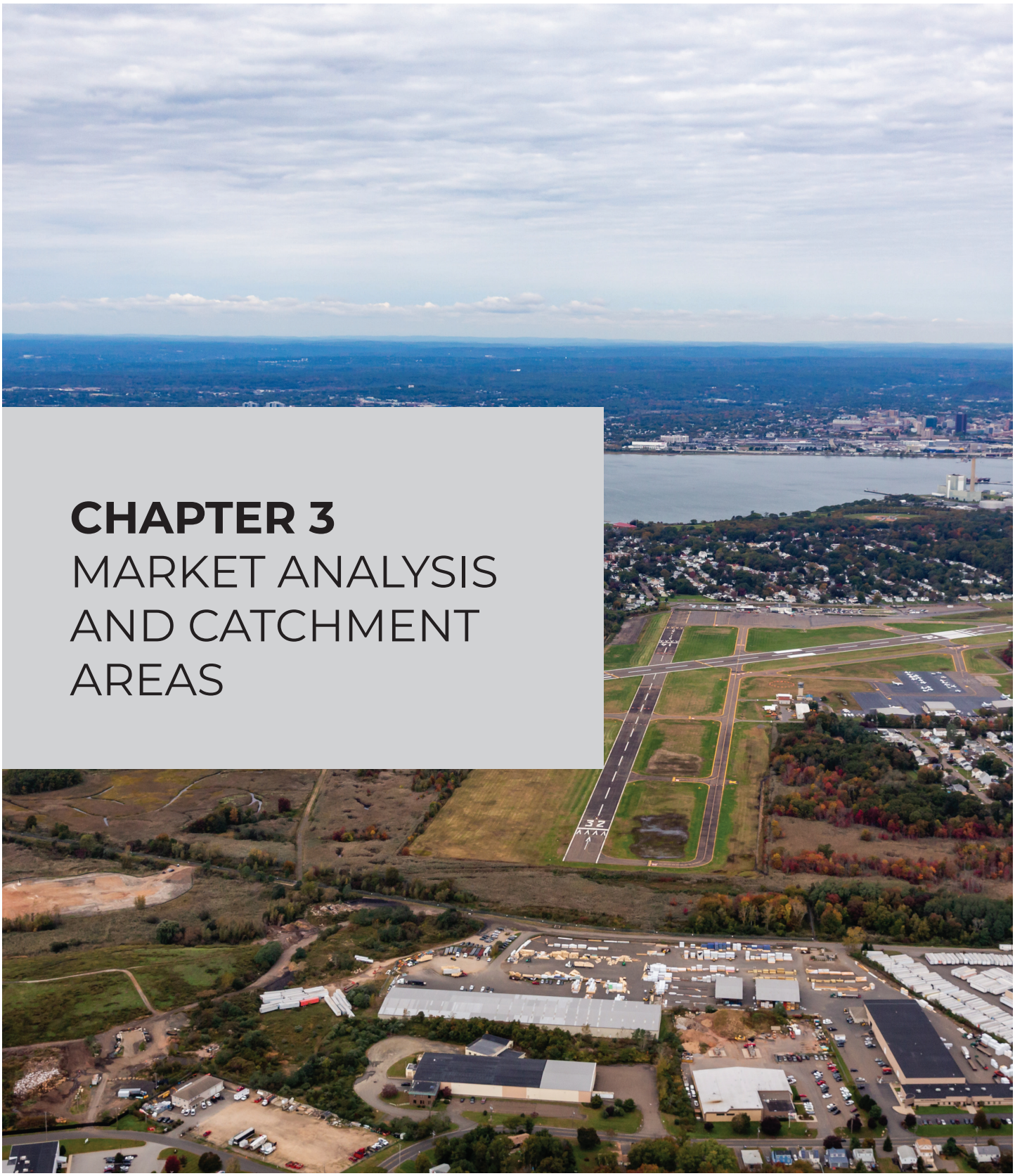


CHAPTER 3
MARKET ANALYSIS AND CATCHMENT AREAS

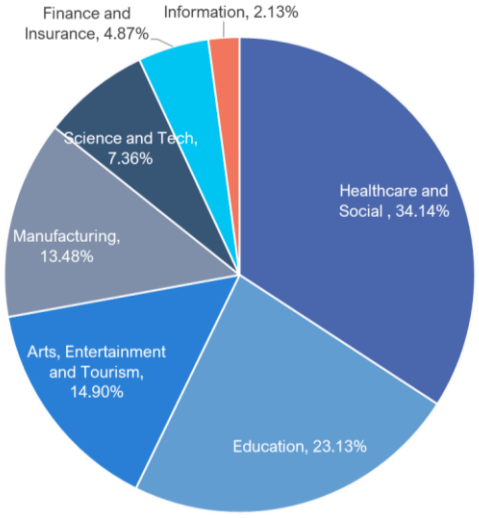
3. Market Analysis and Catchment Areas

This chapter reviews the current market near Tweed-New Haven Airport (HVN or the Airport).

3.1. SOCIOECONOMIC DATA

This section presents social and economic factors to better understand how each, either separately or in combination with other factors, relates to and influences aviation activity. Key indicators such as population, employment, and personal income per capita were analyzed for areas in the effort to explore for potential correlations to aviation demand. Key economic industries are shown in **Figure 3-1.**

Figure 3-1: Key Economic Drivers and Industries

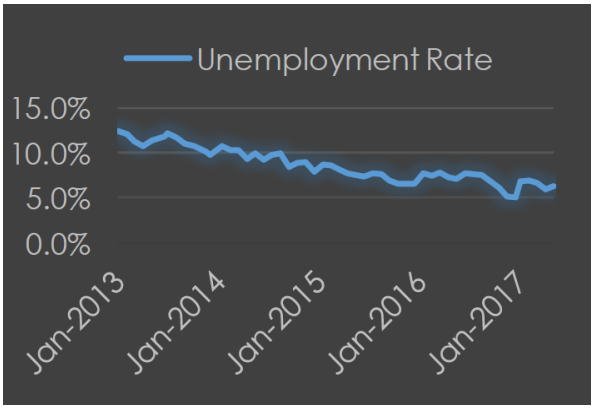


New Haven is a city with…

- A diverse economic base
  a. **2nd largest** bioscience cluster in New England
  b. 34 of Connecticut's 64 biotech firms reside in New Haven.
  c. **300 new business accounts** opened in the past year
- A declining unemployment rate
  a. Since January 2014, unemployment has dropped from 12.4 percent to 6.3 percent

