

**Application Data:**

**Grant Program:**      **Transportation Investment Generating Economic Recovery  
(TIGER Discretionary Grants)  
Of 2009 American Recovery and Reinvestment Act**

**Project:**              **Ocean Drive (CR621) Upgrade and Bridge Replacements Project**

**Location:**            **Lower Township, Cape May County, New Jersey**

**Congressional District:**      **2**

**Classification:**        **Ocean Drive (County Road No. 621) is classified as an Urban Minor  
Arterial**

**Amount of Grant Request:** **\$298,100,000**

**Applicant:**      **Cape May County Board of Chosen Freeholders**

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## **Project Description**

The Cape May County, NJ, Board of Chosen Freeholders, with the support of the South Jersey Transportation Planning Organization, requests TIGER grant assistance to reconstruct a 2.7 mile section of Ocean Drive (CR621), from its intersection with NJ Route 109 in Lower Township to the Borough of Wildwood Crest, NJ. Ocean Drive serves as an evacuation route for the southern portion of the barrier island which contains the Wildwoods (Wildwood Crest, West Wildwood, Wildwood and North Wildwood) in the event of extreme high tides or coastal storms. Ocean Drive is the primary landside access route for marinas servicing the bulk of the Cape May Fishing Fleet, and it is the major connector between the Wildwoods and the mainland. Ocean Drive is also the only route whereby residents of the economically depressed Wildwoods can reach employment at the Cape May commercial fish processing facilities.

The commercial fishing industry wishes to expand. The Port of Cape May is New Jersey's largest commercial fishing port and ranks in the top 5 in the United States in the value of landings. Collectively, the eight businesses employ 800 full time and seasonal employees and generate an approximate \$125 million in annual revenue. Currently, commercial processing jobs present a year-round opportunity to the aforementioned economically depressed areas, but the jobs are insufficient in number to improve the overall quality of life of the local communities. Stated simply, the commercial fishing industry cannot purchase larger vessels, build larger onshore processing facilities, or attract more secondary employers (i.e. increased truck deliveries) unless this project is built.

The sand, gravel, rock mining and barging industries in southern New Jersey wish to expand. Collectively, they annually produce nearly 20 million tons valued at \$100 million. Barging of these materials would result in a more efficient transportation and distribution, and allow production and export to increase. This would generate an additional \$25 million in mining revenues. Over 30 years, this amounts to \$490 million in additional revenues, plus an additional \$35 million in jobs.

Coastal cruise lines have express interest in including the Port of Cape May in their east coast itineraries. Cape May City is the country's oldest resort with many popular bed and breakfast inns. Creating docking facilities and other landside services for small cruise ship would generate additional jobs in the county's tourism industry.

The objective of this project is to raise the roadway surface to an elevation above the 100-year floodplain. Currently, the entire roadway is below the 100-year floodplain and is impassible during major storm events. Additionally, two fixed bridges, over Mill Creek and Upper Thorofare respectively, and the bascule bridge over Middle Thorofare, will be replaced with new bridge structures. The replacement of the Middle Thorofare Bridge also involves elevating and widening the bridge structure at this crossing. The existing bridge is functionally obsolete and presents severe problems for both vessel passage, due to its low clearance and narrow width between piers, and auto travel, due to frequent opening of the drawbridge on this heavily traveled road and narrow roadway width. The bridge suffers damages from 3 to 4 allisions each year with large vessels trying to negotiate the navigational channel under the bridge. Some of the allisions have resulted in the closure of the Middle Thorofare Bridge for days until emergency repairs have been completed. In conjunction with the provision of a new elevated bridge, the current alignment of Ocean Drive must be shifted and a new toll plaza will be constructed. Seven

alternative alignments for Ocean Drive were subjected to a comprehensive evaluation and an “Alternative F” was chosen for advancement (See Technical Description section).

The estimated cost to complete this project is \$298.1 million.

**Project Status:** At the time of submission of this TIGER grant application the Ocean Drive Upgrade and Bridge Replacements project has:

- received a \$1.6 million earmark through SAFETEA-LU
- been the subject of an additional \$24.7 million request from US Representative LoBiondo in the upcoming SAFETEA-LU reauthorization.
- been included in the approved Transportation Improvement Program (TIP) at the metropolitan planning level (SJTPO) and at the State of New Jersey
- been subjected to a rigorous cost/benefit analysis and economic impact study
- been advanced to the Project Scoping (or Preliminary Engineering) phase by Cape May County and as approved South Jersey Transportation Planning Organization and New Jersey Department of Transportation
- nearly completed the Environmental Assessment process needed to advance to final design.

The Project Schedule calls completion of Environmental Clearances by June 2010, and of Final Design by September 2012. Construction would commence by June 2011, through the issuance of three contracts – two of which would be advance contracts. Construction is expected to require 3 years, with final completion by March 2014. While this schedule does not expend all of the funds by February 2012, it is an aggressive schedule that works to committing the funds as quickly as possible on a critically needed project.

### **Project Parties**

**Cape May County Board of Chosen Freeholders** – Although the ultimate responsibility for this project rests with the Cape May County Board of Chosen Freeholders, it will rely extensively on its shared service relationship with the Cape May County Bridge Commission (see below). The Freeholder Board has responsibility for purchasing, advertisement, grant administration, adherence to state and federal employment requirements, engineering and rehabilitation through specific departments of county government.

(See <http://www.capemaycountygov.net/Cit-e-Access/departments/?TID=5&TPID=379>)

**The Cape May County Engineer** also serves as the Bridge Commission’s engineer. As the Department Head of the County Department of Public Works (DPW), the County Engineer is responsible for overall bridge and roadway safety for both County and Commission bridges. DPW conducts structural inspections, develops a regular program of improvements, and working with the County Administrator and the Bridge Commission, drafts procurement documents,

assesses competitive bids, manages structural studies, design and construction projects and enforces project schedules.

**The Cape May County Administrator** also serves as the Executive Director of the Cape May County Bridge Commission reporting to both the Bridge Commissioners as well as the Board of Chosen Freeholders. The County Freeholder Director serves as Director of the Department of Public Works and also serves as the Executive Director of the South Jersey Transportation Planning Organization – the metropolitan planning organization with overall responsibility for capital projects within Cape May County. Notwithstanding the statutory responsibility and authority of the Cape May County Bridge Commission, the overall responsibility for planning, financing, capital programming, operation, maintenance and evaluation of the Ocean Drive Upgrade and Bridge Replacements rests with the Board of Chosen Freeholders.

