

CASE STUDY

GREEN BAY AND COMPETING AGAINST OTHER NEARBY AIRPORTS



Green Bay Austin Straubel International Airport (GRB) serves northeastern Wisconsin. The City of Green Bay, on the western side of Lake Michigan, is the population and employment center of the metropolitan region, known for being home to its famous National Football League team and historic manufacturing base.

The region is an example of one within a fragmented market where the population and total regional employment has remained relatively stable over time. GRB is about 30 miles away from Appleton International Airport (ATW) in Appleton, Wisconsin; and 130 miles to Milwaukee Mitchell International Airport (MKE). Other airport options for travelers are Chicago O'Hare International Airport (ORD), roughly 200 miles to the south, and Minneapolis-St. Paul International Airport (MSP), 275 miles to the west.

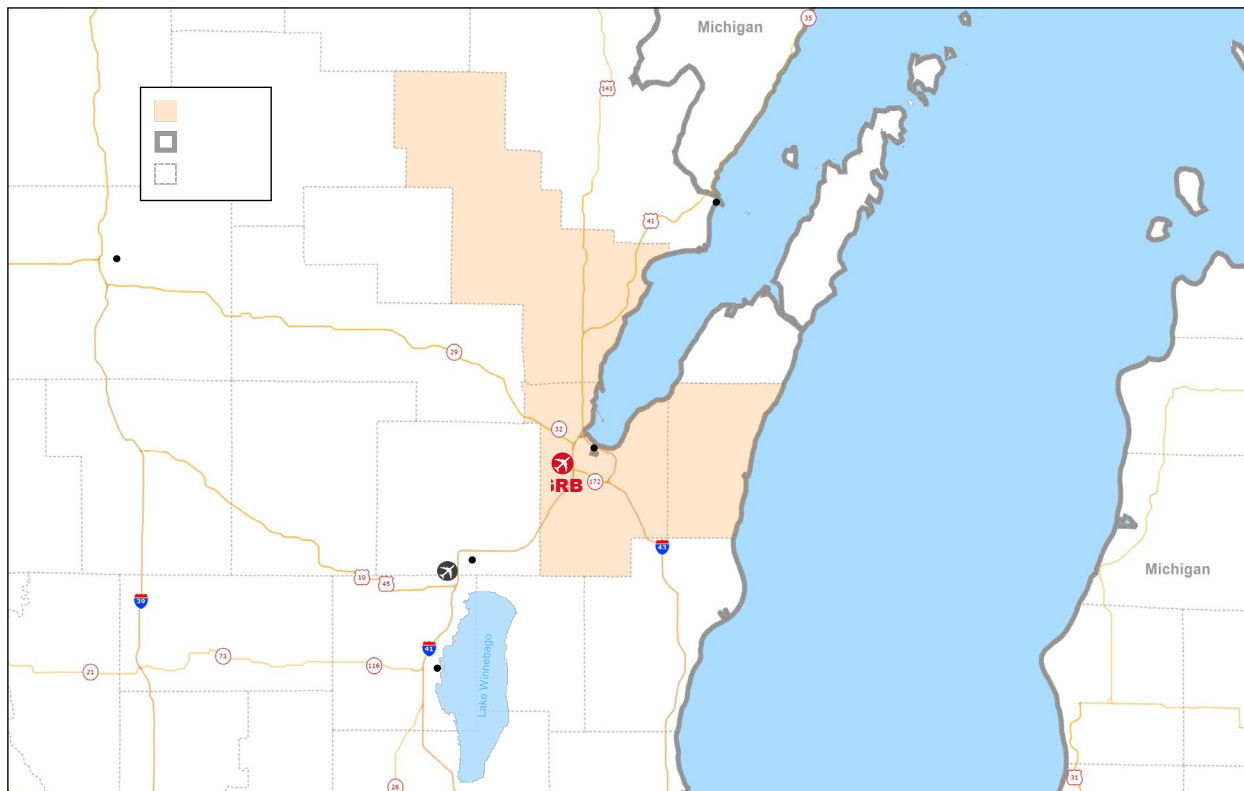
[Introduction to Metropolitan Region](#)

The Green Bay-Shawano Combined Statistical Area ("CSA") is located in the eastern part of the State of Wisconsin, approximately 130 miles north of Milwaukee. The CSA includes three counties and both the Green Bay Metropolitan Statistical Area (MSA) and Shawano Microstatistical Area. With a population of 104,777 in 2019, the City of Green Bay is the largest of several cities within the region.