Strong Anchor Institutions

- Yale University employs 14,000 people, 4,000 of which reside in New Haven.
- Yale University's $1 billion expansion will result in 800 new students attending the university and living in New Haven area.
- Yale New Haven Hospital (YNHH) is the 9th largest hospital by bed-count in the country.



Source: Connecticut Department of Labor, May 2017.

New Haven is a growing, increasingly diverse, and international city. The city and its surrounding community continue to attract and welcome visitors, scholars, and immigrants from across the U.S. and around the world looking for urban living, abundant cultural amenities, and a more

affordable cost of living. In fact, a 2016 DataHaven survey determined that one in six city residents (15.8 percent) are foreign-born and recent immigrants, of which close to half (43 percent) have at least a college degree, have nearly doubled their numbers since 1990.

At the same time, New Haven and its surrounding communities have continued to distinguish themselves as a place where people gravitate to make great ideas happen. College degree attainment places it 6th highest in the nation.

3.1.1. Population

An important metric for understanding the potential for aviation activity is the population of the service area surrounding an airport. Specifically, the increase or decrease in population size surrounding an airport can greatly influence the success of that airport. Declining populations can be an indicator of stagnant or negative growth economies, which generally do not contribute to increased aviation use. On the contrary, growing and vibrant economies can be a boost to aviation activity and drive aviation growth.

According to the U.S. Census Bureau, the City of New Haven, as well as the New Haven-Milford Metropolitan Statistical Area (MSA), have both seen fluctuations in population from 2011 through 2018, and the rate of growth is declining as is the rate of population growth of the United States as a whole. Although the population of the New Haven area and the United States is growing, the rate of growth is decreasing over time. The growth rates as a percent change over time can be seen in Table 3-1, which also include the compound annual growth rates (CAGR).

While the rate of population increase in the New Haven-Milford MSA has been slightly decreasing, the population of the city of New Haven has been relatively stable which is a good sign for aviation activity at the Airport.

Table 3-1: Population and Growth Rates

Year	United States		New Haven-Milford, CT MSA		City of New Haven	
	Population	Growth Rate	Population	Growth Rate	Population	Growth Rate
2010	309 Million	-	863,382	-	129,817	-
2011	312 Million	0.73%	863,827	0.05%	130,839	0.79%
2012	314 Million	0.74%	864,589	0.09%	131,117	0.21%
2013	316 Million	0.70%	862,889	-0.20%	130,915	-0.15%
2014	318 Million	0.74%	862,996	0.01%	130,618	-0.23%
2015	321 Million	0.74%	860,292	-0.31%	130,391	-0.17%
2016	323 Million	0.73%	857,991	-0.27%	130,424	0.03%
2017	325 Million	0.64%	857,794	-0.02%	130,640	0.17%
2018	327 Million	0.62%	857,620	-0.02%	130,418	-0.17%
CAGR		0.703%		-0.084%		0.058%

Source: U.S. Census Bureau; McFarland Johnson analysis, 2019.

3.1.2. Employment/Labor Force

Like population, employment data and the local unemployment rate can be useful in determining the economic health of an airports catchment area. High unemployment rates mean less potential income to be utilized for aviation activities, including vacation and business travel, GA flying (non-airline or military), aviation related businesses, etc.

Generally, the State of Connecticut and the New Haven-Milford MSA have closely followed the national average for unemployment rates, which are currently the lowest since 1969. Unemployment rates can be seen graphically in Table 3-2.

Table 3-2: Historical Unemployment Rates

Year	United States	State of Connecticut	New Haven-Milford Metropolitan Statistical Area
2013	7.40%	7.80%	8.00%
2014	6.20%	6.60%	6.70%
2015	5.30%	5.70%	5.80%
2016	4.90%	5.10%	5.10%
2017	4.45%	4.70%	4.70%
2018	3.90%	4.10%	4.00%

Source: United States Bureau of Labor Statistics, 2019.

Health Care, Biomedical, and Life Sciences

YNHH, one of the largest and highly respected healthcare delivery networks in the country, continues to expand its services and investment in the community. YNHH is constructing a brand-new regional distribution center that will service its Connecticut, Rhode Island, and New York facilities. YNHH announced a $838 million neuroscience center at its Saint Raphael campus in April 2019. The 500,000 square foot (SF) facility is expected to open in 2024. Yale University and the Yale School of Medicine continue to draw National Institute of Health (NIH) funding on par with Seattle, Boston, Baltimore, Durham, Philadelphia, and other cities with advanced bioscience centers.

Higher Education

Yale University:

- Schwarzman Center ($150 million investment)
- Yale Science Building ($280 million investment)
- 320 York Street Humanities Project ($75+ million investment)

Technology Supercluster

In January 2019, Quantum Circuits Inc. (QCI) officially opened its New Haven development and testing facility for quantum computing. This facility includes 6,000 SF of state-of-the art laboratories, in-house manufacturing, and will house over 20 scientists and engineers. The company plans to grow significantly over the next several years, increasing both the size of the facilities and the number of highly skilled employees in New Haven. QCI is developing the first practical quantum computers.

District New Haven, New Haven's first technology park that allows for expanding and attracting new tech and media companies. The $17 million project commenced in 2018. It's 9-acre innovation campus which leases office space from 1,250 square feet (SF) to up to 50,000 SF.

