

City of Frankfort

Beach Infrastructure Plan

Troy Anderson – Clay Hagen – Michelle LeBlanc – Virginia Vander Veen

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Figure 1: Aerial View of Frankfort from Lake Michigan - Photo Courtesy of Anderson Aerial

Executive Summary

In collaboration with Michigan State University Urban and Regional Planning and the City of Frankfort Superintendent Joshua Mills, the City of Frankfort Beach Infrastructure Assessment Study was created. A team of four students over the course of the 2013 Academic Spring Semester is heading the project. Frankfort is located in the Northwest portion of the lower peninsula of Michigan and serves as a popular tourist destination in the summer months. Frankfort, located within Benzie County, is the County's only designated city. Benzie County also contains Almira Township, Benzonia Township, Colfax Township, Crystal Lake Township, Homestead Township, Lake Township, the Village of Beulah, and the Village of Elberta. According to the 2010 US Census Bureau, Benzie County has a population of 17,443, with 7% of the population residing in the City of Frankfort. Benzie County is a rural region with a dispersed population making Frankfort a main hub for activity. Frankfort thrives on their tourism industry with only 63.8% of the homes used as permanent residencies. With a population of 1,280 residents, the City of Frankfort is a small community during the winter months.

The team worked with Frankfort to create elements of a Beach Master Plan for the Lake Michigan Beach as well as undergo improvements to the roughly 200,000 square foot Father Charlevoix "Cannon" Park. Our goals for the project include improved signage, structural improvements, improved restroom facility location, a control on sand blowing, and aesthetics in order to enhance and expand Frankfort's already strong tourism industry.

The methodology behind our project is reflected through a socioeconomic profile, physical land use, a visitor profile, site analysis, and the evaluation of the strengths, weaknesses, opportunities, and threats (SWOT) as they relate to Lake Michigan beach and Father Charlevoix “Cannon” Park. The socioeconomic profile was developed by analyzing data from the 1990, 2000, and 2010 census. The MSU Practicum Team chose to focus on topics of the census most relevant to the project, which included population, age, income, ethnicity, households, and industry. Multiple site visits were conducted to assess the current state of both Lake Michigan Beach and Father Charlevoix “Cannon” Park. An inventory of seasonal, non-seasonal, and weekend businesses was also taken during the site visits in order to examine how Frankfort’s strong tourism industry impacts the local businesses. Tourism was further explored by obtaining data from the Northwest Region of the 2009 Michigan Visitor Profile in order to analyze general traveling trends and applying them to the City of Frankfort. A SWOT analysis was conducted to find the strengths, weaknesses, opportunities, and threats (SWOT) for the Lake Michigan Beach and Father Charlevoix “Cannon” Park. The analysis was conducted at Frankfort’s City Hall with 23 members of the community, allowing the MSU Practicum Team to directly communicate and connect with local residents.

The final section of the report includes a variety of recommendations that include a beach visitor study, improvement for parking, additional signage, restroom facilities location, sand control, and additional revenue based on our detailed analysis. First, in reference to limited data regarding visitors to Frankfort, it is recommended that the City conduct a beach visitor study including the number of visitors, duration of stay, and an economic analysis of beach spending and recreational benefits. Based on an estimate of visitors to the Lake Michigan Beach by the Practicum team it is recommended that Frankfort increase the availability of parking options with the possibility of utilizing the local high school for additional parking and incorporating a trolley system. Third, sporadic and text heavy signage can be troubling to visitors; therefore the MSU Practicum Team recommends implementing simplified and consistent way-finding, historical, and safety signage. Currently Frankfort only has one outhouse style bathroom facility available to beach goers. Through the analysis, it is recommended that the City construct a restroom facility in Father Charlevoix “Cannon” Park. Currently Frankfort is experiencing sand erosion from the Lake Michigan Beach front resulting in the accumulation of blowing sand in unwanted areas. To mitigate this problem it is recommended that sand dunes be maintained and bushy vegetation native to the given area be planted. Furthermore, Frankfort does not charge for the beach or parking, and could capitalize on revenue potential by installing parking kiosks in the designated beach parking lot and within a quarter mile of Lake Michigan Beach during the peak season.

Introduction

Explanation of Practicum

Practicum is a capstone course required for graduating seniors in the Urban and Regional Planning Program at Michigan State University. The students work in groups of four or five over the duration of a semester to gain practical and applicable knowledge of the field of urban planning. Each student group works with a different community in varying regions around the State of Michigan to address a planning related issue. The student reports analyze the current conditions of their community and provide recommendations for enhancements or alterations based on empirical analysis. The students work directly with a leader in the community to structure their plan and address the needs of the specific community. During the course of the semester the students' progress is tracked, guided, and edited by the advising faculty members. At the end of the semester the students present their report, analysis, and recommendations to the community leaders, faculty members, and members of the public at an event at Michigan State University. As a deliverable the students are also required to present their report, analysis, and recommendations in the community to which they were assigned.

Client Information

The client for this report is the City of Frankfort. The authors of this report worked directly with Joshua Mills, the City Superintendent, to structure the goals and objectives for the practicum project. The City of Frankfort applied to Michigan State University to receive assistance from the practicum students to make recommendations for enhancements to the Lake Michigan Beach and Father Charlevoix "Cannon" Park. The leaders of Frankfort are passionate about their community and wish to receive recommendations that may further the attraction of visitors and residents to the two waterfront parks.

Project Goal Statement

Create elements of a Beach Master Plan for the Lake Michigan Beach in Frankfort, including improvements to Cannon Park. The plan will address parking, pedestrian flow, signage, structural improvements, restroom facility location, sand control, and aesthetics in order to enhance and expand the Frankfort experience and the city's already strong tourism industry.

Location Description

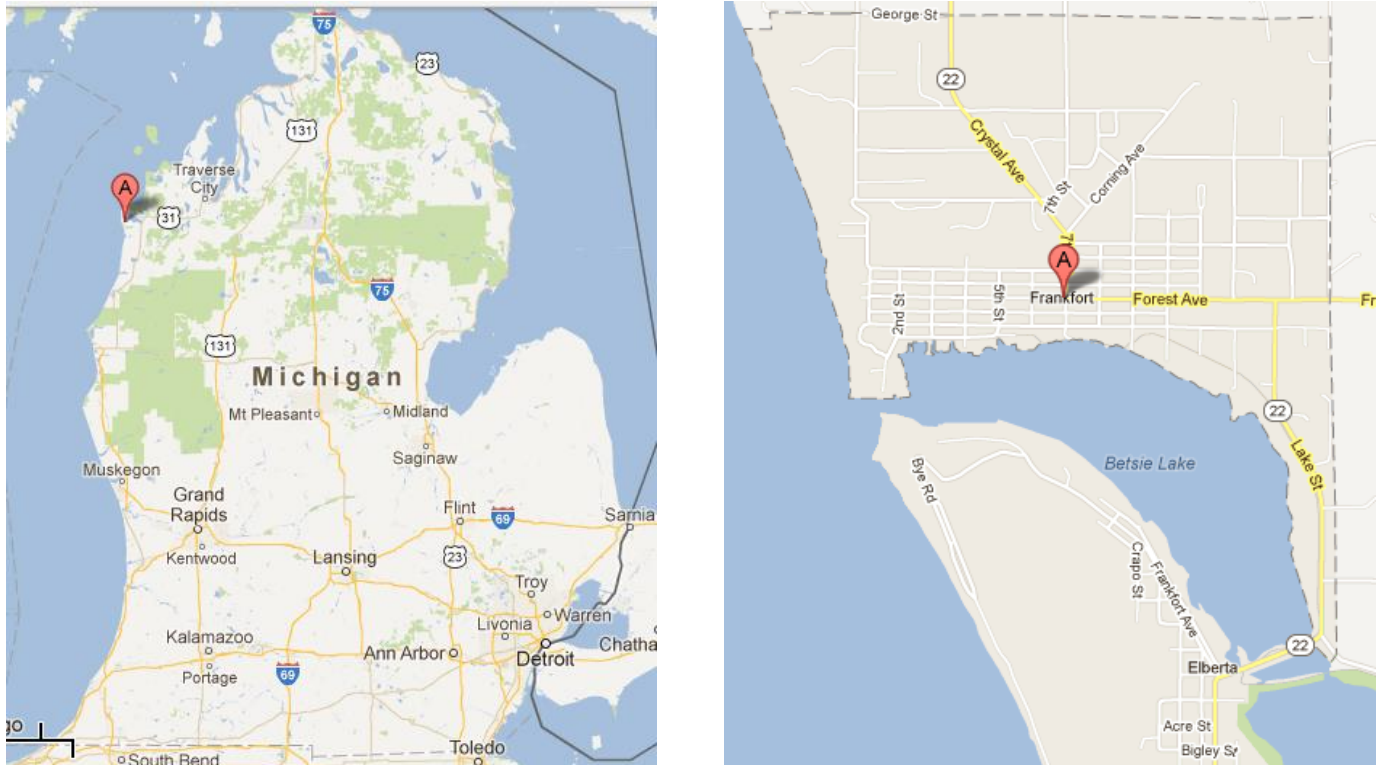


Figure 2: Map of Michigan and the City of Frankfort

City of Frankfort, Michigan

Located on the shores of Lake Michigan in Benzie County, the City of Frankfort, Michigan is approximately 40 miles southwest of Traverse City (*see Figure 2*). As shown in Figure 2, Frankfort is located on the north side of Betsie Bay, which empties into Lake Michigan. Frankfort boasts a multi-million dollar fishing industry and the city's prime waterfront location has made Frankfort a tourist destination in the northwestern Lower Peninsula of Michigan and thrives during the summer months. Frankfort's waterfront amenities include the City of Frankfort Municipal Marina, Harbor Lights Resort, and most notably, Lake Michigan Beach Park and the connected Father Charlevoix "Cannon" Park.



Figure 3: Aerial view of Lake Michigan Beach

Lake Michigan Beach

Lake Michigan Beach Park in Frankfort is the City's main attraction. The City of Frankfort provides a 200,000 square foot beach that transforms into beautiful towering sand dunes to the north. The pristine beach conditions along with breathtaking sunsets contribute to a thriving summer tourism industry. Residents and tourists utilize the break-wall that stretches out into Lake Michigan for swimming, fishing, kite sailing, wind surfing, and the great view it provides. Lake Michigan Beach is located at the end of Main Street near residential and seasonal. The beach offers playground equipment including a slide and swing set, along with two volleyball courts. Lake Michigan Beach is also a dog friendly site, which requires that dogs be on short leads, except for the far north section of the beach where dogs are allowed to be under voice or whistle control.



Figure 4: Aerial view of Father Charlevoix “Cannon” Park



Figure 5: Cannon located in Father Charlevoix

Father Charlevoix “Cannon” Park

As shown in Figure 4, Father Charlevoix “Cannon” Park serves as a gateway from downtown Frankfort to Lake Michigan Beach. At just under 40,000 square feet, the park is named for the Civil War cannon that is placed on the west end of the park, pointing towards Lake Michigan, which is said to overlook and protect the harbor (*see Figure 5*). Father Charlevoix “Cannon” Park also features benches, picnic tables, and grills for hungry beachgoers. Seven parking spaces are located just west of the park, preceding the entrance to the Lake Michigan Beach parking lot.

Area History

The City of Frankfort became an incorporated village in 1885 when citizens petitioned the State Legislator. The village was established by Local Act No. 352 of 1885 on April 1 and Local Act No. 352 of 1885 on May 14. Prior to incorporation, the valley and estuary of the Betsie River were occupied at various times by Native Americans. In 1856 the first European settlement was recorded and thus established what would later become the City of Frankfort.

Lumbering was Frankfort's first industry and helped the town flourish in the late 1800's. The lumber was cut in the surrounding forests and floated down the Betsie River into the bay. Millions of board feet of maple, cherry, beech, and pine were shipped to Chicago and Milwaukee on large sailboats. The sailboats were later replaced by railroad, as shown in Figure 6, and Car Ferry services, leading to an economic surge that would put Frankfort on the map. In 1889, railroad entrepreneur James Ashley envisioned the prospects of extending the Ann Arbor railroad to Frankfort. In 1892 Ashley brought the car ferry to Frankfort, proving railroad cars could be shipped across Lake Michigan. Goods were not the only things arriving via railway. Tourists began to flood into Frankfort to take advantage of the scenic and restful qualities of the area. Also arriving on the train was a civil war cannon from Fort Pitt, Pennsylvania, which remains to this day in Father Charlevoix "Cannon" Park.



Figure 6: Frankfort, MI (Ann Arbor Railway Gas Car #3) - Contributed by Paul Petosky

Frankfort was once advertised as the premier resort town in Michigan. Many of the older homes built along Leelanau and Forest Avenues became summer residences for upper middle class families from Chicago and St. Louis seeking to escape the heat and humidity of city life. Carriage houses were constructed on the properties and used by homeowners as primary dwellings while renting out the main homes to summer vacationers. With the continuous flood of tourists and the increasing vitality of Frankfort, James Ashley saw the potential a hotel could bring to the community. In 1911, Ashley built the Frontenac Hotel, comprised of 300 rooms and situated at the edge of town on Lake Michigan near the rail depot. The same company that constructed the Grand Hotel on Mackinac Island built the Frontenac, and one year later the hotel burned down in a suspicious fire.



Figure 7: The Royal Frontenac Hotel, Frankfort, MI- Contributed by Donald Harrison

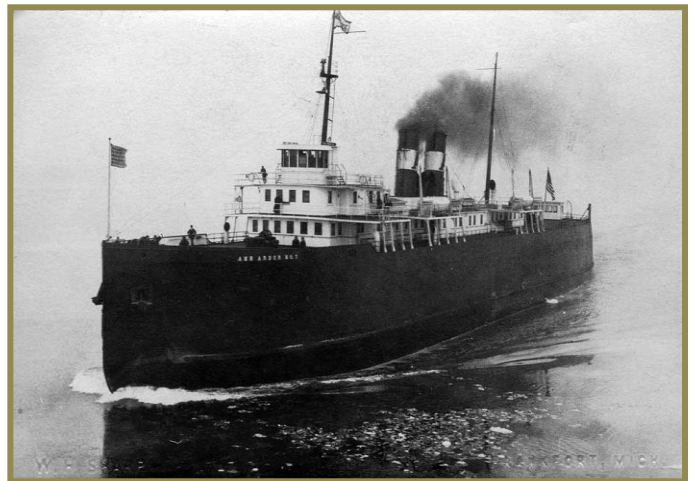


Figure 8: Ann Arbor No. 7 navigating through Betsie Bay- Contributed by W.H. Sharp from the Marc Vander Meulen collection

The depletion of lumber brought an industry shift to Frankfort. Once again the City would turn to water to drive its commerce, as the commercial fishing industry took up roots and thrived for many years. The fishing business provided a living for many Frankfort families, as did agriculture. Fruit crops were dominant, and like much of Northwest Michigan included cherries, peaches, apples, strawberries, and raspberries. The fishing industry began to decline with the start of WWII but a strong fishing culture including many Charter Fishing businesses remain today.

Water and land were not Frankfort's only assets. In the 1930's soaring became popular due to the large dunes and consistent Lake Michigan winds. In 1938 a national meet was held in Frankfort and two of the greatest glider pilots of the time, Ted Bellak and Stan Corcoran attended. The two remained in Frankfort and opened a sailplane company and soaring school. At the onset of WWII, the City of Frankfort began receiving government grants to train U.S. Army personnel to fly military gliders.

