



The Washington Bridge Rehabilitation and Redevelopment Project

Repairing and Improving a Critical Connection to Southern New England



FFY2019 BUILD GRANT APPLICATION
RHODE ISLAND DEPARTMENT OF TRANSPORTATION (RIDOT)
2 Capitol Hill, Providence, RI

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Project Information:

Project Information:

Field Name	Response
Project Name	The Washington Bridge Rehabilitation and Redevelopment Project
Project Description	This project will rehabilitate the existing superstructure of the Washington Bridge atop a newly refurbished substructure. The I-195 Westbound Gano St. off-ramp will be removed, providing an additional through-lane and eliminating existing traffic queues. The old off-ramp will be reconfigured into a new on-ramp, creating a safer merge and acceleration lane onto I-195 Westbound. In addition, a new exit to Waterfront Drive will be added on the East Providence side of the bridge.
Urban/Rural	Urban
Urbanized Area	Providence, RI-MA
Capital or Planning	Capital
Project Type	Road – Bridge Repair/Replacement
Primary Project Location Zip Code	02903
Project Previously Submitted?	No
Prior BUILD/TIGER Funds Awarded to Project?	No
FY19 INFRA Application?	No
Amount Requested	\$25,000,000
Total Project Cost	\$70,000,000
Total Federal Funding	\$56,000,000
Total Non-Federal Funding	\$14,000,000
Tribal Government?	No
Tribal Benefits?	N/A
Private Corporation Involvement	No
Private Corporation Name(s)	N/A
TIFIA/RRIF?	No
Department Financing Program?	No



July 15, 2019

Contact Information:

Peter Alviti, Jr., P.E., Director
Rhode Island Department of Transportation
peter.alviti@dot.ri.gov
Two Capitol Hill
Providence, RI 02903
(401)563.4000

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Dear BUILD Evaluation Team:

The Washington Bridge, one of Rhode Island’s most important structures and a vital transportation connector in the North East Corridor, is nearing a permanent state of disrepair. This bridge is home to an essential portion of Interstate I-195 responsible for connecting the state’s East Bay to one of the densest urban areas in the nation: Rhode Island’s capital city, Providence.

If the Washington Bridge Rehabilitation and Redevelopment Project is not completed, the principal connector for both freight and commuter vehicles will fall further into structural deficiency until it is permanently lost.

The existing bridge structure and the current on- and off-ramps are decaying and must be addressed immediately. This damage is putting at risk Rhode Island’s legislatively mandated goal of reaching 90 percent bridge structural sufficiency by 2025.

Maintaining a state of good repair, economic vitality and competitiveness, environmental sustainability, safety, and the quality of life for its travelers are among the state’s highest priorities. With the support of the BUILD program, the Washington Bridge Rehabilitation and Redevelopment Project will be a mechanism to effectively and efficiently achieve these goals.

RIDOT requests \$25 Million in BUILD Grant Assistance to meet structural sufficiency, to improve traffic flows and safety by eliminating dangerous queuing and bottlenecks, and to promote redevelopment of neighboring Opportunity Zones. The proposed Design-Build project, which has an estimated total cost of approximately \$70 Million, will include the following major improvements:

- Rehabilitation of the bridge structure to meet structural sufficiency standards
- Reconfiguration and reconstruction of the Gano Street On-ramp
- Removal of the Gano Street Off-ramp
- Construction of the new Waterfront Drive Off-ramp

The reconstruction of the Washington Bridge and its on- and off- ramps will have several important, beneficial impacts. Some of these benefits include:

- Eliminating queues and bottlenecks along the Gano Street On- and Off- Ramps to improve public safety and reduce conflicting merges on I-195 Westbound;
- Facilitating efficient traffic flows along the western portion of I-195 to reduce harmful emissions to the environment and to improve quality of life for the roadway’s commuters;
- Promoting infrastructure safety goals by bringing the Washington Bridge to structural sufficiency; and
- Increasing more business and economic development in the Providence and East Providence Opportunity Zones.

Project Information:

This project will bolster the movement of goods to and from the Port of Providence, an important freight and trade distribution hub. Supported by key stakeholders including the City of Providence, City of East Providence, the Port of Providence, and more, this project aligns with BUILD program objectives. Rehabilitating and redeveloping the Washington Bridge will be a great step towards bringing 90% of Rhode Island's bridges to structural sufficiency by 2025.

The RhodeWorks program created a schedule and budget for projects across the state, to ensure that federal and state funds – as well as revenues being collected under a new truck- only tolling program – are put to the most efficient use to protect the safety of Rhode Island's traveling public. Bringing the Washington Bridge up to par with structural standards is a critical step in facilitating the development of the truck- only tolling program to this prominent freight corridor.

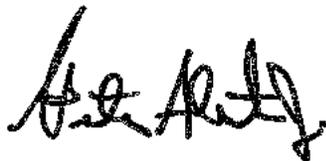
Notably, RIDOT has committed time and resources to making unprecedented and accelerated progress in repairing the state's infrastructure. This includes every step along the way, starting with project planning and all the way to breaking ground at the site.

RIDOT is a major proponent of RhodeWorks' goals of improving public safety and stimulating economic growth. This project goes one step further, aiming for big picture progress that will last long after the end of the slated ten years of the State Transportation Improvement Program (STIP).

Our Department continues to put shovels in the ground year after year, with plans to do more in the future across all transportation areas, including pavement, bridges, traffic safety, and transportation alternatives. The additional resources provided by this grant would help us continue rebuilding Rhode Island's roads and bridges, increasing our ability to deliver on-time and on-budget projects, and accelerating our progress towards restoring state of good repair and protecting the safety of the traveling public in Rhode Island.

Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Alviti Jr.", written in a cursive style.

Peter Alviti Jr., P.E.

Director

Rhode Island Department of Transportation

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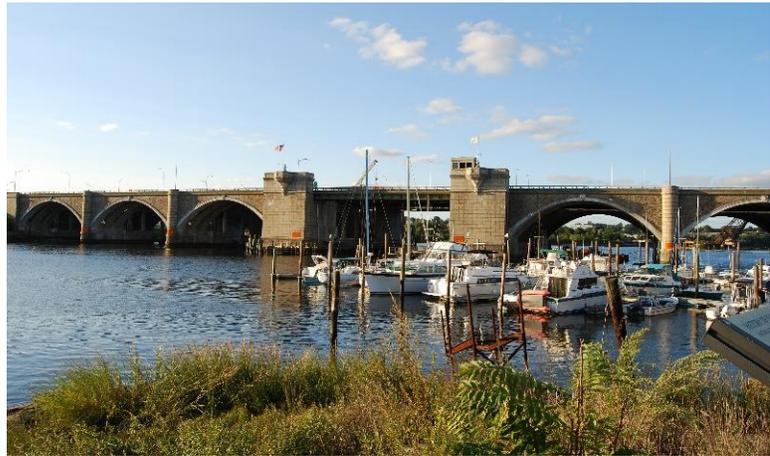
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I. Project Description

The Westbound span of the Washington Bridge, a critical piece of highway infrastructure in Rhode Island, has fallen into a state of disrepair. A vital commuter and freight connector linking the City of Providence to Southern New England, the Washington Bridge is in poor structural condition and carries a stretch of interstate plagued by congestion and safety issues in need of mitigation. That is why Rhode Island Department of Transportation (RIDOT) is requesting \$25 Million (35.7%) in Better Utilizing Investments to Leverage Development (BUILD) Grant support for the \$70 Million **Washington Bridge Rehabilitation and Redevelopment Project**.