The CSA has experienced a 5.7 percent increase in population (from 348,576 to 368,361) over the period 2008-2019. That represents faster growth compared to the Wisconsin statewide average (3.3 percent) but slower growth than the national average (8 percent). The region's economy is balanced, having demonstrated resistance to severe changes in economic output that typically occur during economic recessions. The leading economic sectors in the region are agriculture, food processing, paper, advanced manufacturing, and transportation/logistics.

The Green Bay Packers of the National Football League is a major generator of economic activity in the region. The combination of home games, training, administration and merchandising, combined with local hospitality industry activity related to the team and the games, are a major generator of jobs in the region.

Northeastern Wisconsin is the home of the Onieda Nation. The tribe's reservation encompasses western parts of the CSA. The recently established Casino in Green Bay generates substantial revenues largely dedicated for economic development of the reservation.

**Figure 1: The Green Bay MSA**

Overview of the Region's Economy

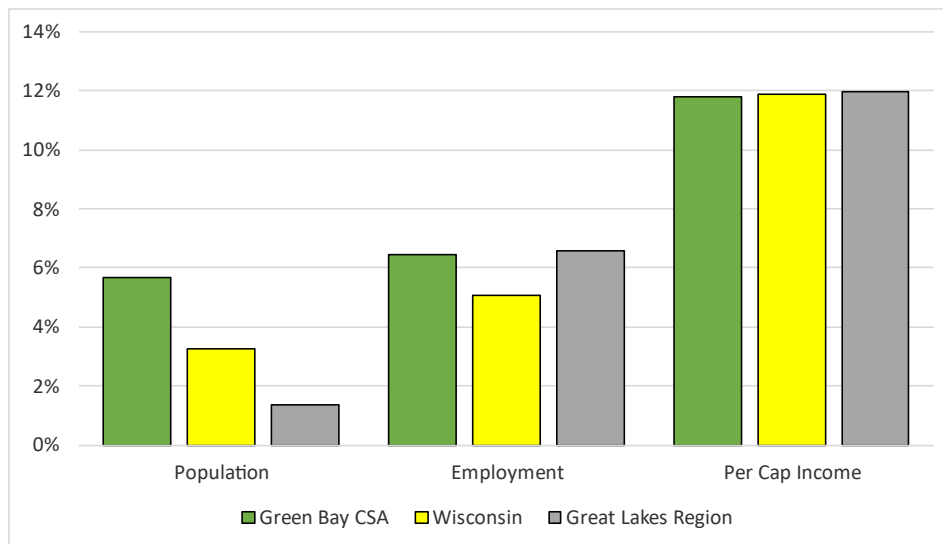
According to the U.S. Bureau of Economic Analysis (BEA), in 2019, the Green Bay MSA had a population of over 320,000, ranked 158th in the nation (out of 384 total). It produced \$21.5 billion in current-dollar total GDP. This ranked 136th among MSAs. It represents a decline in the region's national ranking from 2009, when it ranked 65th among MSAs.¹

The Green Bay CSA has grown since 2008, and generally grown more than either Wisconsin as a whole and the 5-state Great Lakes region (Illinois, Indiana, Michigan, Ohio, and Wisconsin).

¹ <https://apps.bea.gov/regional/bearfacts/action.cfm>



Figure 2: The Green Bay CSA has Grown Faster Than Comparison Points



Source: BEA. Changes in per capita personal income expressed in constant 2019 dollars.

From 2008 to 2019:

- Total population in the MSA increased from about 350,000 to nearly 370,000 (5.7 percent). That is a higher rate of growth than that experienced by either the State of Wisconsin (3.3 percent) or the Great Lakes states (1.4 percent).
- Similarly, employment growth in the region exceeded that of the State and matched that for the Great Lakes states. Total employment in the CSA increased by 6.4 percent, compared to 5.1 percent in Wisconsin and 6.6 percent in the Great Lakes states.
- Changes in per capita personal income were essentially the same. Per capita personal income (expressed in constant dollars) grew by 11.8 percent in the CSA vs. 11.9 percent in Wisconsin and 12.0 percent in the Great Lakes.
- However, for 2019, per capita personal income in the CSA (\$51,733) remains lower than the statewide average (\$53,207) and that of the Great Lakes region (\$52,462).

