ESTIMATION OF ECONOMIC, EMPLOYMENT, and INCOME EFFECTS OF MINDEN AIRPORT ON DOUGLAS COUNTY ECONOMY FROM NEW EMPLOYMENT ESTIMATES
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Report Prepared by

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INTRODUCTION

This report updates a previous study on the Minden Airport titled “State Analysis: Nevada General Aviation Airport Economic Impact Study” (Marx and Harris, 2006). In the previous study airport managers estimated employment of tenants to their airport. From airport managers’ questionnaire, it was estimated that employment at the Minden Airport and business around the Minden Airport was 129 employees. Later a direct interview of the Minden Airport and tenants around the Minden Airport was completed in which total employment was estimated to be 952. Also this study will estimate economic impacts of businesses that are adjacent to the Minden Airport as well as new business that indicated that they would build or relocate on newly available leased acreage at the Minden Airport. This paper will use the new employment information to estimate the economic, employment, and income impacts of the alternative employment scenarios at the Minden Airport on the Douglas County economy. To complete this objective the paper is divided into two parts. Part one provides a description of the county economics and the multiplier effects. The second derives the economic, employment, and income impacts to Douglas County from the various employment scenarios at the Minden Airport.

Some Basic Concepts of County Economics and Income and Employment Multipliers

Figure 1 illustrates the major dollar flows of goods and services in any economy. The foundation of a county’s economy is those businesses which sell some or all of their goods and services to buyers outside of the county. Such a business is a basic industry. The flow of products out of, and dollars into, a county is represented by the two arrows in the upper right portion of Figure 1. To produce these goods and services for “export” outside the county, the basic industry purchases inputs from outside of the county (upper left portion of Figure 1), labor from the residents or “households” of the county (left side of Figure 1), and inputs from service industries located within the county (right side of Figure 1), and inputs from service industries located within the county (right side of Figure 1). The flow of labor, goods and services in the county is completed by households using their earnings to purchased goods and services from the county’s service industries (bottom of Figure 1). It is evident from the interrelationships
illustrated in Figure 1 that a change in any one segment of a county’s economy will have reverberations throughout the entire economic system of the county.  

Consider, for instance, the business activities of the Minden Airport and businesses around the Minden Airport, and their impact on the local economy. The business activities of the Minden Airport and businesses around the Minden Airport can be considered a basic industry as they draw dollars from outside the area. These dollars may hire a few people from the household sector such as laborers to work at the Minden Airport or businesses around the Minden Airport. However, most of the local economic linkages are from purchases of goods and services by the Minden Airport and businesses around the Minden Airport. These include businesses such as restaurants, gas stations, hotels and other retail businesses. As earnings increase in these businesses, they will hire additional people and buy more inputs from other businesses. Thus the change in the economic base works its way throughout the entire county economy.  

The total impact of a change in the economy consists of direct, indirect and induced impacts. Direct impacts are the changes in the activities of the impacting industry, such as the reduction of operations at the Minden Airport or businesses around the Minden Airport. The impacting business or businesses, such as the Minden Airport or businesses around the Minden Airport, change their purchases of inputs as a result of the direct impact. This produces an indirect impact in the business sectors. Both the direct and indirect impacts change the flow of dollars to the county’s households. The local households alter their consumption accordingly. The effect of this change in local household consumption upon businesses in a county is referred to as an induced impact.  

A measure is needed that yield the effects created by an increase or decrease in economic activity. In economics, this measure is called the multiplier effect.
Figure 1: Overview of Community Economic System

- Inputs & Labor → Basic Industry
- Basic Industry → Products
- Products → Service Firms
- Service Firms → Goods & Services
- Goods & Services → Labor
- Labor → Households
- Households → $ → Labor
- Labor → Products
- Products → Basic Industry
- Basic Industry → Labor
- Labor → Inputs & Labor
- Inputs & Labor → Basic Industry
- Basic Industry → Products
- Products → Service Firms
- Service Firms → Products
- Products → Inputs & Labor
- Inputs & Labor → Basic Industry
- Basic Industry → Products
- Products → Service Firms
- Service Firms → Products
Inter-Industry Analyses

Within a county economy, there are numerous economic sectors performing different tasks. All sectors are dependent upon each other to some degree. A change in economic activity by one sector will impact either directly or indirectly the activity and viability of other sectors in the economy. In order to show these interdependencies and interventions between economic sectors, a county-wide input–output model can be used.

Input-output models derive the linkages and multipliers for economic sectors in an economy. For this analysis, the microcomputer input-output model, IMPLAN (Minnesota IMPLAN Group, Inc., 2004), was used to derive economic linkages for Douglas County. The economic, employment, and labor income impacts of the Minden Airport and business around the Minden Airport on the Douglas County economy were estimated. Also, estimated economic, employment, and labor income impacts will be derived for firms adjacent to the Minden Airport as well as businesses indicating that they may locate or re-locate on newly available leased acreage at the Minden Airport.