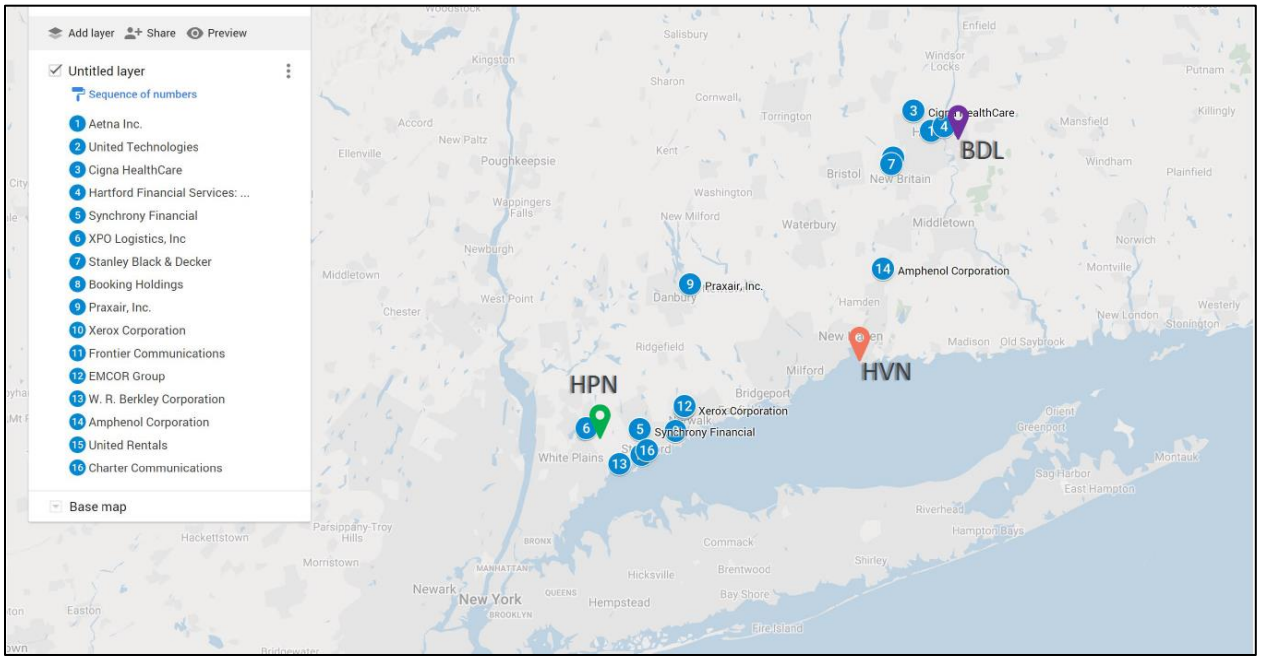
The aforementioned projects are just a sample of the region-wide economic development initiatives and current investment programs proving Greater New Haven's economic health and vitality. However, the goal of the administration is not only to attract new businesses and encourage new investment into the region, but to also retain the current business partners as well as identify and address the deficiencies that threaten the longevity of those vital economic drivers.

In 2017, *Alexion*, a large pharmaceutical company, previously headquartered in New Haven, decided to relocate to Boston.

The Elm City Innovation Collaborative shared that air travel options are a critical attribute in attracting investment and new businesses to the area, particularly those with globally connected leadership and research talent. Working to grow early-stage companies, developed from the incredible research strengths of New Haven's universities, they regularly hear about the challenge and hassle of getting to New Haven from investors and technical partners. Research shows that the majority of potential passengers are travelling multiple hours to travel through other airports. Local growing biotech businesses are already choosing to forgo those delays by locating new hires with high travel needs outside of the state. As examples, both *Arvinas* and *Achillion,* rapid-growth publicly traded biotech companies, have located their new corporate offices in cities with better air transportation options, while keeping their research and development (R&D) teams in New Haven. Other companies have moved just their sales teams to other transit centers, citing their airports.

Fueled by the second-densest concentration of federal R&D funding and new investment in neuroscience facilities, New Haven is poised for rapid growth in the life science and health care delivery sectors. However, the region is severely limited by the challenges of a lack of access to air service that is comparable to areas with similar demographics and economic potential. A quick corporate analysis of Connecticut's Fortune 500 companies and their locations shows an apparent correlation between a developed transportation infrastructure, well served airports nearby, and the headquarter locations of the largest companies in the state as seen in Figure 3-2. Despite Greater New Haven's strong income and business standing, New Haven has not benefitted as a result of limited air service at HVN.

Figure 3-2: Connecticut Fortune 500 Corporate Headquarters



Source: DATA USA, Census Bureau, 2019.

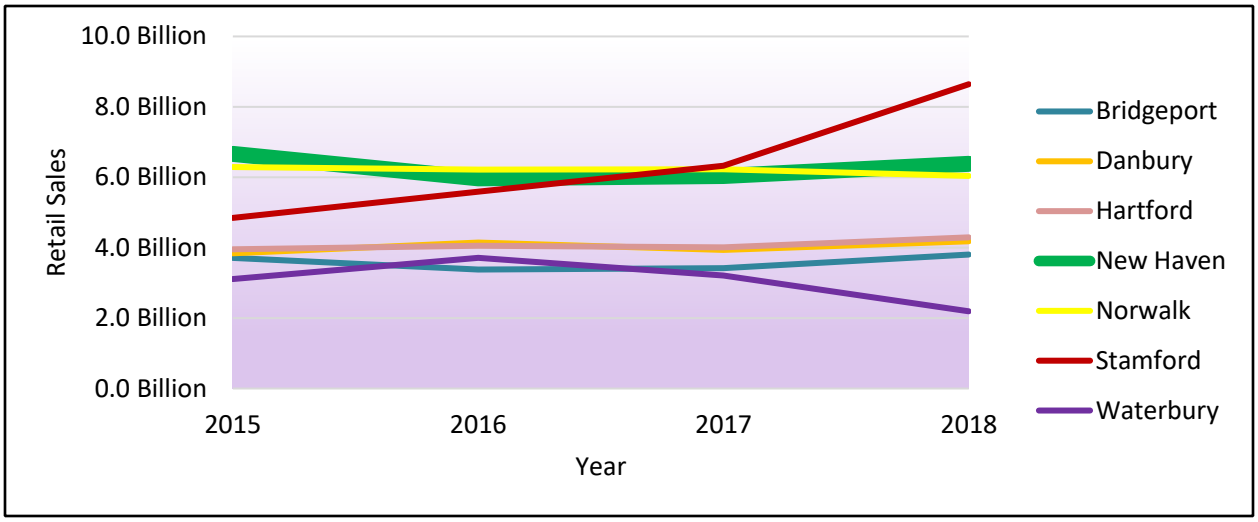
3.1.3. Per Capita Personal Income (PCPI)