Table 1: Changes in Key Socio-economic Metrics. 2008-2019

	2008	2015	2019	Change 2008-15		Change 2015-19		Change 2008-19	
				#	%	#	%	#	%
Population (000s)	349	361	368	13	4%	7	2%	20	6%
Total Employment (000s)	230	236	245	6	3%	9	4%	15	6%
Private Non-farm Employment (000s)	196	202	211	6	3%	9	4%	15	7%
Gov't Employment (000s)	27	28	28	1	3%	(0)	-1%	1	2%
Income per Capita (\$)	\$37,849	\$45,889	\$51,733	\$8,040	21%	\$5,844	13%	\$13,884	37%
Number of Establishments (000s)	N/A	9	10	N/A	N/A	1	0	N/A	N/A

Source: BEA

Notes: All data in 1,000s except income per capita, which is shown in nominal dollars. N/A = not available

The region is home to several quality higher education institutions—the University of Wisconsin-Green Bay (UWGB), Northeast Wisconsin Technical College (NWTC), St. Norbert College, Medical College of Wisconsin, and Bellin College. According to Census estimates, approximately 28 percent of the CSA's



population over the age of 25 held college degrees (undergraduate or above), slightly below the U.S. average of 32 percent.

Regional Economic Strengths

The region's economy is anchored by its manufacturing sector, which employed over 30,000 in 2019 (almost 15 percent of total nonfarm employment). Manufacturing is an essential part of the region's economy and accounts for 12 of the region's 30 largest employers. Historically, the region demonstrated great economic strength in its paper and packaging sector. Other sectors with substantial employment included health care, finance and insurance, construction, and transportation.

Table 2: Employment by Major Industry Sectors, 2019

Sector	2015	2019	Change 2015-19	
			Number	Percent
Farm employment	5,763	6,060	297	5%
<i>Nonfarm private sector</i>				
Manufacturing	32,472	34,555	2,083	6%
Health care and social assistance	25,422	28,743	3,321	13%
Retail trade	22,985	23,105	120	1%
Finance and insurance	15,355	15,683	328	2%
Accommodation and food services	15,605	15,488	(117)	-1%
Construction	11,395	11,973	578	5%
Other services (except government and gov't enterprises)	11,355	11,746	391	3%
Transportation and warehousing	9,376	10,579	1,203	13%
Professional, scientific, and technical services	9,890	10,422	532	5%
Administrative and support services	10,172	10,006	-166	-2%
Wholesale trade	9,909	9,857	(52)	-1%
Real estate and rental and leasing	7,320	8,044	724	10%
Management of companies and enterprises	5,950	5,592	(358)	-6%
Arts, entertainment, and recreation	4,882	5,213	331	7%
Educational services	3,255	3,385	130	4%
Information	2,465	1,997	-468	-19%
Forestry, fishing, and related activities	N/A	1,441	N/A	N/A
Utilities	788	710	-78	-10%
Mining, quarrying, and oil and gas extraction	334	218	(116)	-35%
<i>Government and government enterprises</i>	<i>27,911</i>	<i>27,643</i>	<i>-268</i>	<i>-1%</i>
Grand Total	283,917	293,147	9,230	3%

Source: BEA

Note: N/A = Data were suppressed to protect confidentiality.

The number of establishments² in the Green Bay metropolitan area has expanded. In 2008, the region supported 7,322 establishments that employed almost 153,000. In 2019, there were 7,867