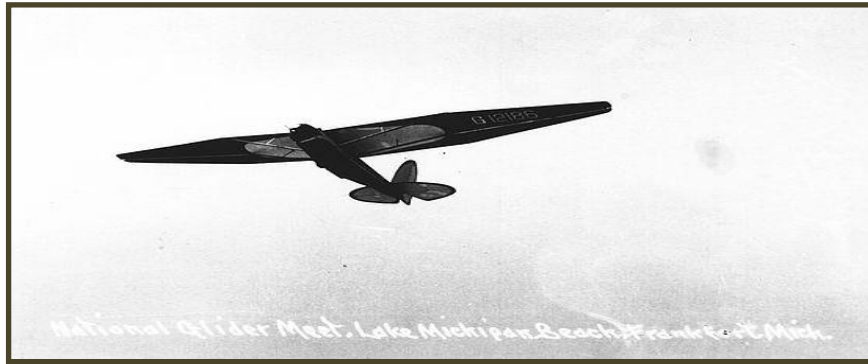


Figure 9: A Franklin "PS-2" flying along the beach of Lake Michigan, as part of the 1938 Glider Meet. Photo contributed by The National Soaring Museum, Inc.

Today tourism is the dominant industry in the City of Frankfort, along with supportive service based businesses. It is important to note that over the course of Frankfort's rich history, Betsie Harbor has played an important role for the city. If it weren't for a powerful Lake Michigan gale in 1854 and the safe haven of a natural harbor, Frankfort's history might be very different.

Through the years, many improvements have been made to the harbor including the construction of piers and break-walls, as well as the deepening of the channel. In 1931 the South Breakwater was constructed, and in 1932 the North Breakwater was completed and the lighthouse remodeled. The creation of the North and South Breakwaters has made the harbor a safe haven for watercrafts.

Socioeconomic Profile

The following section examines demographics for the City of Frankfort in comparison to Benzie County and in some cases the State of Michigan. As shown in Figure 10, Frankfort is located on the far west side of Benzie County. The data was collected from the 1990, 2000, and 2010 Census. The categories that are presented in this section are population, age, income, ethnicity, households, and industry.



Figure 10: Map of Benzie County and Frankfort- MSU practicum team 2013

Population

Frankfort is the only chartered city in Benzie County and serves as one of the main destinations for county residents and tourists. According to the most recent Census in 2010, the year-round population of Frankfort is 1,286 compared to the 17,525 residents of Benzie County. The population of Benzie County has grown over the past 20 years while Frankfort has been losing residents at a steady decline (see Figures 11-12). Frankfort has lost 260 residents since 1990, an estimated 20% decrease in population. The largest decline in population began in 2000 in Frankfort while at the same time the population of Benzie County was continuing to grow. The new residents to the County may be locating in one of the many other surrounding villages or townships.

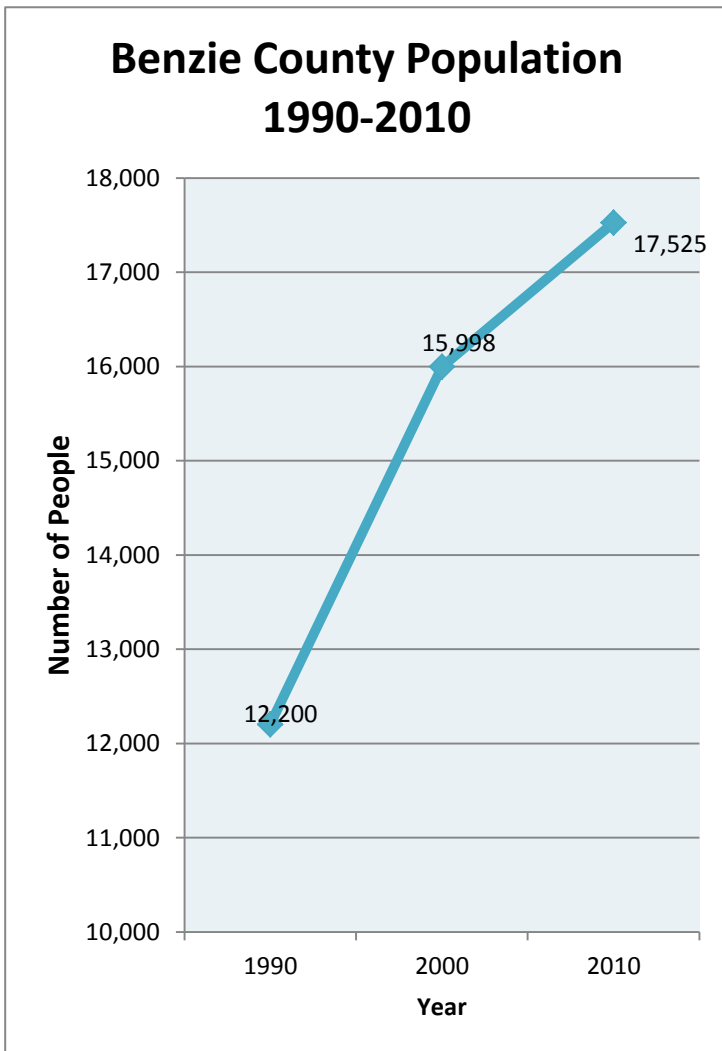


Figure 11: Source US Census Bureau

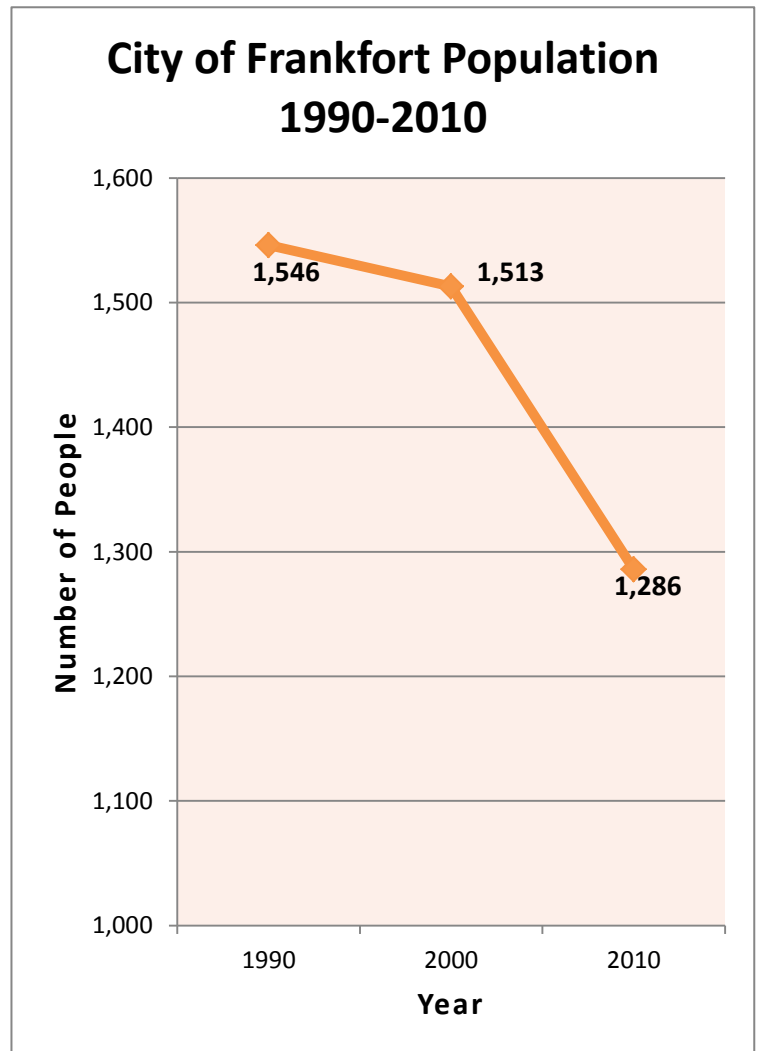


Figure 12: Source US Census Bureau

Age

As we observe in Figure 15 the largest segment of Frankfort's population is composed of the 65 and older age range. In 2000 the 65 and older age bracket comprised roughly 30% of the total population of the City, and in 2010 it comprised approximately 36% (see Figure 13). The combined ages of 19 and under and 50 and older compose 74%, almost three quarters of the population in Frankfort. As shown in Figure 14, the largest segment of Benzie County's population in 2000 and 2010 consisted of the 19 and under age range at roughly 29% and 27% respectively; this is consistent with the age trends for the State of Michigan (see Figure 13). Between 2000 and 2010 there was minimal change in the percentages of each age range at the State, County, and City levels (see Figures 13,14,15). As shown in Figure 15 the largest change in age trends in Frankfort from 2000 to 2010 was a nearly 5% increase in the 65 and older age range and a 4% decrease in the 20 to 34 age range. The largest change in age trends for Benzie County from 2000 to 2010 was a roughly 3.5% increase in the 55 to 64 age range and a nearly 4% decrease in the 35 to 44 age range (see Figure 14). Benzie County age trends are in line with State age trends (see Figure 13). While the City of Frankfort deviates from State and County trends in some respects, all three levels of government have experienced population loss in the 44 and under age ranges and a population increase in the 45 and over age ranges.

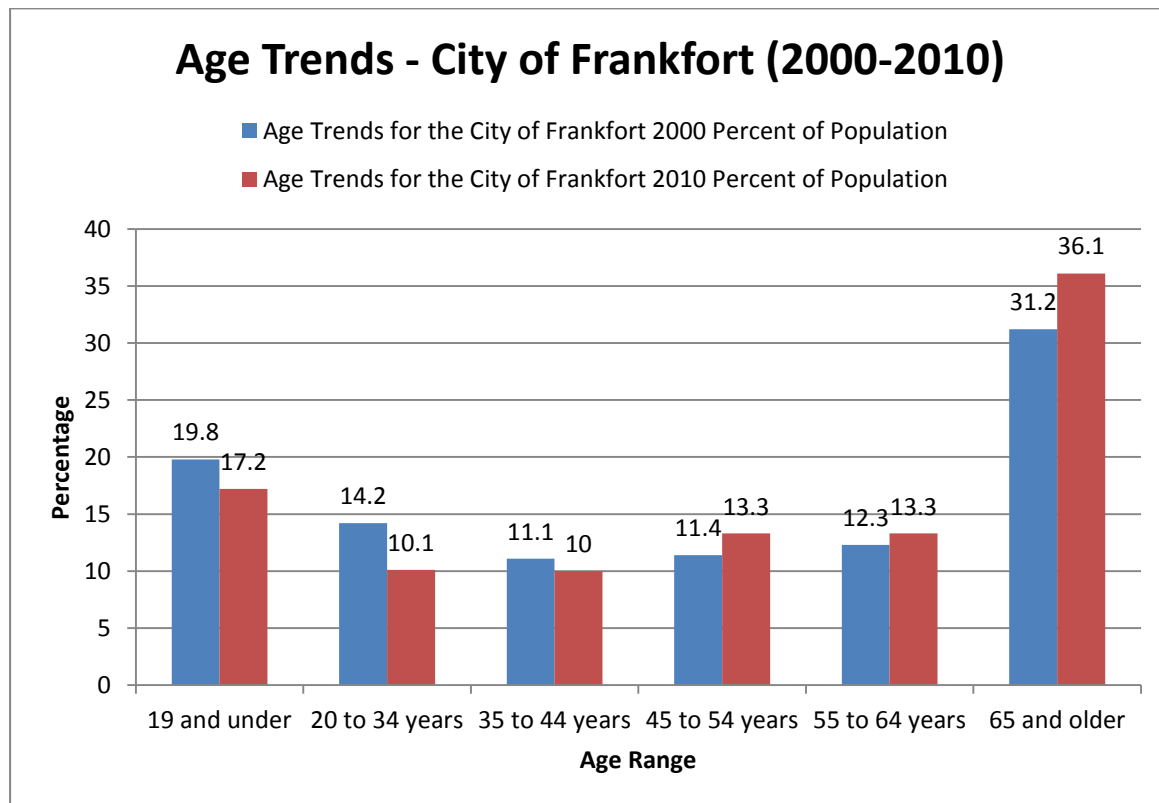


Figure 13: Source US Census Bureau

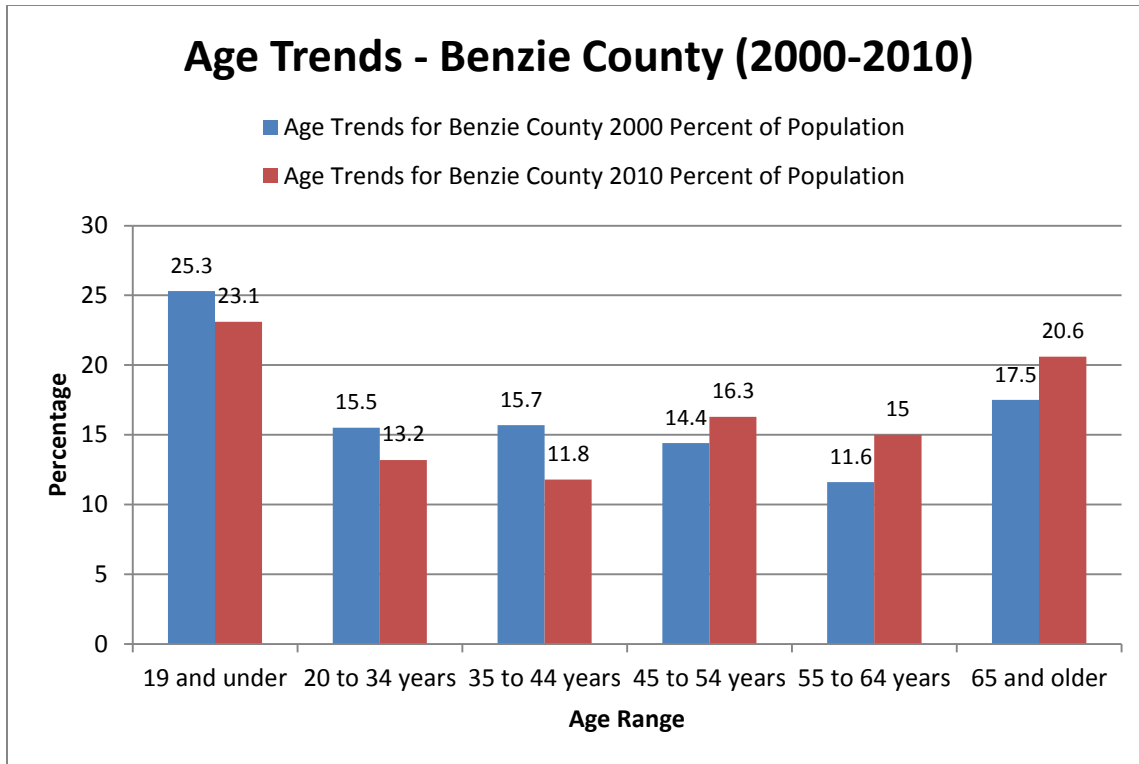


Figure 14: Source US Census Bureau

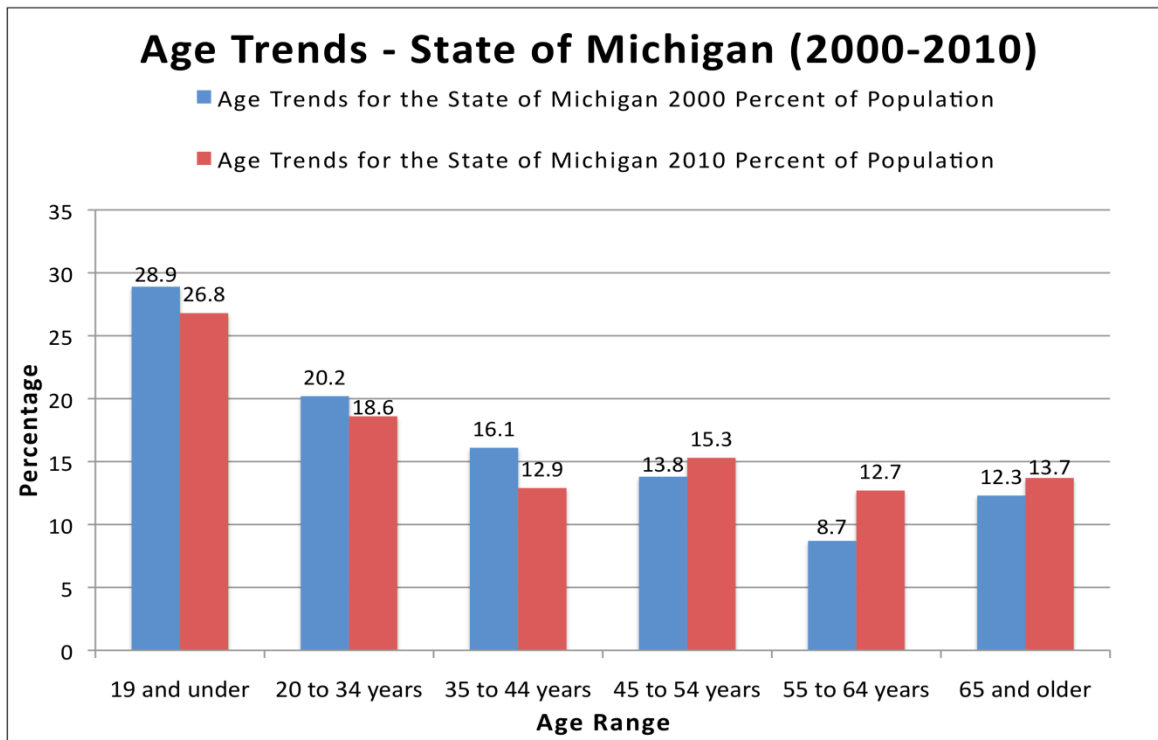


Figure 15: Source US Census Bureau

Race

As shown in Tables 1 and 2, the City of Frankfort, along with Benzie County, has a population composed mainly of residents who classify themselves as White. In Frankfort, 95% of the population, 1,228 people are classified as White with the other 5% divided almost equally among 4 other races (see Table 1). The next largest percentage of a race in Frankfort is only 2% for two or more races. The racial demographics for Frankfort are similar to those of Benzie County with a majority population of White residents and very few of the Asian, Black, Hispanic, or American Indian races. Benzie County is seeing a larger influx of racially diverse populations in comparison to the City of Frankfort.