Per the U.S. Bureau of Economic Analysis, per capita personal income is calculated as the total personal income of the residents of a given area, divided by the population of that area. PCPI is a good indicator of an airport's growth, as increases in income can yield a greater ability and desire to travel within the area. Also, higher income areas are better situated to support GA activities and businesses. The City of New Haven has a lower PCPI than the State of Connecticut as a whole which is skewed somewhat by more affluent communities close to New York City to the south. Historically, New Haven's PCPI has been slightly higher than the United States as a whole, which are both growing, which bodes well for HVN.

3.1.4. Retail Sales

Another metric to measure the socioeconomic viability of New Haven is retail sales. New Haven is one of the largest cities in Connecticut in terms of total population. In analyzing retail sales, it is helpful to compare New Haven to six of the largest Connecticut cities: Bridgeport, Danbury, Hartford, Norwalk, Stamford, and Waterbury. Figure 3-3 compares New Haven against other large cities in Connecticut. New Haven ranks very well in terms of retail sales, and over the past few years, it has outperformed other large cities in terms of consumer spending.

Figure 3-3: Connecticut Retail Sales



Source: State of Connecticut, Office of Policy and Management, 2019.

3.1.5. Socioeconomic Trend Summary

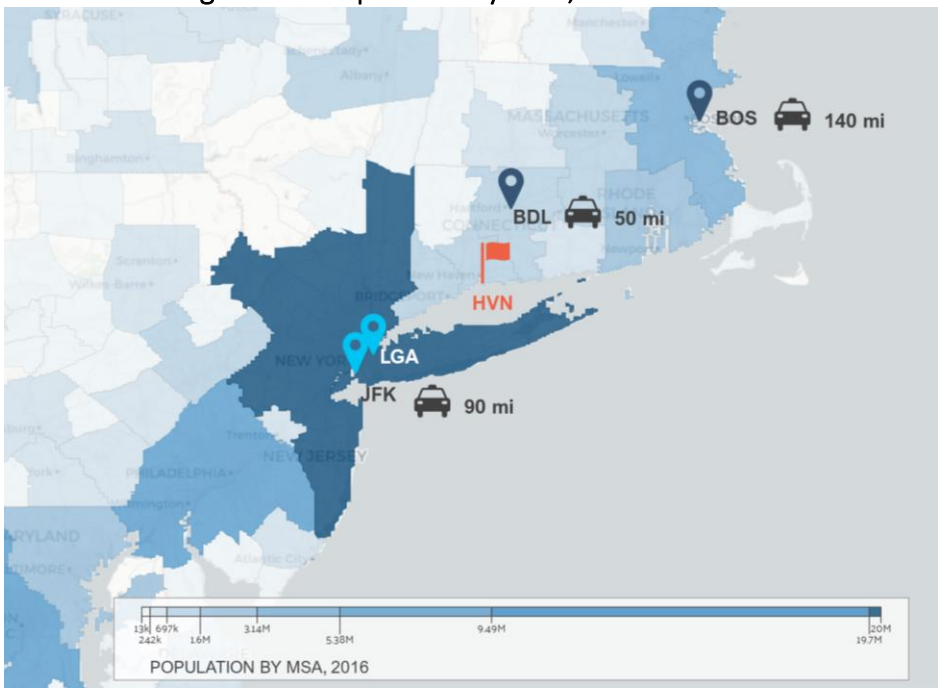
The socioeconomic trends analyzed bodes well for HVN. Generally, the economy of New Haven area is strong, with a stable population base, favorable employment statistics, relatively high PCPI, and strong retail sales. These factors will inevitably play a part in the future of the Airport, including passenger enplanements, aircraft operations, and GA activity which will be explored in the following sections.

3.2. CATCHMENT AREAS

New Haven has earned its reputation as a city of makers. To this day, it remains abounding with innovation, especially in the thriving bioscience, technology, and food industries. New Haven has the second-largest bioscience cluster in New England. With Yale University and YNHH as major anchor institutions, New Haven receives $421 million NIH research grants each year. This makes the city the 14th greatest recipient in the nation. New Haven area residents have filed over 6,000 bioscience patents since 2000. In April 2017, Verizon named New Haven the top U.S. city in which to launch a tech startup. New Haven has also consistently been named a foodie capital of the state, region, and nation. Its food service companies contribute $284 million to New Haven's economy.

