

# I-95 Newark Toll Plaza Highway-Speed E-ZPass Lanes TIGER Grant Application September 15, 2009

## Introduction

**Type of Project Proposed:** Highway

**Location:** Interstate 95/Newark Toll Plaza (see Figure 1); New Castle County, DE

**Congressional District:** First

**Type of Area:** Urban

**TIGER Grant Funds Sought:** \$48.44 million

**DUNS & Contractor Registration Requirement:** DelDOT's DUNS number is 809856008. DelDOT will include provisions in the construction contract solicitation requiring contractors that submit bids to show evidence that they have a DUNS number and a current registration in the Central Contractor Registration.

The Delaware Department of Transportation (DelDOT) is submitting this document as an application for TIGER (Transportation Investment Generating Economic Recovery) Discretionary Grants for the I-95 Newark Toll Plaza, Highway-Speed E-ZPass Lanes project. A total of \$1.5 billion in TIGER Discretionary Grant availability was announced on May 15, 2009 by the U.S. Department of Transportation. The grants will be awarded on a competitive basis to projects that have a significant impact on the nation, a region or metropolitan area, and can create jobs and benefits in economically distressed areas.

The information included in this application is based on guidance published in the Federal Register on May 18, 2009 and revised on June 17, 2009. In this application, underlined headings represent categories of information that the U.S. Department of Transportation stipulated in the Federal Register. The wording that is not underlined represents DelDOT's response to the requirements of the TIGER grant. Text in **green** is a link to supporting documentation contained on DelDOT's Discretionary TIGER Fund Application website or on the website of a referenced agency or organization, as appropriate. For access to DelDOT's website and a project video, click **here**.

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## Project Description

**Proposed Project:** The proposed project is located in an urbanized area along Interstate 95 (I-95) and has been designated the I-95 Newark Toll Plaza, Highway-Speed E-ZPass Lanes project (see Figure 1). This project is intended to increase throughput at the plaza, which is currently a major bottleneck along I-95 for the interstate travelers that it serves. The project's roadway construction will be confined to right-of-way owned by the State of Delaware. The estimated cost of construction, which includes set-asides for construction-related contingencies, project management, and engineering, is \$48.44 million (2009 dollars). The following improvements are included in the project (see Figure 2).

- Addition of two barrier-separated, highway-speed E-ZPass lanes in each direction
- Removal of eight CASH/E-ZPass lanes at the main plaza, leaving seven (7) southbound CASH/E-ZPass lanes
- Retrofitting the existing northbound satellite plaza to provide seven (7) CASH/E-ZPass lanes
- A toll equipment gantry over the highway-speed E-ZPass lanes, with safe overhead access for equipment maintenance personnel
- Safe overhead access for toll collectors to the outer lanes of the widened northbound plaza via the overhead walkway connected to the gantry
- Replacement of the CASH collection booths that remain in service
- New stormwater management facilities
- New approach signing and pavement markings
- Upgrade of the existing lighting systems
- Installation of impact attenuators in advance of the toll booths

Figure 1: Project Location

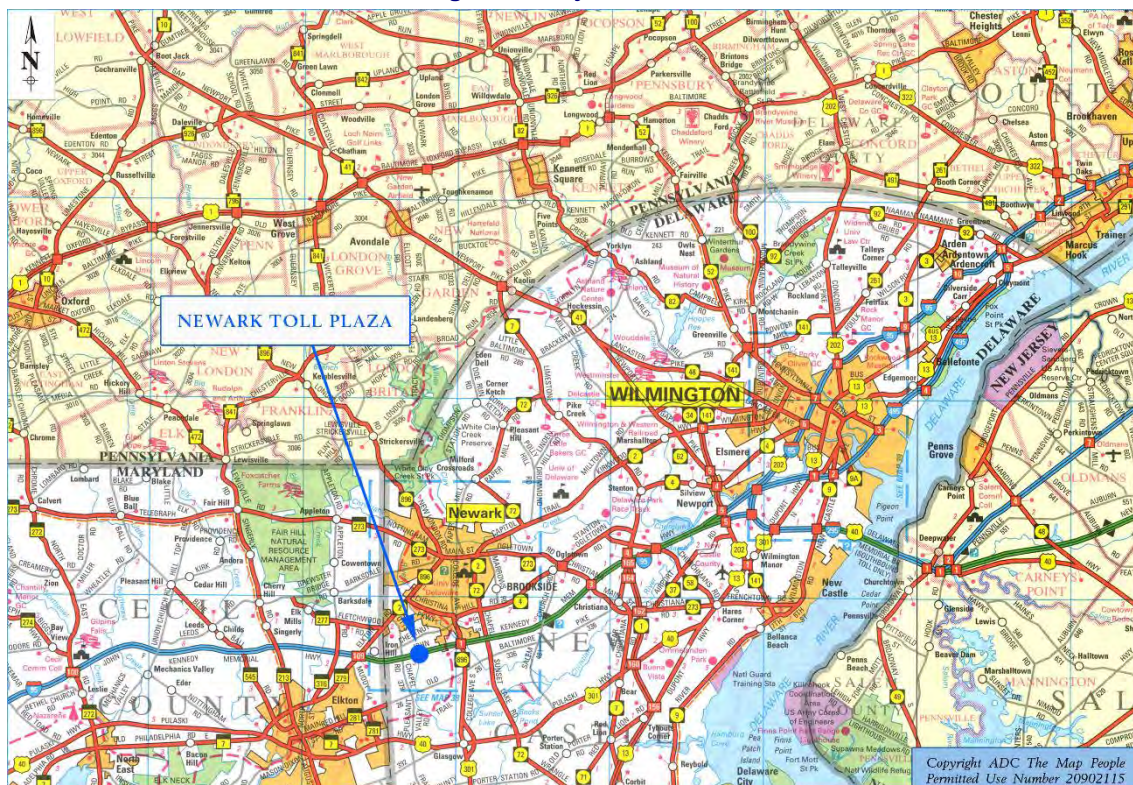
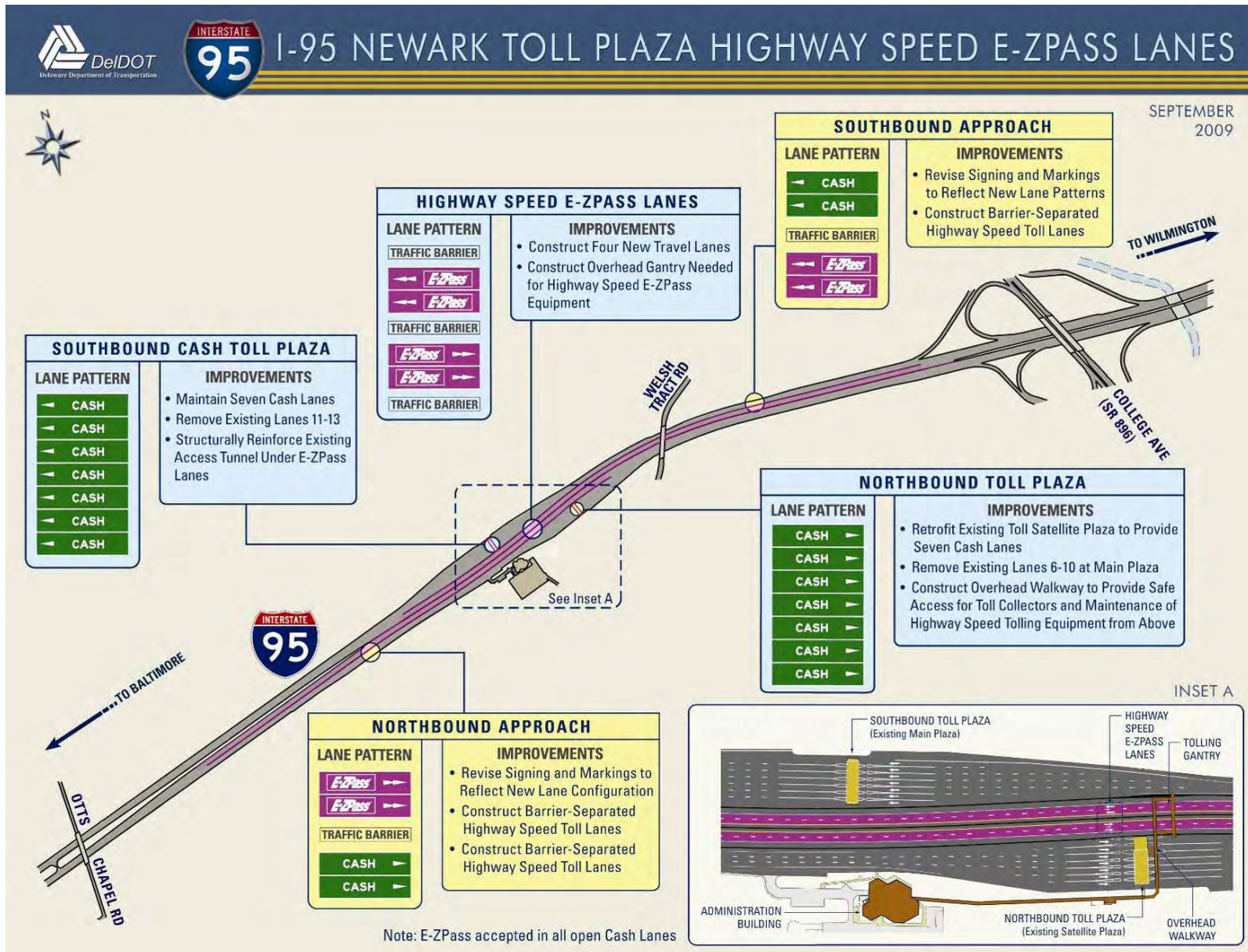


Figure 2: Proposed Newark Toll Plaza Project



**Geospatial Data:** The 1,917-mile I-95 corridor is the East Coast’s main street providing access for traffic from Maine to Florida. Between Virginia and Maine, I-95 passes through a region that contains approximately one-quarter of the nation’s population and provides access to 13 major airports, 11 major seaports, and numerous railroad stations. The Delaware Turnpike is an 11-mile section of the I-95 corridor, extending from the Maryland-Delaware line to the south and to the I-95/I-295/I-495 Christina Interchange to the north. The project is located at the south end of the Turnpike and its limits extend from 1.7 miles south of the Delaware/Maryland state line to 0.6 mile south of the Delaware Welcome Center Travel Plaza, for a total project length of 5.7 miles.