Originally constructed in 1930 as a bascule bridge to connect Watchemoket Square in East Providence to the old Fox Point Boulevard in Providence, the Washington Bridge (Bridge No. 700) spans the Seekonk River to allow travel between the Providence Metropolitan area and all points East. The original bridge was altered in 1968, replaced by the twin-spanned bridge in need of repair today.

FIGURE 1 -- WESTBOUND SPAN OF THE WASHINGTON BRIDGE



The bridge is currently in a poor structural condition, and the current design of on- and off-ramps servicing the bridge creates a series of conflicting weaves that are dangerous and inefficient. The assets within the project area are in dire need of rehabilitation to ensure the safety and functionality of I-195, one of the principal roadways connecting Southern New England. The Washington Bridge also provides a critical link to the western limit of I-195, which connects to several major highways nearby including I-95, I-295, US-6, RI-10, and RI-146.

A crucial segment of the interstate system, the Washington Bridge has been forced to operate well beyond the bounds of its anticipated capacity for decades. Repaired in 1996, the Westbound span now carries about 70,000 vehicles every day. As a result, the Washington Bridge is now one of the most congested points in Rhode Island. In February 2019, the American Trucking Research Institute [identified the I-195 interchange with I-95 as the 35th most congested bottleneck in the nation](#), and the most problematic chokepoint in Rhode Island.

The completion of this project will expand the capacity of the bridge, eliminate a conflicting weave that causes congestion in the area, and install a new off-ramp connecting I-195 to a waterfront business Opportunity Zone in East Providence. The adjustments will reduce congestion through the I-195 corridor, improve public safety, bring the Washington Bridge up to a state of good repair, and incentivize development along the redeveloping Waterfront Drive in East Providence.

Delaying construction on this bridge will ultimately result in a necessary, costly full replacement, a scope change which could **more than double the cost of this project**. Instead, the Proposed

I. Project Description

Action outlined in this application narrative will extend the service life of the Washington Bridge by at least 25 years, and improve the functionality of the transportation network in the area by:

1. **Rehabilitating the Washington Bridge superstructure** atop a newly rehabilitated substructure;
2. **Restriping the I-195 mainline between Broadway in East Providence** and the Washington Bridge to maintain 4 lanes throughout the corridor, eliminating the current lane drop;
3. **Removing the Gano Street off-ramp in Providence**, eliminating a conflicting on-off weave which currently contributes to significant congestion issues; and
4. **Adding an exit ramp connecting I-195 Westbound to Waterfront Drive** in East Providence, a longtime priority for the local community.

These infrastructure improvements directly align with the primary selection criteria outlined in the Notice of Funding Opportunity (NOFO) for the FY19 BUILD Transportation Grants Program. This project will:

1. **Foster a safe transportation system for the movement of goods and people** by reducing crashes in the project area by 9.25%;
2. **Bring the Washington Bridge (Bridge No. 700) up to a state of good repair**, pursuant to the primary objective codified in RhodeWorks, prevent further deterioration of the bridge, enable the construction of RhodeWorks Toll Gantry Location 10 which will generate a stream of state revenue to support the long-term operations and maintenance needs of the structure;
3. **Support economic competitiveness by improving access to Opportunity Zones** on both sides of the Washington Bridge and facilitating reliable freight movement through the Northeast Corridor;
4. **Promote environmental sustainability by reducing oil dependency and congestion-related emissions** by reducing congestion, improving traffic flows, and incentivizing the redevelopment of brownfield sites along the East Providence waterfront; and
5. **Improve quality of life for residents** by expanding access to essential services in the Providence metropolitan area, including connectivity to jobs and health care centers, for rural and urban residents alike throughout Southern New England.

Ultimately, the completion of the Washington bridge Rehabilitation and Redevelopment project will advance the key objectives of both RIDOT and USDOT, improving a critical piece of highway infrastructure in the heart of Rhode Island.

I. Project Description

The Washington Bridge Needs Significant Rehabilitation

The Washington Bridge is currently in poor structural condition, with superstructure rating of 4 (Poor). With a deck area of more than 145,000 square feet, the bridge is one of the largest structures in Rhode Island, and its 18 spans will all require work during this rehabilitation effort.

According to an inspection report completed in 2017, the underside of the deck contains numerous issues depicted in the figures in this section, including:

- Exposed rebar chairs throughout;
- Rust staining and efflorescence;
- Random hairline cracking;
- Random hollow areas; and
- Isolated spalls.

The most recent bridge inspection report indicates that the superstructure contains multiple hollow areas and exposed rebar areas. Exposed rebar can be found at the ends of the prestressed drop-in girders in spans, at the post-tensioned concrete corbels that support those girders at the ends of the cantilever girders, and more.

In addition to these deficient areas, there are cracked webs and bottom flanges, spalls with exposed rebars, and hollow areas in the closed box girders in certain spans.

There are multiple cracks throughout the structure, ranging from long shear cracks, vertical cracks, and hairline cracks. Without repair, these cracks could lead to further deterioration and develop into hollow areas, posing an even larger threat to sufficiency and safety.