Race	Frankfort Population 2000	Frankfort Population 2010	Change
Native Hawaiian and Pacific Islander	0	0	0
Other	4	9	+5
Asian	4	15	+11
Black or African American alone	11	19	+8
Hispanic	27	26	-1
American Indian and Alaska Native	44	31	-13
White	1,467	1,228	-239

Table 1: Source US Census Bureau

Race	Benzie County Population 2000	Benzie County Population 2010	Change
Native Hawaiian and Pacific Islander	2	5	+3
Asian	33	69	+36
Other	97	110	+13
Black or African American alone	68	129	+61
Hispanic	233	302	+69
American Indian and Alaska Native	391	387	-4
White	15,607	17,057	+1,450

Table 2: Source US Census Bureau

Business and Employment

Throughout Frankfort's history the prominent industries have changed and evolved from timber and fishing to service and business. The City of Frankfort is known for their multimillion-dollar charter fishing industry, illustrated by the high number of employees in the arts, entertainment, recreation, accommodation, and food services industries illustrated in Figures 15 and 16. Many occupations and business trends in Frankfort are driven by their popularity to tourists in the summer months. As shown in Appendix 1 the four main industries in Benzie County and more specifically Frankfort are business and retail, entertainment and accommodation, manufacturing, and real estate and finance. The most prevalent industries in Frankfort are similar in comparison to Benzie County. The majority of residents are employed in arts, entertainment, and recreation and educational services, health care, and social assistance for both Frankfort and Benzie County. Frankfort and Benzie County both saw decreases in their manufacturing, construction and wholesale trade between 2000 and 2010. Many industries in Frankfort and Benzie County saw growth from 2000 to 2010 such as finance, real estate, and rental and leasing, and arts, entertainment, recreation, accommodation, and food service. The following Figures, 16 and 17, show the trends of the percentage of employees in both Frankfort and Benzie County from 2000 to 2010.

Percentage of Employees in Frankfort Industries 2000 - 2010

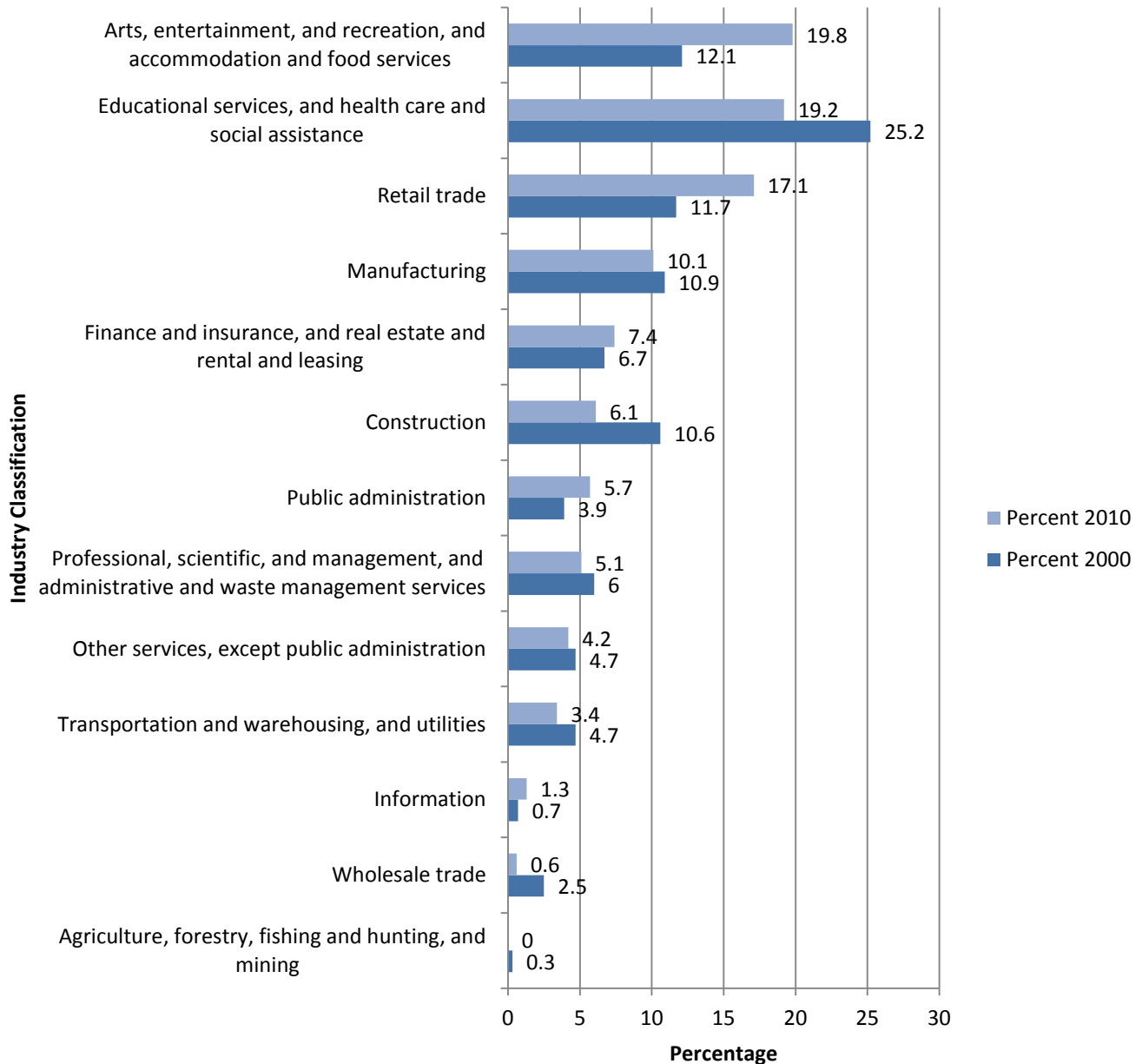


Figure 16: Source US Census Bureau

Figure 16 shows the percentage breakdown of the employees in each industry in Frankfort City and the trends from 2000 to 2010. Employees in the arts, entertainment, recreation, accommodation, and food services industries increased from 12% to 19% between 2000 and 2010, showing the largest increase in employees over the past decade (see Figure 16).

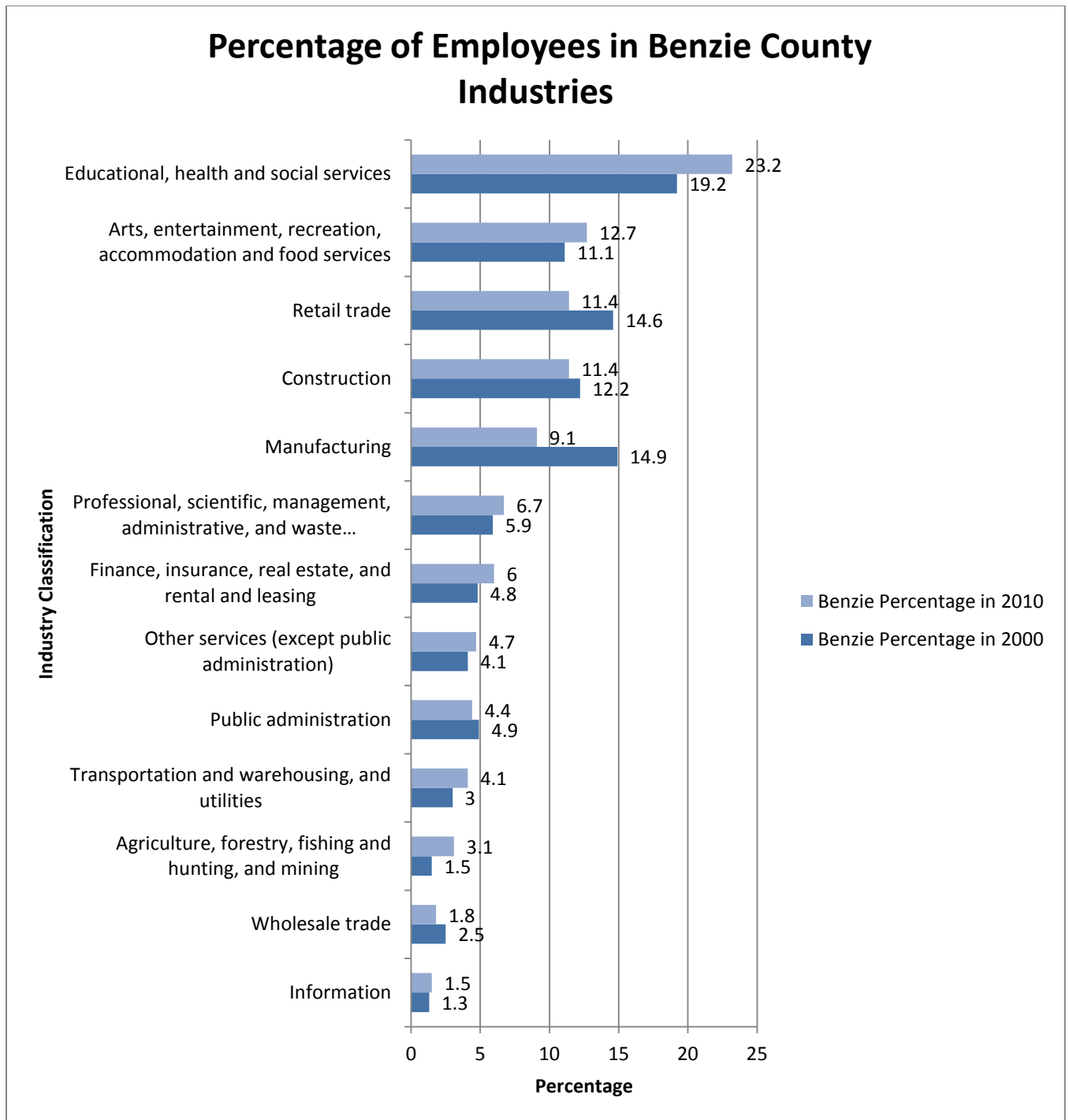


Figure 17: Source US Census Bureau

Figure 17 shows the employment trends amongst industries from 2000 to 2010 in Benzie County. In Figure 17 we observe an approximately 6% decrease in the percentage of employees in the manufacturing industry. The largest percentage of employees in Benzie County belongs to the educational, health services, and social assistance industry and saw an increase of 4% from 2000 to 2010. The smallest percentage of employees in Benzie County is the information industry (see Figure 17).

Arts, Entertainment, and Recreation

There are 104 employees who work with arts, entertainment, recreation, accommodation, and food service in Frankfort (*see Appendix 1.A*). Frankfort relies on accommodations and recreation in the summer to attract visitors to the City. As shown in Figure 17, accommodation and food services have the second highest percentage of employees in Benzie County with 12.7%. Both Frankfort and Benzie County saw increases in this industry from 2000 to 2010.

Educational Services, and Health and Social Services

Educational Services and Health and Social Services are the largest form of employment in Benzie County and the second largest in Frankfort as shown in Figure 16. While this industry saw a slight increase in Benzie County from 2000 to 2010, Frankfort has seen a large decrease in this industry in the past decade (*see Figure 16*).

Business and Retail

As we observe in Figure 16, business and Management compose the largest percentage of occupations in Frankfort at 28%. The Sales, Office, Service, and Business industries all benefit from the strong tourist spike, specifically in the summer months. However, a significant decline in business is prevalent at the end of the summer season. Retail is the third most common form of employment in Frankfort and Benzie County. Frankfort saw an increase in the number of residents working in retail from 2000 to 2010, while Benzie County had a slight decrease (*see Figure 17*). There are 76 retail establishments in the County, the largest number of establishments for any industry in the County.

Manufacturing

Manufacturing employs 53 residents of Frankfort as of 2010. As shown in Figure 16 manufacturing is the fourth largest source of employment in Frankfort. Benzie County is home to 18 manufacturing establishments. From 2000 to 2010 the number of residents working in manufacturing in Benzie County decreased while the number of residents working in manufacturing from Frankfort stayed very similar in number.

Finance, insurance, real estate, and rental and leasing

As shown in Figure 16, finance, insurance, real estate and rental and leasing are among the top five leading forms of employment in Frankfort. In 2010, 39 residents were employed in the finance, insurance, real estate, and rental and leasing industries. There are 44 finance, insurance, real estate, and rental and leasing establishments in Benzie County (*see Appendix 1.A*). As we observe in Figures 16 and 17 both Benzie County and Frankfort saw a slight increase in the number of residents working in this industry from 2000 to 2010.

Income

As shown in Figure 18 the most frequent income brackets for Frankfort are \$15,000 - \$24,999 and \$50,000 - \$74,999. The income statistics for Benzie County are comparable to those of the City of Frankfort with the majority of the population receiving an income of \$25,000 - \$74,999 (see Figures (18-19)). The City of Frankfort saw little change in the distribution of incomes from 2000 to 2010. The income bracket that saw the largest decrease in Frankfort is the \$35,000 - \$49,999 range while Benzie County saw little change in this bracket. As we observe in Table 3 the mean household income increased in both Frankfort and Benzie County between 2000 and 2010. The mean household income is about 4,000 dollars more in Benzie County as whole than Frankfort.