### **Connections to Existing Transportation Infrastructure—Rural and Urban**

**Significance:** The section of I-95 within which the project falls is in a strategic location relative to the surrounding states of Maryland, Delaware, Pennsylvania and New Jersey. It links East Coast travelers with a network of intrastate and interstate routes that directly connect to these four states, as shown in Figure 1. State Route 1, the main north-south route connecting northern Delaware with central and southern Delaware, intersects I-95 approximately seven miles north of the plaza. SR 1 is the direct connection to Delaware’s beach community, a destination for over six million visitors annually. Two of the other three routes that intersect I-95 along this section of the Turnpike, SR 896 and SR 141, provide connectivity with communities throughout southeastern Pennsylvania, which borders Delaware approximately five miles north of the plaza. At its north end, the Turnpike, through its intersection with I-295, connects East Coast travelers with the state of New Jersey, which is approximately 15 miles east of the plaza. To the west, the Maryland line is just over a mile from the plaza.

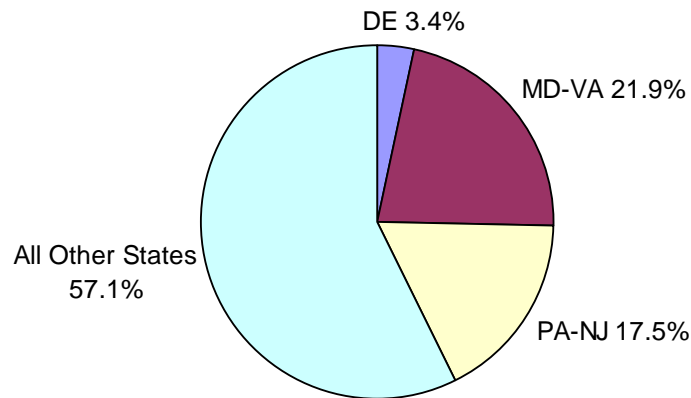
The Turnpike also provides access to two mainline freight railroad systems, CSXT and Norfolk Southern, and several short-line railroad systems including the Wilmington and Western and the Brandywine Valley Railroad. Amtrak passenger rail is also accessible from I-95 at the Newark, Fairplay, and Wilmington stations, which serve over 700,000 passengers per year. In Delaware, Amtrak is the link to major Atlantic Coast cities through the operation of approximately 90 trains daily, primarily Acela Express, and regional trains. In addition, Southeastern Pennsylvania Transportation Authority (SEPTA) operates 35 commuter trains per day in Delaware that are accessible via this corridor.

The corridor also provides access to New Castle County Airport, located just outside Wilmington. For the 12-month period ending December 31, 2006, the airport had over 130,000 aircraft operations. The Port of Wilmington, a modern full-service, multi-modal deepwater port and marine terminal, is located approximately 16 miles north of the plaza. The port handles over 400 vessels per year with an annual import/export cargo tonnage of five million tons.

### **Connections to Existing Transportation Infrastructure—Regional Significance:**

A license plate study conducted at the Newark Toll Plaza in 2004 identified the distribution of vehicles by state (see Figure 3). Delaware motorists account for only 3.4 percent of the vehicles passing through the plaza. Maryland, Virginia, Pennsylvania, and New Jersey account for a total 39.4 percent of the vehicles, and the remaining 57.1 percent of the vehicles are from other states.

Figure 3: Proportion of E-ZPass Users—Delaware and Other States



**Transportation Challenges:** The need for the project is based on existing and projected traffic congestion at the plaza, the need to efficiently accommodate continued growth in E-ZPass usage, the need to address the high crash rates in this portion of I-95, the need to mitigate fuel consumption and greenhouse gas emissions that accompany anticipated travel growth, and the need to modernize the existing southbound plaza, which has been in operation for over 46 years.

**History:** The Newark Toll Plaza began operations in 1963. Two independent studies were conducted in the past 20 years to analyze the needs of this section of I-95 to ensure continued mobility through the northern section of Delaware. A 1988-1989 interstate needs study was followed by the more recent *Delaware Turnpike Improvements Program*. The latter identified various improvement projects that were presented in a series of public meetings, including public workshops held on December 1 and 2, 2003. The proposed improvements included adding lanes along I-95, improving the SR 1/I-95 and SR 896 interchanges, and retrofitting the Newark Toll Plaza with highway speed E-ZPass lanes.

**Existing Plaza Operations/Infrastructure Conditions:** The I-95 Newark Toll Facility consists of two plazas—the main plaza with ten southbound lanes and five northbound lanes, and the satellite plaza with five northbound lanes (see Figure 2). This toll facility experiences substantial delays and queues during many of the holiday and weekend time periods. These queues and delays can be attributed to high travel volumes, a high percentage of slower moving trucks, and limited processing rates at the toll booths. Based on observations and discussions with the Newark Toll Plaza staff, the following concerns have been identified:

- Driver confusion approaching plazas
- High crash rate on the northbound approach
- Under-utilization of northbound satellite plaza and outside toll lanes (both directions)
- Uneven distribution among lanes
- E-ZPass trucks and buses in CASH lanes reduce processing capacity
- Northbound CASH customers often block access to the E-ZPass lanes
- Southbound CASH customers often use the dedicated E-ZPass lane to a point where they block access to the E-ZPass lanes (some inadvertently, some intentionally)
- Alignment of southbound E-ZPass lanes through plaza is abrupt and E-ZPass vehicles do not have an assigned lane beyond the plaza

Details from lane-by-lane Newark Toll Plaza transaction records verify that the existing CASH lanes are not utilized evenly, with the percentage of traffic handled by each lane varying from 5 to 20 percent per

northbound lane and 5 to 12 percent per southbound lane. This uneven processing of traffic creates longer queues and less than “ideal” overall capacity. Existing northbound E-ZPass lanes can be choked off whenever queues approaching the main plaza exceed approximately 800 feet, causing a rapid increase in queuing.

**Existing and Projected Passenger and/or Freight Volumes:** Average annual daily traffic through the Newark Toll Plaza is 78,500 vehicles per day. Peak seasonal average daily traffic is 109,500 vehicles per day through the plaza. Average annual daily traffic is projected to increase to 97,000 vehicles per day in 2020 and 117,500 vehicles per day in 2030. Additionally, peak seasonal average daily traffic is projected to increase to 140,200 vehicles per day in 2020 and 169,600 vehicles per day in 2030.

In 2005, 100.7 million tons of freight with a dollar value of \$66.1 billion passed through the plaza. Projections indicate that the equivalent numbers will be 195.4 million tons and \$128 billion in 2030. These represent a nearly doubling of freight to be handled by the plaza.

**Congestion Level:** In 2007, the number of hours traffic queues from the plaza will impact the closest upstream interchange was estimated to be 350 per year. In 2020, this number would increase to 1,500 hours per year if the project is not built, and will be reduced to 250 hours per year if the project is built. This represents an improvement of over 80 percent.

**Safety Experience:** I-95 in the vicinity of the Newark Toll Plaza has been identified as a high crash location. **The crash rate at the Newark Toll Plaza is approximately 2.75 times the average crash rate for all interstate highways throughout Delaware.** Rear end crashes account for 75 percent of crashes reported in the vicinity of the plaza and 74 percent of the crashes occur on weekends, when traffic congestion at the Newark Toll Plaza is greatest due to higher traffic volumes. By consolidating the northbound CASH lanes at a single plaza, converting the E-ZPass lanes to highway-speed lanes, and extending the decision point for the CASH and E-ZPass lanes farther from the plaza, the proposed Newark Toll Plaza reconstruction will significantly improve safety by reducing queues and sudden lane changes approaching the plaza, thereby reducing the potential for rear end crashes.

## Project Parties

Delaware Department of Transportation (DelDOT) is the grant recipient and the sole project implementing agency.

## Grant Funds and Sources and Uses of Project Funds

TIGER grant funds are being requested to fund the construction of the I-95 Newark Toll Plaza, Highway-Speed E-ZPass Lanes project. A total of \$48.44 million is being sought (see Table 1). Short-term improvements, which consisted of new signing, striping, and minor paving work that addressed immediate capacity and operational needs, were funded with State and FHWA (non-ARRA) funds. Construction of the short-term improvements was completed in September 2009.

Table 1: Funding Sources and Uses (\$000)

Funding Use by Phase	Funding Source				Total
	TTF (State Funds)	FHWA (Non-ARRA)	ARRA	TIGER	
Short-Term PE	\$273	-	-	-	\$273
Short-Term Construction	-	\$586	-	-	\$586
Highway-Speed E-ZPass Lanes PE	\$629	-	\$4,308	-	\$4,937
Highway-Speed E-ZPass Lanes Construction	-	-	-	\$48,440	\$48,440
<b>Total</b>	<b>\$902</b>	<b>\$586</b>	<b>\$4,308</b>	<b>\$48,440</b>	<b>\$54,236</b>
<b>Percentage of Total</b>	<b>1.66%</b>	<b>1.08%</b>	<b>7.94%</b>	<b>89.31%</b>	<b>100%</b>

## Response to Selection Criteria

This section presents background information and a review of the project with respect to the TIGER selection criteria. Four evaluation categories are addressed, including the two primary selection criteria and the two secondary criteria, as defined in the Notice of Funding Eligibility. The two primary selection criteria include a number of specific evaluation criteria.

### Long-Term Outcomes

**State of Good Repair—Importance to State of Delaware:** Because of the project’s strategic location along I-95 in relation to surrounding states, and because of the connectivity it provides to state routes in the northern third of Delaware, the travel delays that motorists experience at the current plaza have far reaching effects. As such, this project is the highest priority in DelDOT’s Capital Transportation Program. DelDOT’s Statewide Long-Range Transportation Plan (LRTP), adopted in January 1997 and updated in September 2002, shows that the project area is within a Multi-modal Investment Area, an area where growth is planned, and where DelDOT must provide a more comprehensive solution to satisfy mobility and access needs. The project is one element of an on-going program of multi-modal improvements in the Turnpike corridor, and is consistent with DelDOT’s LRTP and with the Wilmington Area Planning Council’s (WILMAPCO) Metropolitan Transportation Plan.

The Delaware governor’s *Cabinet Committee on State Planning Issues* approved the **Strategies for State Policies and Spending**, as outlined in the **Shaping Delaware’s Future** document, approved on December 23, 1999 and updated on September 23, 2004. The project area is within an area categorized as “Communities.” “Communities” are defined as areas where population is concentrated, commerce is bustling, and a wide range of housing types already exists; state policies will encourage redevelopment and reinvestment. Projects that are encouraged include those that manage traffic flow and congestion, support economic development and redevelopment efforts, promote local street networks, and make existing infrastructure and planned improvements as safe and efficient as possible. The proposed improvements to the Newark Toll Plaza are consistent with the goals of **Shaping Delaware’s Future**.