One of the most notable problem areas of the Washington Bridge is the timber formwork that covers the underside of the

FIGURE 2 -- HOLLOW AREA ON BRIDGE PIER



FIGURE 3 -- DEEP SPALLING AND EXPOSED REBAR, SPAN 14

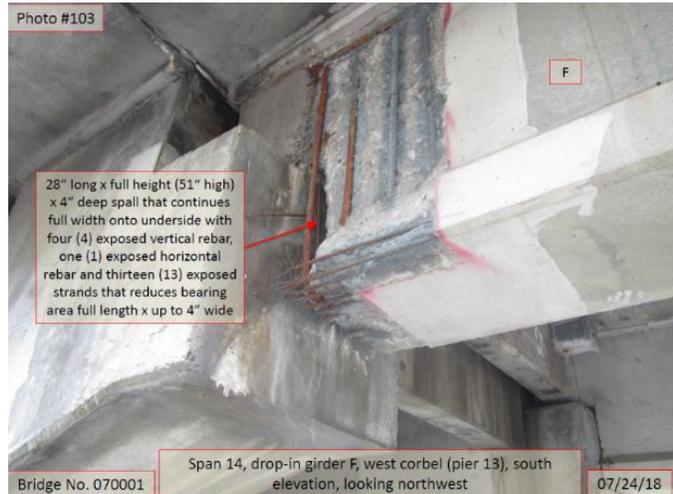
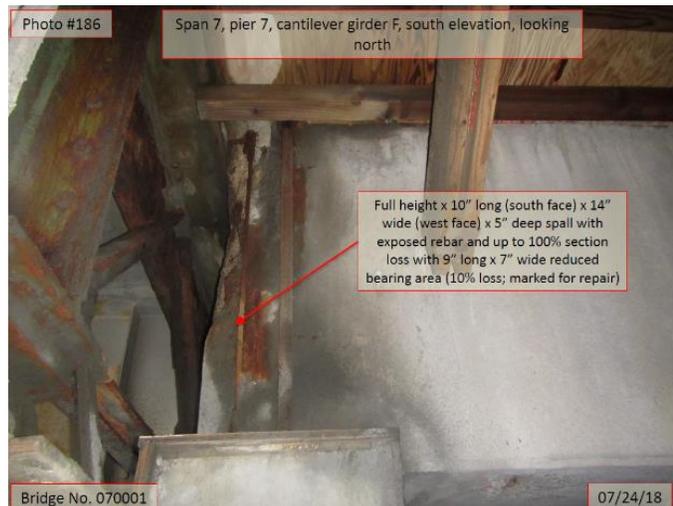


FIGURE 4 -- DEEP SPALLING AND EXPOSED REBAR, SPAN 7



I. Project Description

deck. The formwork prevents deteriorated and decayed portions of the deck from falling into the Seekonk River or onto city streets.

The timber shielding is only a temporary solution to mitigate potential hazards to those traveling beneath the bridge, and it is not a corrective measure.

In addition, the timber hides further deterioration of the Washington Bridge, which must be examined and corrected to bring the structure up to a state of good repair and ensure the safety of travelers both on and below the bridge.

FIGURE 6 -- TIMBER FORMWORK, UNDERSIDE OF SPAN 1



Despite the numerous measures taken to maintain the condition of the Washington Bridge, the structure now requires intensive rehabilitation and repair.

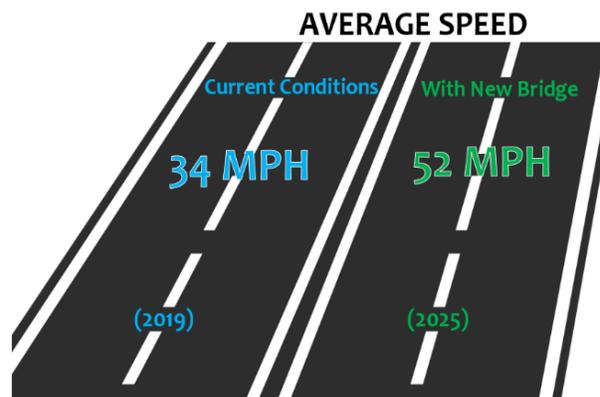
Mitigating structural deficiencies will bring the bridge out of its state of disrepair and make critical design improvements, ensuring the safety of those traveling along I-195, reducing congestion, and transforming the Westbound gateway into the Providence Metropolitan area.

Traffic Congestion in the Project Area Must be Mitigated

The Washington Bridge hosts an essential portion of I-195 and connects East Providence and neighboring states to Rhode Island’s capital city. There are multiple congestion points and bottlenecks along the roadway, including at the Gano Street on/off ramp.

Currently, there are approximately 272,199 daily drivers within the network affected by congestion on the Washington Bridge. The average speed is 34 mph, while the free flow speed is 55 mph. The current infrastructure creates congestion that limits drivers to nearly half of the free flow speed, indicating a significant need to redesign the layout. Following the completion of the project, RIDOT estimates that daily average speeds would rise to 52 mph, nearly 100% of the free-flow speed.

FIGURE 5 -- ESTIMATED SPEED IMPROVEMENTS IN THE PROJECT AREA, PROPOSED ACTION



The Washington Bridge Rehabilitation and Redevelopment Project plans to address the current deficiencies in the existing bridge and highway infrastructure by eliminating traffic queues that extend to the Rhode Island –

I. Project Description

Massachusetts border. This will be accomplished through eliminating the congestion point at the Gano street off- ramp by replacing this ramp with an additional through lane.

The portion of roadway previously dedicated to the Gano Street off-ramp would be reconfigured into a new Gano Street on- ramp, which would create a new merge lane to allow for safe acceleration onto the I-195 mainline.

The proposed on-ramp would represent a significant improvement over the current design, which requires drivers to make a 90-degree right-hand turn from Gano Street to the on-ramp, followed by rapid acceleration over a short distance to merge with Westbound traffic.

The new design, shown in greater detail in Section V of this application, would improve the overall safety and efficiency of both I-195 West and the local roads within the project area by improving traffic flows and reducing opposing weaves on the main span of the Washington Bridge.

As a result, the current estimated travel time from the State Line to I-95 is 10- 18 minutes. Removing the Gano Street off-ramp will reduce this time to 5- 6 minutes. Consider a comparison of the average anticipated travel time for passengers through the corridor under current conditions versus the completion of the proposed action. Currently, a trip from the state line to I-95 takes 10-18 minutes, about 14 on average.

If the project is completed, the average trip over the same distance will average 5.5 minutes, which translates into a time- travel savings of \$589,800 for regular vehicles and \$55,139 for commercial traveling Westbound on I-195 **every day**. In just the first year of operation (2025), the Washington Bridge Rehabilitation and Redevelopment Project will have projected time travel savings of **\$69,340,053.93** for drivers within the traffic network.

Overall, completion of this project will effectively eliminate waiting queues, off- ramp weave, reduce congestion, and significantly improve safety and ease of travel. As a result, traffic flows will improve considerably throughout the Providence metropolitan region and Southern New England.