Location	Mean Household Income 2000 (dollars)	Mean Household Income 2010 (dollars)	Change
Frankfort	38,101	48,268	+10,167
Benzie County	42,234	56,068	+13,834
Michigan	57,926	59,772	+1,846

Table 3: Source US Census Bureau

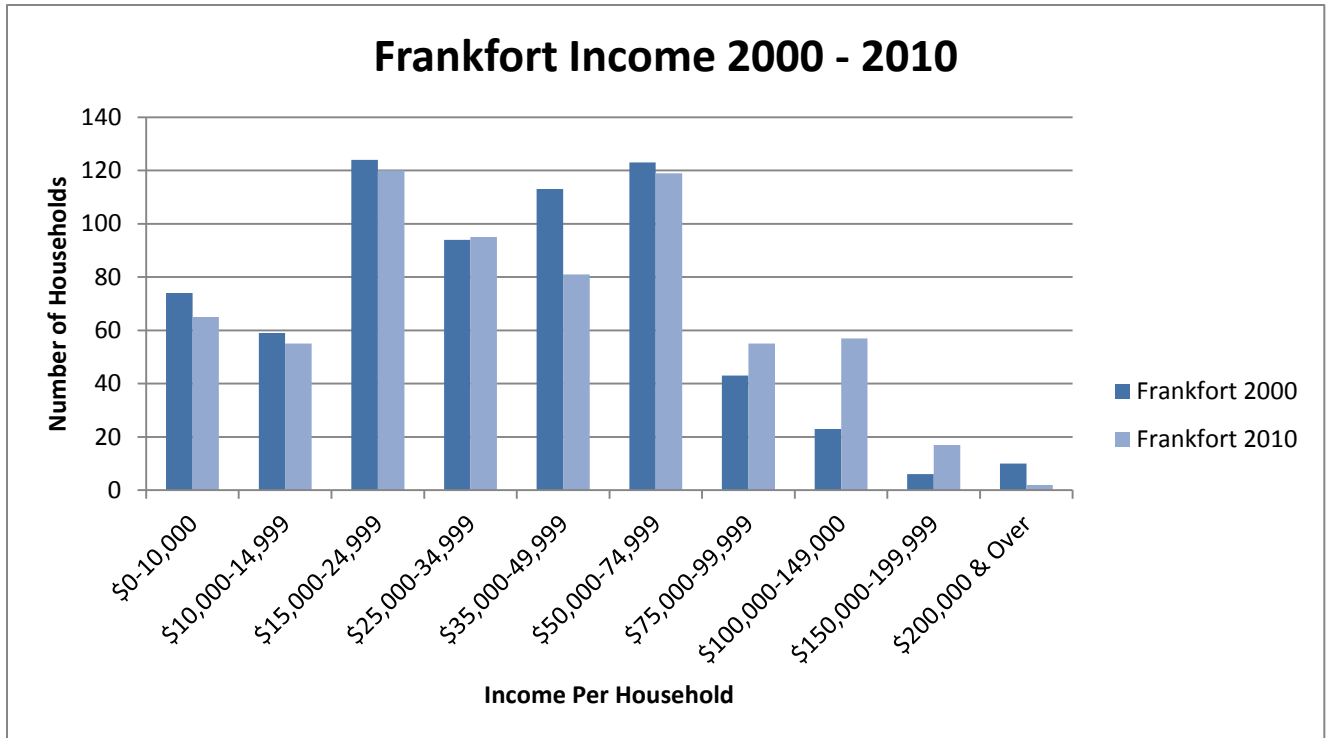


Figure 18: Source US Census Bureau

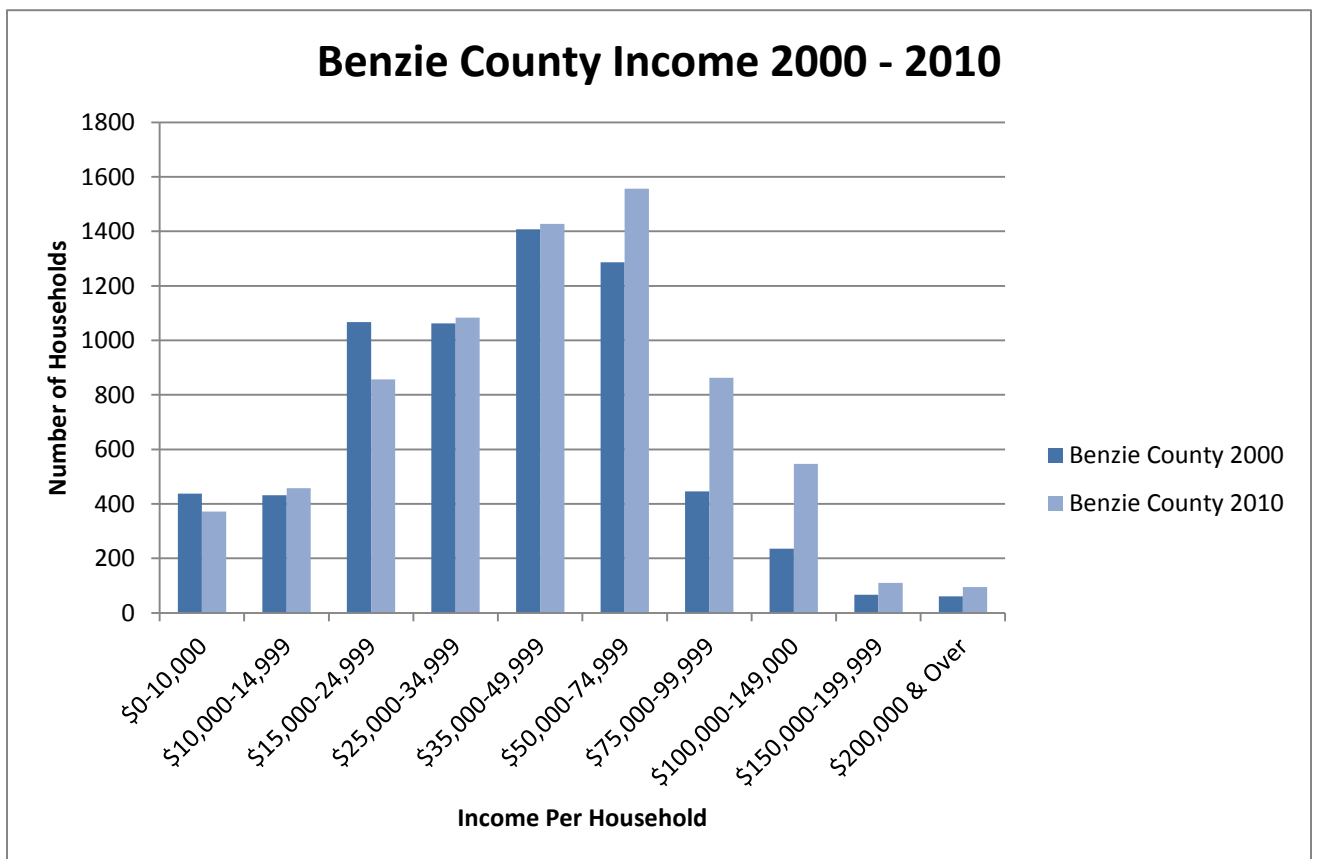


Figure 19: Source US Census Data

Housing

The sizable seasonal population of the City of Frankfort has resulted in a large percentage of the housing stock to be classified as vacant. As designated by the Census, a second home or vacation home is considered vacant. As we observe in Figure 18 these seasonal homes compose 24.1% of the current housing stock in Frankfort. Occupied housing composes the majority, 63.8% of the homes in Frankfort (*see Figure 18*). There are very few homes that sit unused or unsold as shown in Figure 19. The seasonal homes accommodate large increases in the population of Frankfort during the summer months.

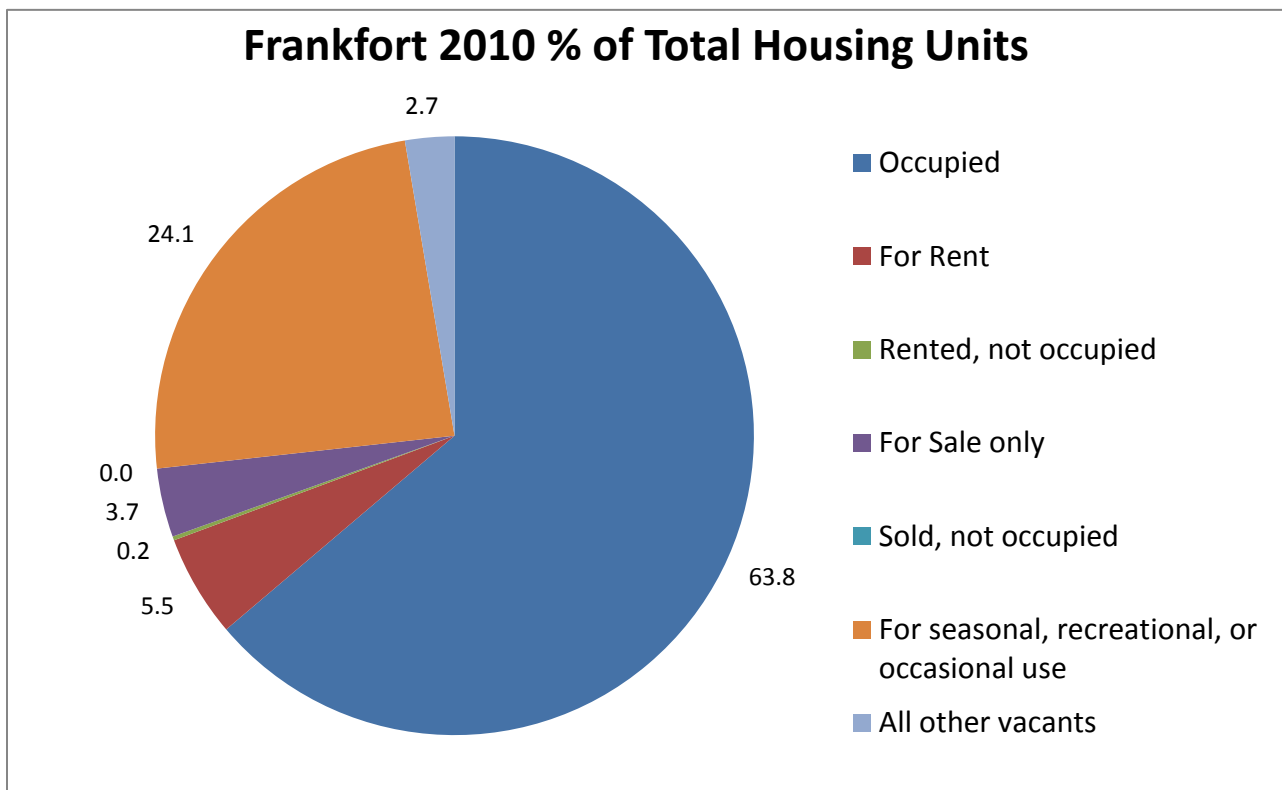


Figure 20: Source US Census Bureau

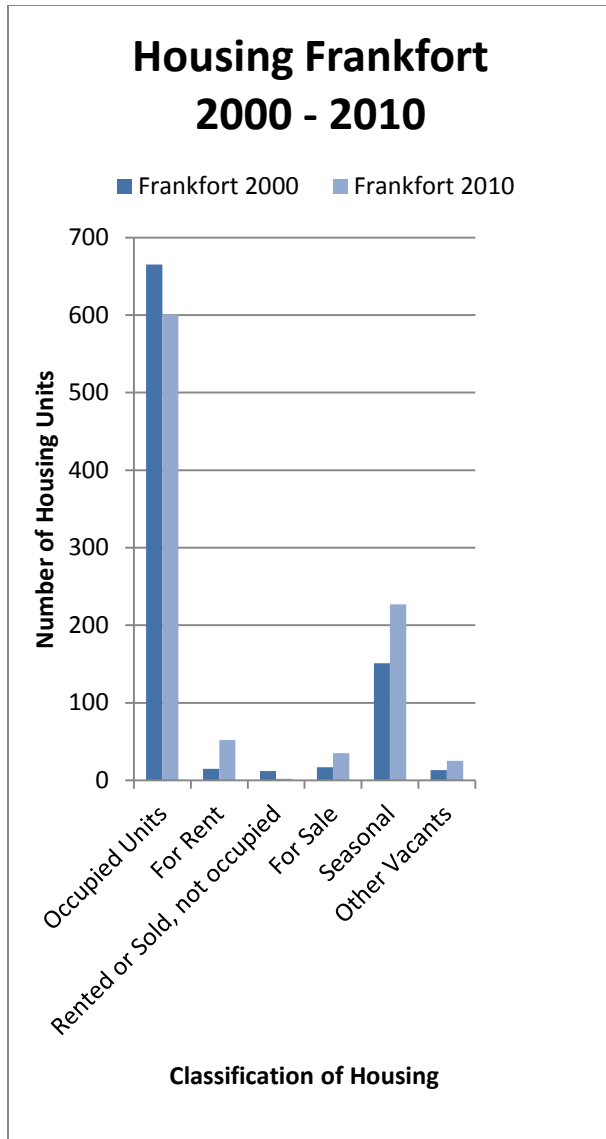


Figure 21: Source US Census Bureau

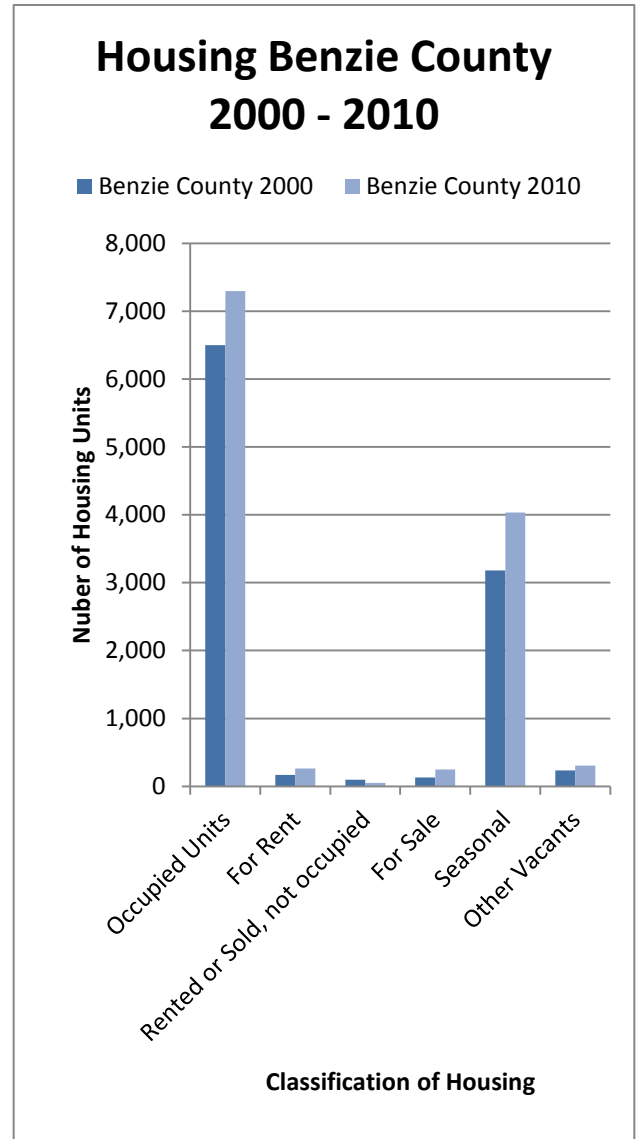


Figure 22: Source US Census Bureau

Both Figures 21 and 22 show the changes from 2000 to 2010 in the number of housing units in Frankfort and Benzie County as a whole. As we observe in Figure 22 the number of year round occupied units increased over the last decade in Benzie County; however, in Figure 21 we observe that the number of occupied units decreased in Frankfort over the last decade. Both Frankfort and Benzie County saw an increase in seasonal housing units between 2000 and 2010 (see Figures 21-22). Figures 21 and 22 show that both the City of Frankfort and Benzie County have experienced a decrease in the number of housing units rented or sold, but not occupied from 2000 to 2010. Although the population of Frankfort has decreased throughout the past 20 years, the total number of housing units has increased.

Surrounding Business Inventory

This section shows the existing land uses and composition of local businesses.

Land Use

Approximately 49% of land uses within the City of Frankfort are residential, 26% percent are non-residential (commercial, industrial, civil/institutional, parks and recreation, health facilities, and mixed use) and 25% are vacant/undeveloped. Table 4 illustrates the individual distribution of land uses.