**State of Good Repair—Regional Importance:** Addressing bottlenecks such as those that occur at the Newark Toll Plaza is a major focus area of the **I-95 Corridor Coalition**. The coalition is an alliance of transportation agencies, toll authorities, and related organizations from Maine to Florida, with affiliate members in Canada. The coalition provides a forum for key decision and policy makers to address transportation management and operations issues of common interest. The coalition has developed a set of principles to guide an alternative vision for the region. A key feature of the principles is to address the goal of accommodating mobility and economic development while doing so within a smaller carbon footprint, by using less energy

while also promoting land use and quality of life objectives. Principles of the coalition that are relevant to this project include:

- Investing in a 21<sup>st</sup>-century multi-modal transportation system for the I-95 region that provides mobility for an increasing population and supports economic growth.
- Increasing investment in the I-95 region's transportation infrastructure utilizing all potential revenue and financing mechanisms.

Electronic payment systems to promote transportation efficiency are a primary emphasis of the coalition, which envisions that the regional transportation network will be safe, efficient, seamless, and inter-modal, and will support economic growth in an environmentally responsive manner. Within that vision, the goals are to improve mobility for people and goods, enhance safety for all travelers, and improve the economic vitality of the region. The focus of the coalition's program has evolved from studying and testing ITS technologies to a broader perspective that embraces integrated deployments and coordinated operations.

The following information was obtained from presentations at the coalition's "Electronic Payment Systems and Services Summit" (EPS), September 19, 2007, Boston, Massachusetts. The question, "What is wrong with toll plazas today?" was raised at the summit. In response, the I-95 Corridor Coalition identified several concerns, including:

- Congestion—Backups at toll plazas are a way of life
- Safety—Speed differentials increase risk
- Cost—Toll plazas and other infrastructure are very expensive
- Flexibility—Once built, existing infrastructure cannot be moved or modified easily

Further, it was suggested that electronic toll collection be transitioned to open road tolling (ORT) when traffic conditions warrant. The International Bridge, Tunnel and Turnpike Association defines ORT as: "Electronic toll collection systems without toll plazas, where drivers get charged the toll without having to stop, slow down or stay in a given lane." ORT allows tolls to be collected electronically at any speed. Technologies are now available to collect tolls without barriers; therefore, congestion at toll plazas is a solvable problem.

The Newark Toll Plaza project will significantly improve the operations of an existing facility, in lieu of expanding the highway. It will not only provide improvements along I-95, but it will also reduce the number of motorists using local roads to avoid congestion at the plaza.

### **Economic Competitiveness:**

**Interstate Travel:** A well-functioning transportation system is vital to the economic competitiveness of a state. With a few exceptions, one of which is the Newark Toll Plaza, Delaware's transportation system is functioning well. Reducing travel times through the plaza will address a key bottleneck that affects both intrastate and interstate travel (see Figure 3). Total annual vehicle-hours of delay through the plaza will be reduced by more than 90 percent in the project's opening year of 2011. Assuming a dollar-value-of-time equivalent to the amount used in DelDOT's Statewide Mode Choice Model, this delay reduction amounts to a nearly \$24.8 million savings in estimated user-delay costs for the opening year alone.

**Truck Mobility:** In addition to the overall reduction in congestion and delays, the project will also increase mobility for a high volume of truck traffic. Figures 4 and 5 show annual tonnage and dollar values of truck freight at the Newark Toll Plaza in 2005 and 2030, respectively. The total value of freight using the plaza was \$66 billion in 2005 and is expected to increase to \$128 billion by 2030.



Figure 4: 2005 Truck Tonnage and Dollar Value

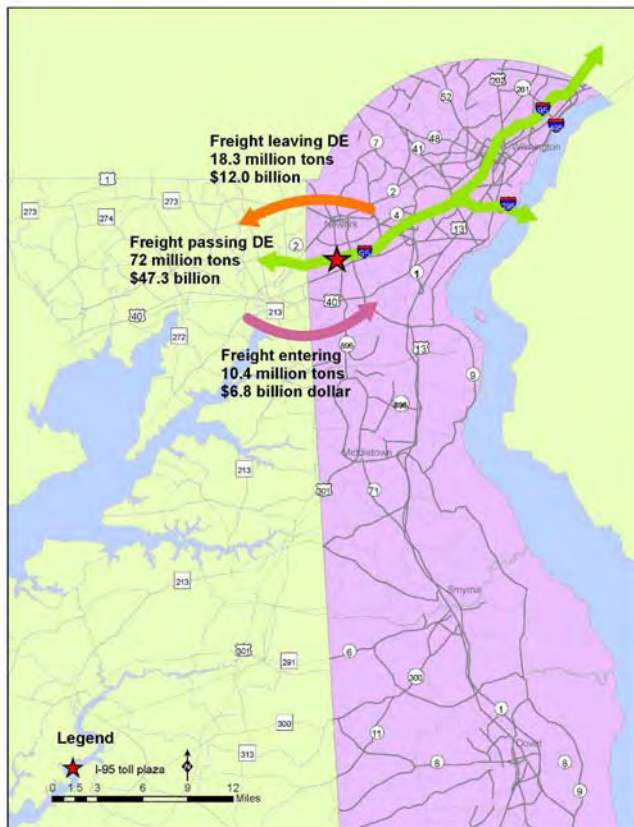
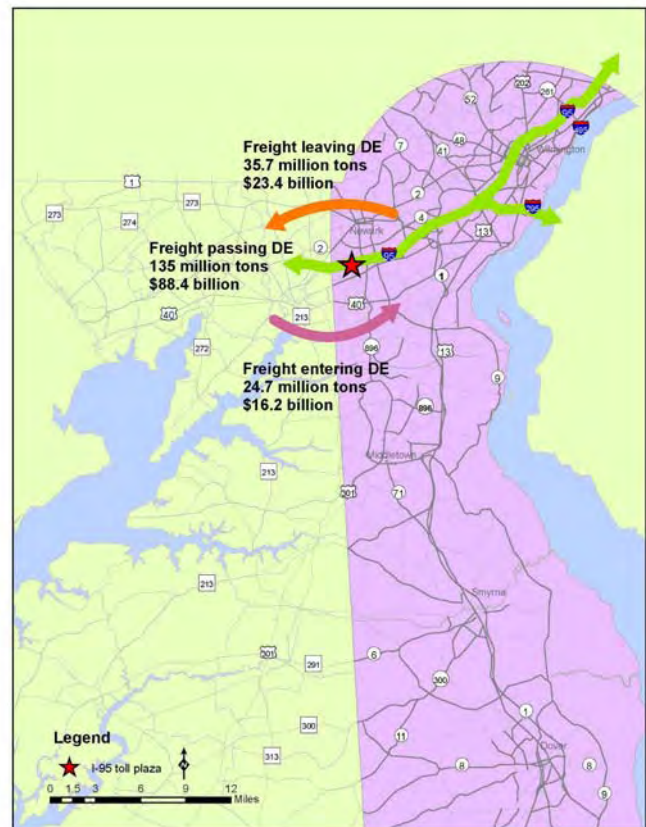


Figure 5: 2030 Truck Tonnage and Dollar Value



Increasing truck mobility will improve the long-term efficiency, reliability and cost-competitiveness of the movement of goods and is vital to sustaining, and ultimately increasing, net economic growth in the region.

**Toll Revenues:** Revenues that are generated by the Newark Toll Plaza account for approximately 27 percent of all revenues that comprise Delaware’s Transportation Trust Fund. The other two primary sources, motor fuel taxes and Department of Motor Vehicles fees, account for approximately 54 percent of revenues, with the balance coming from a variety of lesser sources. The trust fund is used to repay the debt service on DelDOT’s capital transportation project bonds and to fund its operating and maintenance budget. Any remaining funds are used for capital program expenditures. This revenue source is vital to DelDOT’s existence and therefore the construction schedule/plan is being adjusted to minimize delays at the plaza in hopes of reducing diversion during the construction time period

In the longer term, the Newark Toll Plaza project will help to ensure that current users are served well, and that potential users who may otherwise consider diverting to alternative routes, particularly during peak summer weekends and holiday periods, will make the choice to stay on I-95. **Travel forecasts of the “Build” travel volumes along I-95** using DelDOT’s Peninsula Model show that average daily trips will grow by approximately 50 percent between 2011 and 2030. In the end, providing a higher level of service through the Newark Toll Plaza should result in a growing source of revenue for Delaware’s Transportation Trust Fund, which is vital to the state’s economic livelihood.

**Livability—The Problem:** Traffic congestion approaching the Newark Toll Plaza annually impacts over 27.7 million vehicles, especially motorists living in Delaware, Maryland, and Pennsylvania. Travelers from other surrounding states, including Virginia, New York, and New Jersey, are also significantly impacted (see Figure 3). *Toll Road News* has designated the Newark Plaza “the worst on the East Coast.”

Congestion at the plaza is so significant that area newspapers, including *The Washington Post* and *The Baltimore Sun*, have published articles in advance of holiday weekends alerting motorists to the pitfalls of using it. A November 2008 article in *The Washington Post* titled **“Dr. Gridlock—Alternative Holiday Routes”** provided suggestions on how to avoid the plaza in Delaware. A reader response to this article stated, **“Delaware: This small state is usually the biggest of congestion problems for East Coast travelers, partly because I-95 also serves as the ‘Main Street’ of New Castle County.”** A *May 2009 article in The Baltimore Sun* stated, “...Delaware Toll Plaza, which must be avoided at all costs...Besides being a rip-off, the Delaware Toll Road can back you up for an hour just so it can overcharge you.”

The articles suggest alternate routes and estimate travel time savings. These traffic diversions lead to congestion on local and/or alternative routes, resulting in increased delays and the potential for increased crashes along those routes. The resultant congestion on local routes adversely impacts access to local facilities, leading to a decline in local residents’ perception of their quality of life. According to the American Institute of Architects’ *Livability 101*, published in 2005, **“AIA’s 10 Principles for Livable Communities”** emphasizes reduction in traffic congestion to achieve the principles of livability.

The significant amount of traffic delays experienced at the Newark Toll Plaza, the large geographic area impacted, and the fact that the delay occurs on both weekends and weekdays, indicates that all types of trips (i.e., local and long distance) and persons of all income levels (i.e., including persons with low and mid-level incomes) are and will continued to be impacted by the poor operations at Newark Toll Plaza, and, therefore, would benefit from the improvements afforded by this project.