**The Cape May County Bridge Commission** was created by the Board of Chosen Freeholders pursuant to N.J.S.A. 27 19-26 in 1934. Initially, the Commission was established to apply for funds from the Federal Government to construct publicly owned coastal highway toll bridges and highway approaches. The intent of the Commission was to finance, construct, maintain and operate toll bridges within Cape May County. Under the legislation, a quasi-public body was able to use federal money to construct toll bridges, freeing the county of the financial burden. Through a grant from the Federal Emergency Administration of Public Works (New Deal) and a loan from the Reconstruction Finance Corporation, the Bridge Commission constructed four draw bridges in addition to purchasing the Ocean City Longport Bridge. The five bridges connect the county's barrier islands from Cape May City to Longport in Atlantic County. The Ocean City Longport Bridge was replaced with a new structure in 2002. Although both the Bridge Commission and the State of New Jersey modestly contributed to the bridge replacement, it was predominantly funded with federal monies.

**Other parties** to this TIGER grant would be the **Federal Highway Administration (FHWA)**, and the **New Jersey Department of Transportation (NJDOT)**. FHWA looks to NJDOT to serve as a cognizant federal agency – the one agency in New Jersey with responsibility for administering federal highway and bridge funds, and for ensuring that the funds are used in accordance with federal guidelines. NJDOT, Cape May County, and the Cape May County Bridge Commission would enter into a cost sharing agreement similar to that utilized to expedite replacement of the federally funded Ocean City-Longport Bridge in 1999. The County procured design consultants through its approved procurement processes and managed the design and construction in cooperation with the NJDOT. The NJDOT reimbursed the County for federally funded design expenses after verification by an NJDOT Project Manager who was assigned to work with the County. (Note - this arrangement is currently being utilized to advance the Environmental Assessment and Preliminary Engineering for the Ocean Drive Upgrade and Bridge Replacements).

**Issuance of Bonds** – To preserve the structural integrity of its bridges, the **Commission** has issued revenue bonds five times since 1946. The latest bonds were issued by the Commission in 2005 in the amount of \$11,865,000. Of that total, \$10,000,000 has been dedicated to a construction fund for structural repairs and improvements to Corson's Inlet Bridge, rehabilitation and steelwork at Townsend's Inlet Bridge, toll house replacement and steel repairs/miscellaneous improvements to all bridges.

The County of Cape May's Net Debt of approximately \$34,000,000 and as of the Supplemental Debt Statement of May 26<sup>th</sup>, 2009 expressed as a percentage is 0.19%. The County has a rating of Aa2 by Moody's Investors Service for NJ General Improvement Bonds.

**Toll revenue** rate started at \$.25 toll for class one vehicles (includes passenger cars, pickup trucks and vans). In 1978 it was increased to \$.30. In 1984 it went to \$.40 and then to \$.50 in 1988.

Between 2003 and 2005, the Commission implemented one-way toll collection on all its facilities at a rate of \$1.00. In February 2009, this one-way rate increased to \$1.50.

## **Technical Feasibility**

**1. Project Needs** - Ocean Drive (County Road 621) connects numerous coastal barrier islands along the southernmost coastline of the Atlantic Ocean in Cape May, New Jersey. The portion of Ocean Drive that is the subject of this TIGER grant application is a 2.7 mile section that runs from its terminus at the intersection of Route NJ 109 and Madison Avenue through sensitive coastal marshlands and over the Intracoastal Waterway to connect the communities of Cape May and Wildwood Crest (**See Figure 1**).

This stretch of Ocean Drive is in poor condition and is the last of the three accesses to the barrier island in which the Wildwoods are located to become impassable during high tide events and thus serves as a vital emergency evacuation route. The movable bridge over the Intercoastal Waterway has narrow travel lanes and a narrow opening for the navigation channel. This bridge is deemed structurally deficient with a live load carrying capacity of 15 tons and functionally obsolete. The other two bridges in this stretch of Ocean Drive are deemed to be functionally obsolete due to the narrow travel lanes and the lack of shoulders. The narrow movable bridge restricts the passage of large fishing vessels and therefore is a major deterrent for the growth of the fishing industry in Cape May County.

**2. The Setting** - This roadway serves as the primary link between these communities as well as the main route serving local businesses, including New Jersey's largest commercial fishing fleet, the United States Coast Guard base, many restaurants and marinas. This section of roadway is an emergency evacuation route for the barrier island on which the heavily populated and developed resort towns of Wildwood Crest, Wildwood and the Diamond Beach section of Lower Township are located. There are three antiquated bridges (built in 1940-41) located along this stretch of Ocean Drive: a 300 ft. long bridge over Mill Creek, a 350 ft. long bridge over Upper Thorofare and a 1,039 ft. long bridge over Middle Thorofare which includes a functioning movable span as its main span. The Middle Thorofare Bridge serves as the gateway to the Intracoastal Waterway and experiences 20 to 40 openings per day (10 minutes per opening). Overall the bridge opens approximately 7,500 times a year. Approximately 1,650,000 vehicles cross the bridge each year. The numerous bridge openings for the passage of boats cause significant backups of traffic traveling between the Wildwoods and Cape May, particularly during the summer months when the road is traveled by tourists visiting the resort towns. A ten minute bridge opening can easily create a two mile backup (one mile in each direction) during the summer season. The idling of vehicles during the bridge opening cycles and the subsequent traffic congestion results in the degradation of the air quality in the area. Also, the Middle Thorofare Bridge has a very narrow opening which limits large vessels from entering the Intracoastal Waterway. Vessels attempting to navigate the narrow opening frequently impact the bridge structure.

**3. Safety** - The three bridges that are the subject of this TIGER grant request have low sufficiency ratings. A sufficiency rating is a safety assessment - a 100 point grading system, whereby a perfect bridge would receive a 100 score and a collapsed bridge would receive a 0. The sufficiency rating contains three components: structural adequacy and safety (55%), serviceability and functional obsolescence (30%) and essentiality for public use (15%). Here is a summary for the three bridges:

- **Middle Thorofare Bridge: 7 out of 100 points.** This bridge is structurally deficient and is unable to carry loads greater than 15 tons, thereby restricting truck and bus traffic. The bridge is functionally obsolete, due to its narrow travel lanes (only 10 ft. wide) and no shoulders. Also, the movable span over the navigation channel only has a 50 foot distance between the fenders. This restricts the economic growth of the commercial fishing industry because nearby proprietors are unable to purchase or service larger vessels which would enable them to expand their businesses and create more onshore jobs at their commercial processing facilities. Such jobs would be particularly attractive to the economically disadvantaged areas of Wildwood, Wildwood Crest and portions of Lower Township where unemployment rates – prior to the recession of 2008-2009 - approached 20%.
- **Mill Creek Bridge: 46.8 out of 100 points.** This functionally obsolete bridge (due to its narrow travel lanes (only 10 ft. wide) and no shoulders), which consists of concrete T-beam construction, cannot be widened.
- **Upper Thorofare Bridge: 47.3 out of 100 points.** This functionally obsolete bridge (due to its narrow travel lanes (only 10 ft. wide) and no shoulders), which consists of concrete T-beam construction, cannot be widened.

