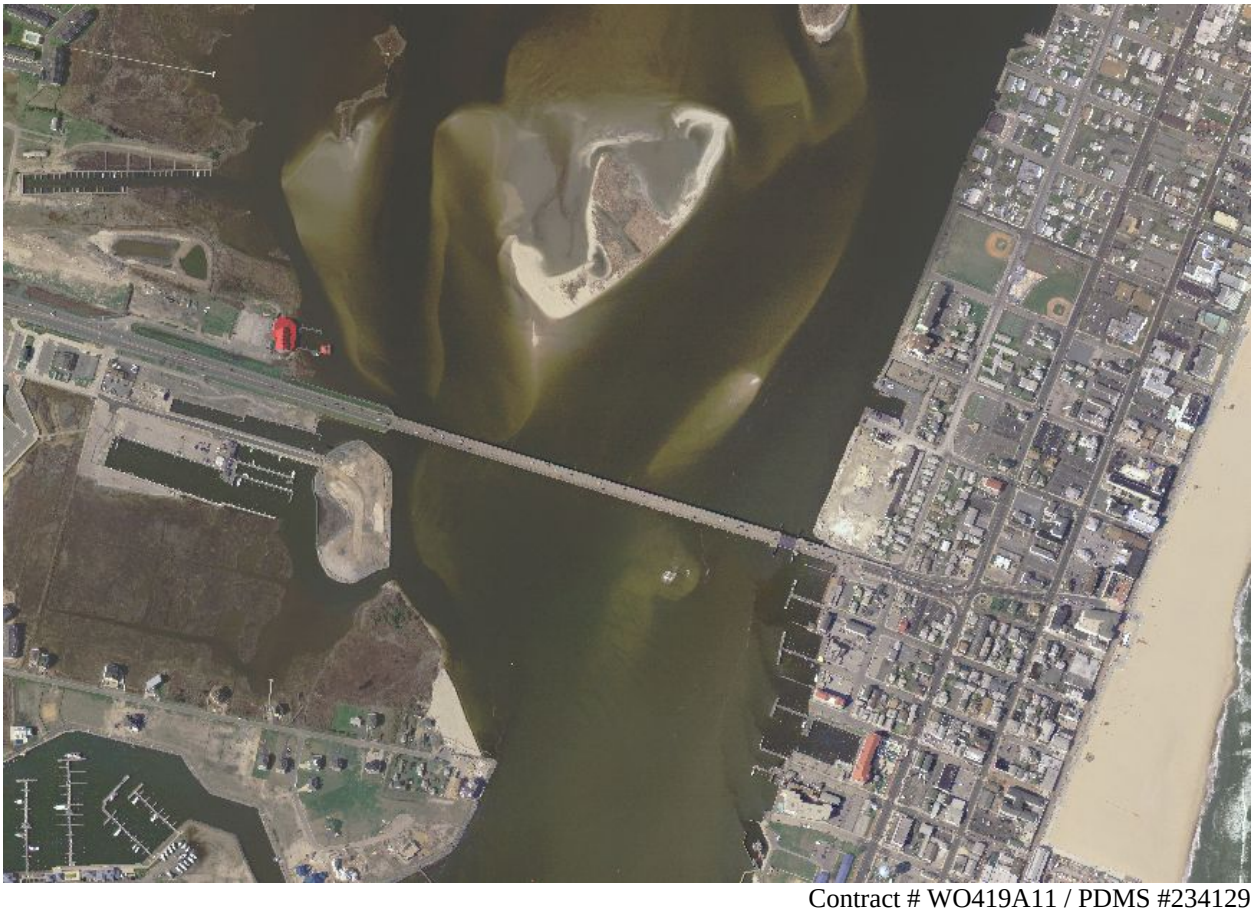
US 50 (Ocean Gateway) over Sinepuxent Bay

Project Planning Study

Worcester County

PURPOSE AND NEED STATEMENT



Contract # WO419A11 / PDMS #234129

State Highway Administration
Office of Planning and Preliminary Engineering

September 7, 2005

TABLE OF CONTENTS

I. INTRODUCTION

Existing Conditions

US 50 (Ocean Gateway) is the primary east-west route for Maryland's Eastern Shore. US 50 in the Ocean City Urban Area is classified as an Urban Other Principal Arterial according to the Federal Functional Classification System and a Principal Arterial according to the State Functional Classification System.