### **Livability—The Solution:**

**Capacity and User Mobility Improvement:** This highly cost-effective project will increase capacity at the Newark Toll Plaza and transportation user mobility without adding through lanes along I-95. Specific quantitative comparisons based on traffic analysis of the project versus the No-Build alternative are summarized below and in Table 2:

- *Opening Year 2011 Queuing*—Queues approaching the plaza are estimated to be less than one mile per direction on all but three days per year. Without the project, queues may exceed two miles for up to 74 days per year.
- *Interim Year 2020 Queuing*—Queues are estimated to be less than two miles in either direction for all but 24 days during peak summer weekends (five to seven mile queues) and three holiday travel weekends (at least 10-mile queues). Without the project, queues may exceed 10 miles for up to 74 days per year.
- *Design Year 2030 Queuing*—Severe over-capacity conditions are anticipated for most weekend scenarios both with and without the project, and reliable prediction of queue lengths becomes more difficult; however, frequent multi-mile queues are predicted. DelDOT anticipates that before 2030, the Newark Plaza will be converted to cash-free, open road tolling operation, and therefore these predicted conditions are not anticipated to occur.
- *E-ZPass Blockages*—The number of hours per year in which the dedicated E-ZPass lanes are potentially blocked by cash lane queuing is reduced by more than 95 percent in 2011 and more than 75 percent in 2020.
- *Upstream Interchange Impacts*—The number of hours per year in which plaza queues are expected to impact the nearest upstream interchanges, including MD 279 to the south and SR 896 to the north, is reduced by more than 95 percent in 2011 and more than 75 percent in 2020.
- *Annual Delay*—The total annual vehicle-hours of delay through the plaza are reduced by more than 90 percent in 2011. Assuming a dollar value-of-time equivalent to the amount used in DelDOT’s Statewide

Travel Demand Model (Mode Choice Model), this delay reduction amounts to an estimated \$24.8 million savings in user-delay costs for the year 2011.

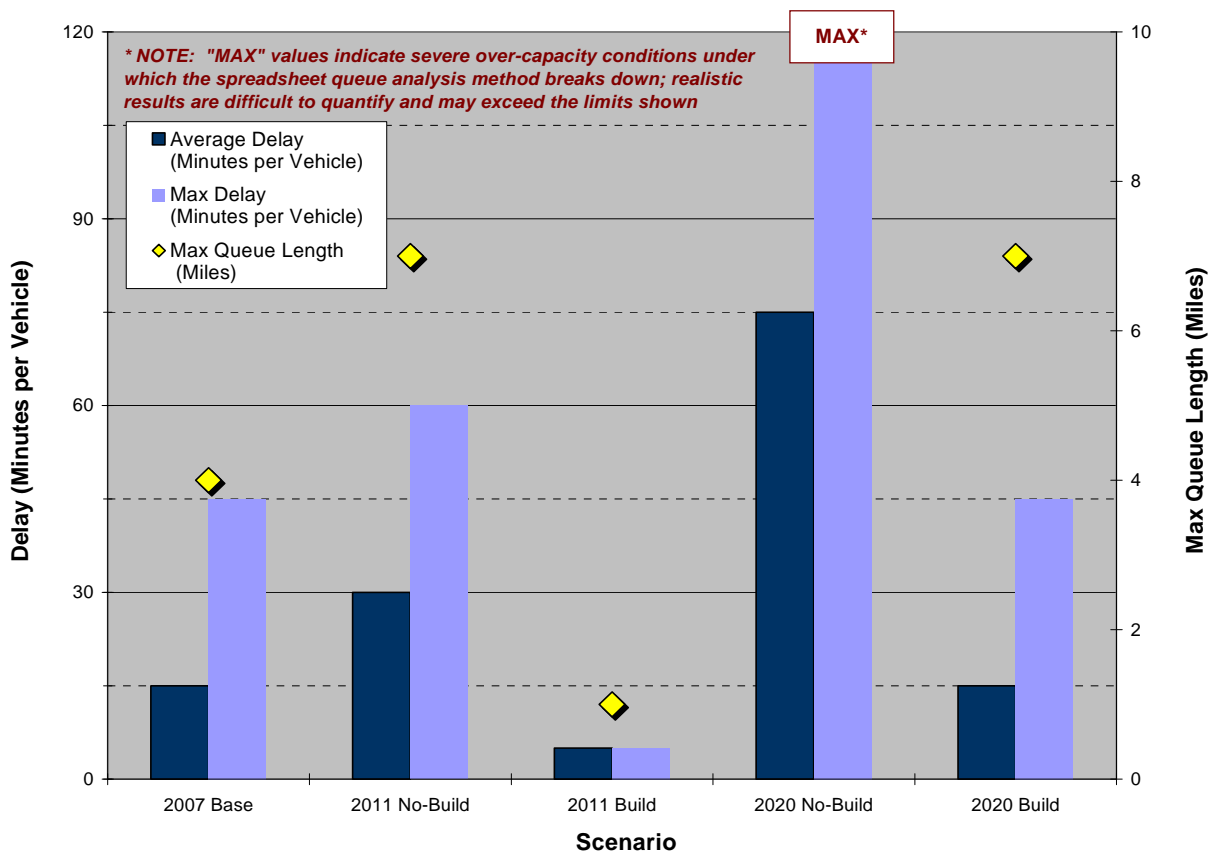
Table 2: Traffic and Queue Blockage Summary

Category/Detail	2011 No-Build	2011 Build	2020 No-Build	2020 Build
Maximum E-ZPass Blockage (Hours per Year)	700 (NB)	20 (SB)	1700 (NB)	300 (NB)
Maximum Interchange Impacts (Hours per Year)	450 (NB)	20 (SB)	1500 (NB)	250 (NB)
Annual User Delay (Million Vehicle-Hours per Year)	1.6	0.1	MAX <sup>1</sup>	1.2

<sup>1</sup>MAX value indicates severe over-capacity conditions under which the spreadsheet queue analysis method breaks down; realistic results are difficult to quantify and may exceed the limits shown.

The magnitude of the reduction in average delay, maximum delay, and maximum queue lengths is illustrated in Figure 6 below for base 2007, the opening year of 2011, and for 2020. In 2011, the percent reductions in these three parameters are estimated to be 83 percent, 92 percent, and 86 percent, respectively.

Figure 6: Queue Length and Delay Summary for “30th Highest Design” Conditions



**Accessibility:** DelDOT’s Peninsula Model was used to compare **travel times for users of the Newark Toll Plaza to destinations throughout the state of Delaware** for No-Build and Build conditions. In 2011, a trip to Rehoboth Beach through the plaza will take approximately 135 minutes under No-Build conditions and approximately 105 minutes under Build conditions, a difference of 30 minutes. By 2020, the difference grows to over 60 minutes (180 No-Build vs. 120 Build), all of which is accountable to delays at the plaza. As time goes on, the amount time spent at the plaza will account for a greater percentage of the total trip time to the beach.

The current bottleneck at the Newark Toll Plaza also negatively affects access to the Newark Amtrak Station. By addressing this key bottleneck, the project will improve access to Amtrak's NEC, the busiest passenger rail line in the United States based on ridership and service frequency. The route is electrified and serves a densely urbanized string of cities in the states of Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, DC, and Virginia.

**Sustainability—Fuel Consumption and Greenhouse Gases:** Fuel consumption estimates were calculated based on vehicle miles traveled (VMT) divided by fuel efficiency (miles per gallon) for an assumed 10-mile segment approaching each direction of the plaza. Volumes used to develop the VMT estimates were derived from a detailed review and analysis of annual transaction records through the plaza for various seasonal scenarios throughout the year. Fuel efficiency estimates were derived separately for car and truck traffic by way of specific test scenarios using Trafficware's Synchro/SimTraffic software for both "free-flow/no queue" conditions and for "congested/stop-and-go queue" conditions. Specific fuel efficiency assumptions were:

- Free-flow conditions: 37 mpg (car); 23 mpg (truck)
- Stop-and-go conditions: 4.1 mpg (car); 3.5 mpg (truck)

Emissions and greenhouse gases were in-turn estimated as a function of fuel consumption using various EPA/FHWA-based "quantity per gallon" factors for CO<sub>2</sub>, HC, CO, and NO<sub>x</sub>. Specific factors used were:

- CO<sub>2</sub>: 19.4 lb/gal (gasoline); 22.2 lb/gal (diesel)
- HC: 2421 g/gal (gasoline); 2778 g/gal (diesel)
- CO: 69.9 g/gal
- NO<sub>x</sub>: 16.2 g/gal

Following construction of the project, annual fuel savings will be approximately three million gallons per year in 2011, or an annual reduction of fuel consumption of 25 percent. Greenhouse gas savings are estimated at 24,000 tons per year in 2011, or a 23-percent reduction compared to No-Build conditions. Figures 7 and 8 illustrate reductions in fuel consumption and greenhouse gas emissions, as well as emissions of criteria air pollutants.

**Sustainability—Air Quality:** As noted in the previous section, the project will reduce fuel consumption and greenhouse gas emissions. The **Air Quality study** undertaken for the NEPA **Categorical Exclusion** also determined that the project will meet the Clean Air Act and 40 CFR 93.109 requirements. These requirements are met for particulate matter (PM<sub>2.5</sub>) without a project-level hot-spot analysis, since the project is not found to be a project of air quality concern. Since the project meets the Clean Air Act and 40 CFR 93.109 requirements, it will not cause or contribute to a new violation of the PM<sub>2.5</sub> NAAQS, nor increase the frequency or severity of violations.

**Sustainability—Natural Resources:** The project has minimal impacts on wetlands (0.097 acres) and Waters of the U.S. (893 linear feet). Wetland mitigation will be at a designated off-site wetlands banking location. The project does not have an impact on endangered species or on floodplains. Stream impacts will primarily be accounted for by an adjacent in-kind replacement.

According to Delaware's Department of Natural Resources and Environmental Control (DNREC's) *Natural Heritage and Endangered Species Program*, there are currently no records of state-rare or federally-listed plants, animals, or natural communities at this project site. DNREC states, however, that two state-rare salamander species, the four-toed salamander (*Hemidactylium scutatum*) and the spotted salamander (*Ambystoma maculatum*) were previously documented in the project area. It is anticipated that the proposed stormwater management (SWM) facility at Otts Chapel Road will drain into the stream that feeds the spotted

salamander habitat area. The project’s SWM design will meet DNREC requests that SWM facilities minimize increases in sedimentation and chemical runoff into receiving streams.