FIGURE 7 -- SUMMARY OF TRAFFIC FLOW IMPROVEMENT PROJECTIONS



272,199

Vehicles per Day (2019)
(in network)



1.72

Usual Congestion Index

$\left(\frac{\text{Average Travel Time}}{\text{Free Flow Travel Time}} \right)$



\$69,240,053.95

Time Travel Savings

In Year 1 (2025)

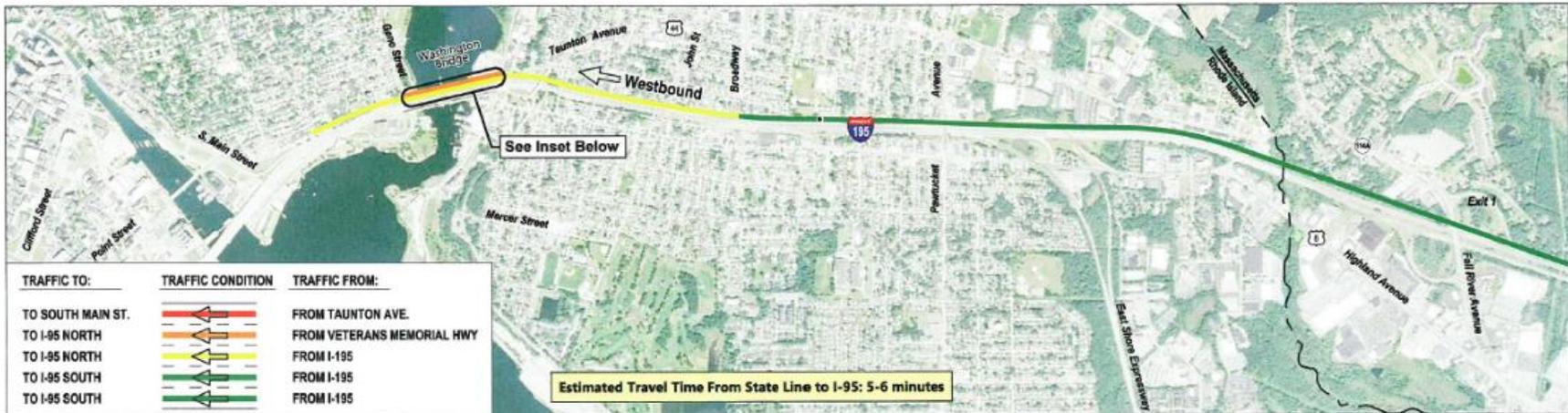


I. Project Description

FIGURE 8 -- WEEKDAY PEAK HOUR TRAFFIC CONDITIONS: CURRENT FLOW AND PROPOSED ACTION



WASHINGTON BRIDGE WESTBOUND EXISTING CONDITIONS



WASHINGTON BRIDGE WESTBOUND WITH REMOVAL OF GANO STREET OFF-RAMP

0 800 1600 Feet

Traffic Conditions
 0-10 Miles Per Hour
 10-20 Miles Per Hour
 20-30 Miles Per Hour
 30-40 Miles Per Hour
 > 40 Miles Per Hour



Weekday Peak Hour - Alt 2
 Traffic Conditions Comparison
 Interstate 195 - Washington Bridge

Figure 3

II. Project Location

This Project Is an Efficient and Cost-Effective Solution

Completion of this project will allow for enhanced safety and structural sufficiency for the Washington Bridge. This project is the most cost-effective and efficient option among the proposed alternatives. The all-in cost estimate for this project totals \$70 million, while the two alternatives were estimated at \$110 and \$150 million, respectively.

Under the \$70 million budget, both the super and substructure of the bridge will be rehabilitated, not only improving the structural rating of the Washington Bridge, but also adding 25 years to its service life. The Washington Bridge Rehabilitation and Redevelopment Project will help promote and meet RhodeWorks' goal of bringing 90 percent of Rhode Island's Bridges to sufficiency.

Reducing congestion and eliminating the Gano Street off-ramp bottleneck increases safety and air quality for Rhode Island drivers and those who live in the communities nearby, generating billions in economic benefits over the next three decades.

II. Project Location

The Washington Bridge (located at 41.819076°N, 71.386993°W) carries I-195, US-6, US-44, and US-1A over the Seekonk River, joining together the cities of Providence and East Providence, Rhode Island. Owned and maintained by RIDOT, the 1,671-foot bridge is vital to highway travel in the Providence area and Southern New England.

The bridge effectively is the most-travelled East-West

route connecting the Providence metropolitan area to the rest of Southern New England. Part of a network carrying hundreds of thousands of daily travelers, The Washington Bridge provides an essential link to several cities in southeastern Massachusetts, including Taunton, Fall River, and New Bedford, as well as rural communities throughout Bristol County, Massachusetts and Newport County, Rhode Island. For Westbound travelers and freight carriers, the bridge provides an essential connection to the City of Providence, as well as I-95.

Beyond the Providence area, I-195 is also the principal link to Cape Cod and the South Shore of Massachusetts. Tourists and area residents frequently use both spans of the Washington Bridge to travel to and from the Cape, particularly during the summer months.

FIGURE 9 -- AERIAL VIEW OF THE PROJECT LOCATION



II. Project Location

Local Freight Connections

The project area is near the Port of Providence, the second-largest deep-water port in New England. More than \$9 billion flowed through the Port in 2018, fueled by 2,000 ships offloading 9 million tons of cargo. Key local terminals include the Sprague Energy Terminal and the Capital Terminal.

The Sprague Energy Terminal, located on the northern end of Allens Avenue near the I-195 and I-95S interchange, handles primarily dry bulk cargo (i.e. road salt) and liquid bulk cargo. The natural gas transfer pipeline located on the premises is also responsible for supplying power to the Rhode Island Hospital and residential users in Providence.

The Capital Terminal, located in East Providence north of I-195 along the Seekonk River, serves as a major petroleum off-loading point for diesel and home heating fuel.

The existing bottleneck on the Washington Bridge challenges Rhode Island's freight goal of operational efficiency. The completion of this project will considerably improve traffic flows throughout the area, allowing freight carriers to operate with improved efficiency and reliability when traveling to and from local freight destinations.

State Routes 6 and 44, and Rhode Island 103

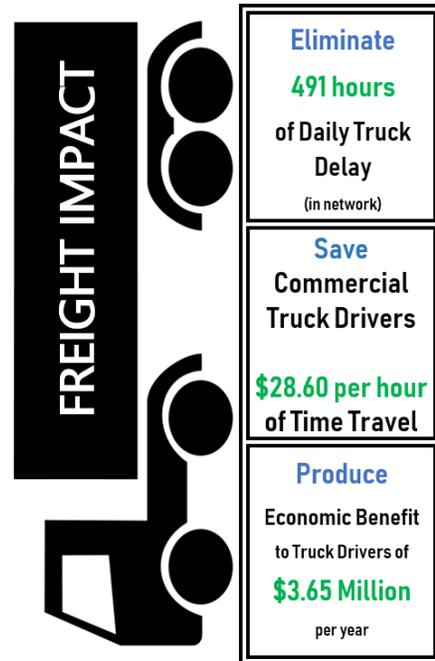
U.S. 6 is a major east-west road in the state of Rhode Island. After the route crosses the Providence River, it crosses the Washington Bridge. U.S. 44 splits with I-195 and U.S. 6 at the eastern portion of the Washington Bridge. Travelers take Exit 4 to exit the Washington Bridge to enter U.S. 44 to continue to Taunton Avenue in East Providence. In addition to accessing U.S. 44, Exit 4 off of the Washington Bridge splits to Veterans Memorial Parkway south, and eventually to Rhode Island 103 (Pawtucket Avenue). Pawtucket Avenue connects travelers to Riverside within southern East Providence.