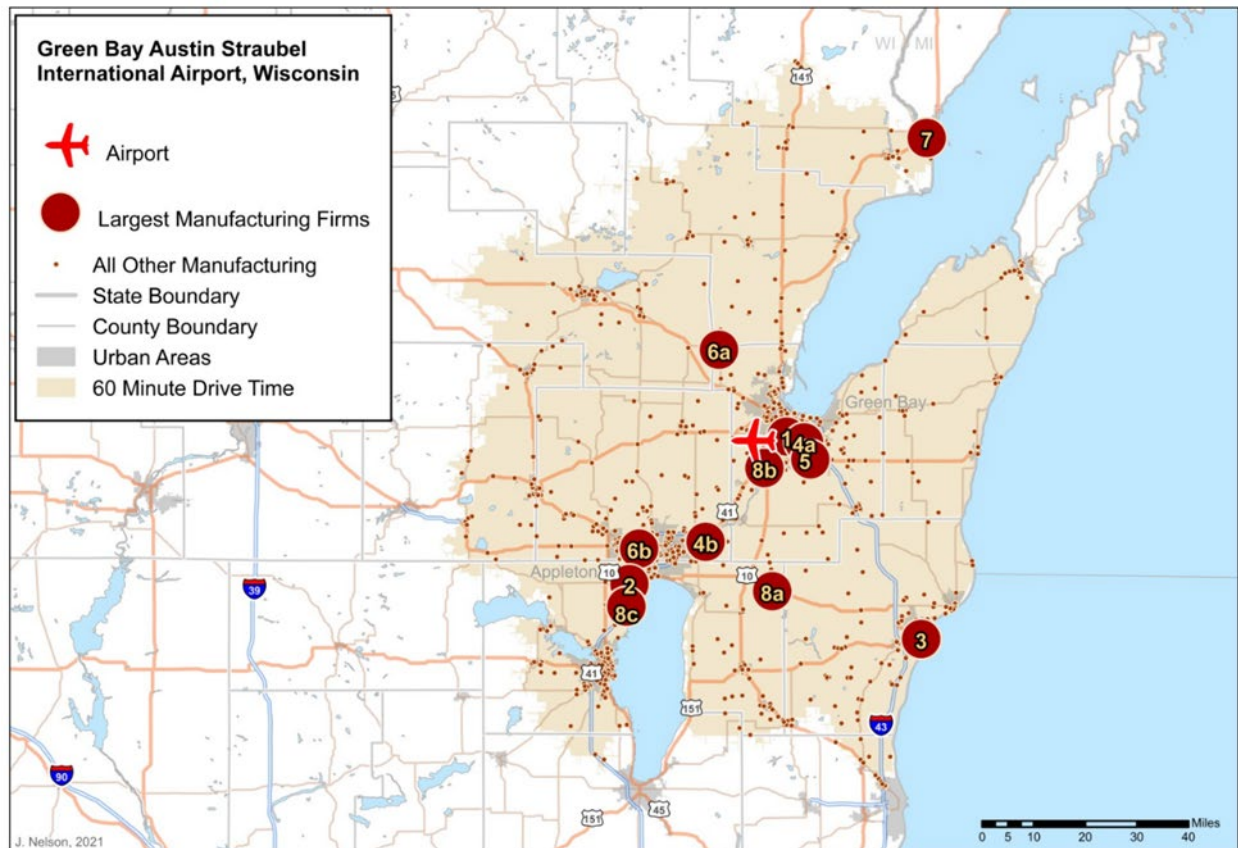
² An "establishment" is defined by the Census Bureau as a single physical location at which business is conducted or where services or industrial operations are performed. It is not necessarily identical with a company or enterprise, which may consist of one establishment or more. Generally, counts of establishment represent the number of locations with paid employees any time during the year, excluding government institutions and selected other types of businesses such as wholesale liquor establishments Federally-chartered savings institutions or credit unions and hospitals. Data are from the Census Bureau's County Business Patterns



establishments that employed 159,000. This represents an increase of 545 establishment (7 percent) and 6,000 jobs (4 percent).

Figure 3 shows the location of the airport in the region. It highlights the geographic area within a one-hour drive of the airport. It also shows the locations of manufacturing businesses within that drive time.

Figure 3: GRB and Selected Manufacturing Businesses in the Region



Source: ESRI Business Analyst

Key highlights of socio-economic activity *within the 60-minute drive of the airport*:

- The total estimated 2019 population was over 900,000. Of that, about 557,000 (62 percent) were considered “working age” (between the ages of 18 and 64).
- The economy supported nearly 33,000 businesses employing over 500,000. In terms of major industry sectors (defined by NAICS codes), the largest based on total employment was Manufacturing (82,000 employees) followed by Professional, Scientific, and Technical Services (PST) with about 35,000 and Finance, Insurance, and Real Estate (FIRE) with about 28,000.
- Of the total population, 19.6 percent held a Bachelor’s degree and another 8.4 percent held a Graduate or Professional degree.



Economic Clusters

The Green Bay region includes seven “traded clusters.” A cluster is a concentration of related industries in a particular region. Clusters consist of companies, suppliers, and service providers, as well as government agencies and other institutions that provide specialized training and education, information, research, and technical support. *Traded clusters* are groups of related industries that serve markets beyond the region in which they are located and therefore require some form of transport connectivity. Examples include financial service or information technology. By contrast, *local clusters* consist of industries that serve the local market. Examples include local grocery stores or restaurants.³

The Green Bay region maintained economic strength in several traded clusters during 2018 (the most recent year for which the Cluster Mapping project had data). In particular, those clusters ranked in the top 50 nationally included:

- Transportation and Logistics, which includes ground transportation, especially long-distance trucking, and support industries. The region is ranked 15th nationally in trucking specifically and 46th nationally in transportation and logistics more broadly.
- Paper and packaging, which includes paper mills, paper products, and packaging.
- Livestock processing (e.g., meat processing), ranked 18th nationally.
- Printing services, ranked 32nd nationally.
- Furniture, ranked 42nd nationally.