Land Use	Percent of Total Land Uses
Single Family Detached	42%
Single Family Attached	5%
Two Family	0%
Multiple Family Attached	1%
Mobile Home Park	0%
Commercial	6%
Industrial	3%
Civic/Institutional	8%
Parks and Recreation	7%
Mixed Use	0%
Vacant/Undeveloped	25%
Health Facilities	2%

Table 4: Source- City of Frankfort Master Plan 2009

Figure 23 shows the land uses in 2009 and their distribution. The commercial land uses are concentrated along Main Street and with the residential land uses off of the main corridor. The majority of Frankfort's land is used for Single Family Detached residential units as seen in Figure 23.

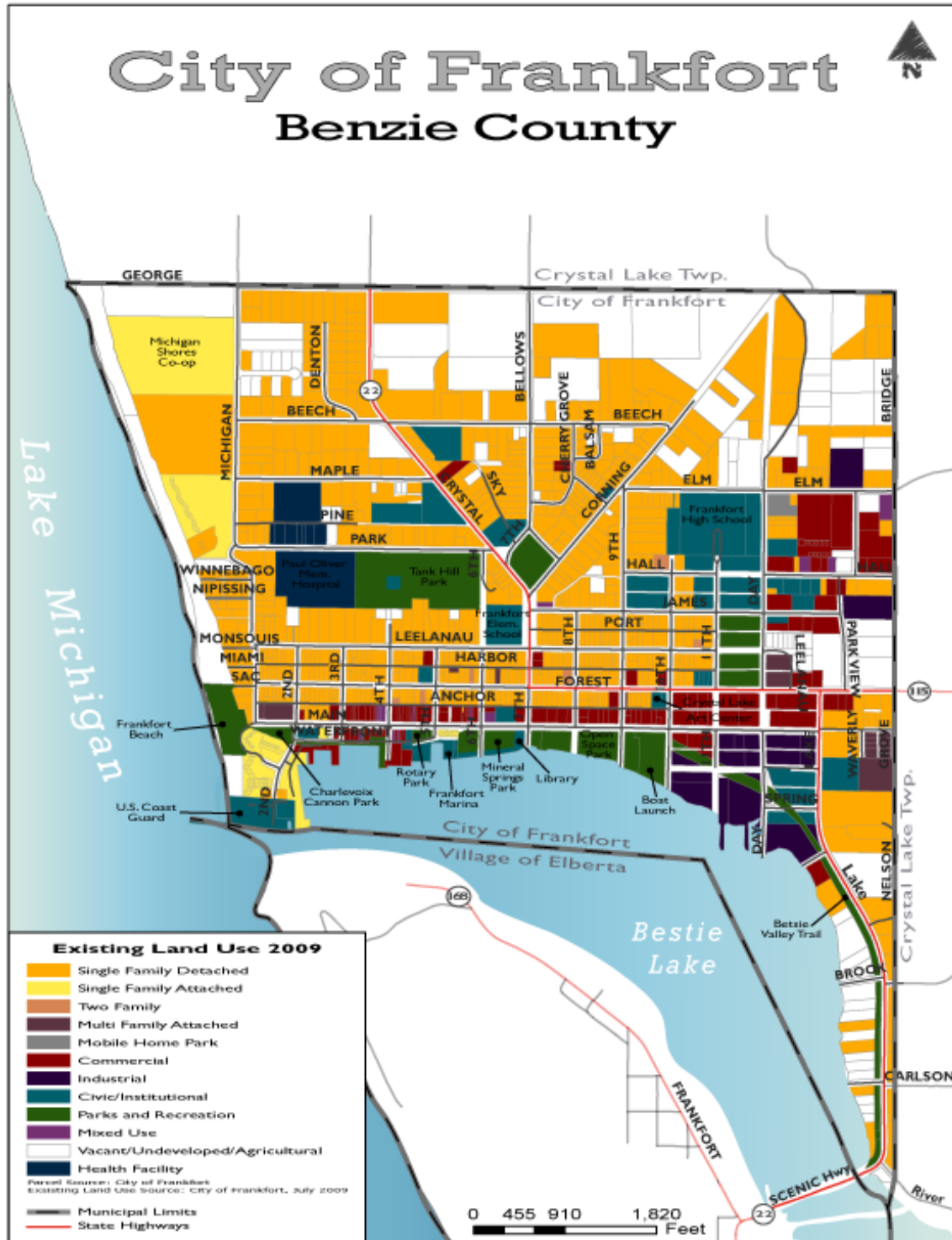


Figure 23: Existing Land Use Map 2009

Commercial Activity

The primary commercial district for the City of Frankfort is located along Main Street. Frankfort is a seasonal community, which is reflected in their local businesses, many of which operate seasonally or on the weekends during the off-season. The MSU Practicum Team took an inventory of businesses in the City of Frankfort's main commercial district to further understand the extent of seasonality among local businesses. The list was then matched with data collected from Frankfort's City Supervisor Joshua Mills to determine business seasonality. Figure 24 below details the distribution of seasonal, non-seasonal, and weekend only businesses. Of the 49 businesses surveyed, 14, or 28.6% were seasonal or weekend only.



Figure 24: City of Frankfort Seasonal Businesses 2013

Tourism

This section shows 2009-2011 visitor trends and patterns to Frankfort, Benzie County, and Northwest Michigan. The data used in this section combines two studies; one collected by the Michigan Economic Development Corporation (MEDC) and the other by D.K. Shifflet and Associates Ltd. The raw data from the MEDC shows the number of leisure and business visitors to Benzie County for 2009, 2010, and 2011 (see Figure 25) as well as the total number of visitors to Benzie County between 2009 and 2010 (see Figure 26). D.K. Shifflet and Associates Ltd underwent an extensive study outlining spending and travel patterns for Michigan visitors. The Consultants used an advanced travel tracking system that has been used throughout the United States, PERFORMANCE/Monitor - Travel Intelligence System. The Michigan Visitor Profile was created as a result of the travel tracking system. The Visitor Profile allows diverse regions of the State to determine visitor trends and needs.

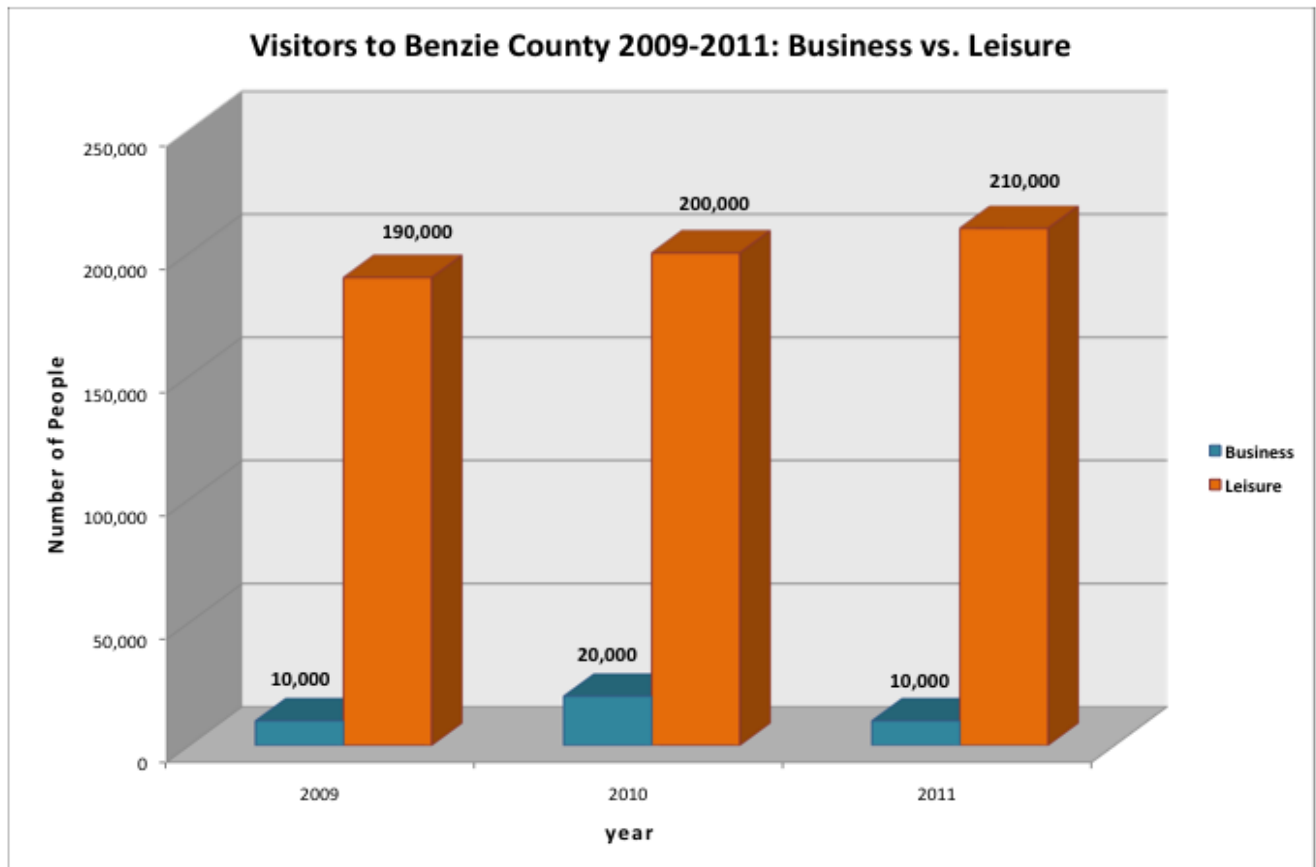


Figure 3: Source Michigan Economic Development Corporation 2009-2011

As shown in Figure 26, the number of visitors to Benzie County has been steadily increasing since 2009. In 2011, 210,000 people visited Benzie County. As we observe in Figure 26 the majority of visitors to the region travel for leisure rather than for business. In 2010, the County saw a 10,000 visitor increase for business purposes but in 2011 the visitor number returned to 10,000 visitors (*see Figure 26*). As we observe in Figure 26 the number of visitors to Benzie County has fluctuated from 2009 to 2011. Between 2009 and 2010 Benzie County saw a steep and rapid increase in the number of visitors to the County; however, since 2010 the number of visitors has stabilized.

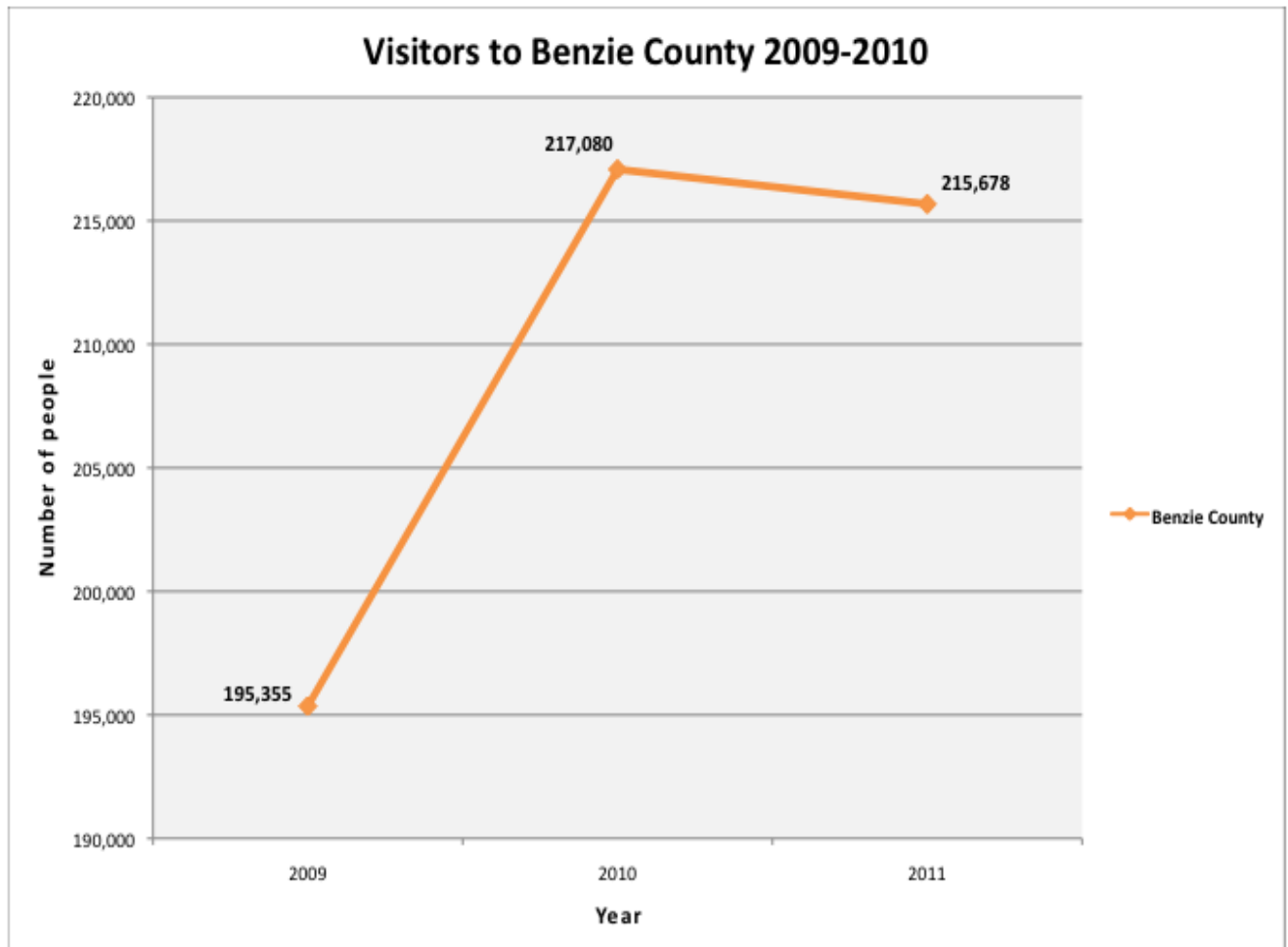


Figure 26: Source Michigan Economic Development Corporation

Visitor Profile

The 2009 Michigan Visitor Profile shows travel trends within the state of Michigan in five regions consisting of Southeast, Northwest, Southwest, Northeast, and the Upper Peninsula. Frankfort is located in the Northwest Region, which encompasses Antrim, Benzie, Charlevoix, Emmet, Grand Traverse, Kalkaska, Leelanau, Manistee, Missaukee, and Wexford Counties. Upon analyzing the Northwest region, general traveling trends for Frankfort can be estimated. These trends show a multitude of information towards seasonal tourism, traffic flow, housing, parking, and overall visitor demographics. The report acknowledges that on average, 2.72 people travel together for trips of leisure in Northwest Michigan. Visitors travel to Northwest Michigan primarily for leisure. Leisure days can be broken down into five sub categories; getaway weekends, general vacation, special events, other personal days, and visits to friends and relatives (see Table 5).

Leisure Days in Northwest Michigan	Percentage of Visitors
Getaway	28
General Vacation	22
Special Events	10
Personal Days	11
Visit Family and Friends	29

Table 5: Source 2009 Michigan Visitor Profile

Travel party composition is unique to different regions of the State. In order to determine an estimate of the number of vehicles traveling to Frankfort it is necessary to examine the total population of visitors coming to the region by traveling party size. Table 6 illustrates the different categories of travel parties, showing that the largest percentage of visitors include the presence of children. The duration of the visitor's stay is also a varying factor across the State. As shown in Table 7, in Northwest Michigan, the majority of visitors travel for a day trip.

Travel Party Composition	Percentage
One Adult	18
Couples	35
Two males/Two Females	4
Three or more adults	5
Presence of Children	37

Table 6: Source 2009 Michigan Visitor Profile

Classification of Trip	Percentage
Daytrip	55
One Night	15
Two or Three Nights	23
Four to Seven Nights	6
Over Eight Nights	1

Table 7: Source 2009 Michigan

The main mode of transportation to Northwest Michigan is by automobile at 85%, followed by other (buses, trains... etc.) with 13%, and a slim 2% by air travel. The report shows that July and August each have 15% of the visitors. The months with the lowest number of trips taken include January, February, and March tied at 5% each. Many of the visitors to Northwest Michigan do not own homes in the region in which they are visiting, as hotels and other paid stays count for 60% of visitor's lodging (see Table 8).