Local Residential and Commercial Considerations

Locally, I-195 and other network freeways serve the densely populated region of the Providence, RI – MA, urbanized area as well as serving as a main corridor connecting the eastern portion of Rhode Island to Massachusetts and to the Boston metropolitan area. Employees of major Providence-based institutions including Brown University, Textron, National Grid, and Gilbane Building Corp, also rely on this bridge to travel to and from work.

There are a host of restaurants, bars, and small businesses in the most immediate vicinity around the Bridge. Patrons of these establishments will see travel times improve considerably as a result

FIGURE 10 -- FREIGHT IMPACT OF THE PROPOSED ACTION



III. Grant Funds, Sources, and Uses of Project Funds

of this project, particularly those travelling into Providence from points East. Ease of travel will help drive consumers to these businesses, improving Rhode Island’s business-friendliness and overall economic atmosphere.

III. Grant Funds, Sources, and Uses of Project Funds

Project Budget

The Washington Bridge Rehabilitation and Redevelopment Project has an estimated all-in cost of \$70 Million, including the completion of design, construction, soft costs, and contingencies. The figure below provides a breakdown of the anticipated costs of the project by task. In addition, a detailed summary of the project cost by element is also provided.

FIGURE 11 -- PROJECT COST ESTIMATE BY TASK

Task	Federal Fiscal Year (FFY)	Expected Cost (\$)	Contingency (\$)
Design and Preliminary Engineering	2019	\$5,373,432.50	\$990,203.86
Notice-to-Proceed & Construction Initiation	2020	\$5,375,500.00	\$990,584.86
Construction Phase 1	2021	\$18,933,333.33	\$3,488,991.41
Construction Phase 2	2022	\$13,083,333.33	\$2,410,966.77
Construction Phase 3	2023	\$9,333,333.33	\$1,719,925.34
Project Closeout	2024	\$7,008,825.00	\$1,291,570.26
SUBTOTALS		\$59,107,758.50	\$10,892,243.50
Total Estimated Project Costs, Proposed BUILD Project			\$70,000,000.00

FIGURE 12 -- PROJECT COST ESTIMATE BY ELEMENT

Element	Cost	Project Phase
Design Fee	\$5,373,432.50	Design/PE
Mobilization	\$4,135,000.00	NTP
MP&T	\$1,240,500.00	NTP
Subtotal	\$10,748,932.50	
Demolition of Gano Street Off-ramp	\$1,100,000.00	1
Relocation of Gano Street On-ramp	\$4,250,000.00	1
Demolition of Potter Street Overpass	\$500,000.00	1
New Waterfront Ramp	\$7,500,000.00	1,2
Rehabilitate Washington Bridge 700	\$28,000,000.00	1,2,3
Construction Subtotal	\$41,350,000.00	
Contingencies & Miscellaneous Items	\$10,892,242.50	All
Project Closeout	\$7,008,825.00	Closeout
Total	\$70,000,000.00	

IV. Selection Criteria

Previously Incurred Expenses

RIDOT has committed internal resources to this project since Spring 2019. Professional consultants have also assisted in the design and development of the project. To date, RIDOT has spent approximately \$50,000 altogether on preliminary design and traffic analysis.

Future Eligible Costs

The future eligible cost of the Washington Bridge Project is estimated to be \$70,000,000. The current Rhode Island State Transportation Improvement Plan (STIP) will include \$40,000,000 in future funds to support the project over federal fiscal years (FFY) 2020-2024.

80% of the funding for this project (\$56 million) will be financed by a combination of BUILD Grant funds (35.7%) and federal formula funds (44.3%). The remaining 20% (\$14 million) will be financed by state matching funds. The Project Scope, Schedule, and Statement of Work section describes in detail the costs of each specific construction phase.

Without BUILD support, RIDOT cannot guarantee that the project can be completed as described in this application. The Washington Bridge is a critical piece of infrastructure that cannot be allowed to fail completely, due to its critical nature, causing RIDOT to eventually be forced to repair it at the lowest possible cost. If this occurs, RIDOT will consult with the Cities of Providence and East Providence, local businesses and other key stakeholders to identify a solution, but a cheaper version of this project would more than likely retain the same safety issues and design flaws as the existing one, rather than fixing them. **The only way to guarantee that the problems with this critical asset are fixed is to secure the requested BUILD support.**

IV. Selection Criteria

Primary Selection Criteria

Safety

Under this project, reconfiguration of the existing Gano on-ramp will improve safety conditions for all users of the Washington Bridge and I-195. The elimination of the off-ramp and reconfiguration of the on-ramp allows for a safer merge/acceleration lane onto the I-195 mainline. The effectiveness of this portion of the project can be directly measured through RIDOT's **crash monitoring data system** which reinforces the importance of data integration across all divisions of the Department.

RIDOT data indicates that there are approximately 400 accidents within the network surrounding the project area every year. The design improvements proposed here would lead to a **10 percent reduction** in annual crashes, a reduction of **nearly 40 per year**.

In addition to the reconfiguration, eliminating the queues from the Gano Street off-ramp will diminish the overcrowding of vehicles on the road, which will translate into safer travel conditions for those traveling over the Washington Bridge on I-195.

IV. Selection Criteria

State of Good Repair

Although there is no national standard for a State of Good Repair, RIDOT has developed asset-specific definitions in coordination with the FHWA within its 2019 Transportation Asset Management Plan (TAMP). To facilitate this process, RIDOT inspects bridge assets on a regular basis according to their National Bridge Inventory (NBI) rating. According to the FHWA, Rhode Island's bridges rank worst in the nation. 22.21% of Rhode Island's 1,162 bridges are rated as being in Poor condition. This includes 24% of bridges on the 419 NBI bridges on the National Highway System (NHS).

The rehabilitation of the Westbound portion of the Washington Bridge will contribute to a state of good repair by improving the condition and resilience of Rhode Island's bridges in compliance with the RhodeWorks legislation. This plan requires that 90% of Rhode Island's bridges are structurally sufficient by 2025. Currently, more than 150 of the bridges in Rhode Island, including the Washington Bridge, are in Poor condition and require repairs. The rehabilitation of the Washington Bridge would **increase RIDOT's structural sufficiency rating by 1.75%, producing a 7.50% reduction in the state's total poor deck area on the NBI.**

Achieving RhodeWorks' goal of reducing deficiency by 10% for all bridges by 2025 requires approximately \$55 million more per year in bridge funding throughout the program. Even a slight drop in funding below current planned levels would be detrimental to the success of the program, and by extension, this project.