**4. Emergency Evacuation Needs** – According to US Army Corps of Engineers 1992 Technical Data Report – New Jersey Hurricane Evacuation Study, Cape May County is one of the ten most difficult areas in the United States to evacuate in the event of a hurricane landfall. Ocean Drive has been prone to occasional flooding. As it exists today, the roadway could become impassible in the event of a hurricane or major coastal storm; leaving the barrier islands isolated until the flood waters recede. A majority of the roadbed was constructed at an elevation of 7.5 feet, with the top deck of the bridges set at 11.0 feet. The roadway, built on fill in 1940, has settled over the years to an approximate elevation of 6.0 feet - well below the 100-year flood elevation of 9.1. The Wildwoods have a large immobile population consisting of seniors, seasonal foreigners or special needs personnel and due to the poor structural condition of the Middle Thorofare Bridge, buses and large vehicles are unable use Ocean Drive to assist in any evacuation.

The larger opening of the bridge would allow for more vessels to use the safety of the Cape May Harbor as an area of refuge during storm events.

**5. Homeland Security** – Cape May County hosts the nation’s only boot camp for enlisted personnel in the United States Coast Guard. As Figure 1 indicates, the United States Coast Guard Base is bisected by the Intracoastal Waterway. The Coast Guard Training Center, Gunnery Range and other facilities are located on the southern side of the channel but the electronic facilities (i.e. radar stations) are located along the northern side. In the event of a roadway closure, Coast Guard personnel may be unable to service their own electronic

equipment during an emergency. In addition, many of the Coast Guard officers live in the Wildwoods.

**6. Liveability** - The City of Wildwood exhibits economic distress characteristics. Prior to the current recession, its unemployment rate hovered around 20%. Its housing stock and infrastructure are old and decayed. The protracted economic difficulties of the community have precluded it from making any significant investment in maintaining its facilities and infrastructure, thus exacerbating its downward economic spiral. Wildwood is dependent upon the tourism industry – an industry which thrives in a more attractive setting – but ranks as the 29<sup>th</sup> most distressed municipality on the Municipal Distress Index for the State of New Jersey. Due to the seasonal nature of the employment base, citizens have become thrust into a “Cultural of Seasonal Employment”, working in the summer and relying upon unemployment compensation in the “off season”. In 2008 the unemployment rate for Wildwood was 19.8%, and the rates for neighboring communities which share this barrier island (just north of the proposed project) were as follows: North Wildwood (13.4%), Wildwood Crest (15.5%), West Wildwood (12.3%) and Lower Township (9.9%). (See [http://lwd.dol.state.nj.us/labor/lpa/employ/uirate/lfest\\_index.html](http://lwd.dol.state.nj.us/labor/lpa/employ/uirate/lfest_index.html)). Together, the Wildwoods and Lower Township represent 5 of the top 6 municipalities in Cape May County with the highest unemployment rates. The impacts of this culture extend well beyond the unemployment line – they affect the well being of these individuals and their families who must live with the consequences. 2000 Census Data reveals the fact that 58% of the children who attended the Wildwood City School District – the district which draws upon the four aforementioned towns - lived in poverty. The Ocean Drive Improvements and Bridge Replacements present an opportunity for **Environmental Justice** for these economically depressed areas.

**7. Job Creation and Economic Stimulus** – The commercial fishing industry wishes to expand. The Port of Cape May is New Jersey’s largest commercial fishing port and ranks in the top five in the United States in the value of landings. Collectively, the eight businesses employ 800 full time and seasonal employees and generate an approximate \$125 million in annual revenue – making this area a major contributor to the economic well being of Cape May County. Currently, commercial processing jobs present a year-round opportunity to the aforementioned economically depressed areas, but the jobs are insufficient in number to improve the quality of life. Stated simply, the commercial fishing industry cannot purchase larger vessels, build larger onshore processing facilities, or attract more secondary employers (i.e. increased truck deliveries) unless the three antiquated bridges are replaced and the roadway is raised above the 100 year flood plain. Expansion of the fishing industry and hence creation of additional year-round jobs is constrained by the inability of larger commercial vessels to access the fishing industry infrastructure on the north side of the bridge. Land values, environmental concerns and land use restrictions precludes new facilities be established at other sites in the region, so they are basically in a holding pattern mainly due to the inability of the bridge to accommodate their needs.

Sand, gravel, and rock mining are significant industries in the state, with an annual production of nearly 20 million tons valued at \$100 million. Improving this important roadway link, coupled with the easing of navigational restrictions due to the higher bridge, would provide a stimulus to expand the mining activities and exports. About 400 workers are employed in the industry in Southern New Jersey, with the number anticipated to increase. Barging of these materials would result in a more efficient transportation and distribution, and allow production and export to

increase. This would generate an additional \$25 million in mining revenues. Over 30 years, this amounts to \$490 million in additional revenues, plus an additional \$35 million in jobs. (See cost benefit analysis).

Construction of the Ocean Drive Upgrade and Bridge Replacements is expected to create 300 high value short term jobs which would last until the completion of construction and 280 long term jobs due to expansion of the commercial fishing (55) and mining (150) industries and development of small size cruise ship docking.<sup>1</sup> Using federal factor for construction jobs indicates that up to 650 construction jobs could be generated as a result of this project. For this application the County has used a more conservative number based upon experience of recent large local bridge improvement projects undertaken by NJDOT such as the Route NJ 52 reconstruction project.

**8. Long Term Outcomes** - The TIGER grant will help Cape May County accomplish these goals:

- Improve Safety and Security by replacing three bridges and by raising the roadway,
- Encourage the commercial fishing industry and the barge industry to expand by providing a wider bridge with a higher clearance at Middle Thorofare,
- Allow the development of additional tourism related businesses such as docking facilities for small cruise ships,
- Create more year-round jobs for the economically disadvantaged populations of Wildwood, Wildwood Crest, Lower Township, West Wildwood, and North Wildwood, and
- Reduce congestion associated with the bridge openings.

