

**A. SOCIAL ENVIRONMENT**

The US 50 Bridge over Sinepuxent Bay is located at the southern end of the Town of Ocean City, in Worcester County. The bridge marks the eastern extent of US 50, entering the Town of Ocean City aligned with Caroline Street. The project limits for the US 50 Crossing Study encompasses the portions of Ocean City from MD 611 to MD 378 (Baltimore Avenue) in the east-west direction, and the areas between 3<sup>rd</sup> Street and Somerset Street in the north-south direction. The study area for this analysis includes this area, and all areas within 1/4 mile of the project limits. The study area is presented on **Figure I-2**.

A socioeconomic inventory was conducted as part of the initial planning study. This inventory involved the identification of social, economic, and land use resources located within the study area. In addition, data regarding population, race, economics and other demographics available through the United States Census Bureau was compiled and evaluated. Data was collected at the block group, county, and state levels.

**1. Social Characteristics**

Census data for the study area was gathered from the 1990 and 2000 U.S. Census at the state (Maryland), county (Worcester), local (Town of Ocean City), census tract, and block group levels. At least some portion of each of the following four census block groups is located within the study area: Census Tract 9901, Block Groups 3 and 4, and Census Tract 9907, Block Groups 1, 2 and 3. The census tract boundaries are displayed on **Figure III-1**.

**a. Population and Housing**

**Census Tracts and Population**

**Table III-1** shows population statistics for the State of Maryland, Worcester County (the County), and Town of Ocean City. Population statistics for the study area census tracts and block groups are not given due to changes in the census tract boundaries between 1990 and 2000.

**Table III-1: Population Trends**

	Population in 1990	Population in 2000	Projected population in 2030 <sup>1</sup>	Percent change from 1990 to 2000	Projected percent change from 2000 to 2030
Maryland	4,781,468	5,296,486	6,729,500	10.8%	27.1%
Worcester County	35,028	46,543	62,000	32.9%	33.2%
Town of Ocean City	5,146	7,173	9,584 <sup>2</sup>	39.3%	33.6%

Source: U.S. Census Bureau, Censuses 1990 and 2000;

<sup>1</sup>Maryland Department of Planning, Planning Data Services, September 2006

<sup>2</sup>Based on Town of Ocean City Comprehensive Plan (15.4% of the Worcester County population)

**Figure III-1: Census 2000 Block Groups**

Based on U.S. Census data from 1990 and 2000, the State of Maryland population increased by 10.8 percent. In the same period, the populations of Worcester County and Ocean City increased by 32.9 and 39.3 percent respectively: a greater rate of increase than that of the state as a whole. The Maryland Department of Planning, Planning Data Services predicts a 27.1 percent growth rate for the State from 2000 to 2030. The project growth rate for the County and Ocean City in the same time is slightly higher, at 33.2 and 33.6 percent respectively.

**Table III-2** shows the data gathered for households and housing units in Maryland, Worcester County, and the Town of Ocean City. Housing statistics for the study area are not given due to changes in the census tract boundaries between 1990 and 2000.

**Table III-2: Housing Trends**

	Households in 1990	Households in 2000	Percent change from 1990 to 2000	Housing Units in 1990	Housing Units in 2000	Percent change from 1990 to 2000
Maryland	1,748,991	1,980,859	13.3%	1,891,971	2,145,283	13.4%
Worcester County	14,142	19,694	39.3%	41,800	47,360	13.3%
Town of Ocean City	2,595	3,750	44.5%	25,494	26,317	3.2%

Source: U.S. Census Bureau, Censuses 1990 and 2000

Not surprisingly, considering the population trends, the number of households in the County and Ocean City grew at a faster rate than that of Maryland (39.3 and 44.5 percent respectively). However, the number of housing units in the County grew at a slightly slower rate than Maryland's (13.3 percent versus 13.4 percent). The number of units in Ocean City grew at a much slower rate of 3.2 percent in this time period, perhaps due to the abundance of unoccupied rental/seasonal properties.

The study area, being a resort community, has an additional "transient" population that consists of vacationers. These vacationers may be in the area for less than a day or throughout the season. The Town of Ocean City has estimated that the off-season population of approximately 7,100 grows to an average population of approximately 264,000 in the summer months.

### **Racial and Ethnic Characteristics**

According to the U.S. Census, the predominant race within the County, Ocean City, and the study area is White. The County is 81.2 percent White and 20.1 percent minority (including Hispanic populations). Of the minorities, the largest portion of the County population (16.7 percent) is Black. The Town of Ocean City is 95.3 percent White, and 5.9 percent minority. Of the minorities, the largest portion of the population (2.5 percent) is Black. Within the study area, 92.7 percent of the population is White, and 7.4 percent is minority. Of the minority population within the study area, the largest percentage (3.8) is Black.

Census Tract 9907, Block Group 3 has the highest minority percentage (12.9 percent) of any block group within the study area. This block group is located along the southwestern edge of

the study area, in West Ocean City. Census Tract 9901, Block Group 3 also contains a higher percentage of minority populations (11.1 percent) than the study area as a whole (7.4 percent). This block group is located along the eastern edge of the Ocean City peninsula. None of the study area block groups contain a minority percentage higher than the County average (20.1 percent). **Table III-3** details the racial and ethnic composition of the County and the study area.

### **Age Distribution, Gender, and Disabled Populations**

The age distribution for Maryland, Worcester County, the Town of Ocean City, and the study area is given in **Table III-4**. The largest age group within all four geographic divisions is the 20-44 age range. Within the County, town, and the study area, the second largest age group is the 45-64 age range. The State diverges from this trend, with the 0-19 age range being the second largest. This age range is the smallest in the Town of Ocean City and the study area and the third largest in the County. The third largest within the Town of Ocean City and the study area is the 65 and older range, which is the smallest range in the County and the State. This high percentage of this age range, defined as elderly, within the study area is likely due to retirees making the area their permanent home.

Within the study area, 3 block groups have a larger percentage of elderly residents than the study area average. These block groups are located in Census Tract 9901, Block Group 3 (25.0 percent), Census Tract 9907, Block Group 2 (32.2 percent), and Census Tract 9907, Block Group 3 (20.5 percent). These 3 block groups are also higher than the county average for elderly population. All the block groups within the study area have a higher elderly population than the state average.

Based on data from the U.S. Census 2000, the percentage of the population of the County over the age of 5, with one or more disabilities reported is 21.0 percent. Within the Town of Ocean City, that percentage increases to 22.9 percent. The percentage of persons in the study area with one or more disabilities is 14.9, less than the County and Town of Ocean City average. Three block groups within the study area have a percentage of disabled occupants that is greater than the study area average. These are located in Census Tract 9901, Block Group 3 (17.4 percent) located on the eastern side of the Ocean City peninsula, Census Tract 9907, Block Group 2 (18.4 percent) located south of US 50 in West Ocean City, and Census Tract 9907, Block Group 3 (20.0 percent) located in the southwestern corner of the study area.

#### **b. Environmental Justice**

Executive Order (EO) 12898 “Federal Actions to Address the Environmental Justice in Minority and Low-Income Populations” was signed on February 11, 1994. The EO requires the assessment of disproportionately high and adverse human health and environmental effects on minority populations and low-income populations resulting from proposed federal actions. The EO reaffirms the provisions of Title VI of the Civil Rights Act of 1964 and related statutes, emphasizing the incorporation of those provisions with existing planning and environmental processes. EO 12898 adds low-income to the list of populations which should be investigated to ensure that they are not excluded from the benefits of the project or subjected to discrimination caused by federal programs, policies, and activities.

**Table III-3: Racial and Ethnic Characteristics**

	Worcester County		Town of Ocean City		Census Tract 9901 Block Group 3		Census Tract 9901 Block Group 4		Census Tract 9907 Block Group 1		Census Tract 9907 Block Group 2		Census Tract 9907 Block Group 3		Study Area Total	
<b>Population</b>	46,543		7,173		674		1,881		2,013		1,268		1,139		6,975	
<b>Racial Distribution</b>	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<i>White</i>	37,791	81.20%	6,839	95.30%	599	88.90%	1,745	92.80%	1,930	95.90%	1,190	93.80%	1,001	87.90%	6,465	92.70%
<i>Black</i>	7,754	16.70%	179	2.50%	21	3.10%	89	4.70%	17	0.80%	30	2.40%	107	9.40%	264	3.80%
<i>American Indian</i>	86	0.20%	8	0.10%	0	0.00%	3	0.20%	6	0.30%	2	0.20%	7	0.60%	18	0.25%
<i>Asian</i>	282	0.60%	53	0.70%	25	3.70%	7	0.40%	18	0.90%	4	0.30%	5	0.40%	59	0.85%
<i>Pacific Islander</i>	9	0.00%	1	0.01%	0	0.00%	0	0.00%	0	0.00%	1	0.10%	0	0.00%	1	0.01%
<i>Other</i>	170	0.40%	25	0.30%	3	0.40%	2	0.10%	0	0.00%	0	0.00%	8	0.70%	13	0.19%
<i>Two or More Races</i>	451	1.00%	68	0.90%	7	1.00%	15	0.80%	12	0.60%	25	2.00%	11	1.00%	70	1.00%
<i>Hispanic*</i>	596	1.30%	89	1.20%	19	2.80%	20	1.10%	30	1.50%	16	1.30%	9	0.80%	94	1.35%
<b>Total Minority</b>	9,348	20.00%	423	5.89%	75	11.10%	136	7.20%	83	4.10%	78	6.20%	147	12.90%	519	7.44%

Source: U.S. Census Bureau, Census 2000

**Table III-4: Age Distribution**

Age Group (years)	Maryland	Worcester County	Town of Ocean City	Study Area
0-19	28.1%	22.3%	12.7%	17.9%
20-44	37.5%	30.7%	34.1%	32.5%
45-64	23.1%	26.8%	27.9%	29.7%
65+	11.3%	20.2%	25.3%	19.9%

Source: U.S. Census Bureau, Census 2000

## Methodology

Baseline demographic information at the census block group level was obtained from the 2000 U.S. Census to preliminarily identify the locations of minority and low-income populations. Individual block group data was compared to overall block group totals to identify concentrations of minority and low-income populations.

Minority is defined as a person who is identified as:

- Black (a person having origins in any of the black racial groups of Africa)
- Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture origin, regardless of race)
- Asian American (a person having origins in any of the original peoples of the Far East, South East Asia, the Indian subcontinent, or the Pacific Islands)
- American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition)

Low income is defined as a person whose median household income is at or below the income level set by the Department of Health and Human Services (DHHS) poverty guidelines. The poverty guidelines issued by the DHHS are abstracted from the original poverty thresholds updated each year by the United States Census Bureau. For 2006, the poverty threshold for a family of 4 is \$20,650. In 1999, the year from which the most recent U.S. Census income data is based, the poverty threshold for a family of 4 was \$17,029.

In addition to the U.S. Census data, the MD SHA contacted the Ocean City Department of Planning and Community Development in April 2006 to identify any known populations of minority or low-income persons. In May 2006, the MD SHA contacted the Worcester County Department of Social Services to review affordable housing and food stamp data for the project vicinity, and also the Worcester County Board of Education and Ocean City Elementary School (the closest school to the study area), to review race and free-lunch eligible statistics from the National Center for Education Statistics.

## Findings

As identified through the U.S. Census data, approximately 7.4 percent of the study area population is part of a minority group. This is below the average for the State (36 percent) and the County (20 percent). None of the block groups within the study area have a percentage minority population that is greater than the County average. Census Tract 9907, Block Group 1 has the lowest minority population at 4.1 percent. Census Tract 9907, Block Group 3 has the highest minority population at 12.9 percent (**Figure III-1**).

Data on income and poverty for the County and the study area is given in **Table III-5**. The average household income for the study area is higher than that of the County; however, 2 block groups, Census Tract 9901, Block Group 4, located along the western edge of the Ocean City peninsula, and Census Tract 9907, Block Group 2, located south of US 50 in West Ocean City,

have a lower average median household income than the County average. The percent of the County’s population that lives below the poverty level is 9.4. The study area average is 6.5 percent, less than the County average. None of the block groups in the study area exceed the County average, with the highest percentage of persons living below the poverty level located in Census Tract 9901, Block Group 4 (8.4 percent). This block group is located along the western edge of the Ocean City peninsula. Census Tract 9907, Block Group 1, located north of US 50 in West Ocean City, has the lowest population in poverty at 3.7 percent.

**Table III-5: Household Income and Poverty Data**

	<b>Worcester County</b>	<b>Town of Ocean City</b>	<b>Census Tract 9901 Block Group 3</b>	<b>Census Tract 9901 Block Group 4</b>	<b>Census Tract 9907 Block Group 1</b>	<b>Census Tract 9907 Block Group 2</b>	<b>Census Tract 9907 Block Group 3</b>	<b>Study Area</b>
<b>Median Household Income</b>	\$40,650	\$35,772	\$41,136	\$33,370	\$50,819	\$36,064	\$42,132	\$40,704
<b>Individuals in Poverty</b>	4,381	604	52	158	75	87	82	454
<b>Population in Poverty</b>	9.4%	8.4%	7.7%	8.4%	3.7%	6.9%	7.2%	6.5%

Source: U.S. Census Bureau, Census 2000

**Additional Sources**

According to both the Ocean City Planner and Geographic Information Systems (GIS) Coordinator from the Ocean City Department of Planning and Community Development, there are no known concentrations of minority or low-income persons located within the study area.