Economic Competitiveness

The main goals of this project aim to address the issues provided by the current structure, including mitigating traffic flow and improving the structural soundness of the bridge, creating long-term efficiency improvements for travelers. [21.3% of Rhode Island residents work](#) in the Providence area, and therefore improved accessibility in the area is crucial for the success of the State's residents and businesses. In addition, this project stands to spur economic opportunity in the surrounding area. The Washington Bridge is located between two Opportunity Zones, one in East Providence and one in the Providence.

Improving this bridge will increase the accessibility of these two zones for commuters and residents alike, to both downtown Providence and the properties on both sides of the bridge. The improved access to the waterfront will help current local businesses thrive, while also enabling new businesses to emerge in a more bustling setting, thus making Providence a more versatile and competitive economic environment.

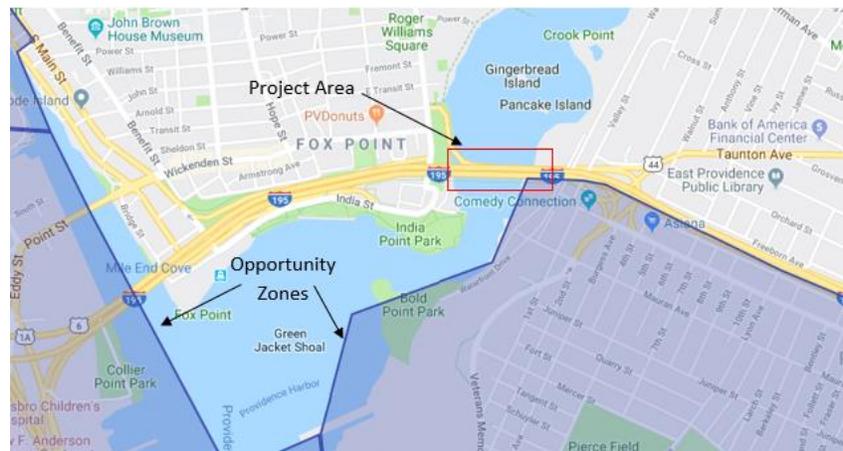
Within the nearest Providence Opportunity Zone, west of the Washington Bridge, is the Port of Providence and many businesses that draw employees across the bridge into Providence every day. The Port of Providence is a key driver of the economic success of the entire region. [In 2018, trade that traveled through the port totaled \\$9.07 billion](#) and was responsible for hundreds of millions of dollars in total economic impact for the region. This port is in a prime location due to the available utilization of the intermodal opportunities presented by the interface of two major highways (Interstates 95 and 195).

IV. Selection Criteria

The Washington Bridge has a direct impact on the distribution of goods from the port to the rest of the state, and improved road and bridge conditions will improve freight travel efficiency. In the East Providence opportunity zone, located east of the Washington Bridge, there are multiple local businesses that would benefit from an improved connection to Providence and points West.

Increasing accessibility to the East Providence Opportunity Zone will allow new businesses to create new job opportunities. East Providence is the fifth largest city in the state and has untapped economic potential. Enhancing and improving the Washington Bridge will increase the economic productivity of the area on both sides of the structure, ultimately benefitting the entire state.

FIGURE 13—LOCAL OPPORTUNITY ZONES



Environmental Sustainability

Existing daily queues extend from the I-95 interchange along I-195 to the Massachusetts state line. The completion of this project will eliminate the Westbound queue in its entirety. Eliminating queues will reduce congestion and increase traffic flow, helping promote environmental sustainability on the Rhode Island road ways through emissions reductions. On average, over the life of the bridge, this project will generate more than \$600,000 in annual emission benefits.

The Washington Bridge also promotes environmental sustainability as home to a section of the East Bay Bike Path. This bike path supports RIDOT's STIP through supporting the goal of increasing and creating ecofriendly transportation alternatives. Improving the longevity and structural condition of the bridge will help maintain the East Bay Bike Path, reducing emissions by providing an alternate mode of transportation for those commuting to work or biking recreationally.

Quality of Life

The Washington Bridge links Watchemoket Square in East Providence to India Point in Providence. This makes the bridge vital to automobile travel from the greater East Bay to the Downtown Providence area. On any given day approximately 70,000 vehicles travel over the Washington Bridge. Due to the position of the bridge between I-95, US-6, and I-195, however, more than 270,000 vehicles are directly impacted by congestion issues on the bridge. For the purposes of evaluating this project's costs and benefits, RIDOT uses more conservative figures, but more than a quarter million daily drivers in the Providence area will notice an appreciable benefit from the completion of this project, on several major roadways.

IV. Selection Criteria

Providence, as the Capital City, is home to multiple essential locations and services for people in the surrounding communities. This includes important health care locations like Rhode Island Hospital, the principal provider of specialty care in the region. Rhode Island Hospital is also the only Level I Trauma center in southeastern New England, making its access essential as a vital resource for emergency healthcare.

There are two main transportation hubs in Providence that are invaluable to the movement of people around the State: the Kennedy Plaza bus station and the Providence Station, the local hub for Amtrak and MBTA service. Kennedy Plaza sees [40,000 visitors each day](#), while the train station is the [11th busiest Amtrak station in the country](#). These two locations help transport individuals to all areas around the State and region, and therefore improved access into Providence would enhance access to the rest of the state as well.

[21.3% of State residents work in the Providence area](#), including a large amount that travel from the East Bay area and over the Washington Bridge. There are also multiple institutions of higher learning in Providence, which attract young, bright minds to work and live in the region. Without improvements to the structure, Rhode Island residents will have their immediate access to important businesses, facilities, and critical institutions compromised and obstructed.

Secondary Selection Criteria

Innovation

This project is being completed through a “Design-Build” procurement process. RIDOT will issue a Request for Proposals (RFP) encouraging potential applicants to be as creative and innovative as possible in their proposals. This process will ensure the use of multiple innovative techniques for each category listed below.

Innovative Technologies

While the Washington Bridge project is underway, it is essential to ensure that this highway stretch remains open for travel. The project will include innovative phasing techniques to minimize lane and ramp closures during construction. The Department is granting the relevant construction teams with the authority to make decisions as to how to properly utilize these technologies to keep the highway portion under construction moving as efficiently as possible, while also completing the project with effectiveness.