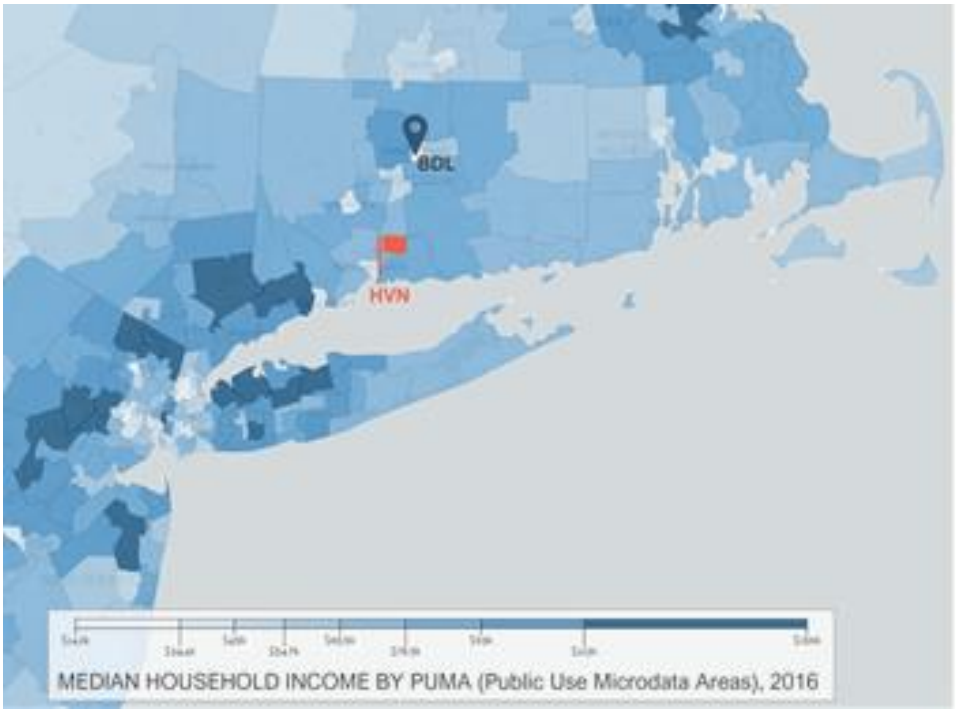
As airports like Boston and the New York City airports exceed design capacity, it is becoming more and more important to lure airlines to airports like HVN. HVN has a significant population reach and catchment area that have been passed over up until now in favor of wedging even more passengers and airplanes into overtaxed infrastructure. $150 million federally funded runway projects could be avoided by encouraging airlines to grow at reliever airports in major metro areas, like New Haven. **Figure 3-4**, **Figure 3-5**, and **Figure 3-6** show the population density, median household income, and U.S airport seat by population ratio, respectively. These show that there is a large population area and density and higher household incomes in the area, which bodes well for HVN increasing its seats per population ratio compared to other similar airports.

Figure 3-4: Population by MSA, 13k-20M



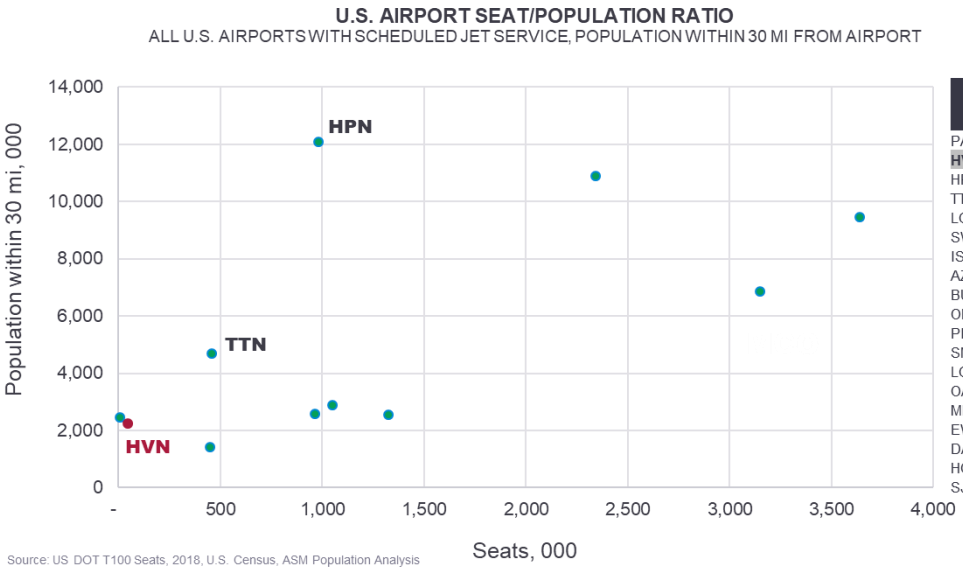
Source: DATA USA, Census Bureau, 2019.

Figure 3-5: Median Household Income, $14k-$156k



Source: DATA USA, Census Bureau, 2019.