**9. The Alternatives Analysis Study** - In January 2004, Cape May County, working with its consultants and the South Jersey Transportation Planning Organization (SJTPO), completed a comprehensive assessment of seven (7) alternative schemes for the Ocean Drive Upgrade and Bridge Replacements.<sup>2</sup> **There was an extensive public outreach effort throughout the four year life of the study** as the County sought the active engagement of key stakeholders: Commercial fishing interests, the US Coast Guard, the US Army Corps of Engineers, restaurant owners and proprietors of tourist oriented establishments, economic development professionals, federal and state regulatory personnel (see Environmental section), neighborhood community activists, local government officials and the general public. The end product of this effort was an alignment (**Alternative 3F**) which has been supported by US Representative Frank LoBiondo, the Cape May County Board of Chosen Freeholders, the South Jersey Transportation Planning Organization, has been advanced to Preliminary Engineering by the New Jersey Department of Transportation. The project is currently undergoing an Environmental Assessment.

Prior to the development of new alternatives, the County evaluated and rejected No-Build, Rehabilitation and Replace In-Kind Alternatives:

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<sup>1</sup> The Route 52 Causeway, a concrete segmental bridge with an identical structure type, is currently being built in northern Cape May County with approximately 300 unionized construction workers.

<sup>2</sup> Alternatives Analysis Report, Ocean Drive Upgrade and Bridge Replacements, County Road 621, Lower Township, Cape May County, NJ, prepared by Parsons Brinckerhoff-FG, et al, Princeton, NJ, January 2004 . This comprehensive report is available for inspection at the County Engineer's Office. Figures and illustrations in this TIGER grant application were taken from that report.

- **No-Build** – Bridges continue to deteriorate, evacuation routes susceptible to flooding, fishing industry cannot expand, and job opportunities do not increase.
- **Rehabilitation** – Similar to No-Build. Life span of existing bridges can be extended, but ultimately they will require replacement. Evacuation routes remain susceptible to flooding, fishing industry cannot expand, and job opportunities do not increase.
- **Replacement In-Kind** – Massive disruption of traffic during tourist seasons, circuitous and lengthy detours affect fishing industries, evacuation routes continue to be susceptible to flooding, fishing industry will only have limited opportunity to expand and thus limited job opportunities.

**Please refer to Figure 2 for an illustration of the seven alternatives that were developed.** The initial phase of the study, started in 2000, sought to replace only the Mill Creek and Upper Thorofare Bridges while raising Ocean Drive from its southern terminus to the Middle Thorofare Bridge. From this effort, two alternative road alignments (Alternative 1 and Alternative 2) were presented to the community at a public information center in the summer of 2000. Alternatives 1 and 2 shifted the roadway 4.5 to the south and north respectively, to allow for staged construction with minimal impacts to traffic patterns or nearby wetlands. Based on comments received at the Public Information Center, a hybrid – known as Alternative 3 – was considered which would shift Ocean Drive to the north from Route 109 to Mill Creek and then south to Middle Thorofare, thereby minimizing property impacts through the project’s length.

At the same public meeting, representatives from the local fishing industry expressed concerns about the Middle Thorofare Bridge, specifically, the bridge’s height limitations, frequent openings and narrow channel width, all of which negatively impact their businesses. At the request of the local fisheries and the Cape May County Chamber of Commerce, the replacement of the Middle Thorofare Bridge was added to the study, as was the relocation of the antiquated toll facility and the raising of Ocean Drive north to the intersection with Jefferson Avenue in Wildwood Crest. The original alternatives were expanded to seven new alternatives, Alternatives 3A-3G.<sup>3</sup> Alternatives 3B, 3C and 3D used the north road shift (Alternative 2 discussed above), while Alternatives 3A, 3E, 3F and 3G used the north/south hybrid road shift (Alternative 3 discussed above) for the section between Route 109 and Middle Thorofare.

**Please refer to Figure 2A for a graphic depiction of the structure types that were considered.** Alternatives 3A and 3B would have replaced the Middle Thorofare Bridge with a new movable structure on a parallel alignment, while Alternatives 3C, 3D, 3E and 3F involved a new high level segmental structure on a new or parallel alignment. Alternative 3G would have replaced the existing bridge with a new high level cable-stayed bridge on a new alignment. Under each alternative, the proposed road connecting Middle Thorofare Bridge would consist of two 12 foot wide paved lanes plus 8 foot wide shoulders and 4 foot berms on either side of the road. In several locations, 7 foot wide sidewalks would also be constructed.

Because Ocean Drive is important to commerce and as an evacuation route, traffic flow will be maintained along the existing alignment throughout construction. Subsequent to construction those portions of Ocean Drive no longer in use will be closed. These areas may be used for fishing piers, perhaps for interpretive displays to describe the historic nature of the old Middle Thorofare Bridge and to mitigate wetlands disturbances.

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<sup>3</sup> Alternatives 1 and 2 were dismissed from further consideration.

The seven remaining alternatives were subjected to a complex comparison of critical data to determine which alternative not only met the project's need and purpose, but also to minimize adverse impacts to the community and the environment. The attached Alternatives Comparison Matrix illustrates side by side comparisons of each alternatives features and impacts (See Figure 28). The impacts were classified among six general categories:

- Cost and Constructability
- Right of Way and Access
- Traffic
- Socio-Economic Impacts
- Cultural Resources
- Environmental Impacts

This matrix performed its analytical function through the use of a point system. Numerical values designating the level of impact were assigned based on quantifiable data. Each type of impact carried equal weight (to avoid built-in bias). Summaries of the distinctive features of each alternative and description of the decision made by the Study Team (to accept or reject) based upon the scores are listed below:

- **Alternative 3A:** New moveable structure 30 feet south of existing bridge. Realigns Ocean Drive northward then southward. Relocated toll facility. 45 ft. minimum vertical clearance above 130 ft. wide navigation channel. Triggers extensive right of way, business disruption and bridge openings. *Rejected*
- **Alternative 3B:** New moveable structure 30 feet north of existing bridge. Realigns Ocean Drive northward. Relocated toll facility. 45 ft. minimum vertical clearance above 130 ft. wide navigation channel. Triggers extensive right of way, business disruption and bridge openings. *Rejected*
- **Alternative 3C:** High level fixed segmental structure on a new alignment which features a new low-level bridge across Upper Thorofare. Relocated toll facility. 75 ft. minimum vertical clearance above the channel and 116 ft. clearance over the width of Lower Thorofare. Two sections of connector roadway retained to access existing businesses along Ocean Drive. Triggers extensive environmental impacts. *Rejected.*
- **Alternative 3D:** Very similar to 3C. High level fixed segmental structure on a new alignment which traverses Thorofare Island further to the north where the channel is deep. 75 ft. minimum vertical clearance above the channel but only a 48 ft. clearance over Lower Thorofare. Relocated toll facility. Resisted by community groups due to poor aesthetics and substantial realignment toward Wildwood Crest. *Rejected.*
- **Alternative 3E:** High level fixed segmental structure on a parallel alignment to immediate south of existing bridge (same alignment as Alternative A). Relocated toll facility. Rehabilitate existing Upper Thorofare Bridge to access fisheries and restaurant. 116 foot high clearance over the navigation channel. Negatively impacts two fisheries and restaurant. Requires service road through a wildlife management area. Triggers substantial wetlands impacts, Section 4(f) review. Has low community support. *Rejected.*