Innovative Project Delivery

It is anticipated that the project will utilize concurrent permitting and environmental review to accelerate the project’s delivery. RIDOT anticipates that an Environmental Assessment (EA) will be needed for this project. The project management team will utilize both concurrent review and approvals with the appropriate regulatory agencies to establish a project management plan with detailed scheduling to ensure that the appropriate milestones are met. Additionally, the project management plan will conduct early pre-application consultations to properly integrate the environmental review, permitting and design. RIDOT does not anticipate permitting delays.

IV. Selection Criteria

Accelerated Bridge Construction

The Department will evaluate the feasibility for utilizing Accelerated Bridge Construction (ABC) methods for this project. While the project is underway, ensuring that this gateway to Providence remains open for business and travel is vital. The project will include innovative phasing techniques to minimize lane and ramp closures during construction and backups on the busy Washington Bridge.

The construction phasing and traffic conditions will be monitored via RIDOT's Transportation Management Center (TMC), the state's hub of Intelligent Transportation Systems (ITS) and communication resources. Under the TMC Rhodeways program, road-side cameras are utilized to identify incidents on the highways and variable message signs provide real-time drive-time information to motorists. As part of the project, all construction phasing will be monitored at the TMC.

Once again, it is critical that these improvements be successfully implemented with as little disruption to the Washington Bridge approach roads/ramps and local traffic because of the high-profile and high-traffic nature of the area. Among the likely items to be included in the detailed Transportation Management Plan (TMP) are seasonal and night-work scheduling and the utilization of existing infrastructure to maintain traffic during the construction phase.

Innovative Financing

This project will be financed by a combination of state and federal funding sources. The financing structure is straightforward: the requested BUILD grant will approximately 35% of the necessary funds to complete the project, while other state and federal sources will provide the rest.

This project is a necessary and prominent element of the RhodeWorks program, which is focused on providing the correct treatment to the right projects at the right time with the finite assets allocated to do so. Due to the multiple congestion and traffic safety issues created by the current structure of the Washington Bridge, this project needs to be addressed as soon as possible. The only way in which this project can be completed immediately is with the assistance of the BUILD Grant, which will generate two vital benefits:

1. The accelerated timeline proposed in this document will prevent unnecessary and expensive maintenance costs that would be generated by the no-build alternative for this project, incurred to preserve an aging structure.
2. By accelerating this project's timeline, the Department can free up additional funding in future years to achieve the underlying goal of the RhodeWorks Program: achieving and maintaining a state of good repair on all of Rhode Island's bridges.

It should also be noted that the RhodeWorks program is a case study in innovative financing techniques and is a key driver of the Department's 10-Year Plan. The electronic tolling network, currently under construction, consists of 13 gantries that automatically toll certain large commercial vehicles. The advancement of this project is an important step towards the utilization of RhodeWorks Gantry Location 10, which will generate more than \$7 million annually in revenue. RhodeWorks requires that the revenue collected at the gantry stations be utilized to

V. Project Readiness

service the bridges associated with that location. Therefore, the revenue that would be collected at this location would be dedicated towards the maintenance of the Washington Bridge. This will help to prevent the same deterioration that led to the structural deficiency of the structure in the first place. The proposed project is an important component of the RhodeWorks program, and a timely completion will help ensure that future toll revenues support an array of other projects across the state.

Asset Management Innovation

Once again, this project is a crucial component of RhodeWorks, the basis for RIDOT's Ten-Year Plan and cornerstone of the Rhode Island STIP, implementing an asset management approach to achieving the desired state of good repair in a cost-effective manner. This approach accounts for lifecycle costs, including the future costs of allowing assets to further deteriorate. RhodeWorks is the basis for RIDOT's State Transportation Improvement Plan.

Principles of asset management and the sound management of lifecycle costs require the rehabilitation and redevelopment of this structure. The current state of the structure requires constant monitoring and frequent repairs, at the expense of using limited funding for other repairs and replacements to achieve a state of good repair for other projects in Rhode Island.

Partnership

The parties engaged as part of the project and subsequent BUILD application include federal, state, and local officials; RIDOT; the City of Providence and the City of East Providence; and the Federal Highway Administration (FHWA).

RIDOT is the lead applicant for this BUILD Grant and tasked with completing the project outlined herein. The Department will also coordinate with the cities of Providence and East Providence to mitigate the possible impacts of construction on city streets and traffic flows.

FHWA will act as a monitoring entity in the process, ensuring that the necessary steps are taken leading up to and during construction to guarantee that the applicable guidelines are being followed.

V. Project Readiness

Technical Feasibility

Design work on this project is just beginning. As stated in the Required Approvals section, RIDOT anticipates that this project may require an Environmental Assessment (EA) due to the proposed closure of one ramp and the construction of another. RIDOT will begin the EA development process as soon as a consultant has been commissioned to assist in preliminary engineering, which will occur by Fall 2019. Preliminary engineering will run concurrently with EA development, so RIDOT expects to begin the procurement process for a design-build contract by Spring 2020. Following an EA submission, RIDOT will ideally secure a FONSI by Late 2020, and begin Construction in the spring of Summer 2021.

V. Project Readiness

The major project milestones are as follows:

- Complete 10% Designs Plans and Preliminary Engineering: **Early 2020**
- Advertise Project for Design-Build Procurement: **Spring 2020**
- Submit Draft Environmental Assessment (EA) and 10% Design Plans for FHWA Review and Public Comment: **Spring 2020**
- FHWA EA Review and Determination: **Late 2020**
- Notice to Proceed to Design-Build Team: **Early 2021**
- Construction Begins: **Summer 2021**

Engineering Design Studies and Activities

RIDOT is commissioning a design contract to advance the project through preliminary engineering. This effort will advance all elements of the project design (including but not limited to, highway, structural, traffic, drainage, utilities) to a level sufficient for RIDOT to advertise the project as a design-build contract. This includes plans, specifications, and estimates to a level tantamount to a 10 percent design review submission under a conventional design-build procurement approach. The selected consultant will also support RIDOT in the preparation and submission of permit applications, modifications, and extensions to the authorities having jurisdiction over the work.

Development of Design Criteria and Basis of Design

As outlined throughout this application, the flaws in the design of the existing bridge and nearby on- and off-ramps have led RIDOT to prioritize the development of a model which rectifies the existing congestion and safety problems in the project area. Eliminating the lengthy traffic queue which frequently forms on the Westbound span of the bridge is a critical objective for commuters, freight carriers, and RIDOT alike. The basis of the design referenced and presented in this narrative is therefore clear: **the preeminent concern in designing this project is correcting the problems with the design of the existing Washington Bridge in the most efficient and cost-effective manner.**

Basis for Cost Estimate

As shown in Section III, RIDOT has estimated that the total future cost of the project will be \$70 million. That figure includes estimated future costs of design, construction, and contingencies.

Project Scope, Schedule, and Statement of Work

From the early stages of design, RIDOT and its consultants have developed the following project schedule outline, which includes three broad phases of construction. All scheduling information is based on reaching notice-to-proceed by Early 2021 and beginning construction during Summer 2021.