The Worcester County Department of Social Services stated that a total of 146 Section Eight housing units are available within the County, none of which are located within the study area. Additionally, there were 1,538 active food stamp cases in the County, concentrated mainly in the Berlin, Snow Hill, and Pocomoke City areas of the County. There are no known food stamp cases within the study limits.

All schools within School Attendance Zone 2 (which includes Ocean City Elementary, Berlin Intermediate, Stephen Decatur Middle, and Stephen Decatur High) were below the County average for free lunch and reduced lunch eligible students. The overall percentage of eligible students in Attendance Zone 2 was 23 percent, compared to the county-wide average of 33 percent. The overall percentage of minority students was 16 percent, which was also less than the County school system average of 29 percent.

**2. Public Outreach**

The MD SHA has conducted various outreach activities to obtain feedback from all residents in and adjacent to the study area. Several US 50 Crossing Study newsletters (**Section V**) were

mailed out since the conception of the project, the newsletters were mailed in June 2005, Fall 2005, Winter 2006, and May 2007. The newsletters identified the purpose of the project, provided updates on the planning study, provided descriptions of the alternatives retained for detailed study, and invited residents to the various public meetings that were held. Two Open House meetings were held on June 8 and 9, 2005 and October 6 and 7, 2005. In addition, an Alternatives Public Workshop was held on June 1 and 2, 2006. An Informational Public Workshop was conducted on May 31 and June 1, 2007. All of these public meetings were held at the Roland E. Powell Convention Center in Ocean City, for the purpose of receiving and providing feedback in the development of the proposed improvements. Comments and suggestions received by the public have been evaluated and incorporated into the alternatives, where possible.

At the June 8 and 9, 2005 Open House meetings, the MD SHA informed the public of the Project Planning process and schedule. The project team also solicited input on the preliminary alternative concepts (also see page II-11) and community needs and issues pertaining to the US 50 Bridge. A total of 45 persons attended the two day workshop and provided the MD SHA with feedback that was used to eliminate some preliminary concepts (i.e., replacing the bridge with water taxi service, replacing with two, one-way bridges) and help develop and explore seven build alternatives for this project.

At the October 6 and 7, 2005 Open House Meetings, the initial concepts developed with the help of the input from the June meeting were presented to the public. Detailed engineering and impacts were not available at the time, but the alignment paths were displayed, and general engineering and environmental concerns and issues for each alignment were discussed with the 145 attendees. The public was also asked to provide sketches or ideas for further alternatives for the project team to consider.

At the June 1 and 2, 2006 Alternatives Public Workshop meetings, the MD SHA displayed 7 build alternatives and the No-Build Alternative, along with information on the environmental and right-of-way impacts, construction costs, and traffic impact issues. The MD SHA conducted exit surveys and received a total of 341 responses. Four of the build alternatives received more than 50 percent favorable responses and these were subsequently retained for detailed study. Results of the exit surveys were consistent with the written responses. The most numerous comments expressed concern about financial cost, displacements, impacts on West Ocean City, and environmental impacts. A detailed summary of the comments received is included in **Section V**.

At the May 31 and June 1, 2007 Informational Public Workshop, updated design information was presented for each of the alternatives currently under consideration. The purpose of the meeting was to determine public sentiment regarding the current 4 build alternatives and the No-Build Alternative, and potential concerns with the project. A total of 50 people attended the meetings and the MD SHA received a total of 363 responses, a majority of which favored the one of the various build alternatives over the No-Build Alternative. Among the build alternatives, Alternative 5A received the highest percentage of favorable comments by a relatively small margin, and each of the build alternatives had its share of proponents. Among the most common concerns expressed were impacts during construction, and impacts on homes, community character, and the natural environment. A summary of comments from this

workshop is included in **Section V**. As a result of concerns expressed by the public and local government representatives, the MD SHA has since modified Alternative 4 to the design proposed in **Section II** of this report.

Throughout the planning process, MD SHA has offered to meet with interested parties (including Environmental Justice (EJ) communities); however none have requested a meeting. There have been no concerns with EJ communities identified during the public outreach effort for this project.

### **3. Neighborhoods and Communities**

Neighborhoods and communities exist in a variety of different scales in and surrounding the study area. These include the incorporated Town of Ocean City, the large unincorporated area of West Ocean City, and individual developments such as the Waters Edge Condominiums, Martha's Landing, and apartment and condominium complexes of varying size that are common throughout the study area.

For the purposes of this analysis, the project has been divided into 2 community areas: Ocean City and West Ocean City. The Ocean City community area includes all portions of the study area east of Sinepuxent Bay, while the West Ocean City community area includes all portions of the study area west of Sinepuxent Bay. The communities located within Ocean City are primarily seasonal. A majority of the year-round communities are located within West Ocean City.

#### **a. Ocean City**

Ocean City began as a resort community in the late 1800s and continues in this capacity today. While the population increases dramatically during the summer months, the barrier island has some year-round residences in the older parts of the town. The population increase in the summer has led to many year-round residences being replaced by seasonal residences which are mostly townhomes and condos. Ocean City consists of a mixture of both commercial and residential areas. Few planned residential neighborhoods of appreciable size have been built on the peninsula. Recent redevelopment along the ocean side has tended toward multi-unit structures and condominiums. The bay side tends more toward commercial uses and scattered neighborhoods of single family structures.

#### **b. West Ocean City**

The western portion of the study area is an unincorporated area known as West Ocean City. For a time, West Ocean City was where most of Ocean City's work force resided. It still serves this purpose, but has also become a source of seasonal housing in compliment to that provided by Ocean City.

Within the two community areas, many smaller subdivisions or condominium complexes were identified. Many of these residential structures are rented seasonally, however permanent year-round residents can be found in many of the residential areas within the study area. The residential areas are listed in **Table III-6**, and depicted on **Figure III-2A and III-2B**. These areas were identified during field and map reviews of the project site. In general, residential

buildings that could be distinguished from hotels and commercial rental properties were noted, and included in **Table III-6**; however, this is not an all-inclusive list, given the density of residential areas and seasonal vacation homes in Ocean City. Many smaller apartment units exist throughout the study area that are either unnamed, or the name could not be determined during field reviews of the project area.

#### **4. Community Facilities and Services**

Many community facilities and services exist within the vicinity of the study area. Based on a review of mapping and a preliminary field reconnaissance, community facilities and services within the socioeconomic study area were inventoried and are illustrated on **Figure III-3**.

##### **Public Parks, Recreational Facilities, and Museums**

Numerous public parks and recreational facilities are located within the study area, in addition to the US 50 Bridge itself, which provides fishing opportunities from the pedestrian walkways along each side of the bridge. Other recreational facilities include:

###### Homer Gudelsky Park

Homer Gudelsky Park is a County park located on a one-acre portion of Sinepuxent Bay beach at the eastern end of Old Bridge Road in West Ocean City. The park provides opportunities for fishing and other passive recreation. The County Recreation and Parks Department has no master plan for development of the park at this time, although miscellaneous site amenities such as picnic tables or trash receptacles may be added in the future depending upon use and demand.

###### Entry Park

Entry Park, home of the Marlin Sculpture and fountain, is located at the eastern end of the Harry W. Kelly Memorial Bridge on N. Division Street in Ocean City. The park is approximately 1 acre in size, and is primarily utilized as an area of open space. The Town of Ocean City has no current master plan for the park.

###### The Downtown Recreation Complex / Third Street Park

The Downtown Recreation Complex is a city-owned facility located several blocks north of Entry Park. It is located on the bay side of Ocean City between Third Street, Fourth Street, and Philadelphia Avenue, and includes the Third Street Park, Fourth Street/Chicago Avenue Park, and Ocean Bowl Skate Park. The multi-use complex provides ball fields, a playground, basketball and tennis courts, the skate park for skateboarders and in-line skaters, as well as the “Promenade” for fishing and crabbing. The park is approximately 4.25 acres in size. The Town of Ocean City has no current master plan for the complex, although it is preparing to embark on a new development plan for the skate park portion of the complex.

**Table III-6: Residential Areas**

Name	Type	Location
Herring Landing	Single Family Homes	West Ocean City
Fox Chapel	Single Family Homes	West Ocean City
Oyster Harbor	Single Family Homes	West Ocean City
Harbor Mist Estates	Single Family Homes	West Ocean City
Greenwood Place	Single Family Homes	West Ocean City
Greenridge Mobile Home Park	Mobile Homes	West Ocean City
Ocean Village at Old Bridge	Townhomes/Condominiums	West Ocean City
Marina Cove	Single Family Homes	West Ocean City
Sea Isle Mobile Home Park	Mobile Homes	West Ocean City
Waters Edge Condos	Condominiums	West Ocean City
Delmarva Park Trailer Park	Mobile Homes	West Ocean City
Seaside Village	Townhomes/Condominiums	West Ocean City
Bay Shore Acres	Single Family Homes	West Ocean City
Inlet Isle Condominiums	Condominiums	West Ocean City
Estates at Inlet Isle	Single Family Homes	West Ocean City
Sunrise Cove Condos	Condominiums	West Ocean City
Martha's Landing	Single Family Homes	West Ocean City
Harbor Lights Condos	Condominiums	West Ocean City
Stinky Beach	Single Family Homes	West Ocean City
Crab Cove Condos	Condominiums	Ocean City
Three Cori Noel	Condominiums	Ocean City
Driftwood Apartments	Apartments	Ocean City
Sunset Colonial Apartments	Apartments	Ocean City
Parrot Bay Condos	Condominiums	Ocean City
South Bay Condos	Condominiums	Ocean City
The Somerset Condos	Condominiums	Ocean City
Déjà vu Condos	Condominiums	Ocean City
Sand Dollar Apartments	Apartments	Ocean City
St. Louis Apartments	Apartments	Ocean City
Dihamas Apartments	Apartments	Ocean City
South Bridge Apartments	Apartments	Ocean City
Bay Mist Apartments	Apartments	Ocean City
Bridgeview Apartments	Apartments	Ocean City
Madigosky Apartments	Apartments	Ocean City
The Vincent Family Apartments	Apartments	Ocean City
Surf Crest Apartments	Apartments	Ocean City
White Marlin Condos	Condominiums	Ocean City
Assateague House Condos	Condominiums	Ocean City
Seabright Condos	Condominiums	Ocean City

Source: Project Mapping/Field Reviews

**Figure III-2A: Communities and Neighborhoods**

**Figure III-2B: Communities and Neighborhoods**

### Dorchester Beach Volleyball Park

The Dorchester Beach Volleyball Park is a city-owned park located on the ocean side of the peninsula between Dorchester and Talbot Streets off the boardwalk. A short distance south of the volleyball park at Wicomico Street is a public fishing pier. The park is approximately 3 acres in size.

### Inlet Park

Inlet Park is located on the Ocean City Inlet at the southern tip of the peninsula. The city-owned park consists of a boardwalk with viewing binoculars and interpretive signs, an Indian structure, and the Ocean City time capsule. The Park is approximately 1/4 acre in size.

### Herring Creek Nature Park

Herring Creek Nature Park lies along the east bank of Herring Creek in West Ocean City. The County has jurisdiction over this 12-acre wildlife sanctuary that consists of natural woodlands, tidal wetlands, manicured lawns, and trails surrounding a pond.

### The Ocean City Life-Saving Museum

The Ocean City Life-Saving Station Museum is located near the Ocean City Inlet at S. First Street. The museum commemorates the history of the U.S. Life-Saving Service as well as the history of Ocean City and the County. It also maintains genealogical records for anyone interested in researching their family history.

## **Educational Facilities**

The entire study area is located within Attendance Zone Two of the Worcester County Public School System. This attendance zone includes Ocean City Elementary, Berlin Intermediate, Stephen Decatur Middle, and Stephen Decatur High Schools. The Ocean City Elementary School is located near the northern boundary of the study area on Center Drive in West Ocean City.

## **Religious Institutions**

Religious institutions, located within the study area, consists of the Son'Spot Ministries (12 Worcester Street), St. Mary's Star of the Sea Catholic Church (208 South Baltimore Avenue), Lighthouse International Student Ministry (102 Worcester Street), Ocean City Baptist Church (102 North Division Street), St. Paul by the Sea Episcopal Church (302 North Baltimore Avenue), St. Paul's Episcopal Church (3 Church Street), and Atlantic United Methodist Church (105 4th Street).

## **Health Care Facilities**

The 10th Street Medical Center is located north of the study area, at 10th Street and Philadelphia Avenue. The closest hospital is Atlantic General Hospital, which is located in Berlin, Maryland, west of the study area. The Worcester County Youth Health Center is located within the study area, on Caroline Street. This center provides health care for the youth (target ages 16 to 24) that work in or visit the town. The care they provide includes treating minor illnesses and injuries

and addressing general health concerns, as well as providing pregnancy testing and birth control, emotional counseling, addiction counseling, and runaway/homeless youth services.