Figure 7: Annual Fuel Consumption

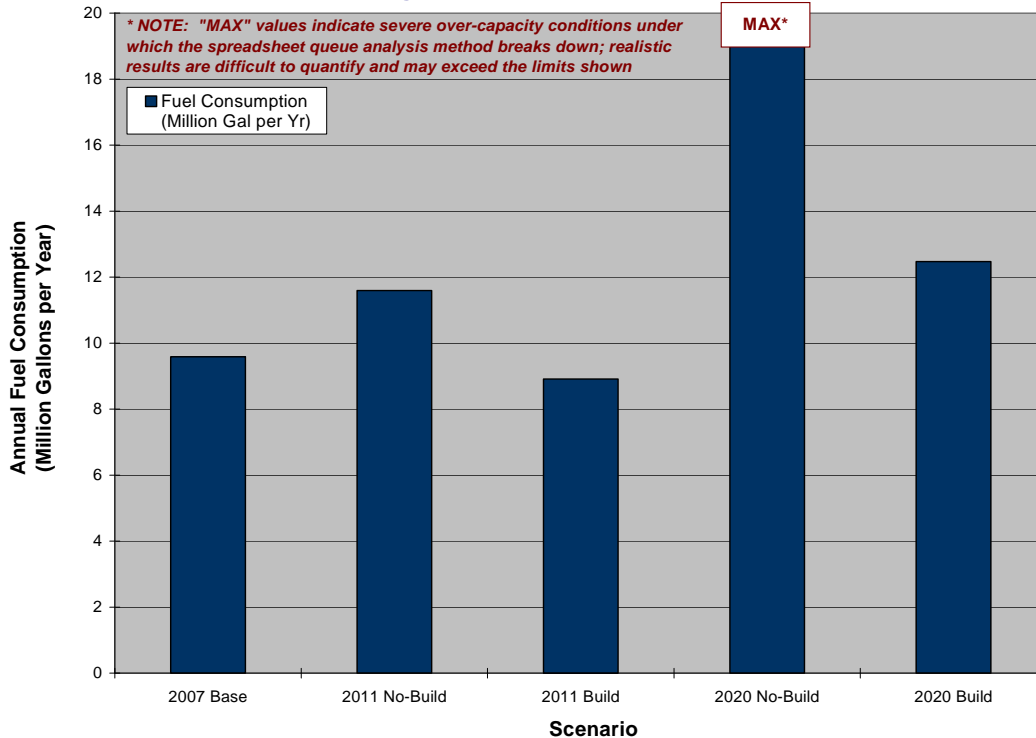
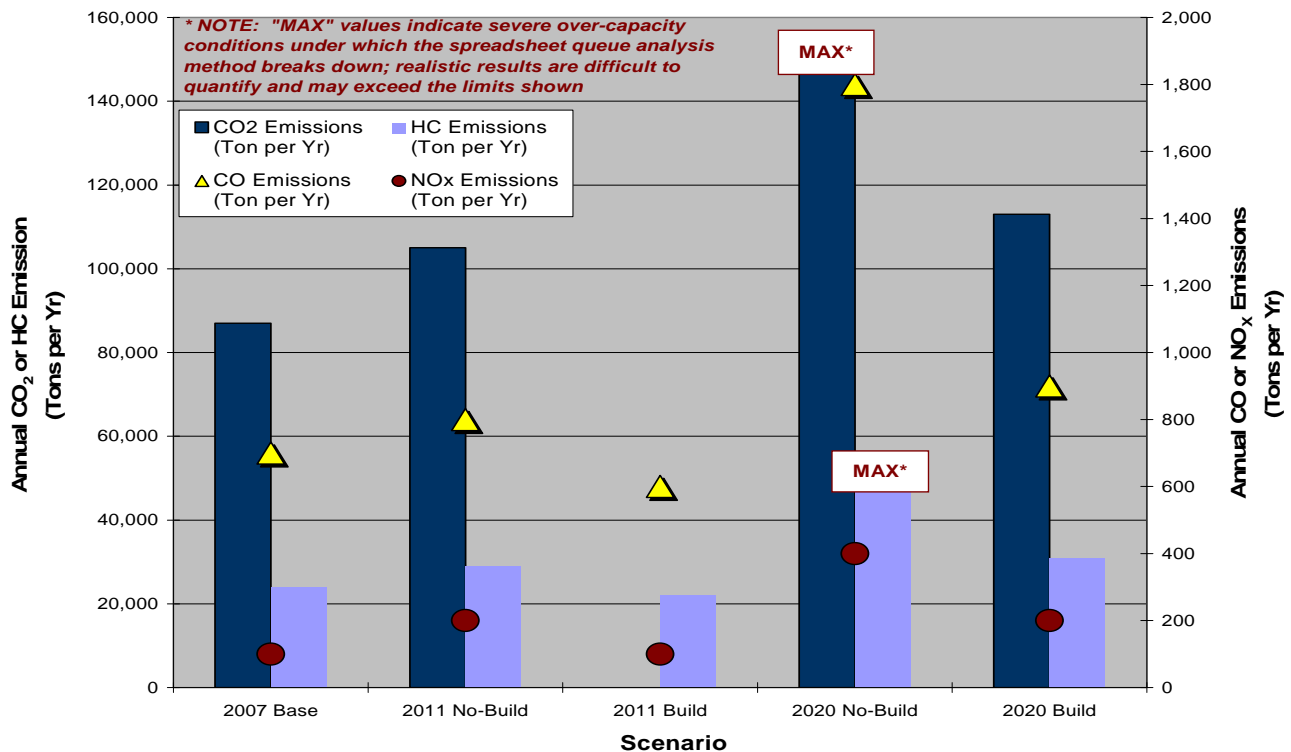


Figure 8: Annual Emissions and Greenhouse Gas Estimates



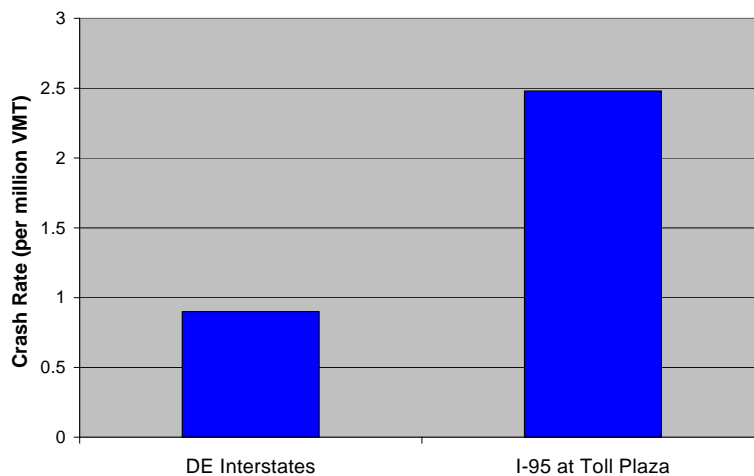
The anticipated forest impacts equal 1.22 acres. No significant loss of woodland habitat is expected. Impacts will be mitigated in accordance with Delaware Senate Bill 234, the Landscaping and Reforestation Act, which passed in 2002. DelDOT will incorporate landscaping and reforestation into the design of the road construction and improvement projects. Before construction begins, an analysis will be performed to determine the total area

of trees that will be cut, removed, or cleared in order to complete the project. Reasonable efforts will be made by DelDOT to preserve large, mature trees. Clearing and cutting of trees/shrubs will be kept to the minimum number necessary to complete the project and remain consistent with safe design practices. These requirements are incorporated into the current design concept.

**Sustainability—Water Quality:** The project will create a total of 6.53 acres of new impervious surface that will require treatment stormwater runoff. SWM facilities will be designed to treat stormwater runoff from new and existing impervious surfaces; SWM ponds will collectively treat a total of 19.07 acres of stormwater.

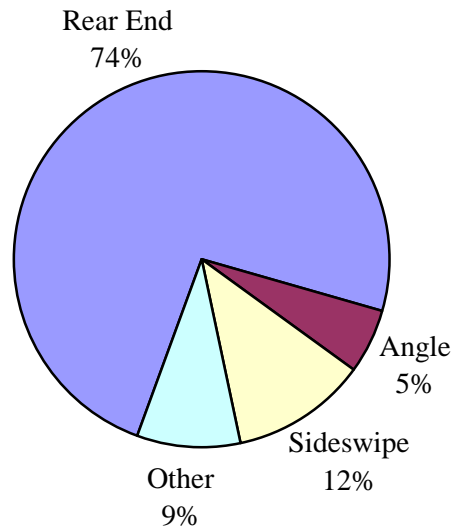
**Safety—The Problem:** According to Toll Road News dated 08/21/2007, the Newark Toll Plaza has the worst backups anywhere on the East Coast. Further, it states that the more cases of stopped traffic there are on the highways that are otherwise free flowing (expressways), the more often these will result in collisions, injuries, and deaths. I-95, in the vicinity of the Newark Toll Plaza, has experienced an increased number of crashes in recent years and has been identified as a high crash location as part of DelDOT’s Highway Safety Improvement Program. The crash rate on the approaches to the Newark Toll Plaza (per million vehicles miles traveled) is approximately 2.75 times greater than the average crash rate for all interstate highways throughout Delaware (see Figure 9). Additionally, with the exception of I-95 at the US 202 interchange, the crash rates approaching the Newark Toll Plaza are the highest throughout the entire I-95 corridor in Delaware.

**Figure 9: I-95 Toll Plaza and Interstate Crash Rates**



A review of crash data along I-95 from January 2004 through December 2008 revealed that 74 percent of the 517 total crashes reported between the Maryland state line and SR 896 were rear end crashes (see Figure 10). Rear end crashes are likely to occur in congested freeway segments and where stop-and-go traffic and sudden lane changes frequently occur. Rear end crashes may also occur due to motorist confusion regarding the selection of appropriate toll lane just before getting to the plaza. Seventy-four percent of the crashes occurred on Fridays, Saturdays, and Sundays when traffic congestion at the Newark Toll Plaza is greatest due to higher traffic volumes. Two crashes resulted in fatalities and 77 resulted in personal injuries. Additionally, 74 percent of the reported crashes occurred on northbound I-95 and 26 percent occurred on southbound I-95, which can likely be attributed to the split plaza configuration along northbound I-95. With a mix of CASH lanes at the main plaza and the satellite plaza, unfamiliar drivers can be confused, which results in inefficient use of the CASH lanes, blockages of the low speed E-ZPass lanes, last minute lane changes, and unpredictable vehicle stoppages.

Figure 10: Newark Toll Plaza Crash Types



**Safety—The Solution:** By consolidating the northbound CASH lanes at a single plaza, converting the E-ZPass lanes to highway-speed lanes, and extending the decision point for the CASH and E-ZPass lanes farther from the plaza, the proposed Newark Toll Plaza reconstruction will significantly improve safety in two ways. The project will reduce queues and sudden lane changes approaching the plaza, thereby reducing the potential for rear end crashes during peak travel periods. As indicated previously, rear end crashes represent the majority of crashes reported at the existing Newark Toll Plaza. Additionally, the addition of highway-speed E-ZPass lanes, coupled with reconfiguration of the cash booths and approach lanes, will improve overall traffic operations, efficiency, and effective capacities of the facility leading to reduced motorist confusion approaching the plaza, and a reduction in last-minute lane changes due to merges, diverges, and weaves.