US 50's classification is due to it being a non-Interstate Principal Arterial serving travel movements of statewide and regional significance. Typically, these roadways link cities with populations greater than 25,000 and have a high percentage of trips equal to or greater than 25 miles in length. Furthermore, Principal Arterials are recommended to be access controlled to provide greater mobility for long distance travelers.

MD 528 (Philadelphia Avenue) and MD 378 (Baltimore Avenue) north of US 50 are Urban Other Principal Arterials according to the Federal Functional Classification System and Intermediate Arterials according to the State Functional Classification System (see Appendix A). They serve as the north-south spine through Ocean City and connect with US 50, MD 90, and DE 1 (see Appendix B). US 50 and MD 528/MD 378 north of US 50 are on the National Highway System.

MD 611 (Stephen Decatur Highway) is an Urban Other Principal Arterial near US 50 according to the Federal Functional Classification System. South of Airport Road it becomes a Rural Minor Arterial. It is also a Minor Arterial according to the State Functional Classification System. MD 611 connects US 50 to Assateague State Park and Assateague Island National Seashore.

The Harry W. Kelley Memorial Bridge (#23007) was built in 1942. It consists of a four lane, 46' roadway with 5' sidewalks on each side. The structural elements include 91 concrete slab spans; a 78' encased steel beam span, and a 140' double leaf bascule span (a drawbridge) totaling 2295' in length over Sinepuxent Bay. The existing bridge is in fair to poor structural condition with a bridge sufficiency rating of 41 on a scale of 0 to 100 (BSR=41). Its operating life expectancy is 15-20 years without any major repairs or 30-40 years with major repair work done. This bridge is one of the 41 bridges that SHA has committed to preserving as "Priority Level" historic bridges. Recent repair work performed on the bridge includes:

1985 - All pier piles were covered with pile jackets
1986 - Scour protection/new fender system and dolphins added
1997 - Deteriorated concrete repairs to substructures and misc. repairs
1999 - Electrical system upgrade

Repair work scheduled for winter 2005-2006 includes structural steel repairs to the bascule span, scour protection at the bascule piers, replacement of some span drive machinery, and substructure concrete repairs.

Project Background

Local elected officials support a study to develop options for the ultimate replacement of the Harry W. Kelley Memorial Bridge. This is needed not only to prepare for replacing/upgrading the existing structure in the future, but also to allow land use and other local facility planning to proceed. Interim development is expected near each end of the bridge and by establishing a preferred option now we may be able to work in conjunction with private and public plans and minimize future impact of a replacement or rehabilitation of the US 50 Bridge.

The Town of Ocean City would also like to see a beautification effort on the existing US 50 bridge that would include a separate fishing pier, so that pedestrians and cyclists can use the sidewalks without conflicting with people fishing off the bridge.

II. PURPOSE OF THE PROJECT

The purpose of this study is to develop a transportation solution that addresses transportation operational inadequacies and structural deficiencies as well as to improve safety for all users on the US 50 crossing of the Sinepuxent Bay in Worcester County, Maryland.

III. NEED FOR THE PROJECT

The US 50 bridge is 63 years old and has a limited life expectancy. The bridge has been assigned a sufficiency rating of less than 50 largely due to the structural rating of the movable span. The bridge is also considered functionally obsolete due to its narrow curb-to-curb roadway width, which is substandard for the ADT volumes that it carries, particularly during periods of peak recreational traffic. The need to maintain a safe and efficient crossing of US 50 is paramount, not only because it provides access to and from the commercial center of Ocean City, but also because it serves as one of only three evacuation routes from the barrier peninsula in case of emergency situations.

In addition, this study will address the need to safely accommodate the navigational needs of boaters, pedestrian and bicycle traffic, and the recreational needs of fishermen. Pedestrians, fishermen, and cyclists all currently share the same narrow five-foot sidewalks along the existing bridge, which creates potential conflicts among the various users. Finally, the study will also investigate aesthetic enhancements to any crossing representative of a coastal gateway resort.

IV. TRAFFIC ANALYSIS

The Average Daily Traffic (ADT) volumes in 2004 for US 50 between MD 611 and MD 378 average 48,600 during the summer and 27,200 for the rest of the year. Traffic forecasts indicate that in 2030 the volumes will increase to 35,200 normally and 55,300 during the summer. Currently, trucks comprise 6% of ADT on US 50. The Design Hour Volume (DHV) is 7% of ADT and the directional distribution of DHV is 51%.