Lodging	Percentage of Visitors
Hotels	40
Other Paid Stays (bed and breakfast, etc.)	20
Private Homes	31
Other	10

Table 8: Source 2009 Michigan Visitor Profile

Visitors that travel and stay for longer than a day trip have a variety of options for lodging in Northwest Michigan. Table 8 shows that 40% of visitors to the region choose hotels as their form of overnight lodging. The report displays a map consisting of traveler origin. As we observe in Table 8 the majority of travelers to Northwest Michigan come from the State of Michigan at 61.1%. 80% of visitors are travelling short distances from adjacent states. Of the instate travelers, 24% come from Grand Rapids or Battle Creek, 20.5% come from Traverse City or Cadillac, and 15.8% from Detroit. The Visitor Profile goes further to examine the distance traveled by visitors to the region. As shown in Table 10 the greatest percentage of visitors, 34%, travel between 201 and 300 miles.

State of Origin to Travel to NW Michigan	Percentage of Visitors
Michigan	61.1
Illinois	6
Ohio	5.2
Indiana	4
Florida	3
Wisconsin	1.8
Georgia	1.6
Tennessee	1.5
California	1.4
New York	1.2

Table 9: Source 2009 Michigan Visitor Profile

Distance Traveled (one way)	Percentage
< 100 miles	31
101 – 200 miles	17
201 – 300 miles	34
301 – 500 miles	7
> 501 miles	11

Table 10: Source 2009 Michigan Visitor Profile

Evaluating tourism in Benzie County demonstrates the traveling trends that correspond to what kind of trips people are inclined to take to Benzie County. Figure 26 shows a steep increase of 20,000 people visiting Benzie County from 2009 to 2010, using Figure 25 and the same time period we are able to see that this number is derived from a 10,000 person increase to business trips as well as 10,000 person increase for leisure trips. Both categories of travel were raised but business trips doubled whereas leisure trips only grew by about five percent. On average Benzie County is responsible for just over 200,000 people per year including all categories of trip. While using this information as well as the Visitor Profile that consists of travel party composition, lodging type, distance traveled, and length of stay we can generalize trends towards Frankfort. Using these trends we are able to come up with an estimated number of visitors to Frankfort as seen in Table 11.

Table 11 is a beach parking demand estimate for the City of Frankfort. The parking estimate was created to assess parking demand during Frankfort’s peak tourism season by gauging the number of vehicles per day to the City. It is important to study this in order to evaluate the adequacy of current parking conditions and explore opportunities for increasing parking

availability by expanding the range of solutions considered, such as utilizing school parking lots that are vacant during the summer months.

The information used to estimate a peak parking demand range for Frankfort Beach and Father Charlevoix “Cannon” Park was taken from the 2011 Visitor County Profiles from the Michigan Economic Development Corporation and the 2009 Visitor Profile for Michigan prepared by D.K. Shifflet Associates, Ltd. The estimate excludes permanent and seasonal residents of the City of Frankfort and Benzie County due to lack of data (See Appendix 2.A).

Estimate of Visitors to Frankfort	
2011 Visitors to Frankfort	210,000
Season	Percent of Visitors
Spring	13
Summer	48
Visitors Based on Season	
Number of Visitors to Frankfort Per Week During Seasonal Peak	
7,754	
Number of Visitors to Frankfort Per Week During Seasonal Low	
1,638	
Days of the Week	Percent of Visitors
Mon-Thurs (Weekday)	25%
Sat-Sun (Weekend)	75%
New Number of Visitors to Frankfort Per Day During Peak Days of the Week	
1,938.5	
New Number of Visitors to Frankfort Per Day Based on Day of Week Low	
102.4	
Average Riders Per car	
3	
Estimated Peak Parking Demand Range for Visitors to Frankfort	
34 cars per day during the off-season for visitor travel	
646 cars per day during the peak season for visitor travel	

Table 11: Source 2009 Michigan County Profile - Practicum Team Analysis and Estimation

Restroom Facility Regulations for Recreational Locations

There is currently one toilet, outhouse facility located at Lake Michigan Beach. The facility is located at the turn around parking lot on the South end of the Beach. There is one toilet located in the male and female sections at the facility and no running water. The American Restroom Association (ARA) published regulation on toilet facilities for outdoor toilet facilities availability. This section provides the regulations and recommendations set forth by the ARA, and analyzes the current state of the toilet facility in comparison to the regulations.

The recommendations published by the ARA suggest that there should be 1 toilet for every 300 people if there is a typical distribution of men, women, and children within 500 meters (0.3 miles). Based on the estimated visitor population to the beach during the peak season there can be greater than 2,000 people at the beach on a given day when including the resident population that may visit Lake Michigan Beach. As shown in Table 12 There should 4 toilets and 8 urinals for males and 12 toilets for women would be recommended on a peak day during the summer months. Currently the number of toilets with the 500 meters does not meet the suggested number from the ARA.

Patrons	Males			Females	
	Toilets	Urinals	Sinks	Toilets	Sinks
<500	1	2	2	6	2
<1000	2	4	4	9	4
<2000	4	8	6	12	6
<3000	6	15	10	18	10
<5000	8	25	17	30	17

Table 12: ARA Restroom Recommendations

Site Analysis



Figure 27: City of Frankfort Roads and Trails

The Beach Infrastructure Plan focuses on two historically, culturally, and economically relevant properties in Frankfort: The Lake Michigan Beach Park and Father Charlevoix “Cannon” Park. The Site Analysis section focuses on current park conditions as well as emphasizing areas for improvement throughout Lake Michigan Beach and Father Charlevoix “Cannon” Parks.

Current State- Father Charlevoix “Cannon” Park

Father Charlevoix “Cannon” Park is a 38, 090 square foot park that lies directly to the west of Frankfort’s downtown and its borders begin on the southwest corner of the intersection of 2nd Street and Main Street (*see Figure 28*). The Park eases the transition from Frankfort’s Downtown area to Lake Michigan Beach.



Figure 28: Father Charlevoix "Cannon" Park Aerial View - Source Google Maps

Amenities/Topography- Father Charlevoix "Cannon" Park

The park is equipped with benches, picnic tables, two bike racks, and two charcoal grills. There are a number of maple and spruce trees dispersed throughout the park, which in the summer creates shaded areas for residents and tourists alike to enjoy a picnic or view of the beach. Father Charlevoix "Cannon" Park gets the nickname Cannon Park due to the Civil War era cannon that is placed in the west end of the park pointing out over Lake Michigan. The cannon was brought to Frankfort in the late 1800's from Fort Pitt, in Pennsylvania by way of the Ann Arbor Railroad and is said to look over and protect the harbor. A rendering of Father Charlevoix "Cannon" Park is represented in Figure 29.



Figure 29: Father Charlevoix "Cannon" Park - Source MSU Practicum Team

Betsie Valley Trail System

The 22 mile long Betsie Valley Trail comes to an end of beginning in Father Charlevoix “Cannon” Park. The bike path runs parallel with Main Street and extends through the south side of Father Charlevoix “Cannon” Park. The bike path connects Waterfront Drive (to the east) with the entrance to the Lake Michigan Beach Parking lot (to the west). As shown in Figure 30 the Betsie Valley Trail runs throughout the Frankfort, Benzonia, Beulah region.



Figure 30: Betsie Valley Trail System - Source <http://www.betsievalleytrail.org>

Parking- Father Charlevoix “Cannon” Park

There are currently seven angled parking spaces just to the west of Father Charlevoix “Cannon” Park, spaces are up against a “Forever in Frankfort” colored tile wall forming a wave design. Citizens and visitors can make a donation to have their names engraved on a blue, green, or tan tile to become part of the street art. In addition to the angled parking at Father Charlevoix “Cannon” Park, 23 parallel parking spaces are available on either side of Main Street. Figure 35 highlights the available parking spaces in red in the immediate vicinity of Father Charlevoix “Cannon” Park.



Figure 35: Father Charlevoix "Cannon" Park - Source Google Maps and MSU Practicum Team

The seven available parking spaces on the west side of Father Charlevoix “Cannon” Park are located directly in front of the “Forever in Frankfort” tiled art wall. These are prime parking spaces for summer beachgoers and their location in front of the “Forever in Frankfort” art wall completely obstructs the view of this street art for both residents and visitors. Figure 36 shows the “Forever in Frankfort” wall.

Signage

Prominent signage currently present in Father Charlevoix "Cannon" Park includes the City of Frankfort municipal site marker (see Figure 31) along with a Harbor Lights Resort sign (see Figure 32). There is also signage encouraging dog walkers to clean up after their pets when walking in the park and throughout the city.



Figure 31: Father Charlevoix "Cannon" Park Municipal Sign - Source MSU Practicum Team



Figure 32: Harbor Lights Resort Sign - Source MSU Practicum Team

Areas for Improvement - Father Charlevoix “Cannon” Park

Cannon

As shown in Figure 33 there is currently a lack of signage or information to inform visitors about the history of the Cannon in the park. Currently little is being done to draw attention to the cannon that gives Father Charlevoix “Cannon” Park its nickname. The current lack of landscaping and design around the cannon make it simply a part of the park instead of the focal point.



Figure 33: Cannon in Father Charlevoix "Cannon" Park - Source MSU Practicum Team

Sidewalk Discontinuation

As shown in Figure 34 the sidewalk along Main Street abruptly ends upon entering Father Charlevoix "Cannon" Park, even though a crosswalk exists. The lack of a sidewalk through Father Charlevoix "Cannon" Park has the potential to be a hindrance safety hazard to pedestrian flow to both the park and Lake Michigan Beach, as well as an inconvenience to handicapped individuals who wish to gain access to the park and beyond. The orange box along the north end of the Park in Figure 34 illustrates where the sidewalk should extend and continue.



Figure 34: Father Charlevoix "Cannon" Park - Source Google Maps and MSU Practicum Team



Figure 36: Forever in Frankfort wall - Source MSU Practicum Team

Signage

The current placement of the Father Charlevoix “Cannon” Park sign does not face oncoming traffic from Main Street. The sign is located on the park’s north end and is directly perpendicular to the traffic flow. Upon approaching Father Charlevoix “Cannon” Park, vehicles driving west on Main Street encounter a Harbor Lights Resort sign facing in their direction. These vehicles do not come across the Father Charlevoix “Cannon” Park sign until they have already driven by half of the park.

Although the Betsie Valley Trail System begins (or ends) at the bike path that runs through Father Charlevoix “Cannon” Park, a trailhead marker and map are not displayed. The lack of interpretive and historical signage around the cannon leads to many questions from both tourists and Frankfort residents alike as to what the story is behind the park’s namesake.

Current State- Lake Michigan Beach Park

The 200,000 square foot portion of beachfront owned and operated by the City of Frankfort is known as Lake Michigan Beach Park and is located directly to the west of Father Charlevoix “Cannon” Park. The pristine beach conditions and nearby sand dunes make this beach a top tourist destination in the summer months, especially on the Fourth of July, when according to city officials, close to ten thousand people visit the beach. Figure 37 highlights in red the beach area.



Figure 37: Aerial View of Lake Michigan Beach and Betsie Bay – Source Anderson Aerial Photography

Recreational Amenities

The Frankfort Pier offers great fishing and outstanding views of both Frankfort and Lake Michigan. Figure 42 shows the locations of the different recreational amenities located on the Lake Michigan Beach. There are two beach volleyball courts shown in purple in between the sidewalk that extends to the pier from Sac street and the larger of the two dunes. The beach also features playground equipment including a swing set and slide to the northwest of the Sac Street Entrance. The large waves from Lake Michigan also prove to be a recreational amenity as surfing has become increasingly popular throughout the great lakes. Other water sports including jet skiing, waterskiing, wakeboarding, windsurfing, kite boarding, paddle boarding, and skim boarding are common activities among beachgoers. Lake Michigan Beach Park is also a dog-friendly beach, with dogs permitted on leashes in the park and able to run free on the beach to the north. Figure 42 also shows the current restroom location at the southern end of the Lake Michigan Beach parking lot. The restroom facility is the only public bathroom for the entire 200,000 square foot Lake Michigan Beach Park.



Figure 42: Recreational Amenities Lake Michigan Beach - Source Google Maps and MSU Practicum Team

Topography

With large, towering sand dunes to the north, Lake Michigan Beach Park is not without its own dunes, though at a much smaller scale. Two dunes covered in dune grass are located on the

beach. The larger of the two dunes is located to the northwest of the main parking lot and the smaller of the two is located directly to the west of the parking lot. The beach is also graded every year to help evenly disperse sand build up from heavy winds during the winter months.

Parking/Entrances

The primary parking complex for the beach is a 47 space drive-through lot that is located in the southeastern section of the park (see Figure 38). The entrance to the parking lot connects with and is directly west of Main Street. Main Street then turns into Father Marquette Drive, which then curves around and merges with 2nd Street to form a loop. There are seven perpendicular parking spaces immediately to the right upon entering the lot from Main Street, four of which are handicapped. Traffic can then gain access to 37 additional perpendicular parking spaces that are separated from Father Marquette Drive by a curb. As Father Marquette Drive curves back to the east, the curb provides three parallel parking spaces. The loop-like design of the parking facility creates the ability for citizens and visitors to drive through the lot for taking in sunsets and weather watching, something especially exclusive to the Frankfort experience. A cinder block restroom facility is located to the south of the parking lot. The lot is bordered by a three foot sand retaining wall. There is a handicapped accessible entrance to the beach that is located directly in front of the four handicapped parking spaces. The handicap accessible entrance connects to a concrete sidewalk on the beach that runs parallel with the shoreline until it links with another concrete sidewalk that runs north south. The sidewalk that runs north south connects the Frankfort Pier with the Sac Street entrance to the beach. The Sac Street entrance is two blocks north of the Main Street entrance to the beach and far smaller than the Main Street entrance. Sac Street is a small, one block residential street that extends west of Michigan Avenue. There is very limited parking and a bike rack. The Sac Street entrance mainly serves as a walkable neighborhood access point to the beach. The final and least utilized entrance to Lake Michigan Beach Park is located north of the Sac Street entrance at Nipissing Street, where a small staircase exists. The Miami Street entrance, like Sac Street, is a small walkable neighborhood entrance to the beach.



Figure 38: Source Google Maps and MSU Practicum Team

Signage

Lake Michigan Beach is outfitted with a variety of water and pier safety signage. As shown in Figure 39 Frankfort Pier safety signage appears on the concrete sidewalk approaching the pier and includes pier safety guidelines, information about lifesaving devices, emergency call phones, and a memorial dedicated to a drowning victim with water safety educational program information. Other signage includes a large, yellow sign displaying “Proceed at Your Own Risk” as well as seasonal rip tide signage and warning flags shown in Figures 40 and 41.



Figure 4: Lake Michigan Beach Safety Sign - Source MSU Practicum Team



Figure 40: Lake Michigan Beach Safety Sign - Source MSU Practicum Team



Figure 41: Lake Michigan Beach Safety Sign - Source MSU Practicum Team

Areas for Improvement - Lake Michigan Beach

Parking

There are currently only 54 parking spaces available in the immediate vicinity of Lake Michigan Beach and Father Charlevoix “Cannon” Parks (77 spaces when including parallel street parking). Of the 54 parking spaces, 47 of them are located in the Lake Michigan Beach parking lot with the remaining seven spaces located on the west end of Father Charlevoix “Cannon” Park. While street parking exists surrounding the area, the user demand for both Lake Michigan Beach and Father Charlevoix “Cannon” Parks may require additional parking opportunities at peak times in the year.