Table 3 summarizes the amount of employment in these sectors in 2018 and the Location Quotient (LQ) for each. LQs compare the concentration of an industry within a specific area to the concentration of that industry nationwide. An LQ value equal to 1.0 indicates that the percentage of employment for that industry in the region is the same as that for the nation. A LQ greater than 1.0 indicate an unusually high proportion of employment in the local economy while a location quotient less than 1.0 would suggest a disproportionately low share of employment, relative to the national norm or share. As shown below, the Green Bay region’s employment base has relative strength in several industry sectors.

Table 3: Major Traded Clusters in the Green Bay Area 2018

Cluster (2018)	Jobs	LQ
Transportation	7,499	3.46
Insurance	5,207	2.71
Paper and packaging	5,050	12.32
Livestock processing	3,911	6.17
Printing services	2,871	5.22
Performing Arts	938	2.01
Furniture	859	2.14

Source: U.S. Cluster Mapping Project <https://www.clustermapping.us/>

Note: LQ - Location Quotient

³³ <https://www.clustermapping.us/about/clusters-101>



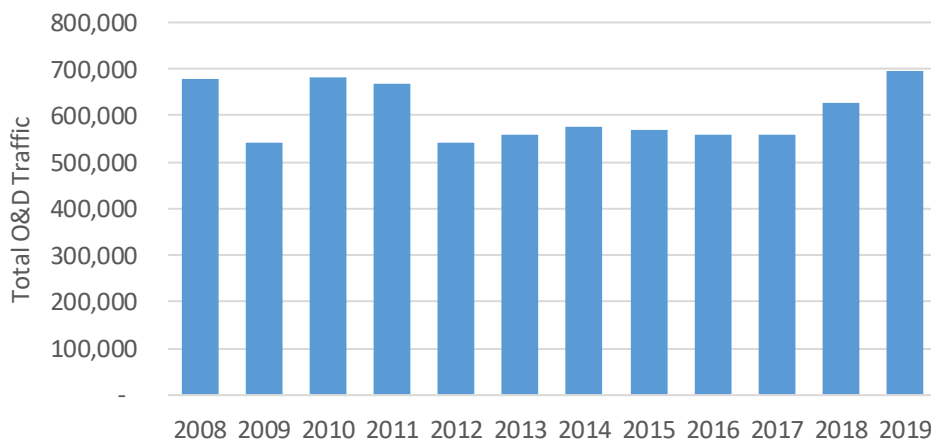
Overview of the Airport and Its Service

GRB is located 8 miles west of the City of Green Bay. The airport is owned and operated by Brown County, of which Green Bay is the county seat. GRB has two runways, with a primary runway of 8,700 feet in length and a secondary runway of 7,700 feet in length.

GRB shares the Northeast Wisconsin air travel market with several other airports. A study done for the airport in 2019 estimated that the air service catchment area generated 1.2 million Origin and Destination (O&D) passengers. GRB captured 16 percent of that traffic. Located 33 miles southwest of GRB, Appleton International Airport (ATW), captured 12 percent of the market. Milwaukee Mitchell International Airport (MKE), 127 miles away, captured over 23 percent. Chicago's O'Hare International Airport (ORD), 194 miles away, captured almost 40 percent of the traffic. Other airports in Wisconsin, Illinois and Minnesota get the remainder.

GRB was the 4th busiest commercial service airport in Wisconsin in 2019, with a passenger enplanement level of nearly 350,000. Air passenger traffic at GRB has been steady over the past 20 years, ranging just above or just below 600,000 origin and destination ("O&D") passengers. In 2019 GRB recorded a total of just under 700,000 total O&D passengers, an increase of nearly 25 percent over 2017.