- **Alternative F: Please refer to Figure 20 (attached) for an illustration of this alternative.** High level fixed segmental structure several hundred feet south of existing Middle Thorofare Bridge. 116 foot high clearance over the navigation channel. Rehabilitate Upper Thorofare Bridge to allow access to fisheries and restaurants. Relocated toll facility. Minimizes impacts to local businesses by shifting raised portion of western approach to undeveloped area of dredge spoils. Avoids Right of way impacts necessary under Alternatives B and E. *Endorsed.*
- **Alternative G:** High level cable-stayed structure on same alignment as Alternative F. 116 foot high clearance over the navigation channel. Relocated toll facility. Main towers 180 feet above roadway elevation. Total structure height of 300 feet, with bridge towers lit by aviation beacons. Avoids Right of way impacts necessary under Alternatives B and E. *Originally Endorsed, but later rejected due to cost - \$25 million higher than Alternative F.*

After these comparisons had been completed, the US Army Corps of Engineers asked the County to investigate the feasibility of an eighth alternative:

- **Alternative H:** High level movable bridge on same alignment as Alternative F. 75 foot high clearance over the navigation channel. A traffic study revealed that this option would eliminate less than one half of the bridge openings. **Rejected.**

## 11. Figures

- **Figure 1 (Project Location)**
- **Figure 2 (Description of Alternatives)**
- **Figure 2A (Structure Types)**
- **Figure 28 (Alternatives Comparison Matrix)**
- **Figure 20 (Alternative 3F)**

Figures are taken from the 2004 Alternative Analysis Report and have retained the numbering convention used in that report. The figures are not include herewith; however they can viewed at: <http://www.capemaycountygov.net/FCpdf/Tiger%20Grant%2Epdf>.

**12. Cost Benefit Analysis and Project Costs** - Alternative F achieved a Benefit/Cost Ratio of 9.11. Two scenarios were considered, a No Build option to give a baseline cost, and a Build option to show changes in anticipated costs and benefits. The analysis looks at several different cost and benefit components, some quantitative and some qualitative. On the cost side of the equation, the analysis considers construction costs, maintenance costs, crash costs, user delay costs associated with bridge openings, and air emissions. The benefits considered include expansion of the fishing industry, expansion of the sand/gravel industry, and associated job creation, and the ability to more quickly evacuate the area in times of emergencies. It is expected that the implantation of a fixed bridge to replace the current moveable bridge will have a significant impact on emissions, delay costs, and access to additional fishing and sand/gravel industry. Currently many boats bypass Cape May for northern ports because the Middle Thorofare Bridge is too low, narrow, and difficult to maneuver large vessels. Attached are letters from fishing companies which support this premise.

The study area is mostly either commercial or protected lands, so there are no expected impacts to land use or household budgets. It is an existing evacuation route, and also provides access to the tourist destinations at the Wildwoods and historic Cape May City.

The project schedule for the overall project (See Section 11 of this narrative) shows design beginning in 2010, and construction commencing in 2011 and ending in 2014 (although early breakout segments will be constructed sooner). For the purposes of the benefit/cost calculations, it was assumed that the bridge would be completed in 5 years (2014) and then costs and benefits were calculated 30 years beyond that. A standard inflation rate of 3%, and discount rate of 7% were used. All values are given in 2009 dollars.

**Construction Costs:** Costs for the No Build scenario include routine rehabilitation/maintenance to the three bridges within the study area. No Build costs also include bridge fender repairs every 2 years, as the fenders are hit by large vessels 3-4 times a year because of the narrow passage width. The Build costs include design, construction services, construction costs, and then routine minor rehabilitation/maintenance.

Construction costs for No Build are estimated at approximately \$38 million, mainly rehabilitation and maintenance costs, whereas costs for the Build condition are \$272 million.

**Crash Costs:** Using crash data compiled during the alternatives analysis phase of the project (data from 1999-2001) it was concluded that the study area experiences approximately 7 crashes per year. This data was compared against statewide average for roadways of similar cross sections. Most notable percentages of the crashes in the study area are as follows:

- 14.3% (3) involved in opposite direction - greater than 1997 statewide average of 2.8%.
- 28.6% (6) involved Fixed Objects - greater than 1997 statewide average of 10.5%.
- 52.4% (11) resulted in injury - greater than 1997 statewide average of 31.1%.
- 95.2% (20) occurred during dry conditions - greater than 1997 statewide average of 76.9%.

All percentages for these crash types were significantly higher than the statewide averages. All of the crashes involving a fixed object or opposite direction collision occurred during dry and daylight conditions. Narrow lane widths and lack of shoulders are existing deficiencies known to be potential contributing factors for fixed object and opposite direction accidents, and these are found on the existing bridge. Therefore, for the purposes of analysis, it was assumed that half of crashes resulted in injuries, and that improving geometry to current standards would reduce the annual crashes about 20%, or from 7 to 6 annually. For purposes of severity, it was assumed that most were minor injuries, with one moderate injury per year. No fatalities were projected, as no history of fatality exists and the road is signed at a fairly moderate speed.

Using this methodology, crash costs were reduced from approximately \$3 million in the No Build condition to \$2.7 million in the Build condition over the next 35 years.

**User Delay Costs:** Currently, the Middle Thorofare Bridge is a moveable tolled bridge that opens on demand. The existing bridge provides only a 26 foot vertical underclearance. The toll plaza and bridge openings for navigation on the waterway at the Middle Thorofare Bridge cause excessive motor vehicle queues, particularly in the summer evenings and on weekends, as this route serve a high tourist/beach area. The queues cause congestion, negative air quality, and delay, as well as disruption for the residential area located roughly one mile north of the Middle Thorofare Bridge, referred to as Diamond Beach. The queues extend into Diamond Beach during

critical summer periods. The frequency of bridge openings is more than doubled in the summer due to the significant increase in the passage of party boats and pleasure craft. The coupling of the increased traffic volumes in the summer and the doubling of bridge openings significantly increases the inconvenience to the residents/vacationers/home owners in the Diamond Beach area and the traveling public along this corridor. Further these delays result in a degradation of air quality due to the idling vehicles.