Impacts of Firms Around the Minden Airport

Table 1 shows the impacts of the activities by the Minden Airport and businesses around the Minden Airport on the Douglas County economy. From Table 1, the Minden Airport and businesses around the Minden Airport had a production level of $106.8 million, hired 952 employees, and paid labor income of $34.1 million. Given the multiplier impacts, the Minden Airport and businesses around the Minden Airport in Douglas County had total economic impacts of $151.6 million. This means that beyond the direct economic benefits of $106.8 million, the indirect and induced impacts of the Minden Airport and businesses around the Minden Airport on the Douglas County economy was $44.8 million. Indirect impacts are the additional expenditures between economic sectors after the initial direct expenditure is made. Induced impacts are the additional expenditures and economic activity attributable to household sector interactions.

Also from table 1, the Minden Airport and businesses around the Minden Airport had total employment and labor income impacts of 1,167 jobs and $44.9 million, respectively. This means that due to the economic linkages of the Minden Airport and business around the Minden
Airport an additional 215 jobs and $10.8 million in labor income was created in Douglas County from indirect and induced linkages.

**Table 1. Economic, Employment, and Labor Income Impacts of the Minden Airport and Business Around the Minden Airport for Douglas County, Nevada.**

<table>
<thead>
<tr>
<th>Category of Impacts</th>
<th>Direct Effects</th>
<th>Indirect and Induced Effects</th>
<th>Total Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>$106,790,644</td>
<td>$44,783,453</td>
<td>$151,574,097</td>
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<tr>
<td>Employment</td>
<td>952</td>
<td>215</td>
<td>1,167</td>
</tr>
<tr>
<td>Labor Income</td>
<td>$34,132,270</td>
<td>$10,755,556</td>
<td>$44,887,826</td>
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**Impacts of Firms Adjacent to the Minden Airport**

Of the 952 employees around the Minden Airport, it was estimated from the business questionnaires that only 77 employees were employed by firms adjacent to the Minden Airport. Table 2 shows the impacts of the activities by the Minden Airport and businesses adjacent to the Minden Airport on the Douglas County economy. From Table 2, the Minden Airport and businesses adjacent to the Minden Airport had a production level of $19.6 million, hired 77 employees, and paid labor income of $3.6 million. Given the multiplier impacts, the Minden Airport and businesses adjacent to the Minden Airport in Douglas County had total economic impacts of $25.2 million. This means that beyond the direct economic benefits of $19.6 million, the indirect and induced impacts of the Minden Airport and businesses adjacent to the Minden Airport on the Douglas County economy was $5.6 million. Indirect impacts are the additional expenditures between economic sectors after the initial direct expenditure is made. Induced impacts are the additional expenditures and economic activity attributable to household sector interactions.

Also from table 2, the Minden Airport and businesses adjacent to the Minden Airport had total employment and labor income impacts of 130 jobs and $5.5 million, respectively. This means that due to the economic linkages of the Minden Airport and business adjacent to the Minden Airport an additional 53 jobs and $1.9 million in labor income was created in Douglas County from indirect and induced linkages.
Table 2. Economic, Employment, and Labor Income Impacts of the Minden Airport and Business Adjacent to the Minden Airport for Douglas County, Nevada.

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Economic</td>
<td>$19,589,005</td>
<td>$5,612,003</td>
<td>$25,201,008</td>
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<tr>
<td>Employment</td>
<td>77</td>
<td>53</td>
<td>130</td>
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<tr>
<td>Labor Income</td>
<td>$3,585,122</td>
<td>$1,903,076</td>
<td>$5,488,198</td>
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Impacts of Firms Indicating Relocation to New Leased Acreage at the Minden Airport

Information was obtained as to three interested businesses who have inquired about locating or relocating to newly available leased acreage at the Minden Airport. Of the three businesses, one estimated potential employment to be between 30 and 200 employees. The other two industries did not reply as to potential employment. Therefore employment was estimated for these firms using national figures as to employment per square foot of building. The employment estimated for these two businesses is 13 new employees. Two estimates of potential impacts were made for the firm that reported between 30 and 200 employees. One was using the mid-point employment between 20 and 200 which would be 115. The second was using the low end of the estimated employment of 30. Table 3 shows potential impacts if the low end employees which yield 48 employees. Table 4 shows potential impacts if the mid-point of 115 employees were used so total new employment would be 128. Tables 3 and 4 show the estimated economic, employment, and household income impacts of the new leased acreage. From Table 3, the new firms will have production levels of $7.9 million, hire 48 new employees, and pay labor income of $1.9 million. Given the multiplier impacts, the Douglas County economy could realize total economic impacts of $10.7 million. This means that beyond the direct economic benefits of $7.9 million, the indirect and induced impacts of the on the Douglas County economy would be $2.8 million. Indirect impacts are the additional expenditures between economic sectors after the initial direct expenditure is made. Induced impacts are the additional expenditures and economic activity attributable to household sector interactions.