Additional safety-related improvements include:

- A toll equipment gantry over the highway-speed E-ZPass lanes, that will enable the toll facility maintenance personnel to safely maintain the highway-speed E-ZPass toll equipment without closing travel lanes
- An overhead walkway that will provide safe access for toll collectors walking between the outer lanes of the widened northbound plaza and the administration building.

**Benefit-Cost Analysis:** A benefit-cost analysis was performed based on the project’s expected benefits for the five long-term outcomes.

**User Benefits (Quantitative):** The most significant benefits of the project are those that accrue to direct users of the project, in this case, motorists on I-95 that would experience less delay as a result of the project. Road User Cost estimates were derived from methodologies presented in AASHTO’s “User Benefit Analysis for Highways” to account for two primary components—delay costs and operating costs. Delaware-specific factors for values of time and operating cost per mile were based on annual values maintained by DelDOT’s Traffic Section, in consultation with the Contract Administration Section. The net savings in road user costs due to the project are approximately \$24.8 million for the 2011 opening-year.

U.S. DOT has indicated that a figure of \$33 per metric ton of carbon may be used to measure the global benefits of reducing U.S. CO<sub>2</sub> emissions. Based on an anticipated reduction of 24,000 tons of CO<sub>2</sub> in the 2011 opening year, a savings of approximately \$0.8 million is anticipated.

Combining the annualized reductions in user costs and benefits due to reductions in U.S. CO<sub>2</sub> emissions yields a total annual benefit of \$25.6 million.

**Other Benefits (Qualitative):** The project will result in other significant benefits that are not directly included in the benefit-cost analysis including:

- *Safety:* Although reliable crash reduction factors (CRFs) for toll plaza improvements are not readily available, the project will significantly reduce queues and sudden lane changes approaching the plaza, thereby reducing the high rate of rear end crashes reported approaching the plaza.
- *Job Creation:* Construction of this project will require approximately 321 construction-related jobs; however, taking into account industries that directly serve the construction industry, the job impact of this project is 468 jobs.

**Costs:** The capital construction cost of the project is \$48.44 million. Assuming an assumed interest rate of seven percent as suggested by U.S. DOT, and assuming an economic life of capital assets of 30 years, the annualized cost of the project is \$3.9 million.

**Benefit-Cost Ratio:** Dividing the calculated annual benefits by the annualized costs results in a project benefit-cost ratio of 6.6.

**Evaluation of Project Performance:** A proposed Project Performance Evaluation Plan is included in the Reporting Requirements section of this application.

## **Job Creation & Economic Stimulus**

**Long-Term Job Creation:** The Newark Toll Plaza is located in the vicinity of Newark, Delaware, a recently identified “special needs” area based on the closing of the Chrysler Automotive Assembly Plant, which resulted in approximately 1,000 job losses. For the last 50+ years, this automobile assembly plant functioned as a major economic stimulus to the City of Newark. Now that Chrysler has emerged from bankruptcy, the corporation has scheduled an auction this fall in anticipation of selling the facility and property. It is envisioned that either the University of Delaware or a major technology firm will acquire the assets and develop a technology park. The construction of the Newark Toll Plaza project will make this site more appealing for developers of the property, increasing the potential for significant job creation in Newark.

**Providing Opportunities for Participation by Disadvantaged Individuals and Businesses:** DelDOT’s ARRA projects are featured prominently on [DelDOT’s website](#). In DelDOT’s efforts to make information regarding opportunities for work under the ARRA projects available to Disadvantaged Business Enterprise (DBE) firms, the agency featured information in the Spring 2009 DBE Newsletter in an article titled “Getting a Head Start on the Stimulus.” This article provides step-by-step instructions on how to view upcoming projects, including how to determine those firms who have purchased project plans, and encourages DBE firms to reach out to firms who have shown an interest in DelDOT projects. The DBE newsletter can be found by selecting Doing Business on DelDOT’s home page, then selecting the [Disadvantaged Business Enterprise Program link](#) under External Civil Rights Program.

DelDOT’s Civil Rights Office provided two training opportunities for DBE firms, specifically focusing on upcoming ARRA projects, in February and March 2009; one class was conducted in Dover, and one was conducted in Bear. Representatives participated in the following additional outreach activities:

- Mastering the Maze—Women Winning Contracts event conducted June 16, 2009
- Federal Contracting-Based Programs for Small Businesses event conducted June 23, 2009
- Increasing Opportunities for Minority and Women Businesses event conducted on June 27, 2009.



As a recipient of federal funding, DelDOT is required to ensure compliance with federal regulations (including Equal Employment Opportunity) on all federally-funded projects. DelDOT is accustomed to ensuring this compliance using programs developed in our Civil Rights Office, including monitoring to adherence for Contractor Compliance, On-the-Job-Training (OJT), and Disadvantaged Business Enterprise (DBE) programs. Each federally-participating project is reviewed to determine the applicability of both a DBE and an OJT goal, based on the project’s type, duration, and other factors. Once DBE and/or OJT goals are set for a project, DelDOT’s Civil Rights Office monitors projects to ensure progress toward meeting the goals, as well as to ensure timely subcontractor payments, adherence to EEO requirements, and timely resolution of complaints. Descriptions of DelDOT’s Civil Rights programs can be found on the DelDOT website by selecting **Doing Business**, then referencing the External Civil Rights Program section.

**Project Schedule:** The Newark Toll Plaza project is currently under final design and design is 90 percent complete. Table 3 indicates the major milestones of the project schedule from completion of design through construction notice to proceed. As shown, construction notice to proceed is anticipated in April 2010 and the project is anticipated to be completed in August 2011.

**Table 3: Project Schedule**

Activity	Start Date	Finish Date
PS&E* to Advertisement	11/16/09	12/14/09
Advertisement to Bid Opening	12/15/09	1/13/10
Bid Opening to Notice of Award	1/13/10	1/20/10
Contract Award to Execution	1/21/10	2/09/10
Execution to Preconstruction Meeting	2/10/10	03/26/10
Notice to Proceed to First Chargeable Day	3/27/10	4/05/10
Construction	4/05/10	8/11/11

\* PS&E = Plans, Specifications, and Estimates

The requested TIGER grant funds can be spent steadily and expeditiously once construction begins. Based on estimates by the University of Delaware and the Delaware Department of Labor, construction of this project will require approximately 321 construction-related jobs; however, taking into account industries that directly serve the construction industry, the job impact of this project is approximately 468 jobs. Table 4 indicates the number of jobs that are expected to be sustained during each calendar quarter during construction.

**Table 4: Job Creation per Quarter**

Quarter	Estimated Cash Flow (% Per Quarter)	Estimated Cash Flow (\$000 Dollars)	Direct Jobs	Total Job Impact
1	10.0%	\$4,844	32	47
2	25.0%	\$12,110	80	117
3	25.0%	\$12,110	80	117
4	15.0%	\$7,266	48	70
5	20.0%	\$9,688	64	94
6 (partial)	5.0%	\$2,422	16	23
<b>Total</b>	<b>100%</b>	<b>\$48,440</b>	<b>321</b>	<b>468</b>

DelDOT has had a successful experience in implementing large interstate projects in an efficient and cost effective manner. The I-95 Mainline Widening project, completed in October 2008, was opened to traffic five hundred (500) days ahead of the estimated schedule and was bid \$10 million under the engineer's estimate. Even with change orders and add-on work, the project was completed \$7 million under the original estimate. The success of the project has been recognized at local levels. Additionally, the Northeastern Association of State Transportation Officials (NASTO) recently announced the project was recognized nationally as the winner of the **East Coast Regional America’s Transportation Award**. More recently, AASHTO’s Subcommittee on

Design chair, DelDOT Secretary Carolann Wicks, was present in Boston, MA to **receive the award**. Additionally, on September 8, 2009, **the project was selected as one of the top 10 projects in the country**. The ATA National Grade Prize winner will be announced in November 2009.

**Environmental Approvals:** A **Categorical Exclusion** (CE) was prepared for the project and approved by the Federal Highway Administration on August 28, 2009. In addition, the project will require approvals from the U.S. Army Corps of Engineers (USACE) and DNREC. A Nationwide Permit (NW23) is required from the USACE and a Wetlands and Subaqueous Lands Section Permit is required from DNREC. No floodplain impacts are proposed as a result of this project and therefore a New Castle County Floodplain Permit is not required. The USACE and DNREC permit applications will be submitted in September 2009 and approval is anticipated prior to bid opening in January 2010.

**Legislative Approvals:** The Newark Toll Plaza project is contained in DelDOT's **Capital Transportation Program** (CTP) that is recommended by Delaware's Secretary of Transportation and governor and approved annual by the state legislature. Funding for FY 2010 has been approved by the state legislature with future year funds (FY 2011 and FY 2012) shown in the CTP, and funding approval anticipated on an annual basis, consistent with normal legislative practices. Click **here to view a congressional letter of support** for this project.

**State and Local Planning:** The Newark Toll Plaza project is included in WILMAPCO's (Wilmington Area Planning Council – MPO for New Castle County Delaware and Cecil County Maryland) **Transportation Improvement Program** (TIP), the Statewide Transportation Improvement Program (STIP) and the **Regional Transportation Plan** (RTP—fiscally constrained long-range transportation plan).

**Technical Feasibility:** The project is in the final stages of design. Preliminary designs were reviewed by DelDOT, who deemed the designs to be technically feasible. Final design is currently underway and the remaining schedule through advertisement is shown in Table 5.

**Table 5: Project Design Schedule**

Activity	Start Date	Finish Due
External Semi-Final Plan Review by DelDOT	08/25/09	9/22/09
PS&E* Preparation	8/25/09	10/06/09
PS&E Review Submittal to DelDOT	10/06/09	10/06/09
PS&E Review	10/07/09	10/20/09
PS&E Revisions	10/21/09	11/02/09
PS&E Submittal for Advertisement	11/03/09	11/03/09

\*PS&E = Plans, Specifications, and Estimates

## **Financial Feasibility:**

**Ability to Manage Grants/Stable and Reliable Commitments:** DelDOT is responsible for all state-owned transportation facilities and programs in Delaware. DelDOT is experienced in managing FHWA funding, being the recipient of such funds for the State of Delaware. Delaware has a dedicated State Transportation Trust Fund (TTF) to fund its debt service and operating, maintenance and capital programs. Funding is generated through a combination of taxes and fees, user charges and bond proceeds credited to and expended from the (TTF). DelDOT's conservative approach to funding capital projects includes a 50 percent pay go policy that results in excellent bond coverage factors and ratings by the agencies (currently Aa3 & AA+ Unenhanced Bonds and AAA Insured Bonds). Bonds are issued via the Delaware Transportation Authority (DTA). The DTA is an agency of the State of Delaware which has been established and is authorized to create an economical, efficient and unified system of air, water, vehicular,

public and specialized transportation in the State. The issuance of debt is taken by resolution of the Secretary of DelDOT, the DelDOT Director of Finance and the DelDOT TTF Administrator. DelDOT has overall responsibility for coordinating and developing comprehensive, multi-modal transportation planning and policy for the State. The bonds are issued pursuant to the DTA Act, Chapter 13, title 2, Delaware Code as amended, and the Transportation Trust Fund Act, chapter 14, title 2, Delaware Code as amended.