The Maryland Department of Aging has 4 senior centers in the County, including 1 in Ocean City (104 41<sup>st</sup> Street), though none are located within the study area. The remaining senior centers within Worcester County are in Berlin, Pocomoke, and Snow Hill.

There is 1 assisted living facility, Lee's Almost Home, located within the study area in West Ocean City. There are 2 other assisted living facilities in Ocean Pines that are outside, but in the vicinity of the study area. These are The Woodlands of Ocean Pines and Catered Living of Ocean Pines.

### **Emergency Services**

Emergency services located within the study area consist of the Ocean City Police Station (Somerset Street and Baltimore Avenue), Ocean City Fire Department Station 2 (Dorchester Street and Baltimore Avenue), and Ocean City Volunteer Fire Company, Station 5 (10124 Keyser Point Road). The Fire Department headquarters is located just north of the study area on Philadelphia Avenue. Two Beach Patrol Stations and one Police Substation are located within the project area along the ocean front. Ocean City Emergency Medical Services (EMS) personnel respond to calls throughout West Ocean City in addition to those within the Town of Ocean City.

### **Libraries**

The Ocean City Library is a branch of the Worcester County Library system, located outside the study area on 14th Street near the intersection with Philadelphia Road. A new branch is being built at the intersection of 100th Street and Ocean Highway. Once the new branch is completed, scheduled for early winter 2008, it will replace the current branch.

### **Government Buildings**

The Ocean City Hall is located within the study area at 301 Baltimore Avenue near the intersection of Third Street. One branch of the United States Postal Service is located within the study area at the intersection of Philadelphia Avenue and 4th Street.

### **Military Facility**

There is one military facility located within the study area: a U.S. Coast Guard Station located at 610 S. Philadelphia Avenue approximately 1/3 mile south of the US 50 Bridge over Sinepuxent Bay. As of 2003, the US Coast Guard is part of the Department of Homeland Security.

**Figure III-3: Community Resources and Facilities**

## **Public Transportation**

Several public bus stops are located within the study area. Ocean City's municipal bus service travels along Philadelphia Road, Baltimore Avenue, and Coastal Highway 24 hours a day, seven days a week, 365 days a year, with stops every 2 blocks from the Inlet to the Delaware line.

Also located within the study area is the South Division Street Transit Center. This transit center is located on South Division Street in the Downtown area, and serves as the southern terminus of the Ocean City municipal bus route, a staging area for the city buses, and a drop off / pick-up location for many charter buses. A Carolina Trailways Bus Terminal is also located at Second Street and Philadelphia Avenue. Both the South Division Street Transit Center and Carolina Trailways Bus Terminal operate year-round.

The West Ocean City Park and Ride lot, open year-round, is located within the study limits, along US 50, west of the bridge into Ocean City. This lot provides free parking and a \$1 bus shuttle to the South Division Street Transit Center, across the bridge in Ocean City.

Other parking facilities include the Hugh T. Cropper Inlet Parking Lot, and metered parking at Worcester Street and Baltimore Avenue, Somerset Street and Baltimore Avenue, Dorchester Street and Baltimore Avenue, North Division Street and Baltimore Avenue, Fourth Street and Baltimore Avenue, North Division Street and St. Louis Avenue, and an Ocean City Municipal Parking Lot at First Street and St. Louis Avenue. All of these facilities are open year-round.

## **5. Economic Environment**

The US 50 bridge crossing supports a wide range of economic activities that are important to the overall economy of Ocean City, Worcester County, and the Chesapeake Bay region. The regional characteristics consider the Town of Ocean City and Worcester County, while the local characteristics refer to those portions of the Town of Ocean City and Worcester County that are within the study area. This section examines existing employment characteristics, industries, commuting modes, travel times, and the tax base.

### **a. Regional Employment Characteristics**

Ocean City is one of the most important economic resources in the State of Maryland, providing year-round resort, conference, and entertainment destinations. Ocean City's attractions draw visitors from many areas located along the eastern coast of the United States and places beyond. Because of the popularity of this destination, many unique employment opportunities are created that attract workforces from throughout the region, particularly in the peak summer months. The top employment sectors, according to US Census 2000 data, in the Town of Ocean City and the study area are arts, entertainment, recreation, accommodation and food service. All of the top employment sectors for the State of Maryland, Worcester County, the Town of Ocean City, and the study area are illustrated in **Table III-7**.

According to the Maryland Department of Business and Economic Development, the 5 largest employers in Worcester County in 2006 were the Harrison Group Hotels and Restaurants (800 employees), Atlantic General Hospital (599 employees), Wal-Mart (500 employees), Clarion Resort Fontainebleau Hotel and Restaurant (294 employees), and Candy Kitchen (250 employees).

Because the Town of Ocean City is a beachfront resort town, the driving economic force for the city is tourism. According to the Ocean City Comprehensive Plan (2006), the major employers in the Town of Ocean City were identified as the Harrison Group (golf resort), Purnell Properties (hotel management), O.C. Seacrets, Inc. (nightclub), Trimpers Rides (amusement park), Dough Roller Restaurants, Bayshore Development, and Clarion/Gateway Hotels. Specific numbers of employees were not available.

**Table III-7: Employment Sectors**

<b>Employment Sectors</b>	<b>Maryland</b>	<b>Worcester County</b>	<b>Ocean City</b>	<b>Study Area</b>
Agriculture, forestry, fishing, hunting, and mining	0.6%	2.2%	0.4%	0.8%
Arts, entertainment, recreation, accommodation, and food service	6.8%	17.8%	29.4%	25.8%
Construction	6.9%	9.1%	6.9%	9.3%
Educational, health and social services	20.6%	17.2%	11.0%	12.5%
Finance, insurance, real estate, rental, and leasing	7.1%	7.9%	12.0%	11.0%
Information	4.0%	2.5%	2.8%	2.4%
Manufacturing	7.3%	6.8%	2.4%	2.5%
Other services (except public administration)	5.6%	4.8%	4.5%	4.7%
Professional, scientific, management, administration, and waste management services	12.4%	6.0%	6.2%	5.3%
Public administration	10.5%	6.3%	4.9%	3.7%
Retail trade	10.5%	13.4%	12.8%	15.4%
Other Services (except public administration)	7.7%	6%	6.7%	6.6%

Source: U.S. Census, 2000

The U.S. Census Bureau defines the labor force as those persons 16 years of age and over who are employed, unemployed, and participating in the Armed Forces. According to this definition, 67.8 percent of the residents of Maryland are in the labor force. Of the Maryland residents, 64.6 percent are employed (civilian or armed forces) and 3.2 percent are unemployed. For Worcester

County, 60.7 percent of these residents are in the labor force. Of the County residents, 58.7 percent are employed, while 5.7 percent are unemployed.

According to the U.S. Census 2000, the average per capita income for Maryland was \$25,614. The average per capita income for the County was \$22,505.

Commuting patterns are very similar for the State of Maryland, Worcester County, and Ocean City (**Table III-8**). The majority of State, County, and City residents drove a car, truck, or van to work without carpooling (73.7 percent, 79.5 percent, and 72.8 percent, respectively). The second most utilized form of transportation for the State and the County residents is carpooling (12.4 percent and 10.3 percent respectively). For Ocean City, the second most utilized form of transportation is walking (6.8 percent). The third most utilized mode of transportation to work within the State is public transportation (7.2 percent), while within the County the third most utilized method of traveling to work was walking (2.5 percent). For Ocean City, the third most utilized form of transportation was carpooling (6.7 percent).

**Table III-8: Commuting Mode**

<b>Commuting Mode</b>	<b>Maryland</b>	<b>Worcester County</b>	<b>Ocean City</b>	<b>Study Area</b>
Drive Alone	73.7%	79.5%	72.8%	75.6%
Carpool	12.4%	10.3%	6.7%	7.5%
Public Transportation	7.2%	1.4%	5.1%	2.8%
Walked	2.5%	2.5%	6.8%	5.7%
Other Means	0.8%	1.3%	2.9%	2.9%
Work at Home	3.4%	4.9%	5.7%	5.6%

Source: U.S. Census, 2000

According to the U.S. Census 2000, the majority of Maryland, Worcester County, and Ocean City residents travel less than 30 minutes to work (50.4 percent, 67.2 percent, and 70.1 percent respectively). Commute times between 30 minutes and 1 hour make up approximately 34 percent, 23 percent, and 19.6 percent of the respective commuters. Commute times in excess of 1 hour make up approximately 12.2 percent, 4.9 percent, and 3.8 percent of the respective commuters for the State, County, and City.

The U.S. Census 2000, also indicates that approximately 70 percent of Maryland residents have a high school diploma (or the equivalent) or higher, while approximately 32 percent have a bachelor's degree or higher. For the County, approximately 68 percent of residents have a high school diploma or higher, and approximately 22 percent have a bachelor's degree or higher. For Ocean City, approximately 60 percent of the residents have a high school diploma or higher, while approximately 28 percent have a bachelor's degree or higher.

## **b. Local Employment Characteristics**

According to U.S. Census 2000 data, the top 3 industries within the study area are arts, entertainment, recreation, accommodation and food services; retail trade; and educational, health, and social services (**Table III-7**).

Because the economy of the Town of Ocean City is driven by seasonal tourism, the main activities that generate employment are: hotels, motels, and condominiums; restaurants and nightclubs; and retail shops and malls. As mentioned previously, the major employers in the Town of Ocean City in 2006 were the Harrison Group (golf resort), Purnell Properties (hotel management), O.C. Seacrets, Inc (nightclub), Trimpers Rides (amusement park), Dough Roller Restaurants, Bayshore Development, and Clarion/Gateway Hotels. Of these, the Trimpers Rides Amusement Park is located within the study area at South First Street and the Boardwalk, as is 1 Dough Roller Restaurant (3<sup>rd</sup> Street and the Boardwalk), 1 Bayshore Development property (the Jolly Roger Amusement Park at the Boardwalk Pier), and 1 Clarion/Gateway Hotel property (the Comfort Suites Hotel on US 50, near MD 611).

The study area falls between the State (67.8%) and the County (60.7%) for percentage of the population in the labor force with 64.4 percent. The study area has the same unemployment rate as the County (5.7 percent), but a higher rate than the State (3.2%).

The average per capita income for the study area is \$28,278. This per capita income is greater than that of the State (\$25,614) and the County (\$22,505).

Method of commute information for the study area is presented in **Table III-8**. The majority of study area residents drive a car, truck, or van to work without carpooling (75.6 percent). The second most utilized form of transportation for residents in all the study area is carpooling (7.5 percent), while the third most utilized method of traveling to work is walking (5.7 percent). The majority of study area residents travel less than 30 minutes to work (73.1 percent). The percentage of residents working from home (5.6 percent) is greater than those traveling more than an hour to work (3.6 percent).

According to the U.S. Census 2000, the study area, at 70%, nearly matches the County (68%) and the State (70%) averages for the percent of residents with a high school diploma or higher. The study area (28%) trails the state (32%) but exceeds the County (22%) for the percentage of residents with a Bachelor's Degree or higher.

## **c. Tax Base**

The property tax rates for Worcester County and the Town of Ocean City are identified below.

- Worcester County: \$0.70 per \$100 of assessed value of real property
- Town of Ocean City: \$0.43 per \$100 of assessed value of real property

Worcester County estimates that the total revenue for property tax for Fiscal Year 2006-2007 will be approximately \$98.2 million. The Town of Ocean City, Maryland estimates that the total revenue for property tax for Fiscal Year 2007 will be \$35.7 million.

## 6. Land Use

### a. Existing Land Use

The existing land use for the study area was determined according to the Maryland Department of Planning, 2002 Land Use/Land Cover for Maryland (**Figure III-4**). The study area is approximately 1,990 acres in size. The greatest percentage of this area, 27.1 percent, is commercial. The second greatest percentage (22.8) is residential. The breakdown of each land use type is depicted in **Table III-9**.

Commercial areas comprise most of Ocean City and surround US 50 on the mainland. This land use classification includes scattered residential parcels. Larger residential areas are primarily located in West Ocean City, both north and south of US 50. The water areas primarily consist of the Sinepuxent and Isle of Wight Bays. Forested and agricultural areas are located primarily in West Ocean City, towards the western edge of the study area. The wetlands are located on the bay-side of the mainland. Institutional land is scattered through the commercial land use on the Ocean City peninsula. It includes the U.S. Coast Guard Station, emergency service buildings, the Ocean City Elementary School and other public buildings. Beaches are located at the eastern edge of the study area in Ocean City.

**Table III-9. Existing Land Use**

	Acres	Percent
Commercial	540.5	27.1%
Residential	444.3	22.3%
Water	394.9	19.8%
Forest	309.5	15.6%
Agriculture	91.1	4.6%
Wetlands	83.0	4.2%
Institutional	53.8	2.7%
Beaches	51.7	2.6%
Other	20.7	1.0%
Total	1989.5	100.0%

Source: MDP Mapping, 2002

**Figure III-4. Existing Land Use (2002)**

## **b. Future Land Use**

Both Ocean City and West Ocean City are approaching build-out. Approximately 95 percent of the buildable land in the Town of Ocean City has been developed, while there are approximately 2,100 vacant, buildable lots in West Ocean City. Therefore, land use changes within the study area will come primarily from redevelopment.

