE REVENUE



Source: US Department of Transportation Report DB1B

FIGURE A-7 – DICKINSON AVERAGE ONE-WAY PAID FARE



Source: Department of Transportation Report DB1B

Dickinson airline revenue grew more than fivefold from the summer of 2010, increasing from less than $2 million annually to more than $10 million by year-end 2013. Since 2010, Dickinson's paid air fare increased from approximately $235 to more than $300 (average one-way). As of the 4th Quarter of 2013, there was an average fare of $304 (this is equivalent to an airfare of almost $700 round-trip when taxes/fees are included).

The airfares and O&D markets in **Table A-1** are somewhat misleading, as Dickinson airfares in reality were much higher in 2013. **Table A-1** ranks Dickinson's top-20 O&D markets for CY2013. Two things stand out: first, overall level of airfares, which in many cases are well over $1,000 round-trip when including taxes/PFCs, and secondly, 20 percent of Dickinson's O&D traffic is traveling to/from Denver.

TABLE A-1 – DICKINSON TOP O&D MARKETS

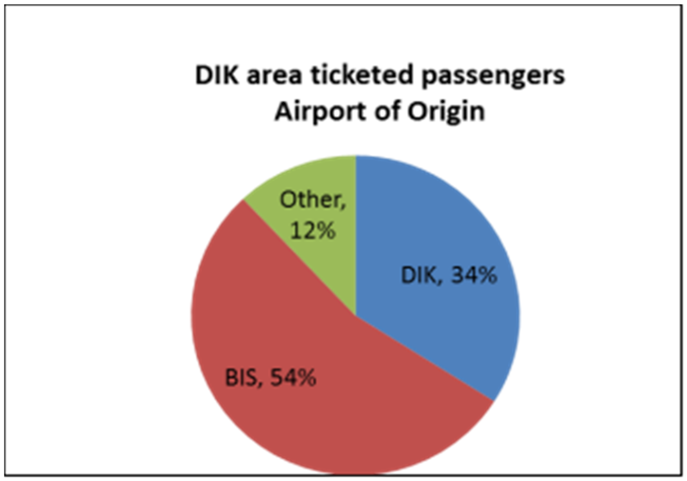
Top DIK O&D Markets: CY 2013									
		Daily, each way					Daily, each way		
Rank	Market	Pax	Fare	Revenue	Rank	Market	Pax	Fare	Revenue
1	DEN	19.8	$232	$4,583	11	TUL	1.3	$369	$473
2	IAH	6.1	$396	$2,427	12	GJT	1.3	$401	$514
3	MSP	4.4	$209	$911	13	MCO	1.3	$328	$414
4	DFW	3.6	$320	$1,163	14	PHX	1.1	$285	$323
5	SLC	2.2	$294	$640	15	LAX	1.1	$311	$350
6	SEA	2.0	$274	$538	16	SMF	1.1	$306	$335
7	ATL	1.6	$274	$431	17	SAT	1.0	$394	$413
8	PDX	1.5	$284	$422	18	MCI	1.0	$258	$260
9	LAS	1.4	$269	$388	19	ORD	1.0	$296	$295
10	OKC	1.4	$335	$482	20	LGA	1.0	$270	$264
					All Other Markets =		38.0	$382	$12,651

Source: US Department of Transportation Report DB1B, Revenues expressed in 000's

The amount of Denver O&D traffic is somewhat misleading. Great Lakes Aviation was in the market at this time and had marketing agreements with United Airlines (UA) and Frontier Airlines (F9), allowing UA and F9 to sell Great Lakes tickets to all Great Lakes markets. However, Great Lakes could not sell beyond tickets on either carrier. To clarify, Great Lakes (UA) airfares from Dickinson are actually two local airfares. For example, if a passenger is flying from DIK-LAX, the fare was the sum of the DIK-DEN fare and the DEN-LAX fare – not a typical joint airfare. The result was very high fares for Dickinson passengers. Another point was that consumers in many cases simply buy two separate tickets – one to Denver, and a separate Denver ticket. In many cases, this alternative was cheaper, as Denver airfares on UA's two principal competitors at Denver (Southwest and Frontier) offered cheaper airfares. When consumers do this, the second flight leg actually appears as a Denver O&D passenger. This results in Dickinson revenue/airfares appearing artificially low, and daily passenger numbers artificially high.

As noted earlier, retail sales from Dickinson's catchment area almost tripled since 2009, increasing from approximately $560 million to $1.5 billion. Markets of this size typically generate much higher air travel demand than Dickinson is currently experiencing (typically in the 50,000-100,000 enplaned passenger range). In addition, recent catchment area ("leakage") analyses have indicated 66 percent of locally ticketed Dickinson passengers are driving (mostly to Bismarck, and somewhat to Rapid City) to originate their air travel (**Figure 8**). Based on current leakage (66 percent) and 2011 enplaned passengers of approximately 19,000, this translates to almost 80,000 booked passengers from the Dickinson region.