Figure 3-6: U.S. Airport Seat / Population Ratio, 30 mi



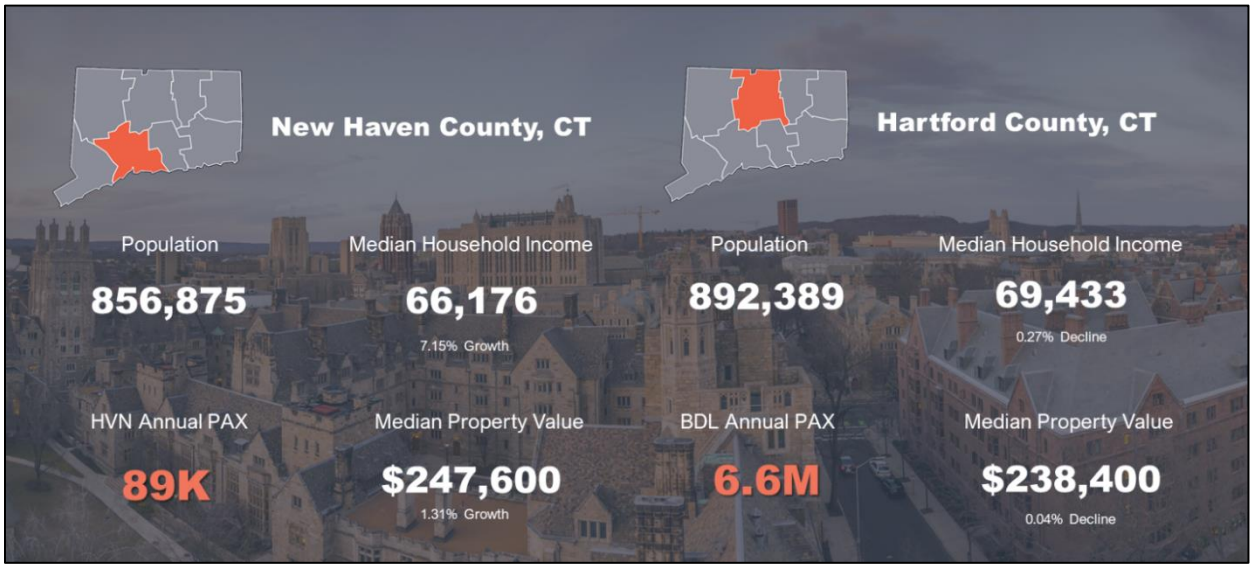
Airport	Population 30 mi	Seats Dir 2018	Seats per capita
PAE	2,432,261	6,771	0.00
HVN	**2,245,010**	**46,960**	**0.02**
HPN	12,083,604	981,240	0.08
TTN	4,680,811	460,455	0.10
LGB	10,885,270	2,343,853	0.22
SWF	1,416,977	448,916	0.32
ISP	2,895,951	1,048,855	0.36
AZA	2,584,895	964,029	0.37
BUR	9,468,029	3,637,519	0.38
ONT	6,853,018	3,148,485	0.46
PIE	2,556,379	1,323,768	0.52
SNA	7,774,234	6,295,795	0.81
LGA	15,477,938	18,795,394	1.21
OAK	5,137,594	8,694,751	1.69
MDW	7,489,766	13,315,805	1.78
EWR	15,263,244	27,384,830	1.79
DAL	5,637,675	10,170,684	1.80
HOU	4,991,183	9,040,956	1.81
SJC	3,670,896	9,116,602	2.48

Source: US DOT T100 Seats, 2018, U.S. Census, ASM Population Analysis, 2019.

HVN is the only other commercial airport in the state of Connecticut besides Bradley International Airport (BDL). New Haven County has a similar population base and median household income to Hartford County, as shown in **Figure 3-7**. While New Haven County has been growing, there is a slight decline in Hartford County, which is served by BDL. However, due to the current runway limitations, HVN has been unable to adequately serve the needs of the flying population. Travelers are forced to make the long and tedious drive to one of the New York/New Jersey airports, exacerbating congestion on the I-95 corridor. Additional air services at the airport would greatly enhance the quality of life by considerably decreasing travel times for all commuters throughout the southern New England region.

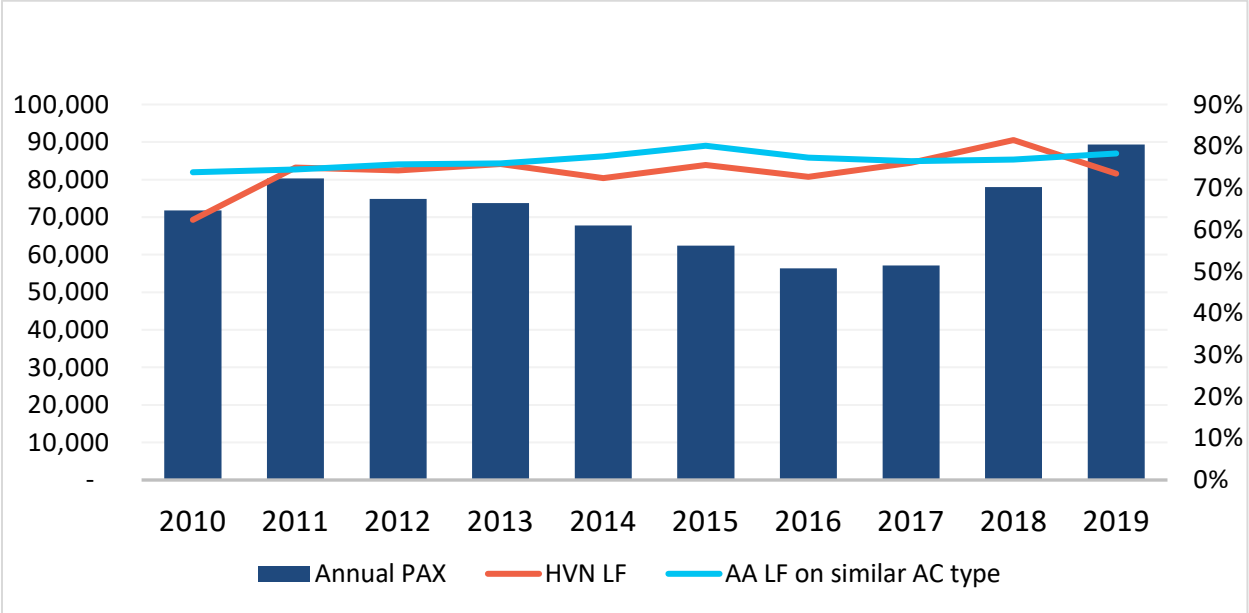
Figure 3-8 shows that air traffic at HVN has remained relatively flat in recent years. However, the market responded well to additional capacity. In 2019, when American up-gauged from the CRJ-200 to the CR-700/E175, increasing seat capacity by 25 percent (2018 vs 2017), the market grew by 37 percent (YoY). The market has grown by 60 percent in yearend 3Q 2019 compared to 2017.

Figure 3-7: New Haven County / Hartford County Benchmark Analysis



Source: Data USA, US Census 2016; DOT OD YE3Q 2019, Airline Data Inc, YENov2019 Sabre MIDT.