Existing 2004 and 2030 No-Build Midday/Evening peak period Level of Service (LOS) projections were developed for US 50 between MD 611 and MD 378 for average and summer traffic volumes. Generally, at this location, the first peak hour of the day occurs in the late morning/ early afternoon, while the second peak hour occurs during the traditional evening time frame. A summary of the LOS analysis, with volume-to-capacity (v/c) ratios, for 2004 and 2030 is included below.

Intersection LOS Analysis – Average Traffic

Location	2004 Existing		2030 No-Build	
	Midday Peak	Evening Peak	Midday Peak	Evening Peak
US 50 @ MD 611 (Stephen Decatur Road)	A (0.48)	A (0.53)	B (0.63)	B (0.69)
US 50 @ Golf Course Road	A (0.46)	A (0.49)	A (0.59)	B (0.64)
US 50 @ MD 528 (Philadelphia Avenue)	A (0.61)	B (0.67)	C (0.79)	D (0.86)
US 50 @ MD 378 (Baltimore Avenue)	A (0.44)	A (0.45)	A (0.56)	A (0.58)

Intersection LOS Analysis – Summer Traffic

Location	2004 Existing		2030 No-Build	
	Midday Peak	Evening Peak	Midday Peak	Evening Peak
US 50 @ MD 611 (Stephen Decatur Road)	D (0.86)	E (0.96)	E (0.98)	F (1.09)
US 50 @ Golf Course Road	D (0.82)	D (0.88)	E (0.93)	E (1.00)
US 50 @ MD 528 (Philadelphia Avenue)	F (1.09)	F (1.19)	F (1.24)	F (1.35)
US 50 @ MD 378 (Baltimore Avenue)	C (0.78)	C (0.80)	D (0.89)	D (0.91)

LOS is a measure of the congestion experienced by drivers, and ranges from A (free flow with little or no congestion) to F (failure with stop-and-go conditions). LOS is normally computed for the peak periods of the typical day, with LOS D (approaching unstable flow) or better generally considered acceptable. At LOS E, volumes are near or at the capacity of the highway. LOS F represents conditions in which there are operational breakdowns with stop-and-go traffic and extremely long delays at signalized intersections.

Under average 2004 traffic conditions, all the intersections operate at LOS B or better. Under average 2030 traffic conditions, the US 50/MD 528 intersection is expected to operate at LOS C in the Midday peak and LOS D in the Evening peak. All other intersections operate at LOS B or better under 2030 average traffic conditions.

One important aspect to note is the close proximity of the US 50 intersections at MD 378, MD 528, and Golf Course Road to the drawbridge. On the east side of the bridge, the vehicles along MD 528 southbound back up into adjacent intersections waiting to turn right onto US 50. On the west side of the bridge, vehicles back up along eastbound US 50 and cause delays at the

Golf Course Road intersection. In order to allow for navigation, traffic is stopped completely for approximately five minutes while the drawbridge opens and closes. This sometimes leads to severe congestion in Ocean City during the summer season, when the drawbridge opens twice an hour.

The US 50/MD 528 intersection is the controlling factor for traffic on the Harry W. Kelley Memorial Bridge. Traffic going into and out of downtown Ocean City is essentially regulated by this intersection, which can cause congestion on the bridge and on MD 528. Under summer traffic conditions, the US 50/MD 528 intersection operates at LOS F in both 2004 and 2030. This is primarily due to southbound right turns onto US 50 from MD 528. The Midday/Evening LOS at the US 50/MD 611 intersection is expected to worsen from D/E in 2004 to E/F in 2030. This is primarily due to heavy westbound through volumes on US 50. All other intersections operate adequately in 2004 and 2030 summer traffic conditions.

Summer pedestrian activity at the US 50/ MD 528 intersection showed the heaviest number of pedestrians crossing the south and east legs of the intersection. During a 12-hour period (9:00am to 9:00pm), there were 318 pedestrians observed crossing MD 528 on the south side of US 50, and 641 pedestrians crossing US 50 on the east side of MD 528. Bicyclists are included in the pedestrian counts.

V. ACCIDENT DATA

US 50 from MD 378 to MD 611 experienced a total of 102 police reported accidents between January 2001 and December 2003. This translates to an accident rate of approximately 265 accidents per 100 million vehicle miles of travel, which is lower than the statewide rate of 340 accidents per 100 million vehicle miles of travel for all similarly designed highways under state maintenance. Of the total 102 accidents in the study area, 39 accidents occurred on the bridge. There were no Candidate Safety Improvement Locations identified within the study area during the three year study period.