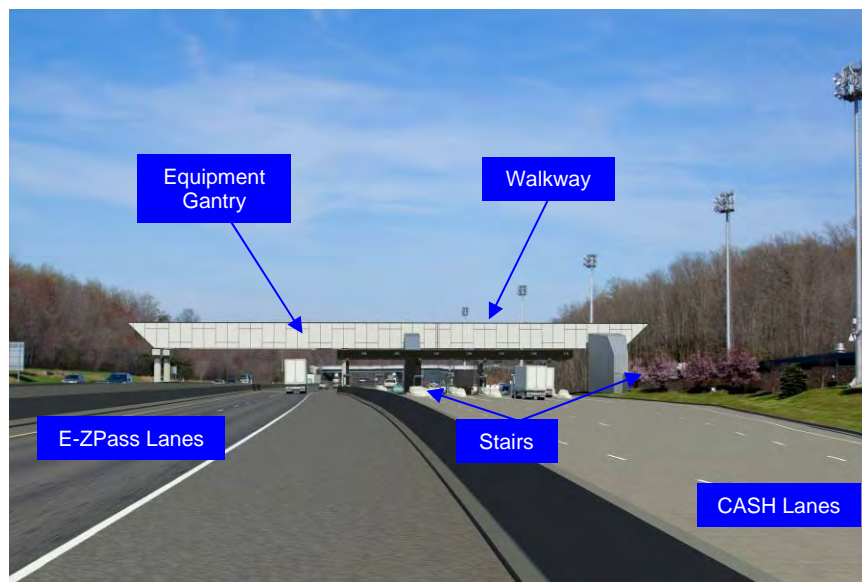
**Viability and Completeness of Financing Package:** The current FY 2010-FY 2015 DelDOT CTP includes 100 percent of the current PE and construction cost estimate of \$53.4 million for the Newark Toll Plaza project. The TIGER grant will fund the April 2010 through August 2011 construction of the project.

**Project Acceleration:** DelDOT intends to accelerate the construction schedule by using the A (contract bid items) + B (time to complete the construction, based on road use cost/day) procurement approach. The A + B method would also potentially incorporate a disincentive provision based on road user costs and toll revenue losses that would discourage the contractor from overrunning the time bid for the project. In addition, an incentive provision is being investigated that would reward the contractor if the work is completed earlier than the time bid. Other innovative contracting methods are being investigated including “lane rentals” and “no excuse bonuses.”

## Innovation

**Overhead Walkway/Gantry:** The project will utilize an innovative overhead walkway and open road tolling (ORT) gantry design that may have application at toll plazas throughout the country. The current northbound satellite plaza has neither overhead nor underground access to the toll booths and, as a result, toll collectors must cross open plaza lanes to reach their assigned toll booth. A tunnel serving the plaza was deemed impractical for two reasons: first, soil conditions were not favorable, and second, the costs and disruption of constructing a tunnel under the open plaza lanes were prohibitive. As an alternative, an overhead structure, shown in Figure 11, will enable safe overhead access for toll collectors walking between the outer lanes of the widened northbound plaza and the Administration building. The new overhead walkway will be temperature-controlled, ventilated, access-controlled and camera-equipped to ensure not only that worker passage is safe, but also that toll revenues are protected. [Click here for additional plaza renderings.](#)

Figure 11: Photo-Renderings of Newark Toll Plaza Walkway and Gantry



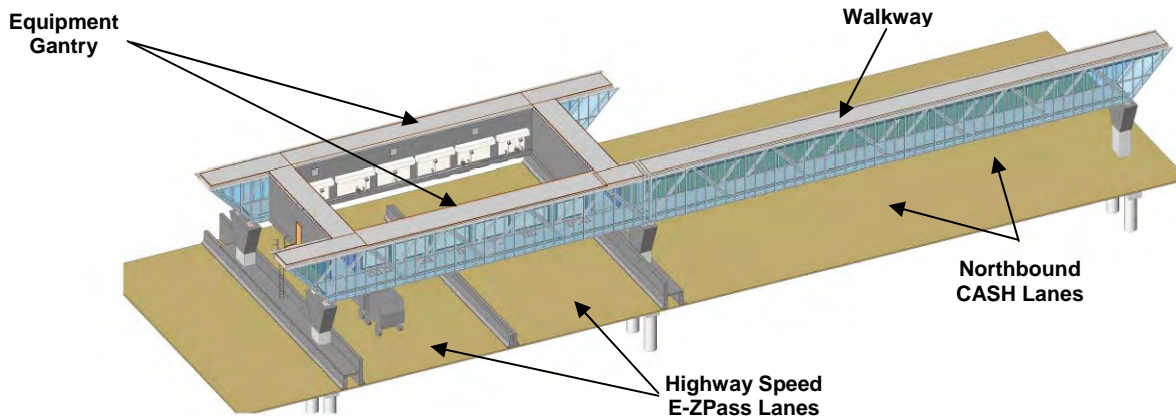
View Looking Northbound

Figure 11: Photo-Renderings of Newark Toll Plaza Walkway and Gantry (cont.)



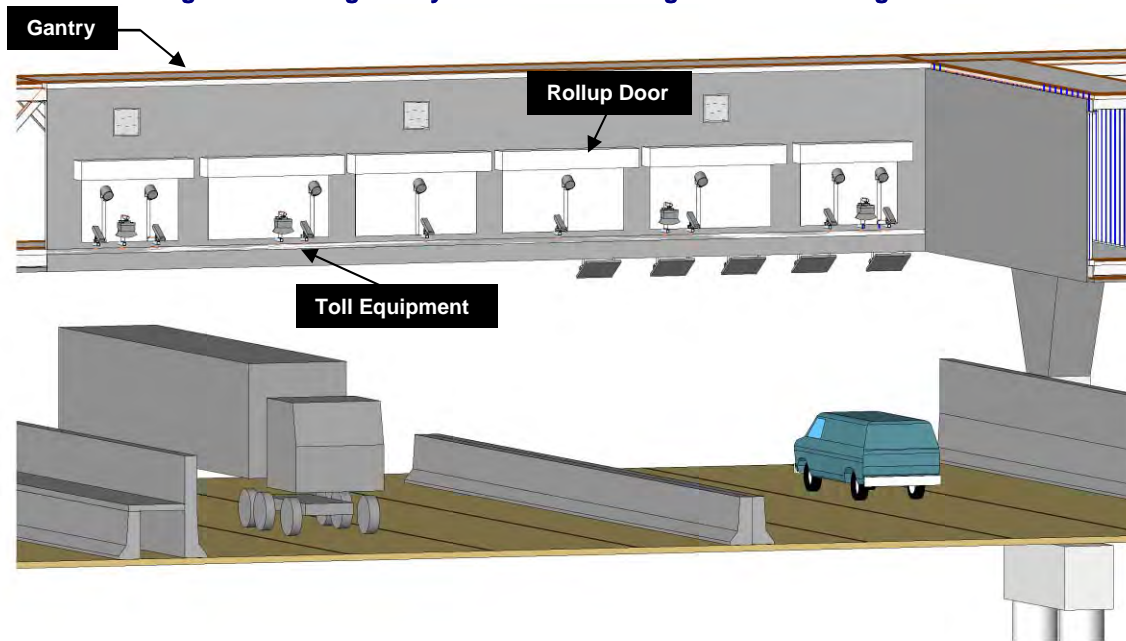
View Looking Southbound

Figure 12: Building Information Modeling Schematic of Newark Toll Plaza Walkway and Gantry



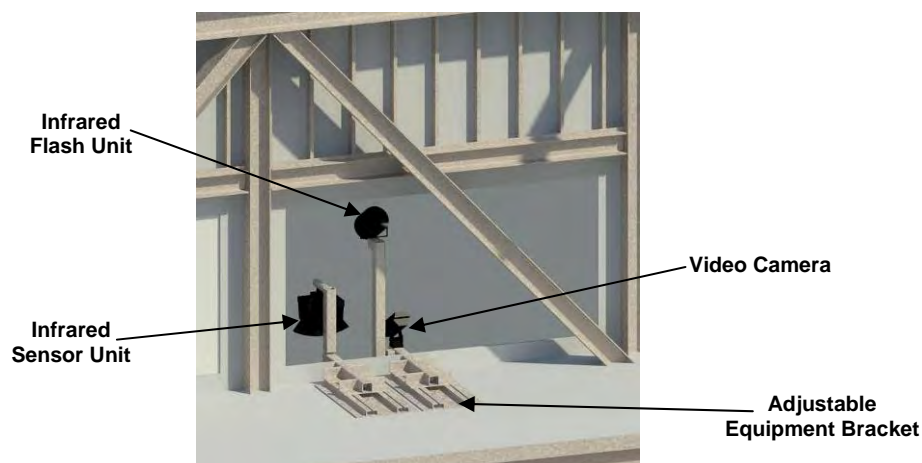
The ORT gantry system will consist of two parallel enclosed structures, spanning the four highway-speed lanes and adjoining shoulders. The overhead walkway will provide access for maintenance workers to the highway-speed tolling equipment and sensors located inside and along the inner perimeter of the gantries. These two parallel enclosed tolling gantries will be interconnected via two passageways, creating a continuous enclosed space which, by design, will preclude the congestion and related safety consequences that would occur by closing lanes to maintain the highway-speed E-ZPass equipment and tolling sensors. The enclosed space will also enable maintenance workers to access all of the overhead highway-speed tolling sensors, mounted outside of the gantries as shown in Figure 13, without the risk of injury to drivers below from falling tools or equipment.

**Figure 13: Tolling Gantry with Vertical Sliding Doors and Tolling Sensors**



In order to achieve this, the design incorporates an adjustable tolling sensor bracket and a vertical sliding door system. Normally closed, the sliding doors can be opened, allowing the sensors to be retracted from their operating position outside the gantry into the enclosure space for maintenance. The vertical sliding door can then be lowered, and the maintenance activities can begin on the tolling sensors, without the risk of dropping tools or other items onto the vehicles traveling below. The sensor supports are mounted to a steel sliding bracket, shown in Figure 14, which allows for movement into the gantry, as well as lateral movement, enabling adjustment of the sensor position over the travel lanes. This design could address the need for a safe, flexible ORT gantry for toll collection agencies nationwide.