Figure 4: Changes in GRB O&D Traffic 2008-2019

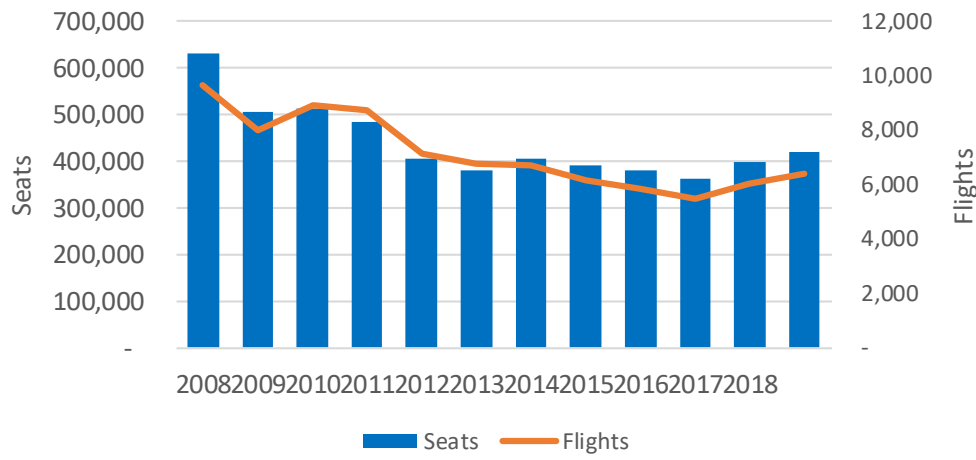


Source: Diio by Cirium

The combination of relatively modest market size growth, airline industry, and the proximity of alternative airports has resulted in an overall decline in capacity offered at GRB, but with a modest amount of growth in airline seat capacity in the past few years. Figure 5 indicates the service levels provided by air carriers at GRB from 2008 to 2019.



Figure 5: Changes in Flights and Available Seat Capacity



In 2019, total departure capacity at GRB was 33 percent lower than in 2008. The primary cause of this decline was the consolidation of the airline industry and the resulting service reductions, especially to the network carriers' connecting hub airports. For example, the merger of Northwest Airlines and Delta Air Lines (Delta) in 2008 resulted in the significant downsizing of the Delta hub at Cincinnati (CVG). In 2019, Delta offered 220,000 outbound seats available for sale, a reduction of 34 percent from the seats that Delta and Northwest provided in 2008. Likewise, the merger of Continental Airlines and United Airlines (United) in 2012 resulted in the abandonment of United's hub at Cleveland (CLE) and the restructuring of its service patterns at United's global hub at Chicago O'Hare International Airport (ORD). In addition, the demise of Midwest Airlines in 2011 resulted in the loss of service (and about 40,000 annual seats) between GRB and its hub at Milwaukee (MKE). GRB lost all of its nonstop flights to Cincinnati, Cleveland, and Milwaukee (over 1,900 flights total in 2008). Delta reduced flight operations to Detroit and Minneapolis/St. Paul, but eventually added service to Atlanta.

Since those mergers and consolidations, GRB's overall air service levels have been generally stable, with flights to multiple hubs by several of the major network carriers. In addition, Frontier initiated service at GRB in 2019, providing ultra-low-cost carrier service to Denver and Orlando. Table 4 summarizes GRB's 2019 nonstop route offerings. Delta offered the majority of available outbound capacity in 2019. Delta served Atlanta, Detroit, and Minneapolis. American Airlines and United operated from GRB to Chicago O'Hare. Frontier operated to Denver and Orlando.

**Table 4: Share of Seat Capacity Offered 2019 (inbound + outbound)**

Carrier	Seats	Share	Markets
American	172,976	22%	1
Delta	440,790	55%	3
United	152,851	19%	1
Frontier	33,016	4%	2
Total	799,633	100%	6

Source: T-100 data, Diio

Note: Total markets reflect unique airports. Both American and United operate from GRB to Chicago O'Hare International Airport.

By contrast, total available capacity grew at nearby Appleton Airport, increasing between 2008 and 2019 by 18 percent. As at GRB, ATW lost service to Cincinnati and Milwaukee due to industry consolidation. It gained service to Denver on United. American entered the market with competing service to ORD. And Allegiant offered services in 2019 to five leisure destinations. Allegiant had operated from GRB to two of those destinations in 2008 but moved the flights to ATW. In total, carriers offered slightly over 100,000 more available seats from ATW in 2019 than from GRB, almost all of which is accounted for by ATW's Allegiant services. The availability of capacity to major network hubs is comparable.

Connectivity

High quality transportation – of all modes – is a prerequisite for sustained economic growth and competitiveness for a region. Specifically, these factors of economic development are driven by productivity growth which is underpinned by trade, foreign investment, and innovative activity – all of which are facilitated by connectivity. “Connectivity” generally means the ability to reach a wide range of places in a short amount of time. Connectivity is not simply a matter of the number of routes or number of frequencies operated. Connectivity is fundamentally about access to markets and regions.

GRB is not the only commercial airport serving the region, as noted, and therefore is not the only source of air connectivity; however, changes in connectivity out of GRB can have notable impacts on how quickly and conveniently the immediate area, particularly the City of Green Bay, can be accessed.