Figure 3-8: HVN's Annual Passengers 2010 - 2019

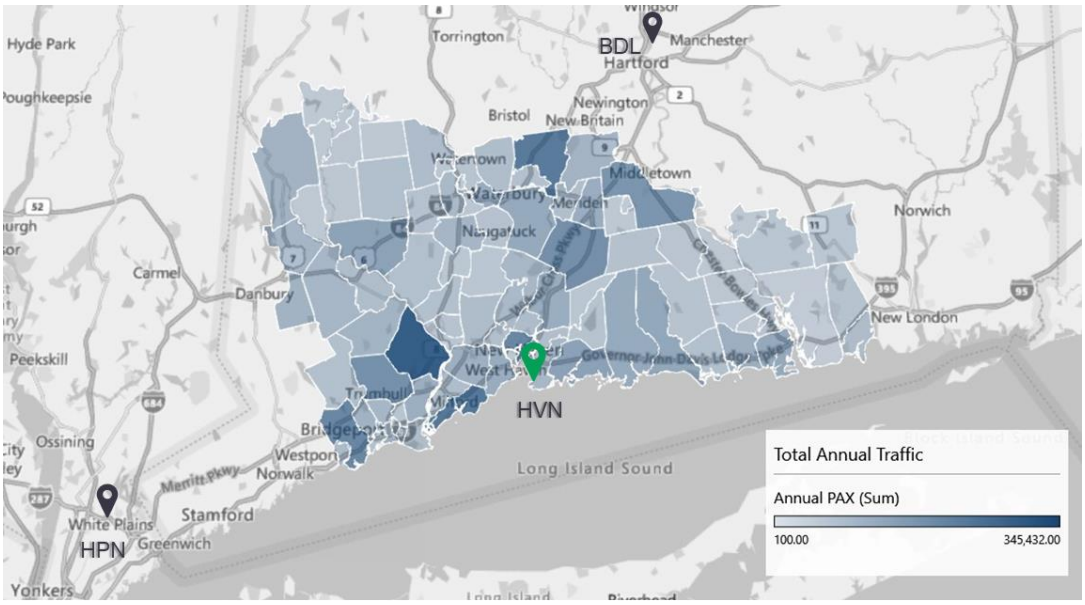


Source: Data USA, US Census 2016; DOT OD YE3Q 2019, Airline Data Inc, YENov2019 Sabre MIDT, 2019.

3.2.1. Commercial Service Catchment Area

HVN's Commercial Service Catchment Area, shown in **Figure 3-9**, within approx. 30 miles of the Airport generated 5.5 million total annual passengers in 2018. Many of the largest traffic generating zip codes are located in close proximity to HVN.

Figure 3-9: HVN Commercial Service Catchment Area



Source: ASM's HVN Catchment Analysis; YE2018; Airline Data, Inc, 2019.

Despite the general misconception that most of HVN's traffic is "leaked" to Bradley (BDL) and the passengers are predominantly using "the other" Connecticut airport, the reality is that the major New York/New Jersey airports get almost 53 percent of the traffic generated within HVN's natural catchment and 73 percent of HVN's catchment traffic within 60 miles, shown in **Figure 3-10**.

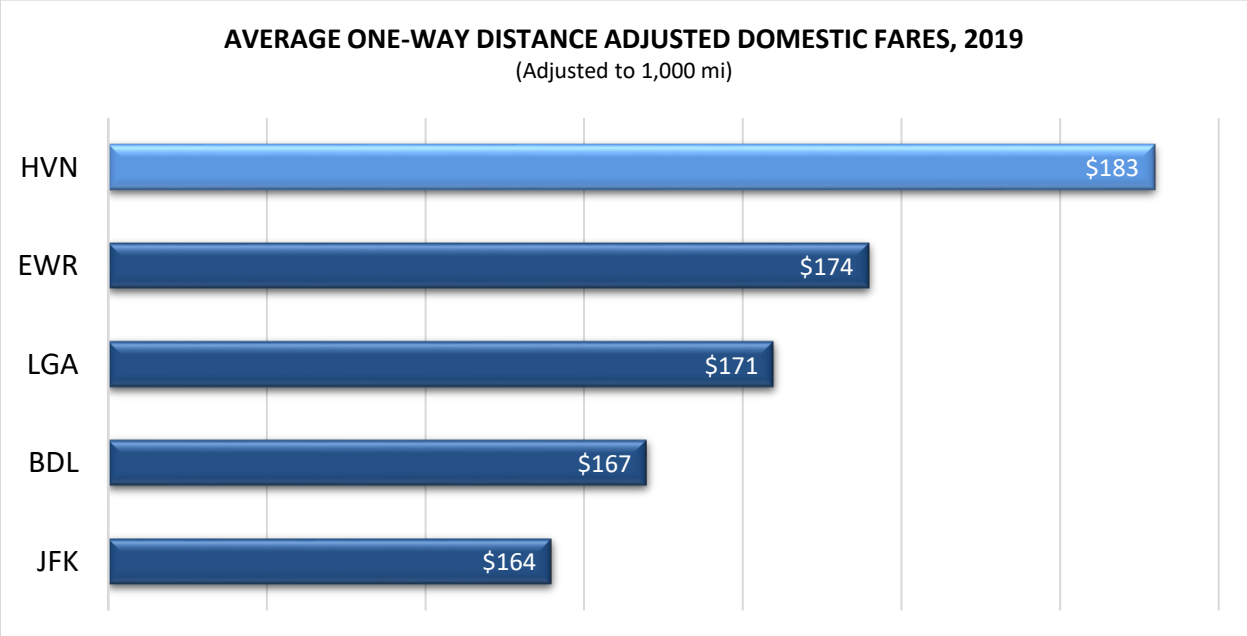
New Haven's business partners, students, and visitors frequently express frustration with the inconvenience of traveling from more distant airports in New York. There is significant pent up demand for the improved service at HVN that would be enabled by a runway extension. More robust service to Tweed would encourage continued investment in the region, provide job opportunities for the residents, as well as make air travel more affordable for wider population groups by bringing competition into the market.

Figure 3-10: HVN Catchment Area

Source: HVN Catchment Market Share by Airport, YE2018; Airline Data, Inc, 2019.