For this exercise, Cape May County examined 2000, 2001 and 2002 bridge-opening yearly summaries for the Middle Thorofare Bridge. This data categorizes five classifications of vessels that require bridge openings: Charter/Party, Commercial, Pleasure Craft, Sailing Vessel, and US Coast Guard ships. These summaries showed the 2002 Middle Thorofare Bridge Openings broken down by the number of vessel types during each month of 2002 and also provided a comparison between the non-summer and summer season. The bridge tender logs – which encompassed the entire year of 2002 – were examined. The logs identified the number of openings per day, the names of the vessels, the classification of the vessel, and the actual date and time of the opening. During the week of July 15-21, 2002, the daily average number of weekday bridge openings was 34 while the weekend total was 42.

Traffic volumes were projected from existing toll plaza data, and a two way ADT was calculated. It is estimated that with 20 openings a day, the average annual delay would be 12,752 hours. The proposed bridge is a high, fixed span bridge with a 108 foot clearance, which obviates the need for bridge openings. At \$16.44 per hour for cars and \$27.40 per hour for trucks (2% trucks), this translates into a user delay costs of \$212,430 annually. Over 35 years, this amounts to \$2.75 million in the No Build. The first 5 years of openings until the Build condition is completed in 2014 translates to nearly \$900,000 in delay, a savings of \$1.9 million.

**Air Quality:** Emissions were calculated to determine the annual tons of CO<sub>2</sub> avoided as a result of the new bridge construction. EPA's MOBILE6 model was used to estimate CO<sub>2</sub> idle emission rates using specific inputs from the New Jersey Department of Environmental Protection for 30 years after the bridge is completed. Traffic data was used from the user delay calculation above to determine the incremental annual hours of delay for each analysis year under the No Build conditions. The No Build delay estimates were then multiplied by the CO<sub>2</sub> idle emission rates to develop total CO<sub>2</sub> tons per year saved under Build conditions. Over the 30 years after the bridge is built, 600 tons of CO<sub>2</sub> are saved.

**Evacuation Route:** As indicated earlier in this narrative, this section of Ocean Drive serves as an emergency evacuation route for the barrier island on which the heavily populated and developed resort towns of Wildwood Crest and Wildwood and the Diamond Beach section of Lower Township are located. The road has been prone to occasional flooding in the past due to its elevation, which is below the 100-year flood elevation. This elevation serves as the current design standard for emergency evacuation routes. As it exists today, in the event of a major coastal storm, this roadway could become impassible, leaving the barrier island communities vulnerable and isolated until the floodwaters recede. This section of Ocean Drive is the last of the three accesses to the Wildwoods to become impassible during a storm. The proposed new alignment would be built higher and allow safe passage of vehicular traffic from the barrier island to Route NJ 109 during a 100-year flood.

During a catastrophic flood, the value of lives that could be saved because of this crucial link remaining passable would be great, with the statistical value of a human life placed at \$6

million<sup>4</sup>. Once the roadway is widened from 10 to 12 feet, the number of additional cars that could pass through in an 8-hour evacuation would be 900. If every fourth (25%) car had one passenger (a very conservative estimate) that would have otherwise perished, that translates to approximately \$750 million in lives saved.

### **Expansion of Industry (Economic Competitiveness)**

**Seafood:** The Southern New Jersey region also has an active seafood industry. In 2007, Cape May–Wildwood (in Cape May County) ranked third amongst northeastern commercial fishing ports in terms of volume, bringing in 68.4 million pounds of seafood. In 2008 it ranked fourth in the nation in terms of dollar value of catch, at \$73.7 million worth of seafood. Several commercial operators from out of the area have expressed interest in docking at Cape May if the new bridge were tall and wide enough to allow safe navigation (letters attached). Lund Fisheries, one of the largest in the area, estimates that if this new business were able to reach their docks due to the new bridge, their catch would increase by \$3-4 million annually. It is assumed that Atlantic Cape Fisheries Marina and other smaller marinas would also take in another \$3 million annually combined. This increase in fish landings would translate to approximately 55 new jobs annually, with an average salary of \$30,000. The resulting calculations of fishing industry income are \$1.63 billion in the No Build to \$1.68 billion in the Build condition, an increase of approximately \$50 million over the next 35 years..

**Mining:** The New Jersey Department of Environmental Protection indicates that sand, gravel, and rock mining are significant industries in the state, with an annual production of nearly 20 million tons valued at \$100 million. Cape May County and Cumberland Counties have a sizeable concentration of active quarries. Additional mining operations exist throughout the region. About 400 workers are employed in the industry in Southern New Jersey, with the number anticipated to increase. Barging of these materials would result in a more efficient transportation and distribution, and allow production and export to increase. Improving this important roadway link, coupled with the easing of navigational restrictions due to the higher bridge, would provide a stimulus to expand the mining activities and exports. It is estimated that an additional 150 mining jobs, earning \$50,000 each would be created.

Based on these figures, it was assumed that an additional \$25 million in mining revenues would be generated. Over 30 years, this amounts to \$490 million in additional revenues, plus an additional \$35 million in jobs.

Interest has been expressed by operators of coastal cruise ship to include the port of Cape May in their east coast itineraries. Cape May is a perfect place for a stopover for coastal cruise lines, being the country's oldest resort with 'National Historic' status. Currently these vessels cannot access this area due to the existing bridge. The ability for small/medium size cruise ships to access the area would support an estimated 100 additional jobs in the area. Jobs would be created at the pier-side, inland transportation for passengers from the pier to Cape May, additional business for local retail operations such as restaurants, gift shops, art galleries, etc.

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<sup>4</sup> This figures represents the average earning power of an individual during a typical working life.  
Source: USDOT Directive, March 18, 2009  
(<http://ostpxweb.dot.gov/policy/reports/VSL20Guidance%20031809%20a.pdf>)

The overall benefit to marine based industries increases from nearly \$1 billion in the No Build condition to \$2 billion in the Build condition, an increase of \$1 billion. An additional \$150 million in jobs (short-term and long-term) would be created in the Build condition.