Figure 43: Lake Michigan Beach Entrances - Source Google Maps and MSU Practicum Team

Entrances/Pedestrian Flow

The main entrance to Frankfort’s Lake Michigan Beach is the parking facility located in the southeastern most section of the park shown in Figure 43. There is a restroom facility located to the south of the Lake Michigan Beach parking lot. The positioning of a restroom facility to the south of the parking lot along with the beach to the north of the lot causes increased

pedestrian interaction with traffic when beachgoers travel to and from the restrooms. The Sac Street Entrance to the north of the Lake Michigan Beach parking lot appears to be a less utilized neighborhood entrance to the beach. Like Sac Street, the Miami Street entrance is a less accessible neighborhood entrance to the beach.

Signage

There is safety signage throughout Lake Michigan Beach Park, with messaging that stresses pier and water safety found in various locations throughout the beach. The current signage is not displayed in a consistent fashion, with signs formatted in different styles and colors. The current pier and water safety signage could be consolidated, formatted, and presented in a consistent way that would better serve beachgoers and public safety. Lake Michigan Beach Park also lacks signage adequately marking the Sac Street and Nipissing entrances. There is also the potential for historical signage to be displayed throughout the park.

Sand Containment

Strong gusts of wind and storms throughout the fall and winter months cause a major sand containment issue for Lake Michigan Beach Park. The beach's parking lot is outfitted with a three-foot retaining wall around its perimeter with barricaded entrances and snow fences for sand containment in the fall and winter months. Dune grass has also been strategically placed on the dunes near the parking lot in attempt to resist sand encroachment. However, these measures have not been enough to keep sand from the beach to build up, engulf the wall, and invade the Lake Michigan Beach Parking lot and beyond into Father Charlevoix "Cannon" Park and the City of Frankfort.

Strength, Weakness, Opportunity, and Threat Analysis

The following analysis is an assessment of the strengths, weaknesses, opportunities, and threats (SWOT) for Lake Michigan Beach and Father Charlevoix “Cannon” Park. The SWOT analysis was conducted by the MSU Practicum Team at a meeting with 23 members of the community in Frankfort on February 16, 2013 at City Hall. The information presented in the section is representative of the thoughts, ideas, and concerns of the residents of Frankfort.

Strengths

The following elements were identified as positives for Lake Michigan Beach Park and Father Charlevoix “Cannon” Park.

- Lake Michigan Beach is highly utilized and but is not overcrowded
- The Lake Michigan Beach has clean water for swimming and recreational water sports.
- Both Father Charlevoix “Cannon” Park and Lake Michigan Beach are within close and walkable proximity to the downtown Main Street.
- Both Father Charlevoix “Cannon” Park and Lake Michigan Beach provide a connection to the Lake Michigan.
- Lake Michigan Beach and the City of Frankfort attract large volumes of tourists primarily in the summer months.
- The region has strong natural beauty.
- There are a variety of recreational amenities offered in Frankfort and the surrounding communities.
- There has been improved parking and accessibility to Lake Michigan Beach for both pedestrians and motorized visitors.

Weaknesses

The following elements were identified as weaknesses or negatives for Lake Michigan Beach Park and Father Charlevoix “Cannon” Park.

- There are not enough flushing toilets within close proximity to either Father Charlevoix “Cannon” Park or Lake Michigan Beach
- The cleanliness and placement of the toilet facilities are a deterrent from bathroom use.
- There is not a lifeguard on duty or a designated swim area at Lake Michigan Beach, posing possible safety issues.
- The sidewalk that connects the downtown to Lake Michigan Beach ends before Father Charlevoix “Cannon” Park and does not continue creating a safety hazard for pedestrian and other non-motorized traffic.
- The flow of vehicles and pedestrians is often congested and unsafe.
- There is a lack of bicycle and vehicle parking availability.
- There is a lack of signage and enforcement of the signage in regards to speed, noise, and parking.

- There is a lack of designated RV parking in close proximity to Lake Michigan Beach.

Opportunities

The following elements were identified as opportunities or possible alterations for Lake Michigan Beach Park and Father Charlevoix “Cannon” Park.

- The placement of a new trailhead pavilion including restrooms and concessions.
- Installation of rinse stations for visitors to Lake Michigan Beach.
- Creating clear and designated crosswalks to improve pedestrian safety.
- Adding recycling and waste receptacles to eliminate littering and receptacle overflow at the parks.
- Redefining the utilization of Father Charlevoix “Cannon” Park.
- Use the High School as a location for parking and incorporating a shuttle or trolley service to the two parks.
- Create a creative and out of the box community vision for progress.
- New location and accessibility for restroom facilities.
- Concessions or a restaurant on Lake Michigan Beach.
- Bike rental kiosk to encourage non-motorized traffic to Lake Michigan Beach.

Threats

The following elements were identified as possible treats for the future of Lake Michigan Beach Park and Father Charlevoix “Cannon” Park.

- Other communities having a competitive advantage.
- Lack of regional collaboration to encourage visitors and new residents to the region.
- A decreasing water level hindering aquatic activities and aesthetics.
- Over development affecting the natural beauty of the region.
- Complacency or inaction causing a halt in forward progress for the two parks.
- A lack of consistent year round revenue.
- Possible environmental changes altering the landscape of climate of the region.
- Lack of jobs and housing options for the younger generation.
- The need for community wide acceptance.
- Funding or lack thereof.
- Public safety concerns limiting the options for advancement.

Recommendations

This section provides recommendations for a beach visitor study, parking, signage, restroom facilities, sand control, and increased revenue. The recommendations are formed from information and data collected by the MSU Practicum team.

Beach Visitor Study

The MSU Practicum Team recommends that the City of Frankfort conduct an economic analysis of beach spending and the recreational benefits of Lake Michigan Beach in the City of Frankfort. The purpose of this study is to provide the following:

- An economic analysis of the value of Lake Michigan Beach
- A profile of visitors to Lake Michigan Beach during the peak season including the number of visitors, time spent at the Beach, and traffic impact

Parking

Frankfort currently has an estimated 371 parking spots within a ¼ mile from Lake Michigan Beach. According to the Michigan State 2013 Practicum Parking Estimate, roughly 646 cars a day could potentially visit Lake Michigan Beach during the peak tourism season. That is a deficit of approximately 275 parking spaces.

Recommendation 1: Utilize Frankfort High School for additional parking. The school is located roughly 1.15 miles from Lake Michigan Beach; however, trolley service or horse drawn carriage are possible options for transporting visitors. Frankfort High School currently has roughly 84 designated parking spaces. Possible trolley systems that could be used for transportation to Lake Michigan Beach are shown in Figures 44 and 45. Additionally, a nominal fee for trolley services is recommended to offset operating costs.



Figure 44: Photo contributed by Lamers Bus Lines Inc.



Figure 45: Photo contributed by John McCormick

Recommendation 2: Currently the Lake Michigan Beach Parking Lot accommodates two-way traffic. A traffic study is recommended to examine the potential positive and negative impacts associated with changing the traffic pattern to one-way in order to open up the eastern most section of the parking lot for parallel parking.

Signage

The implementation of simplified and consistent way finding and informative signage throughout Father Charlevoix “Cannon” Park and Lake Michigan Beach Park will play a key role in enhancing the Frankfort experience for both visitors and residents.

Through our SWOT Analysis it was revealed that pedestrian and vehicular flow between Father Charlevoix “Cannon” Park and Lake Michigan Beach Park is often congested and unsafe. It was also indicated that there is a lack of signage and thus a lack of enforcement regarding speed limits, noise control, and parking. The recommendations for signage will improve the following:

- Vehicular and Pedestrian Flow
- Way finding
- Historical Signage
- Pedestrian Safety
- Sense of Place



Figure 46: Photo Credit to deanmichaelboats.com

Recommendation 1: The City of East Lansing recently implemented a new way finding and informative signage system with simplified displays and easy to read signs with consistent formatting. The signage provides maps of the downtown East Lansing area along with a business directory. There are also public parking location signs that display their hourly and daily parking rates. The City of Frankfort should follow a similar process when creating way

finding, historical, and informative signage for Father Charlevoix “Cannon” Park and Lake Michigan Beach Park (see Figures 47-49).



Figure 47: Informative signage, East Lansing, MI



Figure 5: Informative signage- Grove Street parking garage, East Lansing, MI



Figure 49: Informative signage- Grove Street parking garage, East Lansing, MI

Recommendation 2: Work in collaboration with the Friends of the Betsie Valley Trail Organization to explore options for way finding, trailhead, and historical signage design and implementation for Father Charlevoix “Cannon” Park and Lake Michigan Beach Park.

Recommendation 3: Put historical signage in place explaining the heritage and history behind the cannon in Father Charlevoix “Cannon” Park (see Figure 51).

Recommendation 4: Place way finding signage to direct vehicles and pedestrians to parking access for both automobiles and bicycles. This could improve current vehicular congestion and simultaneously promotes non-motorized transportation by informing visitors of bike-friendly amenities (see Figure 50).

Recommendation 5: Place way finding signage to direct pedestrian flow to the nearby downtown area and Lake Michigan Beach Park through the designated sidewalks and bike path, this could improve pedestrian flow and safety (see Figure 50).

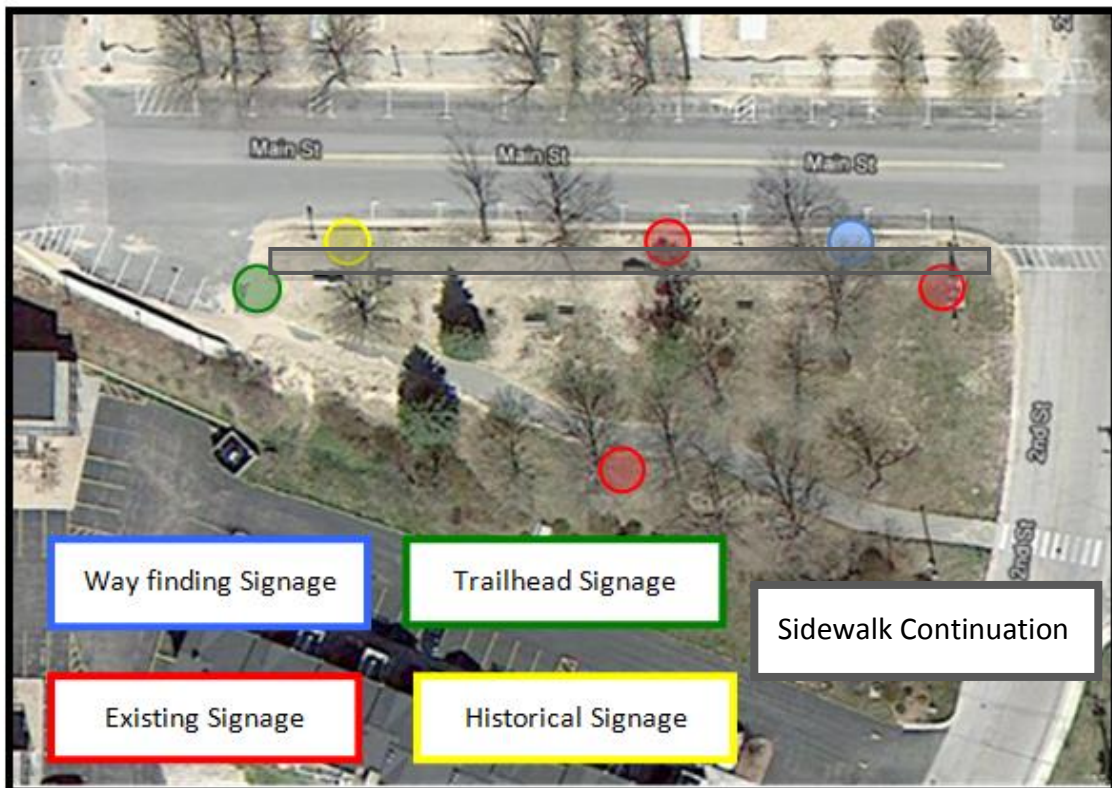


Figure 50: Proposed Signage Locations



Figure 51: Historical signage display by cannon and trailhead map and signage display at beginning of Betsie Valley Trail System in Father Charlevoix “Cannon” Park



Figure 52: Current Signage on Lake Michigan Beach

Recommendation 6: Keep format of Lake Michigan Beach signage consistent with the “Frankfort Pier Safety” sign (see Figure 52).

Recommendation 7: Implement a consistent display of beach and safety signage. The current signage is comprised of many different styles and formatting, and a consistent display that aligns with signage throughout Father Charlevoix “Cannon” Park will contribute to improving Frankfort’s sense of place.

Recommendation 8: Place signage identifying the main entrances to Lake Michigan Beach Park at the two main entrances in the Lake Michigan Beach parking lot, the Sac Street entrance, and the Miami Street entrance. Incorporate way finding signage at beach entrances that display

recreational amenities, bathroom location, and the Betsie Valley Trail System. This may improve pedestrian flow throughout the beach as well as to and from the surrounding neighborhoods and parking spaces.

Recommendation 9: Place historical signage on the beach that educates visitors about the history of “soaring” or gliding that once occurred on the large dunes to the north of Lake Michigan Beach Park. There is also an opportunity to place historical signage regarding Frankfort’s unique history with car ferries, pier construction, and the fishing industry that will contribute to Frankfort’s overall sense of place (see *Figure 53*).

Recommendations 10: We recommend the use of signage in the various locations shown in Figure 53, with way finding signage displayed at the four main beach entrances and that an additional historic signage marker be placed near the existing Frankfort Pier Safety sign seen in figure 52.



Figure 53: Locations for Signage on Lake Michigan Beach

Restroom Facilities

There is currently one toilet (outhouse) facility located at Lake Michigan Beach. The facility is located at the turn around parking lot on the South end of the Beach. There is one toilet in both the men’s and women’s facility and no running water. The American Restroom Association (ARA) published recommendations on the availability of outdoor toilet facilities and outlined the number of toilets necessary per number of visitors. This section provides the recommendations based on criteria set by the ARA, case examples, concerns of the residents of Frankfort, and examples for other beaches across the State of Michigan.

There are several options for the siting of the bathroom facility for Lake Michigan Beach and Father Charlevoix “Cannon” Park. Our recommendations will list the different options and identify our recommendation for the most feasible and effective based on a set of criteria that involve proximity to the beach, space for stalls available, proximity to sewer lines, and whether or not the facility would block the view of the beach. Table 13 shows the criteria for the location of the restroom facility and the source or rationale for each criterion. The number of toilets and proximity to the beach (<500 meters) are given by the American Restroom Association and examples from other beaches on Lake Michigan. The blockage of the view of the beach comes from discussions from the residents of Frankfort at the strengths, weaknesses, opportunities, and threats (SWOT) analysis. The residents are very concerned that the new bathroom facility does not obstruct the view of the beach from Main Street. The final two criteria, sewer hookup and available space are criteria that come from the construction phase of the project. The proposed location needs to have adequate space to house the necessary number of toilet facilities and connectivity to existing sewer lines reduces the cost of construction and allows running water to the facility. The criteria allowed us to address feasibility and a high or low cost based on sewer line locations.

Criteria	Rationale or Source
Proximity to the beach (<500 meters)	American Restroom Association
Space for necessary number of stalls	American Restroom Association and Case Examples
Proximity to Sewer Lines	City of Frankfort and More cost effective
Does not block view of the beach	Residents of Frankfort during SWOT analysis

Table 13: Criteria for Restroom Placement

The different options for the siting of the bathroom facility are: Father Charlevoix “Cannon” Park, Sac Street Beach Entrance, in the side of the dune on the beach, or to leave the bathroom as it currently stands. Figure 54 shows the different options for bathroom placement.



Figure 54: Options for Restroom Placement

Table 14 shows the application to the listed criteria for the location of the beach for each of the proposed options for the location of the bathroom facility. The totaled number creates a score for each option based on the four criteria. Placing the bathroom in Father Charlevoix “Cannon” Park has the highest total with a score of four.