FIGURE A-8 – DICKINSON AREA TICKETED PASSENGERS



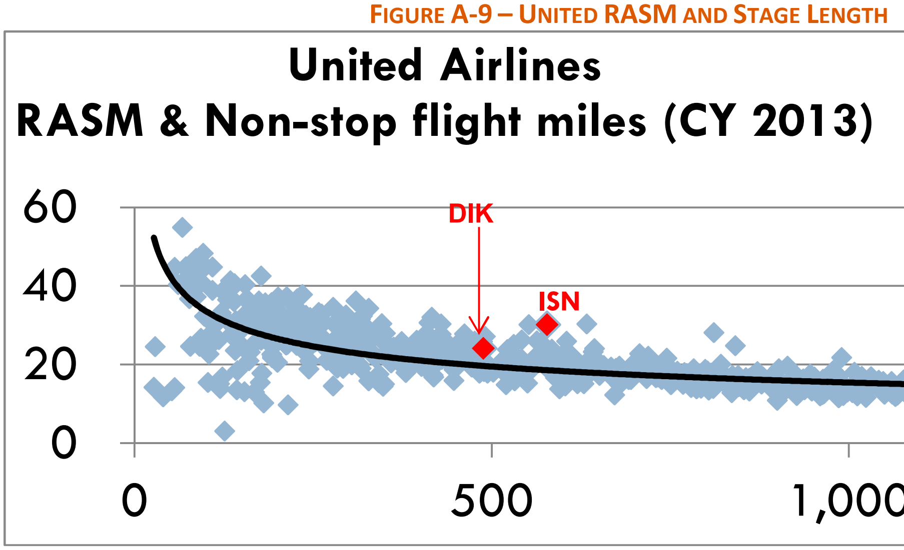
Source: ND Aeronautics Commission Statewide Leakage Study (January 2012)

Airline Revenue per Available Seat Mile at Dickinson

Figures A-9 and **A-10** illustrates a stage length adjusted Revenue per Available Seat Mile (RASM); the appropriate RASM is shown for each nonstop flight leg. Each dot in the graph refers to the RASM and nonstop flight mileage for the route in question. The graph only shows data for flight segments less than 1,500 miles. The trend line shows the stage length adjusted average for any given mileage. The curvature is reflective of an airline's cost curve. The relative "gap" between the dot-in-question and the trend line is reflective of relative profitability (margin). This comparative analysis is one of the tools that can show the comparative strength of a market in an airline system. The higher the RASM above the line, the better, from the airline perspective.

Based on the United chart, **Figure A-9**, Dickinson is a successful UA route and helps explain the recent addition of the third flight. Williston is also indicated in this chart as a successful UA route.

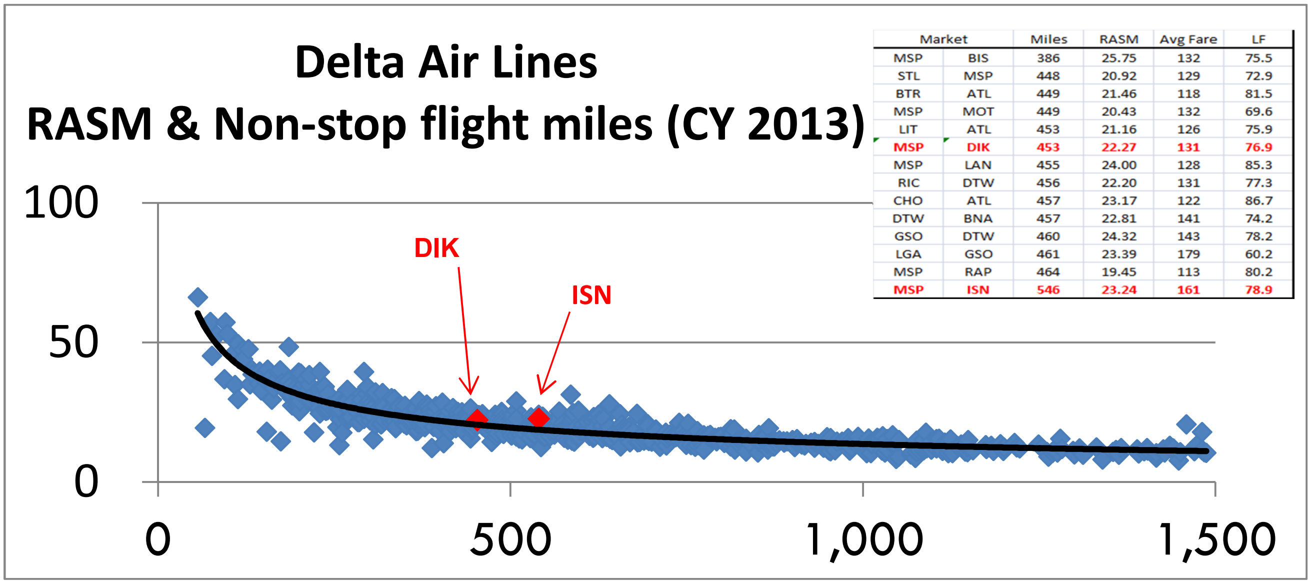
FIGURE A-9 – UNITED RASM AND STAGE LENGTH