**Figure 14: Tolling Sensors with Adjustable Mounting Brackets**



**Intelligent Transportation Systems (ITS):** ITS strategies focus on enhanced management of the transportation system with technology. Through DeIDOT’s DelTrac program, Delaware has already invested considerably in ITS technology in New Castle County, including traffic adaptive signal systems, video monitoring, dynamic message signs (DMS), travel advisory radio system (TARS), and their **real-time travel information website**. Many of these systems will be used to manage traffic that diverts to the alternate route system during reconstruction of the plaza. To address impacts of construction, DeIDOT has identified \$1.2

million of additional ITS strategies at select locations along the alternate route system to potentially be implemented in advance of issuing Notice to Proceed to the Contractor.

E-ZPass is a form of ITS technology that can increase the capacity of a facility without the need for expanding the physical footprint of a facility. DelDOT currently employs low-speed E-ZPass at the plaza, with up to three lanes per direction in use at any given time. The capacity of each of those lanes is approximately 1,100 vehicles per hour (vph), or 3,300 vph total in each direction; however, that capacity is often wasted when queued vehicles in the CASH lanes back up to a point where access to the E-ZPass lanes are blocked (approximately 1,000 feet in advance of the plaza). During such blockages, capacity through the low speed E-ZPass lanes is essentially dictated by the 260 to 360 vph that move through each CASH lane.

The Newark Toll Plaza project will increase the per lane capacity to as much as 1,800 vph, or 3,600 vph total, and will extend the point at which the CASH lanes block the E-ZPass lanes to approximately one mile (5,200 feet) in advance of the plaza. This will reduce congestion not only on the approach to the plaza, but on parallel routes that are often used by motorists trying to avoid the plaza.

Converting the E-ZPass lanes at the Newark Toll Plaza to highway-speed operation will be a major first step in achieving DelDOT’s ultimate goal of converting the plaza to cashless operation, thus eliminating the bottleneck. Because cashless operation requires manual coding of license plate data and follow-up for every plaza user that does not have E-ZPass, and because approximately 95 percent of plaza users are from out-of-state, it is not practical or financially sound for DelDOT to convert the plaza to cashless operation until a high percentage (80 percent or higher) of users have E-ZPass. This project will make it even more attractive for motorists to sign up for E-ZPass and will accelerate the rate of achieving cashless operation. E-ZPass usage at the Newark Toll Plaza has grown from 20 percent in December 2001, the inception, to the current level of 52 percent, an average annual growth rate of almost 17 percent. By 2020, E-ZPass usage is expected to reach 80 percent, making ORT a financially feasible option for a long-term solution to plaza congestion.

## Partnership

**Involvement of Non-Federal Funds:** The Newark Toll Plaza project will involve the following funding, assuming award of a TIGER grant.

**Table 6: Funding Sources**

Funding Source	Amount (\$ 000)	Percentage
TTF (State Funds)	\$902	1.66%
FHWA Funds (Non-ARRA)	\$586	1.08%
ARRA	\$4,308	7.94%
TIGER Funds	\$48,440	89.31%
<b>Total Project</b>	<b>\$54,236</b>	<b>100%</b>

**Project Cannot be Readily and Efficiently Completed without Federal Assistance:** As a result the current recession, DelDOT has reduced their capital program on multiple occasions. Delaware’s dedicated Transportation Trust Fund has seen a significant reduction in revenues. Additionally, gasoline tax revenues, document fees (sales tax on vehicle purchases), and registration fees have continued to decline. Increased federal funding, including opportunities such as TIGER grants, will provide the only near-term solution for Delaware to maintain their transportation infrastructure. The use of TIGER grant funds will allow DelDOT to use other available funding sources for other critical transportation infrastructure projects needed throughout the state of Delaware.

**Jurisdictional and Stakeholder Collaboration:** DelDOT has coordinated the Newark Toll Plaza project with the Maryland Department of Transportation (MDOT), the Maryland Transportation Authority (MdTA) and the Delaware River Bay Authority (DRBA), the owner and operator of the Delaware Memorial Bridge, the connector for I-95 to I-295 in New Jersey and the New Jersey Turnpike, and through the Wilmington Area Planning Council (WILMAPCO). The WILMAPCO Regional Transportation Plan (RTP) for New Castle County, the county in which the project is located, is developed through a cooperative effort of the county, DelDOT, Delaware Transit Corporation, and other agencies. The RTP has three key goals: (1) improve the quality of life, (2) efficiently transport people, and (3) support economic activity, growth and goods movement. The project is consistent with these goals.

Additionally, on September 10, 2009, WILMAPCO adopted a **resolution** supporting DelDOT's submission of a TIGER Grant funding application for the Newark Toll Plaza project.

## Federal Wage Rate Requirement

DelDOT will comply with the requirements of subchapter IV of the chapter 31 of title 40, United States Code (signed compliance statement appears on page 25 of this application). To ensure conformance with federal wage rate requirements, DelDOT's Audit group makes unannounced periodic site visits to ARRA construction sites to confirm the names of workers on the project and to verify their assignments. During the quarterly project audits, the worker information gathered from the site visits is compared to the Contractor's actual payroll to verify that the payroll is accurate and to ensure that federal wage rates are paid according to labor categories.

In order to ensure that ARRA projects are conforming to federal regulations regarding workforce, wage rates, and Disadvantaged Business Enterprise (DBE) participation, DelDOT's Audit group conducts quarterly project audits and periodic unannounced worksite visits. The quarterly audits review expenditures, verifying adequate documentation to support those expenditures, and ensure that federal wage rates are met by reviewing contractor payroll. Conducting audits on a quarterly basis allows corrections to be implemented quickly, should concerns arise as a result of the audit. The periodic site visits confirm the workers actually employed on the job and the type of work accomplished by each worker, and assist in the confirmation of the use of DBEs and the conformance with federal wage rates. The DBE Program monitors timely payments to subcontractors and adherence to OJT goals on a monthly basis.

## National Environmental Policy Act Requirement

A **Categorical Exclusion** (CE) was prepared for the project and approved by the Federal Highway Administration on August 28, 2009. The document concluded that the Newark Toll Plaza project will have a lesser impact on environmental resources than a previously considered project for which DelDOT had secured an EA/FONZI.

## Environmentally Related Federal, State, and Local Actions

The project will require approvals from the U.S. Army Corps of Engineers (USACE) and DNREC. A Nationwide Permit (NW23) is required from the USACE and a Wetlands and Subaqueous Lands Section Permit is required from DNREC. No floodplain impacts are proposed as a result of this project and therefore a New Castle County Floodplain Permit is not required. The **USACE** and **DNREC permit applications** will be submitted in September 2009 and approval is anticipated prior to bid opening in January 2010. No other actions by federal, state or local governmental or regulatory entities are required.

## Protection of Confidential Business Information

No confidential information is contained in this application.

## Project Benefits

DelDOT will fully cooperate with the Department in collecting and reporting information related to the benefits produced by the project, many of which are discussed in detail in this application.

## Reporting Requirements

DelDOT will fully comply with the reporting requirements described in the application requirements including compliance with Section 1201(c): Maintenance of Effort Reporting Requirements, Section 1512: Reports on Use of Funds, and Section 1609: Environmental Reporting.

**Project Performance Evaluation Plan:** As described elsewhere in the application, DelDOT expects both immediate and long-term benefits to occur as a result of this project (expected occurrence of benefits is noted in parentheses after each anticipated benefit below). To summarize:

- Economic Recovery Benefits:
  - Job Creation at the recently-closed Chrysler assembly plant (potentially immediate)
  - Construction jobs, including jobs for disadvantaged individuals and businesses (immediate)
- Long-Term Outcomes
  - Reduction in delays and queuing at a facility that has strategic importance both locally and regionally (immediate and long-term)
  - Reduction in user costs across the board (immediate and long-term)
  - Improvement in mobility for interstate truck traffic (immediate and long-term)
  - Maintenance and growth of an important source of revenue for Delaware's Transportation Trust Fund (immediate and long-term)
  - Improvement in access to routes that connect with I-95 throughout Delaware (immediate and long-term)
  - Reduction in fuel consumption and greenhouse gases at the plaza (immediate and long-term)
  - Reduction in crashes on approach to the plaza (immediate and long-term)
  - Improved safety for toll takers and toll equipment maintenance personnel (immediate and long-term)
  - Reduction in vehicles that avoid the plaza and divert to local roads (immediate and long-term)
  - Accelerated growth in E-ZPass usage, which will expedite the implementation of cashless operation and ultimately eliminate delays at the plaza (long-term)

**Measuring Performance:** DelDOT will fully cooperate with the Department in identifying and reporting on the benefits that occur as a result of funding this project with a TIGER Grant. In addition to the job creation and preservation of jobs that DelDOT is required to track, DelDOT will monitor and report on the following performance measures:

- Plaza Throughput: DelDOT will show CASH and E-ZPass throughput at the plaza by direction on an annual basis, broken out by day of the week, month, and peak season periods, comparing before and after conditions



- **Truck Mobility:** Number of trucks using the plaza; percentage of trucks using the CASH and E-ZPass lanes on an annual basis, broken out by day of the week, month, and peak season periods, comparing before and after conditions
- **Trust Fund Revenues:** Revenue changes on an annual basis, broken out by day of the week, month, and peak season periods, comparing before and after conditions
- **Fuel Consumption And Greenhouse Gases:** Projection of changes in fuel consumption and greenhouse gases using Trafficware's Synchro/SimTraffic software and inputting results from the plaza throughput data
- **Crash History:** It may take a few years to determine with any level of confidence that the plaza improvements have directly contributed to a reduction in crashes, since crashes are not predictable and variations can occur even in the absence of any change in a facility. Nonetheless, DeIDOT will specifically monitor the changes in crashes that occur at and approaching the plaza as part of its annual highway safety improvement program.
- **Toll Taker and Maintenance Personnel History:** In its annual report, DeIDOT will address the number of personnel that annually use the overhead walkway and the equipment maintenance gantry. These personnel would otherwise be exposed to open travel lanes and for maintenance lanes would require closure of travel lanes.
- **Toll Plaza Diversions:** Using sample detectors on local roads, DeIDOT will estimate the changes in diversions that occur as a result of the project.
- **E-ZPass Usage:** In its plaza throughput report, DeIDOT will report on changes that occur in E-ZPass usage over time.

## Certifications

### Section 1511 (Transparency and Oversight)

**Federal Wage Rate Certification:** DeIDOT will comply with the requirements of subchapter IV of the chapter 31 of title 40, United States Code during construction of the project.