Option	Location	Proximity to Beach	Sewer	Does not Block of View of the Beach	Space Availability	Total
1	Father Charlevoix “Cannon” Park	Yes	Yes	Yes	Yes	4
2	Sac Street Entrance	Yes	Yes	No	No	2
3	In the side of the dune	Yes	No	Yes	No	2
4	Stay the Same	Yes	No	Yes	No	2

Table 14: Options for Bathroom Placement

Recommendation 1: Based on the criteria (proximity to the beach, proximity to the sewer lines, visibility, and available space) the Michigan State University Practicum Team recommends that the City of Frankfort construct a new bathroom facility in Father Charlevoix “Cannon” Park.

Recommendation 2: According to the ARA, this bathroom facility should include space for 9-12 bathroom stalls for women and 2-4 for men with 4-8 urinals. However, other beaches in Michigan and with comparable size or are larger do not house 11-16 toilets and 8 urinals. Table 15 shows examples from 4 beaches in Ottawa County along Lake Michigan including the number of stalls for men and women and the number of parking spaces at the park.

Beach	Grand Haven State Park	North Shore Beach (Ottawa County)	Kirk Park (Ottawa County)	Tunnel Park (Ottawa County)
Men’s Stalls	6	2	4	4
Urinals	4	2	3	2
Women’s Stalls	8	4	6	6
Parking Spaces	--	175	300	400+

Table 15: Comparable Bathroom Examples

Figure 55 shows a 920 square foot facility that houses concessions and one toilet in each gender’s facility. The floor plan shown in Figure 55 was drafted by residents of Frankfort. We recommend a similar floor plan to the previously drafted floor plan with the addition of 4-5 toilets for the women for a total of 6-7 and 3 additional toilets and 2 urinals for the men for a total of 4 toilets and 3 urinals as shown in purple in Figure 55.

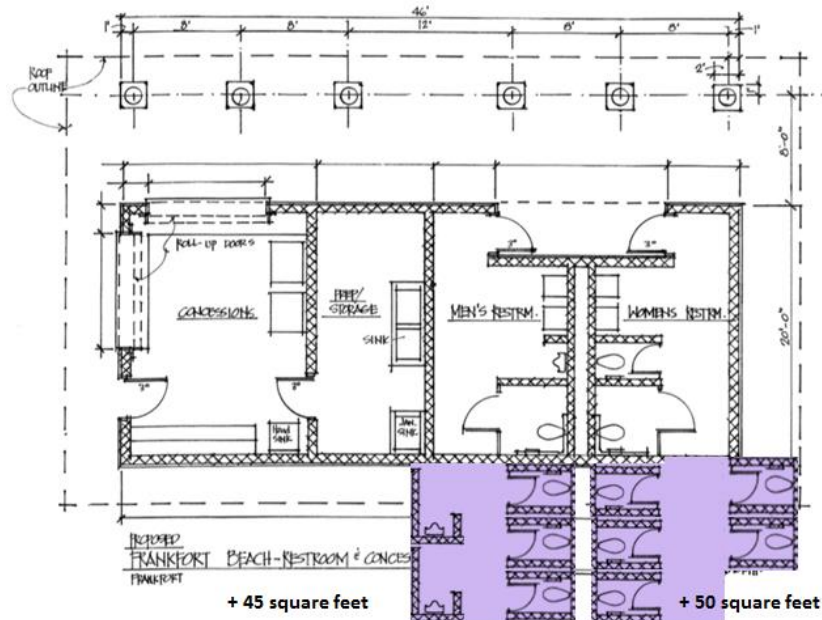


Figure 55: Floor Plan for Bathroom Proposed by Residents of Frankfort

Recommendation 3: We also recommend a patio space for outdoor seating that provides a place for residents and visitors to gather. During the SWOT analysis the residents of Frankfort identified that Father Charlevoix “Cannon” Park is currently underutilized. We believe that constructing a bathroom facility with wash stations, concessions, and a patio would help to redefine the utilization of the park.

This facility would be located only 220 to 600 feet from the Main Street entrance to Lake Michigan Beach and is already on the main sewer line and thus would be more cost effective because the City would not need to lay new sewer lines. The location of the pavilion bathroom facility would not hinder the view of Lake Michigan or the beach as residents drive down Main Street west toward the water.

Sand Control

Sand erosion is the process of constant weathering, removing, or transporting sand from a designated area. Frankfort is experiencing sand erosion from the Lake Michigan Beach front, which in turn is blowing the sand East off the shore into the downtown area. The effects can be seen on Cannon Park just adjacent to the beach, where sand has now replaced the once grassy area. There are many temporary solutions to sand erosion such as beach re-nourishment, which brings in new sand to replenish the sand that has been lost in the process. Sand erosion is a constant problem for many beachfronts, especially with changing weather, which makes it difficult to prevent or stop this natural process from happening.

Recommendation 1: *Natural Controls:* Sand dunes and bushy vegetation native to the given area are natural ways to prevent and collect blowing sand on beachfronts. Sand dunes create a barrier where loose blowing sand congregates and builds. Allowing the sand dune to build on the Lake Michigan beach will help to control the sand and give it a stable foundation. We recommend planting bushy vegetation to catch blowing sand and hold it to prevent future blowing sand from drifting into unwanted areas. Planting tall vegetation or dune grass around the parameter of the beach could help trap excess sand and prevent it from blowing away. The MSU Practicum Team recommends placing the vegetation along the current break walls to increase the chance of catching sand and preventing sand from rolling over the walls. Figure 56 shows the recommended placement for dune grasses.

Recommendation 2: *Non-Natural Controls:* Non-natural fixes that use the same concept to prevent sand erosion would be sand fences, trenches, and break walls. In addition to traditional sand control methods, we recommend that a small street sweeper make regular rounds to clean up sand in the downtown area. Implementing a wooden dune fence would be the most practical option since it takes up the least area, and could be removable and portable for new locations. A small street sweeper could ease the aftermath of the blowing sand by clearing the streets and sidewalks of sand accumulation.

Recommendation 3: *Seasonal:* The use of old Christmas trees on the beach to form a wall. During the winter months bringing old or unused Christmas trees to the beach would help catch and prevent sand blowing in the off months. Residents of Frankfort could bring their Christmas trees to the beach to be used for the seasonal sand barriers. At the end of the season, the

Christmas trees would be collected and could be recycled and used for mulch. After super storm Sandy New York lined its beaches with old Christmas trees. This helped catch and retain loose blowing sand and prevented the sand from causing mayhem in urban areas. This could be an off-season or winter control idea for Frankfort.



Figure 56: Site for Future Dune Grass

Revenue

Due to costs associated with the previously mentioned beach improvements (signage, sand control, and the construction and/or relocation of restroom facilities), it is recommended that strategies for increasing revenue be examined.

Currently Frankfort does not charge for beach admission or employ metered parking on Main St. or in the designated Lake Michigan Beach Parking lot. According to the 2009 Michigan Visitor Profile, 55% of visitors to Benzie County stay for the day only. Hypothetically, those visitors could utilize Lake Michigan Beach and Father Charlevoix "Cannon" Park without spending money in the city.



Figure 57: Photo contributed by Thadd Fiala

Recommendation 1: Capitalize on revenue potential by installing parking kiosks (see Figure 57) in the designated beach parking lot and within $\frac{1}{4}$ mile of Lake Michigan Beach on Main St. Metered parking can be implemented during peak season between the hours of 8am and 5pm to alleviate the burden on permanent residents.

Table 11 illustrates survey results from data gathered by San Francisco State University on duration of time spent at the beach on a single visit.

Length of Time	Less than 1 hour	2-3 hours	3-5 hours	5-8 hours	More than 8 hours
Frequency	7.9%	24.7%	41.6%	22.5%	3.4%

Table 16: Phillip G. King, Ph.D., Associate Professor of Economics from San Francisco State University

Recommendation 2: Limit Kiosk parking time in the Lake Michigan Beach parking lot to 3 hours during weekend peak hours to facilitate parking turnover and maximize revenue.

At the present time the City of Frankfort does not have concessions available on or near Lake Michigan Beach. Other Michigan beaches such as Ferry Avenue Beach in Charlevoix County, Pere Marquette in Muskegon, and Oval Beach in Saugatuck have employed the use of concessions and continue to find value in doing so. With respect to Oval Beach, the Saugatuck City Council recently conducted market research regarding the operation of concessions after the withdrawal of Sand Witches, the vendor in business with the City since 2006. The City found sufficient visitor and resident demand for snack foods and elected to maintain the operation of concessions on Oval Beach as a City run enterprise.

Recommendation 3: A cost-benefit analysis should be conducted, and visitor demand evaluated to gain a better understanding of possible benefits and drawbacks to operating beach concessions.

Funding

To help fund improvements to the Lake Michigan Beach Park and Father Charlevoix “Cannon” Park we recommend the use of grants from the Michigan Department of Natural Resources and collaboration with the Friends of Betsie Valley.

- [Land and Water Conservation Fund](#) (LWCF) from the Michigan DNR provides funding for the “acquisition and development of public outdoor recreation facilities” These funds are intended to better and maintain the high quality recreation facilities throughout Michigan.
 - http://www.michigan.gov/dnr/0,4570,7-153-58225_58672---,00.html
- The [Recreation Trail Program Grants](#) from the Michigan DNR can provide funding for improvements to the Betsie Valley Trail System for aspects such as signage and facilities at the trail heads.
 - http://www.michigan.gov/dnr/0,4570,7-153-58225_37985-125045--,00.html
- The [Friends of Betsie Valley](#) identified themselves as an option for funding for increasing the signage along the trail for both way finding and historical purposes.
 - <http://www.betsievalleytrail.org/>

Conclusion

This report was completed by a team of four Michigan State University students for the duration of the spring 2013 Academic Semester. The students worked with two professors and their community partner, City of Frankfort Superintendent Joshua Mills to analyze data, case examples, and citizen input to formulate recommendations for parking, signage, restroom facilities, and sand control for Lake Michigan Beach and Father Charlevoix “Cannon” Park. Citizen input was gathered at a public meeting to discuss the two parks and their strengths, weaknesses, opportunities, and threats. This report recommends that the City conduct a beach visitor study to determine the volume of visitors to the beach as well as the economic impact of tourism in the community. A beach study would allow the City to develop specific plans for the beach based on visitor needs. The recommendations developed by the MSU Practicum Team were drafted to aid in the creation of a new Parks and Recreation Master Plan for the City of Frankfort.

Appendix

Appendix 1: Census Data

Appendix 1.A

Industry – Frankfort	Employees 2010
Agriculture, forestry, fishing and hunting, and mining	0
Wholesale trade	3
Information	7
Transportation and warehousing, and utilities	18
Other services, except public administration	22
Professional, scientific, and management, and administrative and waste management services	27
Public administration	30
Construction	32
Finance and insurance, and real estate and rental and leasing	39
Manufacturing	53
Retail trade	90
Educational services, and health care and social assistance	101
Arts, entertainment, and recreation, and accommodation and food services	104

Appendix 1.B

Industry - Benzie County	Employees 2010
Information	113
Wholesale trade	136
Agriculture, forestry, fishing and hunting, and mining	242
Transportation and warehousing, and utilities	315
Public administration	342
Other services (except public administration)	360
Finance, insurance, real estate, and rental and leasing	464
Professional, scientific, management, administrative, and waste management services	515
Manufacturing	704
Retail trade	879
Construction	882

Arts, entertainment, recreation, accommodation and food services	981
Educational, health and social services	1,789

Appendix 1.C

Income	Frankfort 2010	Benzie County 2010
\$0-10,000	65	372
\$10,000-14,999	55	457
\$15,000-24,999	120	857
\$25,000-34,999	95	1,083
\$35,000-49,999	81	1,427
\$50,000-74,999	119	1,557
\$75,000-99,999	55	862
\$100,000-149,000	57	547
\$150,000-199,999	17	110
\$200,000 & Over	2	94

Appendix 1.D

Housing Units	Frankfort 2000	Frankfort 2010	Benzie County 2000	Benzie County 2010
Occupied Units	665	601	6,500	7,298
For Rent	15	52	169	263
Rented or Sold, not occupied	12	2	99	48
For Sale	17	35	131	249
Seasonal	151	227	3,181	4,035
Other Vacant	13	25	232	306
Total Units (HU)	873	942	10,312	12,199

Appendix 2: Methodology

Methodology for Determining Population Estimation

The number of visitors to the City of Frankfort was taken from the 2011 Visitor County Profiles from the Michigan Economic Development Corporation. The 2011 Visitor County Profile was separated into two categories; visits for business and visits for leisure. For the purpose of examining beach parking, the numbers were taken from the leisure portion of the study. The following assumptions were made about the data:

- The 2011 annual count of visitors to Benzie County was the same as the number of visitors to the City of Frankfort for 2011
- All 210,000 visitors to Benzie County in 2011 also visited Lake Michigan Beach

The first step of estimating the peak parking demand range was to examine what percent of visitors came to the City of Frankfort during the various seasons. The season with the greatest percentage of visitors was used to calculate a new number to represent the peak volume of travelers to Lake Michigan Beach over the duration of the year. The season with the lowest percentage of visitors was used to calculate a new number to represent the lower range of travelers to Lake Michigan Beach to use as a comparison. Seasonal percentages were taken from the 2009 Visitor Profile for Michigan.

To determine the number of visitors to Frankfort per week, the number of visitors obtained from the season with the greatest percentage of visitors and the season with the lowest percentage of visitors was divided by 13 weeks to represent a low and high range. The following assumptions were made about the data:

- Number of weeks were determined based on three-month seasons (**Winter:** December, January February; **Spring:** March, April, May; **Summer:** June, July, August; **Fall:** September, October, November)

Days of the week were separated into two categories, weekend (Fri-Sun) and weekday (Mon-Thurs). Percentages were obtained from Frankfort residents in the form of a survey. The residents were given three percentage choices for beach visitor volume, and asked to choose the one they felt best represented Lake Michigan Beach on the weekend. The choices were as follows:

- A. 75% or more of visitors come to Lake Michigan Beach on the weekend
- B. More than 50% but less than 75% of visitors come to Lake Michigan Beach on the weekend
- C. Less than 25% of visitors come to Lake Michigan Beach on the weekend

Using the above percentages, new numbers representing visitors to the City of Frankfort were calculated for the peak and off season.

To estimate a beach parking demand range, the final number of visitors for the peak and off-season were divided by the average number of riders per vehicle. Information regarding number of riders per vehicle was gathered from the 2009 Visitor Profile for Michigan.

The table below is an extended version of Table 11 and shows all calculations.

Estimate of Visitors to Frankfort	
2011 Visitors to Frankfort	210,000
Season	Percent of Visitors
Spring	13
Summer	48
Fall	15
Winter	24
Visitors Based on Season	
New Number of Visitors to Frankfort Based on Seasonal Peak	
48% of 210,000	100,800
New Number of Visitors to Frankfort Based on Seasonal Low	
13% of 210,000	21,300
Number of Visitors to Frankfort Per Week During Seasonal Peak	
100,800/13 weeks	7,754
Number of Visitors to Frankfort Per Week During Seasonal Low	
21,300/13	1,638
Days of the Week	Percent of Visitors
Mon-Thurs (Weekday)	25%
Sat-Sun (Weekend)	75%
New Number of Visitors to Frankfort Based on Peak Days of the Week	
75% of 7,754= 5,815.5/3 days= 1938.5 people on the weekend	
New Number of Visitors to Frankfort Per Day During Peak Days of the Week	
5,815.5 people during the weekend/3 weekend days= 1,938.5 people per day	
New Number of Visitors to Frankfort Based on Day of the Week Low	
25% of 1,638= 409.5 people during the weekdays	
New Number of Visitors to Frankfort Per Day Based on Day of Week Low	
409.5 people during the weekdays/4 weekdays= 102.4 per day	
Average Riders Per car	
3	
Estimated Peak Parking Demand Range for Visitors to Frankfort	
102.4/3= 34 cars per day during the off-season for visitor travel	
1938.5/3= 646 cars per day during the peak season for visitor travel	