Market		Miles	RASM	Avg Fare	LF
IND	IAD	476	26.04	159	78.0
FSD	DEN	483	17.84	104	82.9
EWR	DTW	487	25.96	166	76.0
STL	CLE	487	23.78	138	83.7
DIK	DEN	488	24.18	172	68.5
CLE	BTV	489	18.28	112	79.6
PNS	IAH	489	21.02	127	81.0
YUL	IAD	489	23.78	151	77.2
ORD	MEM	491	27.26	169	79.2
PWM	IAD	494	17.90	100	88.3
ISN	DEN	577	30.24	215	81.0
BIS	DEN	517	21.41	149	74.4
FAR	DEN	627	17.96	136	82.6
MOT	DEN	604	20.39	171	71.9

When looking at stage adjusted RASM for Delta in **Figure A-10**, both Dickinson and Williston are performing equally well. While Delta flights from Dickinson are not generating as high of RASM's as United, from a comparative basis, Dickinson is above average and experiencing solid load factors, 76.9%.

FIGURE A-10 – DELTA RASM AND STAGE LENGTH



Market		Miles	RASM	Avg Fare	LF
MSP	BIS	386	25.75	132	75.5
STL	MSP	448	20.92	129	72.9
BTR	ATL	449	21.46	118	81.5
MSP	MOT	449	20.43	132	69.6
LIT	ATL	453	21.16	126	75.9
MSP	DIK	453	22.27	131	76.9
MSP	LAN	455	24.00	128	85.3
RIC	DTW	456	22.20	131	77.3
CHO	ATL	457	23.17	122	86.7
DTW	BNA	457	22.81	141	74.2
GSO	DTW	460	24.32	143	78.2
LGA	GSO	461	23.39	179	60.2
MSP	RAP	464	19.45	113	80.2
MSP	ISN	546	23.24	161	78.9

In summary, this section provided a historic perspective of the Dickinson (DIK) air service market. But, as with Williston (ISN), Dickinson recently had two significant air service additions. First, United announced twice daily CRJ service to Denver, beginning in June 2013. Shortly thereafter, Delta announced twice daily service to MSP. The timing of the service additions is consistent with what occurred in Minot in summer 2010, in Williston during fall 2012 and now the Dickinson service additions in June 2013. Western North Dakota is one of the few places in the US where market share battles are still occurring in what the airlines see as a high growth, high yield market area. Notably, the only two new markets Delta has added from their MSP hub since 2009 are Williston and now Dickinson. Since the June 2013 announcements, both United and Delta have announced a third round-trip starting April 1 for United and July 1 for Delta. Great Lakes ceased service to Dickinson March 31, 2014.

2014 Passengers

Table A-2 below shows the enplanements and departures from Dickinson for CY 2014. The year 2014 ended with 58,943 enplaned passengers, which was a result of Great Lakes ceasing service in March 2014, United adding a third round-trip on April 1, and Delta adding a third round-trip on July 1.

TABLE A-2 – DICKINSON: 2014 ENPLANED PASSENGERS AND DEPARTURES

DIK: 2014 Enplanements & Departures											
	Enplaned Passengers				Departures				Load Factors		
	DL (MSP)	UA (DEN)	ZK (DEN)		DL (MSP)	UA (DEN)	ZK (DEN)		DL (MSP)	UA (DEN)	ZK (DEN)
Jan	1,736	1,814	192		56	53	52		62.0%	68.5%	12.3%
Feb	1,770	1,759	194		51	46	48		69.4%	67.7%	12.5%
Mar	1,967	1,952	104		60	57	31		65.6%	73.7%	11.2%
Apr	1,920	2,281			59	64	0		65.1%	71.3%	
May	2,106	2,986			63	75	0		66.9%	79.6%	
Jun	2,281	2,835			59	77	0		77.3%	73.6%	
Jul	2,876	2,816			79	76	0		72.8%	74.1%	
Aug	2,862	2,869			80	77	0		71.6%	74.5%	
Sep	2,583	2,822			80	78	0		64.6%	72.4%	
Oct	2,803	3,029			89	83	0		63.0%	73.0%	
Nov	2,521	2,768			75	76	0		67.2%	72.8%	
Dec	2,252	2,845			58	70	0		77.7%	72.8%	
Total	27,677	30,776	490		809	834	131		68.4%	73.8%	12.5%
		Passengers =	**58,943**			**Departures =**	**1,774**			**Load Factor =**	**68.5%**

**Actual Enplanements according to DIK Airport Records*