

Ocean Drive Upgrades & Bridge Improvements
Local Concept Development Study
Township of Lower, Cape May County, New Jersey
Purpose and Need Statement

Purpose

The overall purpose of this project is to address structural, geometric, carrying capacity, and operational deficiencies of the two Cape May County-owned bridges and one Commission-owned bridge located on the Ocean Drive Causeway, and to provide safe, efficient, and reliable passage for all modes of transportation.

Identified Needs

Bridge and Roadway Deficiencies

The three main bridges on the causeway, Mill Creek, Upper Thorofare, and Middle Thorofare, were all constructed in 1939. All three bridges are currently deemed functionally obsolete due to their narrow widths. The Mill Creek and Upper Thorofare Bridges have low sufficiency ratings, while the Middle Thorofare Bridge is structurally deficient due to its inability to carry loads greater than 15 tons.

Mill Creek Bridge

The Mill Creek Bridge has been deemed functionally obsolete due to the narrow deck width. The superstructure (including deck slab and beams) of the Mill Creek Bridge is in fair condition. The deck is in fair condition due to the light to moderate scaling throughout all spans with several spans also exhibiting shallow spalling on both the top and underside and/or cracking with asphalt patches on the top of the deck. There is exposed reinforcement in all spans at the underside top flanges of the T-beams. The bridge railing is severely deteriorated and substandard since it does not meet current strength or geometric requirements. The substructure is in fair condition. There is undermining along both abutments, and severe scaling and deteriorated repair jackets at piers 5, 8 and 9 from the south. There is extensive cracking and spalling on the west end of the north abutment breastwall. The south abutment apron is undermined throughout. The curb-to-curb width of 20' is substandard, leading to the bridge being classified as functionally obsolete. Based on the 17th Cycle Bridge Re-evaluation Survey Report dated August 2016, the Load Factor Inventory Rating is 24 tons and the Operating Rating is 40 tons for the HS-20 Truck, and is therefore deficient. The bridge deck width of 20' is substandard to accommodate two 12-foot travel lanes. There are no shoulders.

Upper Thorofare Bridge

The Upper Thorofare Bridge is deemed to be functionally obsolete due to the narrow deck width. The superstructure (deck slab and beams) is in fair condition. The concrete T-beams have wide cracks and efflorescence at the bearing locations. The deck has both armored and non-armored joints over the piers. The joint material in most of these joints is deteriorated. The bridge railing is substandard for current strength and geometry and in poor condition with severe deterioration. Vehicular impact damage is visible at several locations. The bridge is currently listed structurally deficient due to the substructure being listed in poor condition. The substructure is in poor condition due to undermining of the North Abutment including deteriorated and missing grout bags at both abutments and medium to wide cracks and spalls on several concrete piles. The curb-to-curb width of 20' is substandard, leading to the bridge being classified as functionally obsolete. The bridge is on a horizontal curve and has no superelevation on the deck which is substandard. Based on the 17th Cycle Bridge Re-evaluation Survey Report dated August 2016, the Load Factor Inventory Rating is 27 tons and the Operating Rating is 45 tons for the HS-20 Truck, and is therefore deficient. The bridge deck width of 20' is substandard to accommodate two 12-foot travel lanes. There are no shoulders.



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Middle Thorofare Bridge

The Middle Thorofare Bridge consists of 21 fixed spans and one movable span that permits passage of vessels with an unlimited height and a maximum width of 50 feet. The structure is deemed functionally obsolete due to its narrow width, and structurally deficient due to its inability to carry loads greater than 15 tons. The overall condition of the structure is critical due to its low inventory live load ratings. The superstructure is in poor condition due to several holes, several vessel collision damages on bascule spans girders and arrested section loss on steel girders and all steel elements throughout the structure. The bridge railing is substandard for strength and geometry and is severely deteriorated. The substructure's overall condition is poor due to large spalls and wide cracking on the pier columns and severely deteriorated fender system. The curb-to-curb width of 20' is substandard, requiring the bridge to be classified as functionally obsolete. This configuration changes at the centrally located toll house where two 10' lanes traverse around the toll house. Based on the 14th Cycle Bridge Re-evaluation Survey Report dated October 2015, the Load Factor Inventory Rating is 13 tons and the Operating Rating is 21.1 tons for the HS-20 Truck, and is therefore deficient. The bridge deck width of 20' is substandard to accommodate two 12-foot travel lanes. There are no shoulders.

Controlling Substandard Design Elements (CSDE) were identified in the following categories:

- Stopping Sight Distance (Horizontal Curve)
- Minimum Radius of Curve
- Minimum Grade
- Lane Width
- Shoulder Width
- Bridge Width
- Design Loading

Due to the narrow roadway width and lack of shoulders at all three bridges along the Ocean Drive causeway, facilities for bicyclists and pedestrians are not provided. Despite these conditions, bicyclists continue to use the Ocean Drive causeway.

System Linkage

The Ocean Drive causeway provides an important multimodal link within the regional transportation network. Heavily utilized by cars, maritime vessels, and bicyclists, its connectivity is vital to the local economies.

The Ocean Drive causeway is a major north-south arterial roadway for regional and local travel and serves as a vital crossing for residents, commuters, tourists, school buses, emergency services vehicles, and commercial vehicles. The bridge is used by local communities as a coastal evacuation route. The Ocean Drive causeway also provides access to the Wildwoods, particularly in the peak tourist season.



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The connection provided by the Ocean Drive causeway is economically important, linking customers with local businesses. Local residents and business owners rely on the Ocean Drive causeway for their daily needs. Due to its local and regional importance, bridge closures become highly burdensome to the community particularly because of the lack of convenient detour routes. The Ocean Drive causeway requires a detour in excess of seven miles when closed. Due to the age of the bridge, emergency repairs requiring a full closure of the bridge will become more frequent, leading to the use of this lengthy detour.

The rehabilitation or reconstruction of the Ocean Drive causeway to provide more reliable conditions, that can serve the community as a vital economic connection, and as a necessary evacuation route in times of emergency, is paramount to this Local Concept Development Study.

Goals and Objectives

To provide a safe and efficient network for all users within the study area, the following is a list of goals and objectives that should be considered during alternatives development and incorporated into the Preliminary Preferred Alternative:

- Avoid delays or disruptions caused by aging infrastructure.
- Avoid or minimize impacts to social, economic and environmental resources.
- Accommodate recreation on the bridge where safe and appropriate.
- Accommodate ADA compliant bicycle and pedestrian access.
- Accommodate public access where feasible.
- Avoid or minimize complete or long-term bridge openings or roadway closures.
- Minimize traffic impacts related to bridge openings.
- Implement context sensitive design solutions.
- Accommodate reasonable needs of navigation.
- Improve navigational clearances and access.