Also from table 3, the total employment and labor income impacts of 74 jobs and $3.0 million, respectively are shown. This means that due to the economic linkages of the new
businesses on the newly leased Minden Airport acreage an additional 26 jobs and $1.0 million in labor income was created in Douglas County from indirect and induced linkages.


<table>
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<tr>
<td>Economic</td>
<td>$7,857,817</td>
<td>$2,847,965</td>
<td>$10,705,782</td>
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<tr>
<td>Employment</td>
<td>48</td>
<td>26</td>
<td>74</td>
</tr>
<tr>
<td>Labor Income</td>
<td>$1,938,568</td>
<td>$1,033,029</td>
<td>$2,971,597</td>
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</table>

From Table 4, the new firms will have production levels of $23.1 million, hire 128 new employees, and pay labor income of $5.5 million. Given the multiplier impacts, the Douglas County economy could realize total economic impacts of $31.4 million. This means that beyond the direct economic benefits of $23.1 million, the indirect and induced impacts of the on the Douglas County economy would be $8.3 million. Indirect impacts are the additional expenditures between economic sectors after the initial direct expenditure is made. Induced impacts are the additional expenditures and economic activity attributable to household sector interactions.

Also from table 4, the total employment and labor income impacts of 215 jobs and $8.6 million, respectively are shown. This means that due to the economic linkages of the new businesses on the newly leased Minden Airport acreage an additional 92 jobs and $3.0 million in labor income was created in Douglas County from indirect and induced linkages.


<table>
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</tr>
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<tbody>
<tr>
<td>Economic</td>
<td>$23,076,632</td>
<td>$8,362,468</td>
<td>$31,439,100</td>
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<tr>
<td>Employment</td>
<td>128</td>
<td>92</td>
<td>215</td>
</tr>
<tr>
<td>Labor Income</td>
<td>$5,534,742</td>
<td>$3,041,903</td>
<td>$8,576,645</td>
</tr>
</tbody>
</table>
Conclusions

The primary objective of this paper was to re-estimate the economic, employment, and household income impacts of alternative employment scenarios on the Minden Airport on the Douglas County economy. A previous study estimated Minden Airport and businesses around Minden Airport employment of 129 employees. An updated direct interview of the airport and businesses around the airport found employment to be 952 employees. If only firms adjacent to the airport were used employment for the analysis would be 77 employees. Newly available acreage for lease around the Minden Airport will be available soon. From business surveys, three firms indicated that they might locate or re-locate to the leased acreage. For the leased acreage analysis, two employment scenarios were used. Employment at the newly available leased acreage was estimated to be either 48 or 128 jobs.

A county-wide Douglas County input-output model was used to derive the economic, employment, and labor income impacts of the Minden Airport and businesses around the Minden Airport on the Douglas County economy. The direct output, employment, and labor income impacts on the Douglas County were $106.8 million, 952 jobs, and $34.1 million, respectively. Including the multiplier effects and economic linkages of the Minden Airport and businesses around the Minden Airport on the Douglas County economy, total output, employment, and labor income impacts are estimated to be $151.6 million, 1,167 jobs, and $44.9 million, respectively. For business adjacent to the Minden airport, direct output, employment and labor income impacts on Douglas County were $19.6 million, 77 jobs, and $3.6 million, respectively. Including multiplier effects and economic linkages of the Minden Airport and businesses adjacent to the Minden Airport, total economic, employment, and household income impacts on the Douglas County economy were estimated to be $25.2 million, 130 jobs, and $5.5 million, respectively.

As for businesses indicating that they possibly might locate or re-locate to newly available leased acreage, two employment scenarios were employed. Under scenario one, direct output, employment, and household income were estimated to be $7.9 million, 48 jobs, and $1.9 million, respectively. Including multiplier effects and economic linkages, total economic,
employment, and household income impacts are estimated to be $10.7 million, 74 jobs, and $3.0 million, respectively. Under employment scenario two, direct output, employment, and household income are estimated to be $23.1 million, 128 jobs, and $5.5 million, respectively. Employing the Douglas County input-output model, total output, employment, and household income impacts were estimated to be $31.4 million, 215 employees, and $8.6 million, respectively.
References