Connectivity can be quantitatively measured in a variety of ways; the figure below summarizes the growth in connectivity at GRB between 2008 and 2019 using a method developed by the International Air Transport Association (IATA). The IATA connectivity index estimates the quality of air service at an airport based on the degree of service to other airports with the largest and most diverse route networks, as a proxy for how accessible the local economy is to the rest of the world.⁴ The change in

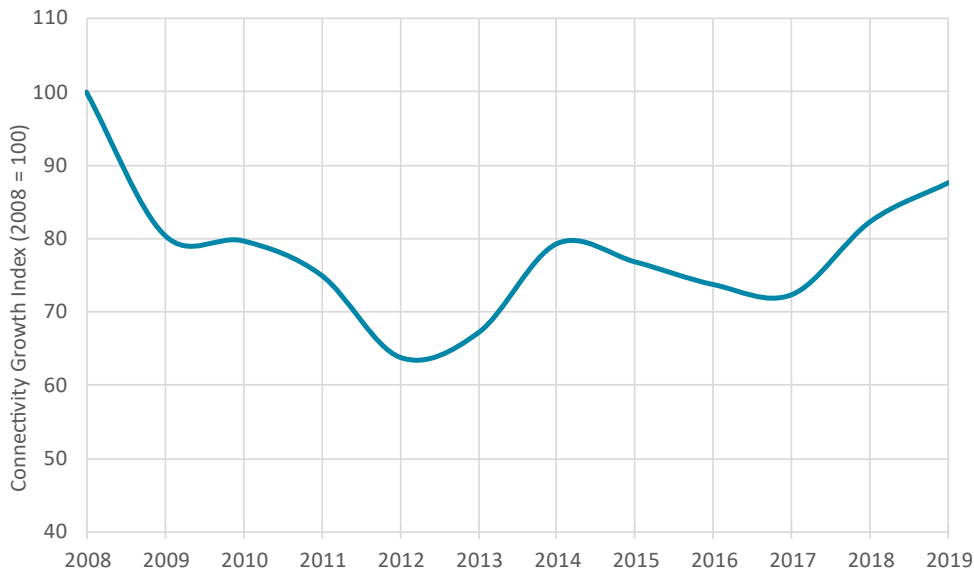
⁴ The IATA connectivity index measures the number and size of destinations served, as well as the frequency of service to each destination and the number of onward connections available from those destinations. Service to airports with the highest total seat capacity (e.g. ATL) receive the highest weighting. Thus, the index recognises that connections to major global gateways provide greater global connectivity than connections to the same number of spoke ends. The formula for the index is as follows:



GRB's connectivity index or score is charted below, by indexing the score against 2008 levels for comparison.

Connectivity at GRB in 2019 was 12 percent lower than 2008 levels – not as low as the decline in seat capacity (-33 percent), because GRB retained service to several key national hubs including ATL, ORD, MSP, and DTW. All else being equal, each additional seat to those airports will yield a higher level of connectivity than seats to smaller airports with fewer onward destinations and service. This is why, for instance, connectivity grew at its fastest rate between 2012-14 (+24 percent) even though total seat capacity remained relatively the same.⁵ Between 2012 and 2014, GRB lost service to CLE and had reduced capacity to MSP and DTW, but gained service to ATL, thereby boosting connectivity out of GRB. In more recent years, expanded capacity to ORD as well as the reintroduction of service to DEN have improved GRB's connectivity. Overall, from the worst of the post-Great Recession downturn in 2012, GRB's connectivity rebounded 22 points.

Figure 6: GRB Connectivity Growth Index (2008=100)



Note: Chart shows the IATA Connectivity Index for GRB, indexed against 2008 (2008 = 100).

Source: InterVISTAS analysis of Innovata schedule data from Diio Mi. Source: InterVISTAS analysis of Innovata schedule data from Diio Mi.

$$\frac{[\text{Number of destinations} \times \text{Weekly Frequency} \times \text{Seats per flight}]}{\text{Weighted by the Size of the Destination Airport}} \div \text{Scalar factor of 1000}$$