There were two fatal accidents during this period which results in a fatal accident rate significantly higher than the statewide average fatal accident rate for this type highway. A 2001 fatal accident involved a head on collision which occurred during daylight hours on a wet road surface directly on the bridge. A 2002 fatal accident occurred in the vicinity of Elm Street and involved a bicyclist being struck while crossing US 50 during hours of darkness on dry pavement.

Although rear end, fixed object, and pedestrian accidents were higher than their respective statewide rates, none was considered to be significantly high. The percentage of nighttime accidents and wet surface collisions were within normal expectations when compared to the statewide percentage for these categories. Accidents involving alcohol use were significantly high.

Within the study area, there were four accidents involving bicyclists. None occurred on the US 50 Bridge. All of the bicycle accidents occurred during 2002. The bicycle accidents

occurred in the vicinity of Elm Street, MD 528, Golf Course Road, and at Stephen Decatur Road. There was also one pedestrian accident (2001) that occurred just west of MD 528 on US 50. This pedestrian accident involved a pedestrian being struck by a moped.

Of the total of 102 police reported accidents between January 2001 and December 2003, 72 occurred during the summer months, between May 1 and September 30. This represents 70 percent of the three year accident total.

None of the summertime accident severity categories were significantly high compared to the statewide average accident rate. The single summertime fatal accident was the 2001 incident described above. In no collision type category did the accident rate significantly exceed its respective statewide rate. Like the rest of the year, accidents involving nighttime and wet surface conditions were within normal expectations. Accidents involving alcohol use were again significantly high compared to the statewide percentage of accidents involving alcohol.

VI. LAND USE AND ZONING

Zoning in West Ocean City at the west end of the US 50 Harry W. Kelley Memorial Bridge over Sinepuxent Bay is General Business. This land use is intended to provide for intense commercial development near larger population centers when adequate vehicular access is available. South of US 50, the former Shantytown is being redeveloped to include waterfront townhouses. On the north side of US 50, additional shopping centers, and retail and service establishments are being developed.

Ocean City zoning at the east end of the US 50 bridge includes mixed commercial and residential uses at relatively high densities in low-rise structures (five story waterfront, four-story non-waterfront height limit). Immediately south of US 50 along the water are tourism oriented commercial, marinas, and marine support facilities. The Town of Ocean City is encouraging these uses to continue. On the north side are older residential buildings, a service station, and a batch concrete business recently sold to ADC Inc., a development corporation. ADC proposes constructing two to three, eight story high rise residential structures.

VII. PRELIMINARY ENVIRONMENTAL INVENTORY

The US 50 bridge (Harry W. Kelley Memorial Bridge) over Sinepuxent Bay is one of thirteen movable bridges built between 1916 and 1950 that have been included in the State Highway Administration's (SHA) Historic Bridge Inventory. It is eligible for inclusion in the National Register of Historic Places (NRHP) under Criterion C - Architecture and Engineering, as an example of a movable bridge characteristic of Maryland. A movable bridge over a waterway indicates a "working" river. In addition, fourteen buildings and sites located within the project area are part of Worcester County's architectural history and may be considered eligible for inclusion in the NRHP. Consultation is proceeding with the Maryland Historical Trust to determine eligibility of the historic standing structures.

An archeological assessment of the project area indicates that there are no recorded archeological sites in the project area, although undeveloped portions of the study area west of the bay may have the potential to contain undiscovered prehistoric archeological resources.

The project area is located within the Sinepuxent Bay 100-year floodplain designated by the Federal Emergency Management Agency (FEMA). The project is also within the limits of the critical area designated by the Atlantic Coastal Bays Critical Area Program (see Appendix C). In addition, National Wetlands Inventory (NWI) mapping and a Wetland Corridor Identification survey was used to identify tidal wetlands associated with the Sinepuxent Bay within the project area.

According to the Maryland Department of Natural Resources (DNR), the Sinepuxent Bay is classified as Use II (shellfish harvesting) waters that also serve as a habitat for anadromous fish including herring, shad, striped bass and white perch. Due to this condition, DNR recommends that time of year restrictions for Use 1 waters (March 1 through June 15) be observed should in-stream construction be proposed. The Maryland Department of the Environment (MDE) may require a Waterway Construction permit, and a permit may also be required from the U.S. Coast Guard since the US 50 bridge crosses navigable waters.