The Comprehensive Plan of the Town of Ocean City (2006) discusses the future land use that will be encouraged (**Figure III-5**). It includes concentrating high density residential development along the ocean side, due to vacationers' interest in proximity to the beach and an interest in reducing the traffic associated with bay-side residents driving to the ocean front. The bay-side of the peninsula would mainly be restricted to medium to low density residential development. Commercial areas would be retained where they currently are located, and industrial uses would be limited. Conservation of the beach dune systems and remaining wetlands is also encouraged. Much of the land within the study area is designated as mixed use, with some public, residential, amusement/mixed use, bayside marine, residential, boardwalk and beach as well. Within Sinepuxent Bay, several areas are classified as wetland.

Worcester County has designated West Ocean City as an Existing Developed Area (EDA) (**Figure III-6**). This designation was applied to areas that are developed but unincorporated with the intent of providing for the maintenance of their current development character. For the purpose of limiting urban sprawl, EDAs are limited to infill development and it has been encouraged that surrounding areas not be considered for rezoning. Worcester County's Land Use Plan designates the majority of the study area as a commercial center, with the southeastern corner being an existing developed area. Several areas within Sinepuxent Bay are designated as green infrastructure.

## **c. Smart Growth**

The 1997 Maryland General Assembly passed five pieces of legislation collectively known as "Smart Growth." Smart Growth directs the State to target programs and funding to support established communities and locally designated growth areas, and to protect rural areas. A component of the Smart Growth legislation, the Priority Funding Areas Act, provides a geographic focus for the State's investment in growth-related infrastructure, by requiring all counties to identify and map the Priority Funding Areas (PFAs) that meet the requirements of the legislation. The remaining components complement this geographic focus by targeting specific State resources to preserve land outside of the PFAs, to encourage growth inside PFAs, and to ensure that existing communities continue to provide a high quality of life for their residents. The project limits are located entirely within the Ocean City PFA (**Figure III-7**). Therefore, the project is in compliance with the Smart Growth legislation.

**Figure III-5: Future Land Use - Ocean City**

**Figure III-6: Future Land Use: Worcester County**

**Figure III-7: Priority Funding Areas**

## **B. CULTURAL RESOURCES**

Identification and evaluation of historic architectural and archeological resources was conducted in accordance with federal and state laws, which protect significant cultural resources. Federal and state mandates for cultural resources protection include: the National Historic Preservation Act of 1966, as amended; the U.S. Department of Transportation Act of 1966, as amended in 1968; the National Environmental Policy Act of 1969 (NEPA); 36 CFR Part 800 Protection of Historic Properties (Final Rule August 5, 2004); Executive Order 11593; the Maryland Historical Trust Act of 1985, as amended, State Finance and Procurement Article §§5A-325 and 5A-326 of the Annotated Code of Maryland.

Identification and evaluation of cultural resources was performed in accordance with the standards established in *Standards and Guidelines for Architectural and Historical Investigations in Maryland* (MHT, 2000); *Standards and Guidelines for Archeological Investigations in Maryland* (Shaffer and Cole, 1994); *Collections and Conservation Standards* (MHT, 1999); and *Part IV: Department of the Interior (DOI) National Park Service (NPS) Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines* [FR 44716-44742, 1983].

Background research and field surveys were conducted in March, April and October, 2005 to facilitate identification of the cultural resources in the Area of Potential Effects (APE). A review of existing inventories of historic properties, previous survey information, and historic maps was undertaken. A Report, *Recordation and Documentation of Standing Historic Resources, Ocean City, Maryland, Determination of Eligibility Report* (KCI Technologies, Inc., 2007) was prepared. MIHP and Determination of Eligibility (DOE) forms were prepared to facilitate evaluation of the cultural resources. Coordination with the Maryland State Historic Preservation Office (MDSHPO) for National Register of Historic Places (NRHP) eligibility determinations was conducted.

The criteria for inclusion on the NRHP state that “the quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that are associated with events that have made a significant contribution to the broad patterns of our history (Criterion A); or that are associated with the lives of persons significant in our past (Criterion B); or that embody the distinctive characteristics of a type, period, or method of construction that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C); or that have yielded, or may be able to yield, information important in prehistory or history” (Criterion D) (36 CFR §60.4, and National Register Bulletin No. 15). Correspondence documenting prior consultation with the MD SHPO and other interested parties, and MHT concurrence on Determination of Eligibility and/or Effects is provided in *Section V – Comments and Coordination*.

### **1. Historic Standing Structures**

The term “historic standing structures” refers to any above ground building, structure, district, or object that attributes to our cultural past. When these resources meet the criteria for listing in the

NRHP, they are historic properties that must be considered under the requirements of the National Historic Preservation Act.

In summary, eight National Register eligible historic properties are located within the APE: St. Paul's by the Sea Episcopal Church (WO-326), Taylor House (WO-331), Edwin L. Purnell Store (WO-336), Town Market (WO-337), City Hall (WO-341), SHA Bridge No. 2300700 (WO-461), Emery-Hartman House (WO-553), and Francis Scott Key Motel (WO-555), which will require a treatment approach of repair, rehabilitation, or restoration if avoidance is not possible. **Figure III-8** shows the locations of the properties and a description of each property is provided below.

**a. St. Paul's by the Sea Episcopal Church (WO-326)**

The St. Paul's by the Sea Episcopal Church is located on the northeast corner of North Baltimore Avenue and Third Street. Constructed in 1900, the single story, ell-shaped frame church faces south with the principal gable oriented on an east-west axis. The wood shingled frame church is supported on a raised and rusticated concrete block foundation and the building is covered by a steeply pitched asphalt shingled roof. A two story entrance and bell tower topped by a pyramidal spire is located on the southwest corner of the main block. The south facade has an asymmetrical elevation with a double door entrance topped by a lancet arch window.

St. Paul's by the Sea Episcopal Church is eligible under Criterion C as a good example of sea-side religious architecture.

**b. Taylor House (MIHP No. WO-331)**

The Taylor House is a two-and-a-half story frame house located at the northwest corner of Baltimore Avenue and Talbot Street (106 South Baltimore Avenue). The Queen Anne style building faces east toward the Atlantic Ocean. Constructed in 1905, this large, irregularly massed frame structure is supported by a raised concrete block foundation and is sheathed with a combination of plain weatherboards and decorative fishscale shingles. The steeply pitched gable roof is accented with fishscale shingles. The east (main) elevation has an asymmetrical facade with a commercialized first floor and an enclosed second story porch. The rounded enclosed porch contains a row of 6/6 double hung sash windows.

The Taylor House is eligible under Criterion A for its association with the early twentieth century resort development in Ocean City (events) and under Criterion C for its Queen Anne style architecture.

**c. Edwin L. Purnell Store (MIHP No. WO-336)**

The Edwin Purnell Store was constructed circa 1898 and is recognizable by its steeply pitched hip roof covered in asbestos shingles. The two-and-a-half story building rests on a minimal brick foundation. Built in a Victorian style, fishscale shingles and wood siding cover the exterior of the building. The west (main) elevation is oriented to Baltimore Avenue with commercial enterprises lining the first floor, recessed under a two story porch. Tapered columns support the second floor porch while the original turned posts remain on the second floor to support the roof. The second floor wall is marked by a center door flanked by two-over-two sash windows.

The Edwin Purnell Store is eligible under Criterion A for its association with the commercial development of Ocean City in the late nineteenth century (events) and under Criterion C as an example of Victorian (Shingle Style) Architecture.

**d. Town Market (MIHP No. WO-337)**

Constructed in 1890, and located along the east side of Baltimore Avenue between Talbot and Dorchester Streets, the Town Market building now contains specialty shops that cater to tourists. This two-and-a-half story, four bay frame Victorian Gothic inspired commercial building faces west with the gable roof oriented on a north/south axis. The building is clad in weatherboard. Constructed on a low masonry foundation, the structure has an asymmetrical facade with a two story porch sheltering both floors. Square porch posts support the first floor porch while turned posts remain on the second floor. The second story of the building has generally remained unchanged, the first floor of the structure contains three recessed entrances and display windows which have been altered in its design and materials.

The Town Market building is eligible under Criterion A for its association with the late nineteenth century commercial development in Ocean City (events) and under Criterion C as an example of Gothic Revival style (architecture).

**e. City Hall (MIHP No. WO-341)**

City Hall is located at 301 Baltimore Ave. between 3<sup>rd</sup> and 4<sup>th</sup> Streets. Originally constructed as a college for the Maryland State Teachers Association, it became a county education center until 1968 when it was sold to the City. The two-story Neoclassical brick building is accentuated by an arched entryway located at the southeast corner of the building, a denticulated cornice, and a copper dome. The building was enlarged in 1928-1929 with the addition of two wings on the north and west elevations. The fenestration on the later addition includes 9/6 double hung sash windows. An asphalt shingle hipped roof tops the later addition.

The City Hall building is eligible for its association with public education in Ocean City (Criterion A) and for its architecture (Criterion C).

**f. MD SHA Bridge No. 2300700 (MIHP No. WO-461)**

The Harry W. Kelley Bridge is a double leaf rolling lift bascule moveable bridge that was constructed in 1942. A rolling lift bascule is one in which the center of rotation moves away from the opening when the span swings upward. The bridge was designed by the J.E. Greiner Company, who appears to have designed most of the movable bridges on the Eastern Shore during the 1920's and 1930's in response to the trend towards vehicular traffic over steamboats as the primary means of transportation and carrier of agricultural and maritime produce to market.

Bridge No. 2300700 has been included in MD SHA's Historic Highway Bridge Inventory and is eligible for the NRHP under Criterion C, as a 1939 example of a double-leaf rolling lift bascule bridge.

The bridge is significant under Criterion A for its role in the development of transportation on the Eastern Shore during the modern period.

**g. Emery-Hartman House (MIHP No. WO-553)**

The Emery-Hartman House is located at 107 Caroline Street. The dwelling is a two-and-a-half, Arts and Crafts-inspired structure built in 1925. It is located within the Ocean City Survey District. Other residential buildings that now primarily serve as rentals surround the dwelling; however, the Emery-Hartman House appears to be a single, residential dwelling. The lot is approximately 3,750 square feet.

The frame dwelling is clad in wood shingles, has a front gable roof with exposed rafters and brackets. The concrete deck-porch with a wooden balustrade extends the width of the main elevation. Stone piers support a second story balcony that is accessed by a wooden stairwell within a wooden banister.

The Emery-Hartman House is eligible for the NRHP based on its architecture as an example of a Craftsman style dwelling (Criterion C).

**h. Francis Scott Key Motel (MIHP No. WO-555)**

The Francis Scott Key Motel is located at 12806 Ocean Gateway, west of the US 50 bridge crossing. The complex is comprised of 34 buildings that include the main dwelling, a Cape Cod residence, two one-story motel buildings, sixteen cabins, two pool houses, three modern garages, a shed, and eight modern two-story motel buildings. The earliest buildings on the complex date back to circa 1945. The property sits on 13.11 acres of wooded and open land.

The Francis Scott Key Motel is eligible for listing in the NRHP based on its association with the local tourism industry in Ocean City (Criterion A).

**2. Archeological Resources**

“Archeological resources” refer to all evidence of past human occupation that survive in a physical context allowing for the interpretation of these remains and the reconstruction of the lifeways of past peoples. In accordance with the laws previously referenced, all archeological prehistoric, historic, and underwater sites must be evaluated for their eligibility for NRHP listing by the lead Federal agency and the SHPO.

The study area for archeological investigations was defined by the limits of ground disturbance associated with worst case impacts under all alternatives retained for detailed study. There are no recorded archeological sites in the study area. A prior archeological survey covered part of the proposed project area (Williams 2001). The combination of extensive disturbances created from prior construction of roads and the existing bridge, utility installation, shoreline alterations, and continuing development in the study area indicates low potential for the preservation of any prehistoric or early historic archeological resources in terrestrial or underwater settings. No further archeological work was recommended for this project.

**Figure III-8: Cultural Resources Map**

## **C. NATURAL RESOURCES**

### **1. Climate**

The climate of the study area is temperate and ranges from an average winter temperature of 38 degrees Fahrenheit to an average summer temperature of 74 degrees Fahrenheit, with sunshine approximately 63 percent of the time. The average annual precipitation is 45 inches of rainfall and 13.5 inches of seasonal snowfall. Prevailing winds are from the south with average wind speeds peaking in March at 10.9 mile per hour (NRCS, 2004).

### **2. Topography, Geology, and Soils**

#### **a. Topography and Geology**

A review of Maryland Geologic Maps (Maryland Geological Survey, 1968) indicates that the study area lies within the Coastal Plain Province. The Coastal Plain Province is underlain by a wedge of unconsolidated sediments comprised of sand, silt, gravel, and clay. Eastward, closer to the study area, this wedge of sediments thickens to more than 8,000 feet at the Atlantic coast line. The landscape in this area consists primarily of level to gently rolling topography ranging from sea level to about 40 feet above sea level. The elevations within the study area peak at approximately 20 feet above sea level in Ocean City. The sediments of the Coastal Plain Province dip eastward at a low angle (usually less than one degree) and span the Triassic to Quaternary geologic periods. A thin layer of Quaternary gravel and sand covers the older formations. Mineral resources of the Coastal Plain are mostly sand and gravel. Alluvium, tidal marsh, and barrier sands are all recent deposits of the Holocene Series.