**Conclusion:** The table below shows the changes in costs and benefits between the No Build and Build conditions. In addition to these quantifiable fiscal analyses, the resulting decreases in air pollution and improved evacuation route should also be considered while weighing the costs and benefits. Overall, this analysis shows that the benefits (fiscal and societal) far outweigh the costs of the new bridge construction.

	No Build	Build
<b>Delay costs for bridge openings</b>	\$ (2,750,000)	\$ (871,000)
<b>Cost of crashes</b>	\$ (3,015,000)	\$ (2,729,000)
<b>Construction costs</b>	\$ (37,813,000)	\$ (272,597,000)
<b>Financial Benefit</b>	\$ 982,871,000	\$ 2,055,472,000
<b>Loss of life without improved evacuation route</b>	\$ (762,317,000)	
<b>TOTAL NET (COST)/BENEFIT</b>	\$ 176,976,000	\$ 1,779,275,000
<b>TOTAL CO2 SAVINGS (tons)</b>		600

An alternate analysis was completed using a 3% discount rate, and the results are summarized below:

	No Build	Build
Delay costs for bridge openings	\$ (4,565,000)	\$ (973,000)
Cost of crashes	\$ (5,004,000)	\$ (4,456,000)
Construction costs	\$ (59,748,000)	\$ (314,236,000)
Financial Benefit	\$ 1,631,116,000	\$ 2,411,205,000
Loss of life without improved evacuation route	\$ (1,350,000,000)	
<b>TOTAL NET (COST)/BENEFIT</b>	\$ 211,799,000	\$ 2,091,540,000
<b>TOTAL CO2 SAVINGS (tons)</b>		600

<b>BENEFIT/COST RATIO</b>	<b>9.87</b>
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**13. Project Schedule** As the project schedule indicates (located at the end of the application), design will commence in 2010, construction commences in 2011 and ends in 2014 (although early breakout segments will be constructed sooner). To advance the schedule of construction, the proposed project will be broken into three (3) construction contracts as follows:

- **Contract 1** consists of replacing the Ocean Drive Bridges over Mill Creek and Upper Thorofare and a culvert, and raising the elevation and reconstructing Ocean Drive. Construction is expected to start June 2011 and be completed May 2013.
- **Contract 2** consists of constructing the pier foundations (piles and footings) for the Middle Thorofare Bridge. Work is expected to start December 2011 and be completed December 2012.
- **Contract 3** consists of constructing the Middle Thorofare Bridge, the tie-ins to the approach roadways and the demolition of the existing bridge. Construction is expected to begin January 2013 and be completed March 2014.

#### **14. Environmental Approvals**

Each of the seven alternatives was subjected to a rigorous environmental screening process which encompassed:

- **Wetland and Open Water Resources** (wetlands, beaches, dunes, water quality, sole source aquifers)
- **Terrestrial Resources** (Land Use, Soils, Acid-Producing Soils)
- **Terrestrial Wildlife and Habitat** (Endangered/Threatened Species, Migratory Birds, Colonial Nesting Waterbirds, Wildlife Travel Corridors)
- **Aquatic Wildlife and Habitat** (Finfish Migratory Pathways, Shellfish Habitat, Submerged Vegetation, Recreational Fishing)
- **Socioeconomic Impacts** (Environmental Justice, Job Creation Potential, Affects on Low Income Areas & Active Businesses, Community Support)
- **Aesthetics** (Parklands, Waterfront access, Navigable Channel)
- **Cultural Resources** (Architecture, Archaeology)
- **Air Quality, Noise Impacts**
- **Agency Consultations** (US Coast Guard, US Army Corps of Engineers, National Marine Fisheries Service, NJ Department of Environmental Protection, New Jersey Department of Transportation)
- **Public Involvement** (Three public hearings and numerous presentations to local government agencies and civic groups to introduce the seven alternatives and to gauge community support for an optimum choice).

Alternative (F), which is the subject of this TIGER request, offers the least possible impacts and the highest community support at the most effective cost. This option can be advanced via an Environmental Assessment (EA). The EA is currently being prepared and will be submitted to the SJTPO, NJDOT and FHWA after SHPO agency consultations are completed. The anticipated completion is June 2010 (See project schedule).

The NJ SHPO has determined that all seven (7) alternatives present an adverse affect, because the old movable bridge is eligible for inclusion in the National Register. Cape May County is offering a solution which SHPO has accepted elsewhere in New Jersey where rehabilitation of aging bridges has been deemed to be impractical. The three bridges that are part of this TIGER grant application were originally built in 1938-40 as part of a six bridge (four bridges being movable) package under one construction contract. All four movable bridges exhibit similar architectural characteristics. Two of these movable bridges are to be preserved in their original setting, thereby preserving the historic character of the four movable bridge “package” for the future. County/SHPO discussions are underway.

**Required Permits and Approvals** – Cape May County’s aggressive project schedule calls for construction to commence in 2011. The anticipated completion dates for all of the required permits and/or approvals have been factored into this schedule. Consultations and pre-application meetings have been underway for some time for these activities:

1. NEPA (Environmental Assessment)
2. NJ Waterfront Development Act (Waterfront Development Permit)
3. NJ Wetlands Act of 1070 (Coastal Wetlands Permit)
4. Clean Water Act (Section 401 Water Quality Certification)
5. Clean Water Act (Section 404 Permit)
6. Rivers and Harbors Act (Section 9 and Section 10 permits).
7. Historic Preservation Act (see above)
8. Magnuson-Stevens Fishery Conservation and Management Act (Endangered Species and Fish Habitat Consultation)
9. Coastal Facility Area Review Act (CAFRA permit)
10. Tidelands Management Act (Riparian Grant)
11. NJ Storm water Management Regulations

### **15. Legislative Approvals**

The Ocean Drive Upgrade and Bridge Replacements Project has the endorsement of the Cape May County Board of Chosen Freeholders and the Cape May County Bridge Commission. Under the terms of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Congressman LoBiondo secured a \$1.6 million earmark for this “high priority” project. These funds were used to advance the preliminary engineering and complete the environmental document.

Congressman LoBiondo is currently seeking an additional \$24.7 million earmark to “design, engineer, acquire right of way and construct” these improvements through reauthorization of SAFETEA-LU. (See [www.house.gov/lobiondo/2009SAFETEA-LU.shtml](http://www.house.gov/lobiondo/2009SAFETEA-LU.shtml))

The Cape May County Board of Chosen Freeholders have endorsed this project repeatedly, first through a series of resolutions which authorized the County to enter into agreements to conduct the Alternatives Analysis, Preliminary Engineering and Environmental Analysis and, most recently, through issuance of a resolution to authorize submission of this TIGER grant application.