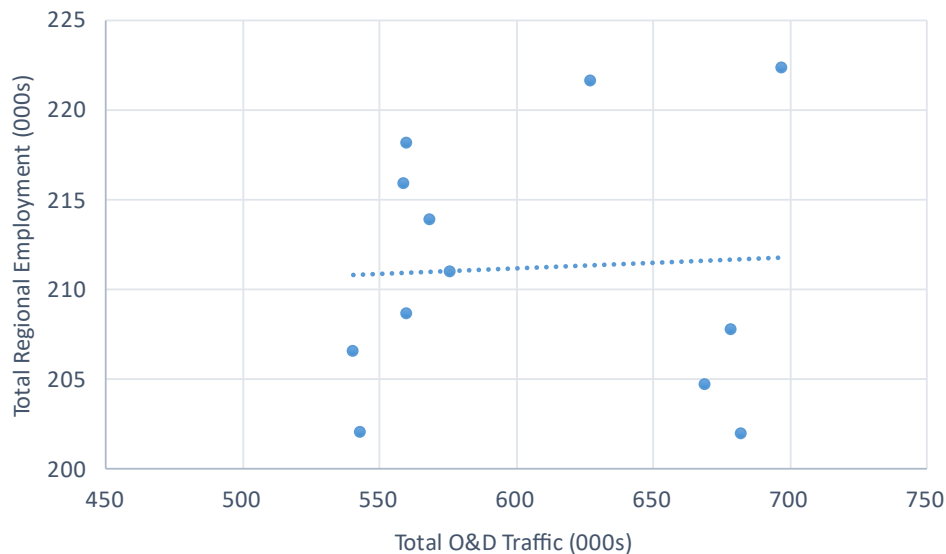
⁵ Total seat capacity at GRB dipped between 2012-13 then rebounded in 2014 to roughly similar levels as in 2012, while connectivity grew between 2012-13 as well as 2013-14. Source: Innovata schedule data via Diio Mi.



Analysis: Changes in Air Service and Economic Activity

GRB's O&D traffic is not correlated with total local employment. Figure 7 summarizes the relationship between total O&D traffic and regional employment. The correlation coefficient is 0.05, effectively indicating no relationship between the two. Changes in one variable do not appear to be associated with changes in the other. That is, the total amount of O&D traffic at the airport does not appear to be related to total regional employment.

Figure 7: Relationship between O&D Traffic and Regional Employment



A similar absence of relationship exists between total O&D traffic at GRB and the region's overall population levels. Changes in the population base have not apparently translated into changes in traffic at the airport.

Air Service Goals Tied to Business Activity

While recognizing the importance of the access to connecting hubs currently provided by the incumbent carriers, GRB's air service development program is seeking additional hub services and point-to-point leisure services via a grant from the U.S. Department of Transportation's Small Community Air Service Development Program (SCASDP). The grant would be used to support service to Dallas on either American or Southwest. These efforts are being undertaken in cooperation with the regional Chambers of Commerce and other economic development organizations. Letters of support attached to the application cite the importance of business connections to the Dallas region and improved connectivity on both airlines' networks, including access to Latin America.

A major stakeholder in the community is the Greater Green Bay Chamber of Commerce, has an arm devoted to economic development. The Chamber's strategic plan has 11 initiatives that are geared towards supporting economic development for the Greater Green Bay area, with one focused on enhancing transportation access and connectivity. The Chamber discussed the importance of



transportation access and connectivity, given that the region is very adept at manufacturing products, thus the need to have strong transportation linkages to move product to market.

From the perspective of foreign direct investment, Canada and Italy are the top two countries with investment in the Greater Green Bay area. The firms that have located to the area cut across several different industries, including manufacturing, paper products, food processing, and ship building. These companies view the area as a prime location in which to build supply chain redundancy for their operations. Italy is a country of focus for the Chamber in which to further attract businesses to the Green Bay area, given that there are already a base of companies upon which to continue to build connectivity.

Communicating the Airport's Economic Impact

The Wisconsin Department of Transportation (“WDOT”) performed an economic impact study of the commercial service airports in the State in 2017. GRB was estimated to generate \$242.9 million in economic output in Brown County. The study estimated that the airport generated 1,633 jobs, with \$68.8 million in labor income in Brown County. However, the true economic impact of commercial aviation extends beyond the airport boundaries, as aviation is a critical element of the economic activity of multiple industry sectors.

The Chamber of Commerce’s Strategic Plan includes similar metrics to track the effectiveness of the plan’s implementation⁶

Metric	Explanation
Employment growth	Increase the number of jobs from existing and new employers
High-wage employment growth	Increase the number of jobs that pay above area median and/or above the median wage within the industry
Capital investment	Attract a higher level of new investment from new and existing companies, real estate developers, and other investors
Business startups	Increase the number of new businesses created locally and startups attracted from outside of the region
Business recruitment	Attract business expansion and/or relocation projects from outside of the community
Educational attainment	Increase the share of adult population with bachelor’s degrees
Tax base growth	Expand the local property tax and sales base for Brown County and for local municipalities

⁶ Greater Green Bay Chamber, Economic Development Strategic Plan, May 2017, p. 23. Available at <https://www.greatergbc.org/media/3045/strategic-plan-booklet-web.pdf>