The Barrier Formation historically was one long landform until a major hurricane hit in 1933 which formed the Ocean City inlet. This inlet split the barrier island into two sections, Fenwick Island, which is now Ocean City and Assateague Island, a state and National Park. Between the mainland and the barrier island are the open water coastal bays. The Sinepuxent Bay is a tidally influenced and relatively shallow body of water which provides access to the Atlantic Ocean. The Sinepuxent Formation underlies lowlands just west of Sinepuxent and Chincoteague Bays. The Sinepuxent is considered a marginal marine unit that represents a major transgressive event in the middle Wisconsin Stage. These sediments are identified as poorly sorted, silty, fine-to-medium gray sand. Tidal salt marshes occur along the backshore of the barrier islands and along the edges of the main land where there is no development.

There are no unique geological features documented or observed within the study area.

#### **b. Soils**

According to the *Soil Survey of Worcester County*, there are 3 soil series and 7 soil mapping units within the study area (NRCS, 2004). Four of the mapping units are Urban land complexes/Udorthents (Uz - Udorthents, Ut - Urban land-Udorthents complex, Um - Urban land-Askecksy complex, and Un - Urban land-Brockatonorton complex). These Urban land areas account for 48 percent of the study area and 88 percent of the non-water study area. Open water

accounts for 46 percent of the study area. Mattapex fine sandy loam, 0-2 percent slopes (MpA), accounts for less than 1 percent of the study area.

There are 2 soils listed on the Hydric Soils of the United States within the study area (NRCS, 2005): Fallsington sandy loam (Fa) and Purnell peat (Pu). These soils account for 6 percent of the study area and occur as small units near the projects western terminus. Mattapex fine sandy loam is a potentially highly corrodible soil. Erosion potential is an important soil characteristic because it determines the stability and safety for development.

The *Natural Environmental Technical Report* includes mapping of the soil types within the study area and a table listing the prevalent soil types with a brief description of soil features for each soil type.

**c. Prime Farmland Soils, Soils of Statewide Importance and Unique and Locally Important Farmland Soils**

Prime farmland soils are soils that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and are also available for these uses (the land could be cropland, pasture, forest, or other land uses with the exception of urban built-up land or water). Prime farmland soils have the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods.

Mattapex fine sandy loam (MpA) is classified as a Prime Farmland Soil for Worcester County. The area of Mattapex fine sandy loam within the study area is developed or otherwise disturbed (graded, filled, paved or removed), and is not available for growing crops.

Soils of statewide importance include those soils in Land Use Capability Class II and Class III that do not meet Prime Farmland soils criteria. Class II contains soils having some limitations for cultivation and Class III contains soils having severe limitations for cultivation. These soils are nearly prime farmland soils and economically produce high yields of crops when treated and managed according to acceptable farming methods. Some may produce yields as high as prime farmland soils if conditions are favorable. Fallsington sandy loam (Fa) is classified as a Soil of Statewide Importance for Worcester County, but only if it is drained. The Fallsington Soils in the study area are developed and not available for agriculture.

Unique farmland soils are land other than prime farmland soils that are used for the production of specific high value food and fiber crops. This land has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality and/or high yields of a specific crop when treated and managed according to acceptable farming methods. Examples of such crops are citrus, tree nuts, olives, cranberries, fruit, and vegetables. There are no unique farmland soils in the study area.

Locally important farmland soils include those soils that are not of prime or statewide importance and are used for the production of high value food, fiber, or horticultural crops. There are no locally important farmland soils in the study area.

Prime Farmland Soils and Soils of Statewide Importance are classified by the Natural Resource Conservation Service (NRCS) pursuant to the Farmland Protection Policy Act (FPPA) of 1984. The FPPA of 1984 states that "farmland does not include land already in or committed to urban development or water storage." The entire study area is developed and is located within a PFA as designated by the Maryland Department of Planning. Therefore, Prime Farmland Soils and Soils of Statewide Importance located/mapped within the study area are exempt from FPPA coordination.

### **3. Water Quality**

#### **a. Groundwater**

According to the *Comprehensive Development Plan of Worcester County* (Worcester County, 2006), groundwater is the only source of drinking water, the primary source of irrigation water, and the major source of freshwater to the coastal bays and the Pocomoke River in Worcester County. Most of the groundwater in the study area is obtained from Atlantic Coastal Plain, Manokin, and Ocean City aquifers found within the Coastal Plain sub-area. The Coastal Plain sub-area is underlain by a porous-media aquifer formed from poorly consolidated deposits of sand, gravel and clay, and contains large quantities of groundwater in semi-artesian wells. These wells can yield as much as 1,000 gallons per minute (GPM).

According to the Town of Ocean City Comprehensive Plan (2006), the existing water supply in Ocean City is provided by a total of 23 production wells. These include 14 wells in the Ocean City Aquifer and 9 wells in the Manokin Aquifer located throughout the Town of Ocean City. Two of the 23 wells are located within the study area. The water from the 23 wells is distributed to the residents of the Town of Ocean City through the use of 8 water storage tanks. The Town of Ocean City is planning to add 4 additional wells to accommodate future growth. There are 2 wells located within the study area. Ocean City does not plan to place any of the 4 additional wells in the study area. There are 3 wastewater treatment plants within the Town of Ocean City to handle the sewer service.

#### **b. Surface Water**

According to the Maryland Department of Natural Resources, the study area falls within two 8-digit watersheds, the Isle of Wight Bay subwatershed (02-13-01-03) and the Sinepuxent Bay subwatershed (02-13-01-04) (**Figure III-9**). The Isle of Wight Bay, directly north of Sinepuxent Bay, has a drainage area of 56 square miles and a surface water area of 7.3 square miles including the St. Martin River. The average depth of this bay is 4 feet. The Sinepuxent Bay has a drainage area of 10.3 square miles and a surface water area of 9.3 square miles (Boynton et al. 1993). This bay has a shallow average depth of 2.2 feet, despite depths around the Ocean City Inlet reaching 25 feet. Bottom sediments are fairly coarse, consisting mostly of sand and, to a lesser degree, silt (Wells et al. 1996). Surface waters in the project vicinity serve as habitat for anadromous fish and are classified as Use II waters (Shellfish Harvesting Waters). The Use Classification of all Maryland waters and the designated use of specific bodies of water within Maryland is defined by COMAR 26.08.02.07-.08. Water quality criteria specific to designated use is defined by COMAR 26.08.02.03.

The Sinepuxent Bay/Isle of Wight Bay area is a shallow coastal embayment, characterized by the mixing of freshwater from surface runoff and groundwater inputs and saltwater from inlets connected to the Atlantic Ocean (Boynnton et. al. 1996). Water quality in the Maryland coastal bays is vulnerable to nutrient enrichment and eutrophication (low dissolved oxygen content due to excess nutrients) because of shallow water depths, poor flushing, and runoff from nearby urban and agricultural areas.

Long term ambient water quality monitoring of mid-channel waters indicate that Isle of Wight Bay, north of the project area, is polyhaline (highly brackish) with salinities ranging from 23 to 33 parts per thousand (ppt) (DNR 2007a). Water temperature and dissolved oxygen vary depending on the season and water depth, ranging from 36.9 to 78.1°F and 5.4 to 11 mg/L, respectively. The pH in Isle of Wight Bay generally ranges from 7.6 to 8.3, and water clarity (secchi depth) ranges from 0.3 to 3 meters.

Monitoring of water quality parameters including chlorophyll *a*, total nitrogen, total phosphorous, and dissolved oxygen was conducted by Maryland Department of Natural Resources (DNR) from 2001 through 2003 to determine the status of water quality in the Maryland coastal bays (Wazniak et. al. 2004). Results of this monitoring indicated that water quality conditions in the open waters of Isle of Wight Bay in the vicinity of the study area were good and provided the necessary habitat conditions for fish and sea grass survival.

#### **c. Submerged Aquatic Vegetation (SAV)**

The Virginia Institute of Marine Science (VIMS) conducts annual SAV surveys throughout the Maryland coastal bays using aerial photography. No SAV has been found within the proposed US 50 Crossing study area by the VIMS over flight surveys in recent years, including 2006 (VIMS 2007). A recent analysis of SAV habitat conditions in the study area concluded that shoals near the US 50 bridge should not be considered suitable habitat for SAV due to relatively reduced water clarity caused by natural turbidity (Koch 2007).

### **4. Jurisdictional Waters of the United States**

#### **a. Wetlands**

Wetland identification and delineation efforts occurred on May 7 & 8, 2007 in accordance with the *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1 (Department of the Army Waterways Experiment Station, 1987) and supplemental guidance. A wetland delineation report (JMT, May 2007) details the findings of the wetlands and other waters of the United States (WUS) located within the study area. **Figure III-9** shows the wetlands and WUS located within the study area. A wetland Jurisdictional Determination (JD) will be scheduled with the U.S. Army Corps of Engineers (USACE) and the Maryland Department of the Environment (MDE) upon selection of the Preferred Alternative.

The wetlands within the study area were characterized by their Cowardin Classification and the functions and values were assessed for each delineated wetland. The acreage of wetlands

calculated is only within the study area boundary. Wetlands and other WUS that continued outside of the study area boundary were left open-ended.

Tidal waters of the Sinepuxent and Isle of Wight Bays were field verified. These waters are classified as Estuarine Subtidal Open Waters (E1OWL) by the National Wetlands Inventory (NWI) mapping. The eastern shoreline is defined by developed waterfront properties and bulkheads. The shoreline surrounding the bridge abutments on both sides has been filled and bulkheaded.

One Estuarine Intertidal Emergent Narrow-Leaved Persistent (E2EM5Pd) wetland was delineated along the western shore, just north of US 50. Dominant vegetation consisted of saltmarsh cordgrass (*Spartina alterniflora*), saltmeadow cordgrass (*Spartina patens*), phragmites (*Phragmites australis*), sea lavender (*Limonium carolinianum*) and slender glasswort (*Salicornia europaea*).

Three narrow, linear non-tidal palustrine emergent (PEM) wetlands were located along the US 50 right-of-way, west of the bridge. All three non-tidal wetlands were similar in vegetation consisting of phragmites, broad-leaf cattail (*Typha latifolia*), soft rush (*Juncus effusus*), spike rush (*Eleocharis obtusa*) and groundsel tree (*Baccharis halimifolia*).

#### **b. Other Waters of the United States**

The Harry W. Kelley Memorial Bridge crosses the Isle of Wight Bay / Sinepuxent Bay, a coastal bay directly connected to the Atlantic Ocean. The National Wetlands Inventory (NWI) mapping designates the Sinepuxent Bay as an Estuarine Subtidal Open Waters (E1OWL). The eastern shoreline is defined by developed waterfront properties and bulkheads. The shoreline surrounding the bridge abutments is bulkheaded as well.

The western shoreline is defined by bulkheads and natural shoreline. The limits of tidal waters and wetlands were delineated on May 7 & 8, 2007 following the delineation methodology contained in the Corps of Engineers Wetland Delineation Manual, Technical Report Y-87-1 (Environmental Laboratory, 1987).

Waters of the United States (WUS) located within the study area are tidal waters defined by the mean high tide elevation. The Sinepuxent and Isle of Wight Bays are regulated as navigable WUS under Section 10 of the Rivers and Harbors Act. The water resources within the study area are shown on **Figure III-9**.

### **5. Floodplains**

According to the FEMA Flood Insurance Rate Maps, the majority of the study area is within the 100-year floodplain of Sinepuxent Bay. The extent of the floodplain area is shown on **Figure III-9**.

**Figure III-9: Water Resources Map**

## 6. Chesapeake and Atlantic Coastal Bays Critical Area

In 1984, The Critical Areas Act was enacted by the Maryland General Assembly to help reverse the deterioration of the Chesapeake Bay. In 2002, the program was expanded to include the Atlantic Coastal Bays. The Act recognizes that the land immediately surrounding the Bays and their tributaries has the greatest potential to affect its water quality and wildlife habitats. The “Critical Area” is designated as all land within 1,000 feet of tidal waters or from the edge of tidal wetlands. The Act is designed to promote environmentally sensitive stewardship of land in the Critical Area. It addresses three principal concerns:

- Minimize adverse impacts on water quality from pollutants that are discharged from point sources or runoff from surrounding lands;
- Conserve fish, wildlife and plant habitat in the Critical Area; and
- Establish land use policies for development that accommodate growth, yet address the environmental impacts associated with the number and activities of people in the Critical Area.

There are 3 land use classifications identified within a defined Critical Area: Resource Conservation Areas (RCA), Limited Development Areas (LDA), and Intensely Developed Areas (IDA). IDAs are the areas that were predominated by residential, commercial, industrial, and institutional land uses at the time of the original Critical Area mapping and where relatively little natural habitat occurred. IDAs are also considered the preferred locations for future growth through redevelopment and/or new development.