#### State and Local Planning

State, regional and local planning agencies have recognized the importance of this worthwhile project to Cape May County’s economy in a number of ways:

- **State Endorsements** – The New Jersey State Legislature approves New Jersey’s Transportation Improvement Program (TIP) each year by June 30. The Ocean Drive Upgrade and Bridge Replacement is currently listed as an approved project on the TIP (see attached). The project has been determined by the New Jersey Department of Transportation (NJDOT) to be in conformity with the State of New Jersey’s Development and Redevelopment Plan. The project has undergone Preliminary Engineering review at the NJDOT.

- **Regional Endorsements** – The South Jersey Transportation Planning Organization (SJTPO) is the Metropolitan Planning Organization (MPO) with jurisdiction over Cape May County. SJTPO has included this project on its annual TIP and has provided a letter of support.
- **Local Endorsements** – The project has been included in the Cape May County Transportation plan. Mr. Daniel Beyel, who serves as Cape May County’s Director of the Board of Chosen Freeholders, also serves as Executive Director of SJTPO. Mr. Beyel has thus obtained regional and local endorsement for this project.

**16. Financial Feasibility** – Tourism and fishing are the catalysts for Cape May County economy, with up to 90% of the county’s employment based upon tourism-related businesses and the Port of Cape May, the largest fishing port in New Jersey. Cape May County ranks second in the state in tourism dollars generated with over \$4 billion in last year alone. Cape May County has a year round population of approximately 95,000 that swells to 640,000 people in the height of the summer tourist season. Cape May County Freeholder Board’s 2009 budget was \$140,500,000 with \$88,700,000 in revenue generated from property tax. The County has a rating of Aa2 by Moody’s Investors Service for NJ General Improvement Bonds. The County of Cape May’s Net Debt as of the Supplemental Debt Statement of May 26<sup>th</sup>, 2009 expressed as a percentage is 0.19%.

Without the assistance of funding from either federal or state sources, Cape May County is unable to proceed with the Ocean Drive Upgrade and Bridge Replacements Project. Funds from SAFETEA-LU authorization are being used for the preliminary engineering and environmental assessment phases to advance the project. The County is seeking funding for the design and construction of the entire project through the TIGER Discretionary Grants program.

**17. Evaluation of Project Performance** – Proof of project performance on a roadway reconstruction and bridge replacement project can be determined through regular inspections by qualified personnel and through regular maintenance of the infrastructure. The primary and secondary economic benefits (anticipated new jobs) which have been suggested in the cost/benefit analysis section of this TIGER grant application can be evaluated by working with the same stakeholder groups that participated in the public outreach process discussed earlier in this application. The fishing industry, tourist industry, sand, gravel and rock mining industry, and the Cape May County Chamber of Commerce have a vested interest in this project. Cape May County will encourage the economically distressed Wildwood communities and these stakeholders to generate the types of jobs that will be attractive to their constituents.

The environmental assessment, design and construction of the Ocean Drive Upgrade and Bridge Replacements will be managed by the Cape May County Department of Public Works on behalf of the Cape May County Board of Chosen Freeholders and the Cape May County Bridge Commission, an entity which has been managing and operating Cape May County Bridges since 1934. The Commission, utilizing its own resources and with support from the Cape May County Department of Public Works, conducts regular NBIS bridge inspections on a biannual basis, and develops periodic maintenance programs for all of the bridges under its purview.

Proof of project performance can also be measured by past achievements. Cape May County secured two Congressional earmarks – through ISTEA (1991) and SAFETEA (1996) worth \$36 million to replace the structurally deficient and functionally obsolete Ocean City – Longport

Bridge. The County issued bonds to finance the balance of this project and, with the assistance of the New Jersey Department of Transportation, successfully replaced the bridge in 2002. Today this bridge is a vital link – another evacuation route - along the Ocean Drive which connects Cape May County with Atlantic County. The County and Commission can draw upon the lessons learned through replacement of the Ocean City-Longport Bridge project, and from its 75 year history, to successfully carry out the objectives of this TIGER grant application.

Additionally, Cape May County has been the recipient of many local-lead federal surface transportation funds and NJ Transportation Trust funds for a variety of transportation improvement projects. These successfully completed project range from bikepath construction to roadway improvements and from safety improvements to bridge rehabilitation and replacement projects. Cape May County is experience in the federal aid program and will comply with the various regulations governing the use of the TIGER funds including the requirements of subchapter IV of Chapter 31 of Title 40, United States Code (federal wage rate requirements)

#### **18. Certifications**

- **Cape May County Board of Chosen Freeholders**
- **Cape May County Bridge Commission**
- **Cape May County Planning Board**
- **South Jersey Transportation Planning Organization**
- **SAFETEA-LU earmark (copy of page of public law)**
- **State of New Jersey TIP page**
- **Cape May County Chamber of Commerce**
- **Cape May County Fishing Industry Letters**

Certifications and letters are not include herewith; however they can viewed at:  
<http://www.capemaycountygov.net/FCpdf/Tiger%20Grant%20Cert%2E%2Epdf>

Act ID	Description	2008	2009	2010	2011	2012	2013	2014	2015	
1000	Environmental Assessment	[Timeline bar for 1000: Environmental Assessment, spanning from late 2008 to mid-2010]								
1100	Environmental Assessment Review/Approval	[Timeline bar for 1100: Environmental Assessment Review/Approval, spanning from late 2008 to mid-2010]								
2000	Design	[Timeline bar for 2000: Design, spanning from late 2008 to mid-2010]								
3100	Contract 1: Approach Roadway & Bridges	[Timeline bar for 3100: Contract 1: Approach Roadway & Bridges, spanning from late 2008 to mid-2010]								
3200	Contract 2: Adv Foundation - Middle Thorpe Bridge	[Timeline bar for 3200: Contract 2: Adv Foundation - Middle Thorpe Bridge, spanning from late 2008 to mid-2010]								
3300	Contract 3: Middle Thorpe Bridge and Tie-ins	[Timeline bar for 3300: Contract 3: Middle Thorpe Bridge and Tie-ins, spanning from late 2008 to mid-2010]								

Start date	12OCT08	Page 1A of 1A  <b>Ocean Drive Upgrade and Bridge Replacement</b>
Finish date	24MAY14	
Data date	12OCT08	
Run date	08SEP08	
Number/Version	1.0	
Project name	ODI1	
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■ Early bar  
 ▲ Early finish point  
 ▼ Late finish point  
 ■ Program bar  
 ■ Critical bar  
 ■ Start milestone point  
 ■ Finish milestone point