In YE 3Q2019, HVN's average domestic air fares (distance adjusted to 1,000 mi) were higher than the nearest competitors. The average one-way domestic fares are shown in **Figure 3-11**. Ticket fares, coupled with limited nonstop options and lack of convenient connections, affect travelers' decisions to make the long drive to one of the competitor airports in the area.

Figure 3-11: Average One – Way Distance Adjusted Domestic Fares, 2019



Source: DOT DB1B, YE 3Q 2019; Airline Data Inc, 2019.

3.2.2. General Aviation Catchment Area

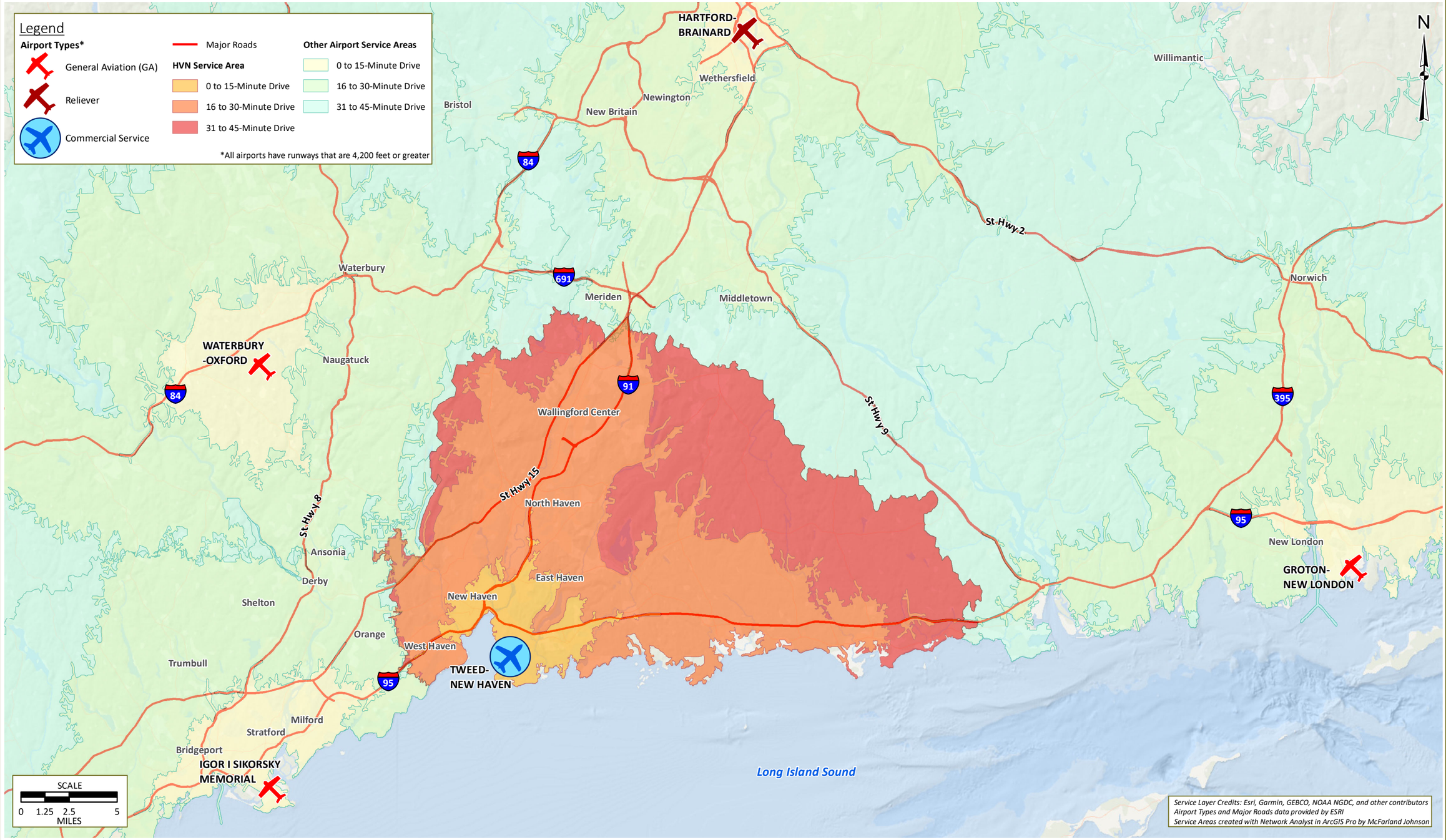
The GA Catchment Area (also sometimes referred to as GA Service Area) for HVN represents the area based on drive time, where HVN is the closest GA airport with a paved runway of 4,200 feet or longer. The closest airports to HVN that meet these criteria are: Igor I Sikorsky Memorial (BDR), Waterbury-Oxford (OXC), Hartford-Brainard (HFD), and Groton-New London (GON) Airports. This area is shown in Figure 3-12.

3.3. SUMMARY

The area around Tweed-New Haven Airport has a robust socioeconomic market that supports the air service at the Airport. New Haven has a strong base of education and employment with Yale University and being a key biotechnical center. Additionally, Yale New Haven Hospital is the 9th largest hospital in the country based on beds available.

New York airports, which are increasingly approaching their capacity and associated delays, is HVN's catchment area's biggest competitor. Throughout HVN's history, airlines continue to serve the Airport and express interest in providing additional services. While COVID-19/Coronavirus has reduced commercial air traffic world-wide, general aviation is thriving at HVN. It is anticipated, due to the strong socioeconomic conditions, economic growth, and the strong catchment areas, that HVN will continue to have air service in the future and ramp back up to previous levels or has the potential to exceed 2019 operations and enplanements in the near future. Though the full impacts remain to be seen, the situation is currently being viewed as more of a temporary shock/interruption to the market as opposed to a shift in demand.

Figure 3-12: HVN General Aviation Catchment Area



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