The entire study area is located within an IDA as classified by the Critical Area Commission for the Chesapeake and Atlantic Coastal Bays. Refer to **Figure III-10**.

The Atlantic Coastal Bays Protection Act generally requires the establishment of a 100-foot, undisturbed, naturally vegetated or planted Buffer landward from the mean high water line of tidal waters or from the edge of tidal wetlands or tributary streams. The purpose of the Buffer includes:

- Filter sediments, nutrients and potentially harmful or toxic substances from entering the Atlantic Coastal Bays or their tributaries;
- Minimize disturbance to wetlands, shorelines, stream banks, tidal waters, and aquatic resources from human activities;
- Maintain an area of transitional habitat between aquatic and upland communities;
- Maintain the natural environment of streams; and
- Protect riparian wildlife habitat.

**Figure III-10: Critical Area Map**

## 7. Terrestrial and Aquatic Habitat and Wildlife

### a. Terrestrial Habitat and Wildlife

Because of the urban nature of the study area, terrestrial habitat is lacking. The field investigations confirmed that no forested areas, Forest Interior Dwelling Species (FIDS) habitat, or specimen trees exist within the study area. As such, terrestrial wildlife was not readily observed within the study area, with the exception of waterbirds. Skimmer Island is a documented waterbird colony that supports a variety of state-listed endangered colonial nesting waterbirds. Although not observed during the field investigation, the state endangered black skimmer (*Rhynchops niger*) and royal tern (*Sterna maxima*) have been documented as nesting on Skimmer Island. Other bird species noted during the field investigations are included in **Table III-10**.

**Table III-10. Bird Species Observed in the Study Area**

Birds Observed	
Common Name	Scientific Name
boat-tailed grackle	<i>Quiscalus major</i>
great egret	<i>Casmerodius albus</i>
snowy egret	<i>Egretta thula</i>
willet	<i>Catoptrophorus semipalmatus</i>
Canada goose	<i>Branta canadensis</i>
fish crow	<i>Corvus ossifragus</i>
common tern	<i>Sterna hirundo</i>
laughing gull	<i>Larus atricilla</i>
herring gull	<i>Larus argentatus</i>
great-black-backed gull	<i>Larus marinus</i>
double-crested cormorant	<i>Phalacrocorax auritus</i>
Atlantic brant	<i>Branta bernicla</i>
American oyster catcher	<i>Haematopus palliatus</i>
red-winged blackbird	<i>Agelaius phoeniceus</i>

### b. Aquatic Habitat and Wildlife / Fisheries

Shallow Water Habitat (SWH) is defined as open water with a depth less than 6.5 ft (2 meters), generally found at the edge of shorelines. Shallow water areas may provide potential habitat for submerged aquatic vegetation and often supports diverse aquatic life. The majority of open water within the study area, with the exception of the federally managed navigation channel, is considered to be SWH.

The Maryland coastal bays support a high diversity of finfish (over 140 species) that utilize the area for feeding and nursery habitat (Wazniak and Hall 2005). The Maryland DNR conducts trawl and seine surveys at several sites in the vicinity of the proposed US 50 Crossing project area. Seine and trawl data from 1990 through 2005 for sites in the Isle of Wight Bay and northern Sinepuxent Bay indicate a high diversity of finfish species (Luisi 2006). A total of 98 finfish species have been identified during the survey. Atlantic silverside (*Menidia menidia*) was

the dominant finfish species in the seine collections, and bay anchovy (*Anchoa mitchilli*) was the dominant finfish collected during the trawl surveys in the vicinity of the project area.

Commercially important fish species collected during DNR trawl and seine surveys from 1990 through 2005 (Luisi 2006) in the vicinity of the project area included spot (*Leiostomus xanthurus*), Atlantic menhaden (*Brevoortia tyrannus*), bluefish (*Pomatomus saltatrix*), summer flounder (*Paralichthys dentatus*), American eel (*Anquilla rostrata*), Atlantic croaker (*Micropogonias undulatus*), red snapper (*Lutjanus campechanus*), weakfish (*Cynoscion regalis*), spotted seatrout (*Cynoscion nebulosus*), striped bass (*Morone saxatilis*), Spanish mackerel (*Scomberomorus maculatus*), king mackerel (*Scomberomorus cavala*), and red hake (*Urophycis chuss*).

Commercial harvesting of blue crab (*Callinectes sapidus*) is an important fishery in the Maryland coastal bays. From 1994 through 2004, commercial landing for blue crabs ranged from 0.42 to 1.5 million pounds annually (DNR 2007). Abundance trends indicate that populations of blue crab in Maryland coastal bays fluctuate annually, but have consistently maintained a successful commercial fishery (Wazniak and Hall 2005).

Over 20 species of finfish are targeted for recreational fishing activities in Maryland coastal waters. These include striped bass, summer flounder, bluefish, weakfish, Atlantic croaker, and tautog (Wazniak et al. 2004). In 2005, over 1.1 million persons fished in coastal and offshore waters of Maryland (NOAA - Fisheries 2007). In Worcester County, recreational fishing in the coastal bays and Atlantic Ocean comprise a significant source of revenue to the economy. Recreational fishing does occur within the study area and the US 50 Bridge and surrounding waters are popular fishing destinations.

Aquatic wildlife observed along the marsh tidal flats included marsh crab (*Sesarma reticulatum*), marsh fiddler crab (*Uca pugnax*), marsh periwinkles (*Littorina irrorata*) and Atlantic ribbed mussels (*Modiolus demissus*).

### **Essential Fish Habitat (EFH)**

The National Marine Fisheries Service (NOAA - Fisheries) has indicated that the study area and vicinity contains Essential Fish Habitat (EFH), which is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity". The US 50 Crossing study area is located along the boundary of two summary EFH designations. The EFH potentially affected by the proposed project includes both the Isle of Wight and Sinepuxent Bays and a portion of the Ocean City inlet.

Maryland's coastal bays are important habitat for a myriad of aquatic species, and are particularly notable as a nursery area for juveniles of many fish species that are important commercially and recreationally. More than 130 fish species use the coastal bays as foraging, spawning, and nursery habitat. These include some tidal and estuarine residents; however, the majority are marine migrants (Casey et al. 1999). Wirth (2000) found that finfish species occur in 4 distinct seasonal assemblages in the coastal bays: July through September (summer); October; November through March; and April through June.

Juvenile finfish abundance is typically low in the main channels; shallow, well-protected, and undeveloped areas typically harbor the most individuals. Recreationally and commercially-sized finfish individuals are typically found in the channels. Areas near the inlet and areas near locations with high current velocities nearby probably support the greatest numbers and diversity of finfish. Some of the significant commercial finfish areas include the edge of St. Martin's River, Newport Bay, Chincoteague Bay (2 to 3 miles south of Newport Bay mouth), and off the mouth of Greys Creek. Although the southern coastal bays are much larger and are considered to be more pristine than the northern coastal bays, the northern coastal bays support a higher diversity of finfish species. This occurs presumably as a consequence of the wider range of physical habitat conditions that occur in the northern bays, particularly salinities, depths, and current velocities (USACE 1998).

Based on surveys, the ecosystem health assessment for the Maryland coastal bays, and life history information, only some of the species designated by the NOAA - Fisheries are anticipated to be found in the project area. **Table III-11** includes a list of the designated species and lifestages potentially affected by the proposed project. The list also specifies which species are likely to be found within the study area.

**Table III-11. MSFCMA Species Potentially Utilizing Maryland Coastal Bays**

Common Name	Scientific Name	Lifestages
Atlantic cod*	<i>Gadus morhua</i>	adults
red hake	<i>Urophycis chuss</i>	eggs, larvae, juveniles
winter flounder	<i>Pleuronectes americanus</i>	juveniles, adults
windowpane flounder	<i>Scopthalmus aquosus</i>	eggs, larvae, juveniles, adults
Atlantic sea herring	<i>Clupea harengus</i>	juveniles, adults
monkfish*	<i>Lophius americanus</i>	eggs, larvae
Bluefish	<i>Pomatomus saltatrix</i>	juveniles
Atlantic butterfish	<i>Peprilus triacanthus</i>	eggs, juveniles, adults
summer flounder	<i>Paralichthys dentatus</i>	larvae, juveniles, adults
scup	<i>Stenotomus chrysops</i>	juveniles, adults
black sea bass	<i>Centropristus striata</i>	juveniles, adults
king mackerel	<i>Scomberomorus cavalla</i>	eggs, larvae, juveniles, adults
Spanish mackerel	<i>Scomberomorus maculatus</i>	eggs, larvae, juveniles, adults
Cobia	<i>Rachycentron canadum</i>	eggs, larvae, juveniles, adults
sand tiger shark	<i>Odontaspis taurus</i>	neonate/early juveniles, adults
blue shark*	<i>Prionace glauca</i>	adults
Atlantic angel shark	<i>Squatina dumerili</i>	neonate/early juveniles, late juveniles/subadults, adults
dusky shark	<i>Charcharinus obscurus</i>	neonate/early juveniles, late juveniles/subadults
sandbar shark	<i>Charcharinus plumbeus</i>	neonate/early juveniles, late juveniles/subadults, adults
scalloped hammerhead shark*	<i>Sphyrna lewini</i>	late juveniles/subadults
tiger shark*	<i>Galeocerdo cuvieri</i>	neonate/early juveniles
Atlantic sharpnose shark*	<i>Rhizopriondon terraenovae</i>	adults

\* Species unlikely to be found in project area.

## 8. Rare, Threatened and Endangered Species

The Maryland Department Natural Resources (DNR) and the U.S. Fish and Wildlife Service (USFWS) were consulted to determine if any records of rare, threatened or endangered species were located in the study area. The USFWS responded that except for the occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the study area. The DNR responded that Skimmer Island is a known waterbird colony that supports a variety of breeding waterbirds, including state-listed endangered species. These species are described in detail in the following sections. Correspondence from the DNR and USFWS is included in **Section V**.

### a. Colonial Nesting Waterbirds

The DNR determined that Skimmer Island is a waterbird colony that supports a variety of breeding waterbirds, including the state-listed endangered black skimmer (*Rhynchops niger*), and is the only known location that supports the state-listed endangered royal tern (*Sterna maxima*) (**Table III-12**). Skimmer Island is a flood tidal shoal system that provides essential nesting habitat for these state-listed species, as well as other colonial nesting waterbird species of conservation interest, such as the sandwich tern (*Sterna sandvichensis*). DNR records have indicated that neither state-listed endangered bird has been documented nesting on Skimmer Island since 2004.

The island to the northeast of Skimmer Island is called Ocean City Spoils. Information from 2002 indicates that Ocean City Spoils supports the following species of birds: sandwich tern, black crowned night heron, cattle egret, great egret (*Casmerodius albus*), little blue heron, snowy egret (*Egretta thula*) and tri-colored heron. The little blue heron, sandwich tern and tri-colored heron are on the DNR's 'Watch List' as species that may become rare in the future. Their habitat is protected within the Critical Area.

### b. Marine Turtles

Based on an informal consultation letter from the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA - Fisheries) to the Federal Highway Administration (FHWA) dated August 12, 2005 and a later memo, the following threatened and endangered species are a concern for the project: the green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricate*), Kemp's ridley (*Lepidochelys kempi*), leatherback (*Dermochelys coriacea*), and loggerhead turtles (*Caretta caretta*) (**Table III-12**).

An Endangered Species Act Section 7 Biological Assessment of sea turtle utilization in the Maryland coastal bays has been prepared and submitted to NOAA - Fisheries for review. NOAA - Fisheries is currently in the process of preparing a formal response, which will be included in the Final Environmental Impact Statement (FEIS). The assessment indicated that several species of sea turtles occur in Maryland coastal waters from April 1<sup>st</sup> to November 30<sup>th</sup>, each year. Loggerhead, Kemp's ridley, and green sea turtles are the most common species in these waters. Leatherback sea turtles predominately live in the ocean far from land, but are seasonally present in Maryland coastal waters. The hawksbill turtle was identified as also potentially occurring in

Maryland coastal waters. No critical habitat or nesting areas are known to exist in the vicinity of the study area.

Of the 5 sea turtle species identified by the NOAA - Fisheries, loggerheads are the most likely to be found along Maryland’s Atlantic coast (Kimmel 2004). From 1991 to 2003 (the most recent data available), Maryland DNR has records of 161 loggerhead strandings along the Atlantic Coast of Maryland. Leatherback turtles had the second highest number (15) of strandings off Maryland’s Atlantic coast. There were 6 Kemp’s ridley and 1 green sea turtle stranded along the Atlantic coast for the same time period. There are no recorded strandings of hawksbill turtles along the Atlantic coast of Maryland from 1991 to 2003 (Kimmel 2004). Sea turtles along the Atlantic Coast of Maryland were most likely to be found along Assateague Island, though a smaller number were reported along the beaches of Ocean City, Maryland.