The National Marine Fisheries Service (NMFS) has indicated that the project area and vicinity is an Essential Fish Habitat (EFH) with an array of marine and estuarine federally managed finfish, particularly the summer flounder. There are also several species of threatened and endangered marine turtles known to be present within the project area and vicinity. NMFS recommends that an EFH assessment be prepared. In addition, a restriction period from April 1 through June 30 is recommended if in-stream construction is proposed. Consultation with the Protected Resources Division of NMFS will be initiated to determine the requirements for the project under the Endangered Species Act.

Coordination with DNR indicates that there is a waterbird colony located on Skimmer Island in the Sinepuxent Bay that may provide habitat for several state-listed endangered species of waterbirds including the Black Skimmer, Sandwich Tern and Royal Tern. The island is located within ¼ mile of the project limits north of the existing bridge. According to DNR, a protection area of ¼ mile radius from the colony's outer boundary has to be established. Within this area, three zones of protection are to be assigned: Zone 1 should extend from the outer boundary of the colony to a radius of 330 feet, Zone 2 should extend from 330 feet to 660 feet in radius, and Zone 3 should extend from 660 feet to ¼ mile (1,320 feet).

US 50 from MD 611 to MD 378 is part of a designated state scenic byway. Coordination with the Maryland Scenic Byways Program is ongoing to obtain guidance to preserve, maintain or enhance the character defining features related to the byway travel experience. Consultation with the Worcester County Recreation and Parks Department indicated that there are no existing or proposed publicly owned parks or recreational facilities located within the study area.

The project area is within the Priority Funding Area. Local elected officials support a study to develop options for the ultimate replacement of the Harry W. Kelley Memorial Bridge.

US 50 crosses over navigable waters to connect the mainland to the barrier peninsula. The existing drawbridge is attended twenty-four hours per day from May 1 to September 30 with scheduled openings between May 25 and September 15. Between October 1 and April 30, the draw tender requires three hours notice.

The Town of Ocean City is located on the barrier peninsula, which is composed of unconsolidated materials. The bay in the immediate proximity of the US 50 bridge is experiencing severe siltation. The shoreline near each end of the bridge has been filled or bulkheaded by adjacent landowners.

The US 50 Bridge over Sinepuxent Bay study is located within Census Tract 9901 (block groups 3 and 4), and Census Tract 9907 (block groups 1-3). The percentage of minority populations for the study area as a whole is 7.3 percent. This is below the average for the State of Maryland (36 percent) and the average for Worcester County (18.8 percent). The percentage of the population in poverty for the study area as a whole is 6.5 percent, with a total of 454 individuals below the poverty threshold. This is below the average for the State of Maryland (8.3 percent), and Worcester County (9.4 percent). The percentage of individuals with disabilities for the study area as a whole is 34.7 percent, with a total of 2,423 individuals with disabilities. This is in excess of the statewide average of 28 percent, and the Worcester County average of 33.9 percent.

VIII. MULTI-MODAL CONSIDERATIONS

The municipally owned and operated bus service generally runs north-south on MD 378 and MD 528. Recently, a large park and ride lot was constructed off Shantytown Lane in West Ocean City and bus service was established over the US 50 bridge to the lot to serve day trippers.

Bus service is also affected by traffic operations on and around the bridge. Local buses that run along MD 528 get caught in the congestion from southbound vehicles waiting to turn right onto US 50, especially since they travel in the right-hand lane. In addition, buses are also delayed by traffic operations across the bridge, which can become frustrating for riders.

Pedestrians and bicyclists use the sidewalk across the US 50 bridge. Bike traffic is increasing as seasonal workers move to West Ocean City. Recreational pedestrian and bicycle use is also frequent. Marine traffic under the US 50 bridge is largely private pleasure craft, fishing boats, and the US Coast Guard; commercial traffic is almost exclusively local commercial fishermen.

The Ocean City Airport is located two miles south of US 50 on MD 611. It serves private aircraft only; commuter service currently is unavailable. The airport terminal houses a flight school, car rental, and rental office space. A skydiving center is located on the airport grounds in a separate building.

IX. CONCLUSION

Since the existing bridge is in fair to poor structural condition with a bridge sufficiency rating of 41 and is considered functionally obsolete, a study is needed to prepare for replacing/upgrading the existing structure. Doing so now will help address failing traffic conditions, increase the structural soundness of the bridge, and accommodate all of its users.