Only 11 of the 185 sea turtles stranded along the Atlantic coast of Maryland (1991-2003) were found in the coastal bays. This includes 5 sea turtles (4 loggerheads, 1 green) from the Sinepuxent Bay, and 6 sea turtles (5 loggerheads and 1 Kemp’s ridley) in the Isle of Wight Bay. Most sea turtle strandings from 1991 to 2003 in Maryland waters occurred during the spring and summer months, though 1 green sea turtle stranded in October and some loggerheads have been stranded during the winter months. There are no recorded strandings for the months of March and April from 1991 to 2003 (Kimmel 2004). Habitat descriptions of threatened and endangered species are included in **Table III-12**.

**Table III-12. Species of Interest within the Study Area**

Common Name	Scientific Name	Status
Black Skimmer	<i>Rhynchops niger</i>	State Endangered
<u>Habitat Description:</u> Nest in colonies on coastal beaches, inlets, sandbars, offshore islands, and dredge disposal islands that are sparsely vegetated and contain shell fragments. The growth of dense vegetation may cause colony relocation. Black skimmers forage in shallow-water tidal creeks, inlets, and ponds.		
Royal Tern	<i>Sterna maxima</i>	State Endangered
<u>Habitat Description:</u> Found only along ocean beaches. Royal Terns nest on natural islands and shoals, and dredged-material islands. Royal Terns will also nest on barrier beaches. Bare sand or shell substrate is preferred, but these terns will tolerate some herbaceous vegetation. Makes its nest on the ground on low-lying islands.		
Green Turtle	<i>Chelonia mydas</i>	Federally Threatened
<u>Habitat Description:</u> Primarily live in the Atlantic, Pacific, and Indian oceans in tropical or subtropical waters. As juveniles they are live offshore in open waters for several years. Once they reach a certain age they return inshore to more coastal waters.		
Hawksbill Turtle	<i>Eretmochelys imbricata</i>	Federally Endangered
<u>Habitat Description:</u> Primarily live in the Atlantic, Pacific, and Indian oceans in tropical or subtropical waters. They live in the open oceans the first years of their lives and then return to more coastal waters. Adults are commonly found in coral reef habitats.		
Kemp’s ridley Turtle	<i>Lepidochelys kempii</i>	Federally Endangered
<u>Habitat Description:</u> Primarily live in coastal waters and bays of the Gulf of Mexico and the northern Atlantic Ocean. Commonly found dwelling in shallow waters. Juveniles frequent bays, coastal lagoons, and river mouths. Adults are present seasonally near river mouths and nesting grounds.		
Leatherback Turtle	<i>Dermochelys coriacea</i>	Federally Endangered
<u>Habitat Description:</u> Commonly found in the open ocean waters away from the coast or sea floor, except when nesting. These are the most migratory of sea turtles as they can tolerate a wide range of water temperatures and have been sighted along the entire continental coast of the United States, much further north than other sea turtle species.		
Loggerhead Turtle	<i>Caretta caretta</i>	Federally Threatened
<u>Habitat Description:</u> Primarily live in subtropical and temperate ocean waters worldwide. Juveniles are mostly found		

farther offshore in open waters where they migrate after hatching. Between the ages of 7 to 12 years they migrate back to inshore coastal bays and estuaries where they mature into adulthood. Nesting occurs on ocean beaches; usually narrow, steeply sloped, coarse-grained beaches.

### **c. Aquatic Species**

The only state-listed fish species known to exist in the Maryland coastal bays is the spotfin killifish (*Fundulus luciae*). The current status of the spotfin killifish is rare, and it is actively tracked by the DNR Wildlife Heritage Service. The spotfin killifish has been occasionally collected during DNR seasonal seine surveys in the vicinity of the study area (Luisi 2006). The spotfin killifish generally prefers tidal rivulets and puddles in the upper reaches of intertidal marshes (Murphy et. al. 1997), and thus is most likely to be encountered in tidal wetland areas of the study area.

## **D. HAZARDOUS MATERIALS / WASTE SITES**

### **1. Methodology**

A hazardous materials Initial Site Assessment (ISA) was conducted to identify, to the extent feasible pursuant to the process prescribed in American Society for Testing and Materials (ASTM) E 1527-05, recognized environmental conditions (RECs) in connection with the study area. The assessment was performed in general conformance with the ASTM Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. A REC is defined as the presence or likely presence of hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or material threat of a release of any hazardous substance or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property.

An ISA consists of a review of current and historic activities and conditions at the property and surrounding properties, including a non-intrusive visual inspection of the property; review of local, state, and federal regulatory database records; review of available historic records; and a survey of adjacent land uses.

The following required federal, state and tribal environmental databases were reviewed as part of the investigation:

- National Priorities List (NPL)
- Delisted NPL
- NPL Liens
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Information System (CERCLIS) list
- CERCLIS-No Further Remedial Action Planned (NFRAP) list
- Resource Conservation and Recovery Act (RCRA) Corrective Action Sites (CORRACTS) list
- RCRA non-CORRACTS TSD list
- RCRA generator list
- US INST CONTROLS list

- US ENG CONTROLS list
- Emergency Response Notification System (ERNS)
- State Hazardous Waste Sites (SHWS)
- Solid Waste Facilities/Landfills (SWF/LF)
- Oil Control Program Cases (OCPCASES)
- UST
- Voluntary Cleanup Program (VCP)
- INST CONTROL
- INDIAN RESERV

## 2. Historic Review and Regulatory Review

Six historic USGS topographic maps covering approximately 100 years (from 1901 - 1998) were reviewed to learn about past land uses in the study area. The results of the review are included in **Table III-13**.

**Table III-13. Review of USGS Topographic Maps**

<b>Date</b>	<b>Study Area</b>	<b>Adjacent Properties</b>
1901 (15-min. Series)	No structures are present on the west end of the present day US 50 Bridge location. Two piers extend into the Sinepuxent Bay on the east end of the present day US 50 Bridge location.	A rail line crosses Sinepuxent Bay south of the present day US 50 Bridge location. Several structures are indicated surrounding the study area east of the present day US 50 Bridge location.
1942 (7.5-min. Series)	The US 50 Bridge is shown. There are many structures at the east end of the US 50 Bridge; however, their specific uses are not noted. A pier extends into Sinepuxent Bay from Talbot St. No structures are present on the west end of the US 50 Bridge.	Many structures are shown around the study area on the east end of the US 50 Bridge; however, their specific uses are not noted. The current Ocean City Inlet to the south is now present.
1948 (15-min. Series)	Specific structures are not depicted on this map. As such, the US 50 Bridge is not shown although it's apparent from the 1942 map that it is existing at this time. The road network is similar to the 1942 map.	The rail line bridge depicted on the 1901 map is labeled US 213.
1964 (7.5-min. Series)	A marina/channel is shown on the southern side of the west end of the US 50 Bridge. A small square-shaped structure is located between the marina/channel and US 50. With the exception of a church (at the corner of Baltimore Ave. and N. Division St.), individual structures are no longer shown at the east end of the US 50 Bridge.	A sewage disposal plant is located one block north of the study area on the east side of the US 50 Bridge, along Sinepuxent Bay. A fire house is shown one block south of the study area along Baltimore Ave. The US 213 Bridge has been removed.
1972 (7.5-min. Series)	No significant changes from the 1964 map.	No significant changes from the 1964 map.
1998 (7.5-min. Series)	A structure in the area of the current Hoopers Restaurant is depicted on the west end of the Bridge, north of US 50. No other significant changes from the 1972 map.	No significant changes from the 1972 map.

### 3. Site Reconnaissance and Potential Site Hazard Ranking

From June 4 through 6, 2007, an on-site Initial Site Assessment (ISA) of the study area, which consisted of a walk-through observation of the accessible areas and interviews with available study area personnel, was conducted. After the Final ISA, Alternative 4 Modified was identified by SHA. An additional ISA was conducted on December 3 and 4, 2007 to cover the extension of the study area due to Alternative 4 Modified. The information gathered in December is included as an addendum to the original ISA.

The study area is defined as 132 parcels potentially affected by the project. One hundred and twenty-nine of the parcels are located on the eastern side of the US 50 Bridge, while the remaining 3 parcels are located on the western side of the US 50 Bridge. The study area consists of a mixture of residential and commercial properties including, but not limited to, summer rental properties, apartments, a gas station, motels, restaurants, a church, a convenience store, multiple parking areas, and a concrete mixing facility.

One hundred and thirty-two sites were reviewed for potential environmental concerns and ranked into 4 categories: “high”, “medium/high”, “medium”, and “low” of potential for environmental concern. The criteria for this ranking are presented in **Table III-14**.

**Table III-14: Hazardous Site Ranking Criteria**

<b>High</b>	<ul style="list-style-type: none"> <li>• Industrial facilities</li> <li>• Landfills</li> <li>• Gasoline stations with documented subsurface releases or open UST OCPCASES</li> <li>• Remediation system in place</li> <li>• Auto repair facilities</li> <li>• Pits and lagoons</li> <li>• Paint manufacturing facilities</li> <li>• Dry Cleaners</li> <li>• Above-ground storage tanks with a large amount of staining</li> <li>• PCB containing transformers with major stains</li> <li>• USTs containing transformers with major stains</li> <li>• Surface dumps with drums or other hazardous materials</li> </ul>
<b>Medium / High</b>	<ul style="list-style-type: none"> <li>• In use USTs containing petroleum or other hazardous substances</li> <li>• Mounds</li> <li>• Surface dumps with empty drums or other materials of concern</li> <li>• Above-ground storage tanks with several medium stains</li> <li>• PCB containing transformers</li> <li>• Out of use UST, but still in place minor stains</li> </ul>
<b>Medium</b>	<ul style="list-style-type: none"> <li>• Small amounts of surface staining</li> <li>• Stressed vegetation</li> <li>• Slightly discolored water</li> <li>• Unmarked transformers</li> <li>• PCB containing transformers, no staining</li> <li>• Large surface dumps containing household wastes</li> <li>• Above-ground storage tanks with a few small stains or no staining, but of questionable integrity</li> <li>• UST OCPCASES that are closed and UST that are out of use</li> </ul>
<b>Low</b>	<ul style="list-style-type: none"> <li>• Small surface dumps containing household wastes</li> <li>• Septic systems</li> <li>• Non-PCB containing transformers with no stains</li> </ul>

<ul style="list-style-type: none"> <li>• Above-ground storage tanks (relatively new) with no staining or evidence of poor structural integrity</li> <li>• Sites listed within the applicable ASTM search distance, that are deemed to have a low potential to negatively impact the proposed project because of the distance from the listed site to the proposed project</li> <li>• Sites listed as SQG or LQG with no violations</li> </ul>
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The following table (**Table III-15**) identifies each site that was determined to be a REC. The table includes the database where the site is listed (if known), site observations and the hazard ranking. A further discussion of certain sites potentially impacted by the project is located in **Section IV.D.1**. The sites listed below are shown on **Figure III-11**.

**Table III-15: Project Hazard Ranking**

Parcel #	Regulatory Database Report Listing(s)	Site Observations	Hazard Ranking
3968	Historical UST; OCPCASES	Site is a concrete mixing plant. Solvent used in the vehicle cleaning process. Used oil collection area poorly maintained with visible staining. Oil/water separator for vehicle wash water. 275-gallon used oil AST. Large concrete retention area with bright green liquid (Daratard - a concrete additive). Four (or five) USTs reportedly removed - no documentation available. Second empty 500-gallon AST is no longer in use.	High
4004, 4005, and 4006	UST, Hist UST	<u>Parcel 4004</u> : Three vehicle service bays with heavy staining on floor; floor drain leads directly to public sanitary sewer system. Portions of the four USTs (diesel and gasoline) located on this parcel and parcel 4005. Former UST removed with no documentation. One AST for waste oil; no evidence of release. Two ASTs for storage of new oil. <u>Parcel 4005</u> : Contains pump island which is also partially located on parcel #4006, and the four USTs (diesel and gasoline) which are also partially located on parcel #4004. <u>Parcel 4006</u> : Contains pump island (which is also partially located on parcel #4005). The 1960 Sanborn map identified this parcel as a filling (gas) station; this filling station is a different facility than the current Shell station. Four vent pipes and a concrete pad observed in southwest corner; these are not associated with the current Shell USTs; could be for USTs of the historic filling station.	High
2466	None	1960 Sanborn identifies this property as a motor repair facility.	High
2570	None	City park with water fountain. The 1960 Sanborn identifies a filling station on the eastern portion.	High
2458	UST, Historical UST	One 3,000-gallon diesel UST and one 2,000-gallon gasoline UST. No emergency shut off at the single marina pump island. Two pump islands on marina pier/dock. UST fill port containment areas contain product. Fluid observed in diesel and gas fill port containment areas. Two historic USTs.	High
0227	None	Used oil shed in storage yard with visible staining on shed and ground. No access to the interior of the shed. Three “non-PCB” transformers; no visual evidence of leakage from the transformers.	High

<b>Parcel #</b>	<b>Regulatory Database Report Listing(s)</b>	<b>Site Observations</b>	<b>Hazard Ranking</b>
0569	OCPCASE, ERNS	One 500-gallon diesel AST and one 500-gallon gasoline AST. No access to generator storage shed; staining on concrete floor of generator storage shed observed through window; no subsurface pathways visible; no staining on exterior of shed. Two onsite drinking water wells.	Medium
4035	Historical UST	This parcel was identified as containing a gas tank on the 1928, 1941, and 1960 Sanborn maps. The site was also identified as having been a gas station until it was sold approximately 8 years ago by Ocean Petroleum Co., Inc. The site is currently a parking lot with no visual evidence of the former gas station or USTs.	High
4036	None	This parcel was identified as containing a gas tank on the 1928, 1941, and 1960 Sanborn maps. The site is currently a parking lot with no visual evidence of the former gas tanks.	High
3967	UST	This parcel was identified as a sewage disposal plant on both the 1941 and 1960 Sanborn maps. The sewage pumping station is located on this parcel and the abutting parcel (#4121). Emergency generator with diesel AST in good condition, and non-PCB transformer located on parcel; no visual evidence of releases.	High
3969	None	Suspected vent pipes, likely associated with the ASTs; potential that residence (21 St. Louis Avenue) also utilized storage tank(s). Natural gas meter observed on exterior.	High
3948-1	None	Prior to 1972, the building was used as a maintenance garage for Delmarva Power. Currently occupied by Western Auto automobile parts sales facility. Numerous one-quart oil containers for retail sale.	High
2459 and 2460	OCPCASES, UST, Historical UST	One 8,000-gallon diesel UST and one 4,000-gallon gasoline UST. Diesel UST fill port containment area contains product. Six pump islands on the marina pier. No emergency shut-off observed. The 1960 Sanborn identifies this property as a Machine Shop.	High

**Figure III-11: Potential Hazardous Sites**

## E. AIR QUALITY

An air quality analysis has been completed in accordance with the U.S. Environmental Protection Agency (EPA), FHWA, and MD SHA guidelines.

This project is located in Worcester County, Maryland. Worcester County is listed as “**not in non-attainment**” with NAAQS for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, PM 2.5, and lead. Due to the status of Worcester County relative to the National Ambient Air Quality Standards (NAAQS) criteria pollutants, this project is not subject to the Maryland State Implementation Plan (SIP). Conformity to the SIP is determined through regional air quality analyses of the Transportation Improvement Plan (TIP). Although not required, this project is in conformity with the SIP as it was analyzed as part of Maryland’s 2007 through 2012 State Transportation Improvement Plan (STIP) and listed as STIP Project Reference # WO4191.

Carbon Monoxide (CO) predictions were analyzed as the accepted indicator for vehicle induced air pollution. The EPA accepts the MOBILE 6.2 emissions factor models and CAL3QHC dispersion models to predict CO concentrations for the existing year (2004 data) and the design year (2030 data). These models predict current and future air quality impacts based on CO pollutant concentrations at a variety of sites in the project corridor. Computer modeled 1-hour concentration levels are combined with background concentrations and used to derive the 8-hour concentration levels, which are then compared to the NAAQS. The objective of this analysis is to consider the effects of the project on the local ambient air quality relative to the NAAQS. This is done to establish that proposed transportation improvement projects conform to the Clean Air Act (CAA) Amendments of 1990 and the SIP, as well the National Environmental Protection Act (NEPA) requirements relative to project-level air quality verification for this project.

A total of 106 receptors were used to predict both free-flow and idling condition CO concentrations for each of the alternatives in the project area. These receptors were selected to represent areas of possible human use at or near the facility, as well as sites in close proximity to intersections that produce worst-case concentration levels, and conform to available and pertinent EPA guidelines for micro-scale modeling. Based on available traffic data, 2004 was used as the existing year and 2030 was used as the design year for the project air quality modeling. Summertime traffic volumes and speeds were used in this analysis as they represent the worst-case LOS through the project corridor.

The EPA issued amendments to the Transportation Conformity Rule in March 2006 to address localized impacts of PM 2.5. These rules require the assessment of localized impacts of federally-funded transportation projects in PM 2.5 non-attainment areas for projects considered to be “projects of air quality concern.” Worcester County has been designated as a not in “non-attainment” of the NAAQS for PM 2.5. Therefore, this project is exempt from regional or micro-scale PM 2.5 analysis.

## F. NOISE QUALITY

### 1. Introduction

The FHWA has established procedures and criteria to determine and evaluate traffic noise impacts associated with vehicular use of roadways. The primary problems associated with highway noise are interference with human activity and general annoyances. Therefore, the goal of abatement programs is to minimize the impacts to exterior noise sensitive land uses.

The decibel (dB) is the basic unit of sound measurement. Decibels are units that represent relative acoustic energy intensities. Because the range of energy found throughout the spectrum of normal hearing is so wide, the numbers necessary to define these levels must represent huge variations of energy. To compensate for this wide range of numbers, a base 10 logarithmic scale is used to make the numbers more understandable.

Traffic noise is the sound generated by vehicles on streets and highways. The sound generated is composed of tire, engine, and exhaust noise. People respond differently to sound energy in varying acoustic frequency ranges. Sounds heard in the environment usually consist of a range of frequencies, each at a different level. The method of correlating human response to equivalent sound pressure levels at different frequencies is called “weighting”. The weighting system used to correlate human hearing to frequency response is the “A-weighting scale” and the resultant sound pressure level is called “A-weighted sound pressure level”. This is generally abbreviated by the expression dBA. The A-weighted decibel scale (dBA) is generally used in assessing community noise exposure because this scale closely approximates the frequency response of the human ear.

The A-weighted equivalent sound level (Leq) is the descriptor used most frequently in highway noise analyses. The Leq is the equivalent steady-state sound level, which represents the mean energy of sound intensity level for a given time period. This is the descriptor that will be used in this highway noise analysis.

Selection of NSAs for the project noise study was performed in accordance with MD SHA and FHWA policies. A total of 128 residences and one church were identified as noise sensitive land usage. The NSAs for the study area are displayed in **Figure III-12**. The following describes each of the identified NSAs in the study area:

**NSA 1** is located on the western shore of Sinepuxent Bay, to the south of the existing bridge structure. Two communities are represented by this NSA, namely the Inlet Isle Condominiums and the Estates at Inlet Isle communities. These 2 communities have been estimated as containing 20 and 18 residences respectively. US 50 is the dominant existing traffic noise source in this NSA.

**NSA 2** is located directly north of the eastern terminus of the existing bridge structure and the US 50 intersection with Philadelphia Avenue. Approximately 72 residential units have been identified (apartment buildings and multi-unit rental properties have been treated as multiple residential units). US 50 is the dominant existing traffic noise source in this NSA, with additional influence noted from Philadelphia Avenue and other local roadways.

**NSA 3** is located directly south of the eastern terminus of the existing bridge structure and the US 50 intersection with Philadelphia Avenue. Approximately 28 residential units have been identified (apartment buildings and multi-unit rental properties have been treated as multiple residential units). US 50 is the dominant existing traffic noise source in this NSA, with additional influence noted from Philadelphia Avenue and other local roadways.

**NSA 4** is located east of the eastern terminus of the existing bridge structure and the US 50 intersection with Philadelphia Avenue. This NSA contains the Ocean City Baptist Church, located along North Division Street between Philadelphia Avenue and Baltimore Avenue (MD 378). For the purposes of this study, the church was assigned a value equivalent to 10 residential units. The local roadway network - Philadelphia and Baltimore Avenues and Division Street - are the dominant existing traffic noise source in this NSA.

**Figure III-12: NSAs**

## 2. Methodology, Sample Results and Analysis

Short-term noise monitoring data (over 15-minute periods) were used to identify ambient acoustical conditions in the project study area. A total of 4 sites were used to identify existing ambient noise levels in the project area.

Generally, noise monitoring is limited to Tuesdays, Wednesdays, and Thursdays to reflect “typical” operating parameters of subject facilities. Noise monitoring for this project area was conducted on Thursday, May 3rd, 2007, using four Type 2 noise meters (two RION NL-22 noise meters and two Metrosonics db3100 noise meters). All meters were field calibrated prior to the monitoring periods to assure accuracy of the results.

Due to the wide variety of influences on ambient noise in the study area, including industrial noise and air traffic noise, it was determined that 24-hour noise monitoring would not be used for this analysis, and that noise monitoring should not necessarily correlate to peak-hour traffic volumes. Off-peak noise monitoring was used to ensure that free-flow travel conditions would be present on US 50 and other project area roadways, ensuring worst-case noise levels. Traffic counts on component roadways were taken concurrent to the monitoring periods to assist in the determination of the traffic noise influence on the individual sites. Other relevant information was noted at the time of the monitoring (i.e. aircraft fly-overs, construction noise, human interference with noise meters).

Data collected during those periods that were influenced by non-traffic noise was evaluated to determine the appropriateness of its inclusion in the traffic noise level calculation. When calculating the equivalent noise levels of the field observed data, the short-term data was scrutinized for outlier values typical of non-traffic noise sources. Where these outlier values were verified through corresponding field notes and/or additional evidence from the collected data (such as an atypical instantaneous “peak” level), those periods experiencing non-traffic noise influences were removed from the aggregate data that was used to calculate the field-observed equivalent noise level. Please refer to the *Noise Quality Technical Report* for the noise monitoring data sheets.

The monitored noise levels are presented in **Table III-16**. Please note that these monitored noise levels do not represent the existing worst-case noise levels, instead representing a “snap-shot” of existing conditions. The monitoring data was used in an attempt to calibrate the TNM noise models within the degree of accuracy specified by FHWA (+/- 3 dBA).

**Table III-16. Monitored Noise Levels**

Receptor Site	Monitored Noise Level (dBA)	Modeled Noise Level (dBA)	Difference
A1	60.8	54.1	6.7
B2	65.3	60	5.3
B3	61.5	63.6	-2.1
B3	66.4	67	-0.6

Calibration was unable to be achieved at 2 of the 4 sites. Industrial activity at the concrete facility near the A1 site elevated ambient noise levels above those generated (and capable of being predicted) by traffic sources. Calibration was not achieved at site B1 due to the contribution of the traffic on the local road (St. Louis Avenue) during the monitoring period.

Following calibration, the noise model was amended to incorporate additional variables to provide a more complete picture of the existing acoustical environment. Multiple modeled sites were included to represent noise sensitive land use in each of the NSAs (see **Figure III-12**). Additionally, the traffic speeds, volumes, and compositions were altered to reflect the worst-case 2004 traffic parameters, as provided by MD SHA. The resulting worst-case existing traffic noise levels are presented in **Table III-17**.

**Table III-17. Existing Worst-Case Traffic Noise Levels (dBA)**

NSA	Receptor Site	Dwelling Units Represented	Existing Worst Case Noise Level (dBA)
1	1-1	6	57
	1-2	6	52
	1-3	6	48
	1-4	10	62
	1-5	10	65
2	2-1	17	59
	2-2	12	64
	2-3	11	54
	2-4	11	60
	2-5	10	54
	2-6	11	62
3	3-1	4	58
	3-2	4	65
	3-3	4	67
	3-4	6	49
	3-5	4	50
	3-6	6	54
4	4-1	10	62

Shaded cells represent traffic noise impact levels

The data predicted by the existing worst-case noise model indicates that limited traffic noise impacts are currently evident in NSA 3. The impact zone is limited to Site 3-3, which is placed in a parking lot immediately adjacent to a residential structure at the base of the eastern terminus of the bridge, which is also adjacent to the US 50/Philadelphia Avenue intersection.

## **G. VISUAL AND AESTHETIC QUALITY**

US 50 is generally a 4-lane highway within the project limits, with characteristics similar to many of the nation's urban highways. Typical highway features include raised concrete medians of varying width, turn lanes, overhead utilities and traffic signals, and roadway signage. Within the study area, US 50 is not access controlled, and there are numerous access points to and from areas of commercial development along US 50. The portion of US 50 from MD 611 to MD 378 is part of a designated scenic byway.

The US 50 Bridge over the Sinepuxent Bay is a 4-lane, 46-foot wide roadway with 5-foot sidewalks on each side. The sidewalks are separated from the travel lanes by metal chain-link fencing, with several access points along the bridge. The bridge is lighted by a series of light posts along each side of the bridge. The existing bridge is approximately 1/2 mile in length with a 140-foot long draw span.

Traveling east into the study area, the existing bridge serves as a gateway to the Town of Ocean City, offering panoramic views of the downtown Ocean City area across the Sinepuxent Bay, although existing views are obstructed somewhat by the pedestrian fencing, light fixtures, and signage. Limited views of residential areas along US 50 in West Ocean City and the Skimmer Island Waterbird Colony can be observed from different points on the bridge. In Ocean City, the bridge slopes down, connecting to Philadelphia Avenue and other roads in Ocean City. Several bayside restaurants, marinas, and piers are noticeable from the bridge, in addition to the large concrete plant located north of the bridge.

Traveling from Ocean City, the existing bridge offers similar panoramic views of Sinepuxent Bay and portions of the commercial areas of West Ocean City. The Skimmer Island Waterbird Colony is more visible from the westbound lanes of the bridge.

Within the Town of Ocean City, the views are typical of a beach resort town, with the surrounding land uses dominated by stores, restaurants, residential properties, and hotels.