The figure on the following page provides a summary overview of the project. Each phase of the project is then described in detail throughout this section.

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FIGURE 14 -- SUMMARY OF PROJECT SCOPE

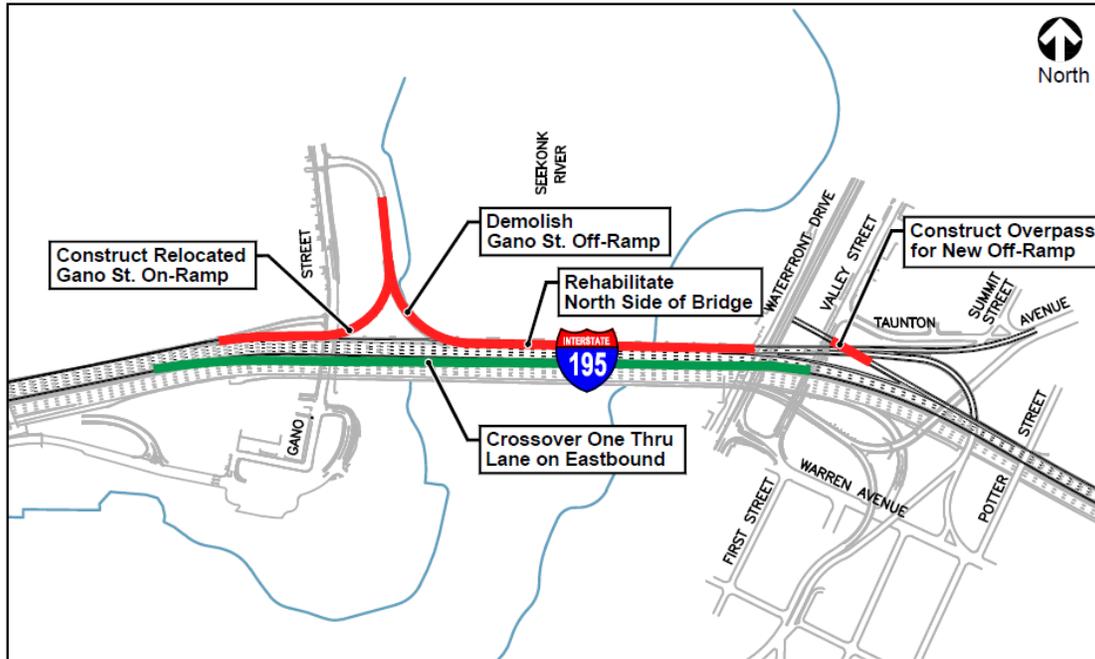


V. Project Readiness

Phase 1: Gano Street Ramp Construction

The first phase of construction will focus on the new on- and off- ramp structures. This phase involves the demolition of the original Gano Street Off- Ramp paired with the construction of the new Gano Street On- Ramp. The new Waterfront Drive Off- Ramp requires an overpass, which will also be constructed in Phase 1.

FIGURE 15-- PHASE I CONSTRUCTION



While this construction is underway, bridge rehabilitation of the northern portion of the structure will begin. To alleviate traffic build up from construction, one of the I-195 Eastbound lanes will become a Crossover Thru Lane for Westbound traffic. The existing width of the Eastbound structure allows for the addition of a Westbound travel lane while maintaining the existing number of Eastbound travel lanes.

Phase 2: Waterfront Drive Off- Ramp Construction

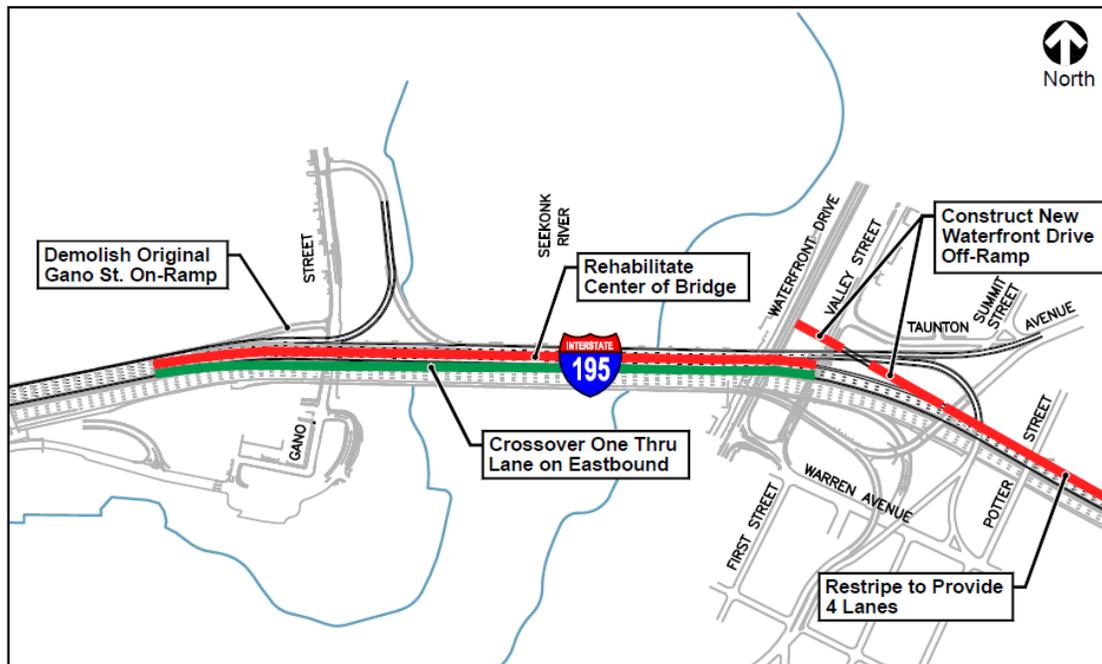
The next phase focuses on constructing the new Waterfront Drive Off- Ramp. This new exit will redirect traffic from the previous Gano Street Off-ramp to Waterfront Drive and relieve congestion on the Washington Bridge, while still providing access to Gano Street.

The I-195 mainline between Broadway and the Washington Bridge will be restriped to four lanes during this phase as well. Three lanes will be for travelling purposes, and the fourth will serve as an exit lane for the new Waterfront Drive Off-ramp. The restriping removes an existing bottleneck at the east end of the project limits where the existing travel lanes drop from four lanes down to three. Finally, the original Gano Street On- Ramp, now replaced by the relocated ramp, will be demolished. During this phase, the center of the Washington Bridge will be rehabilitated as a part

V. Project Readiness

of the continuous effort to improve bridge conditions to structural sufficiency. The Crossover Lane will remain through Phase 2 and the duration of the project.

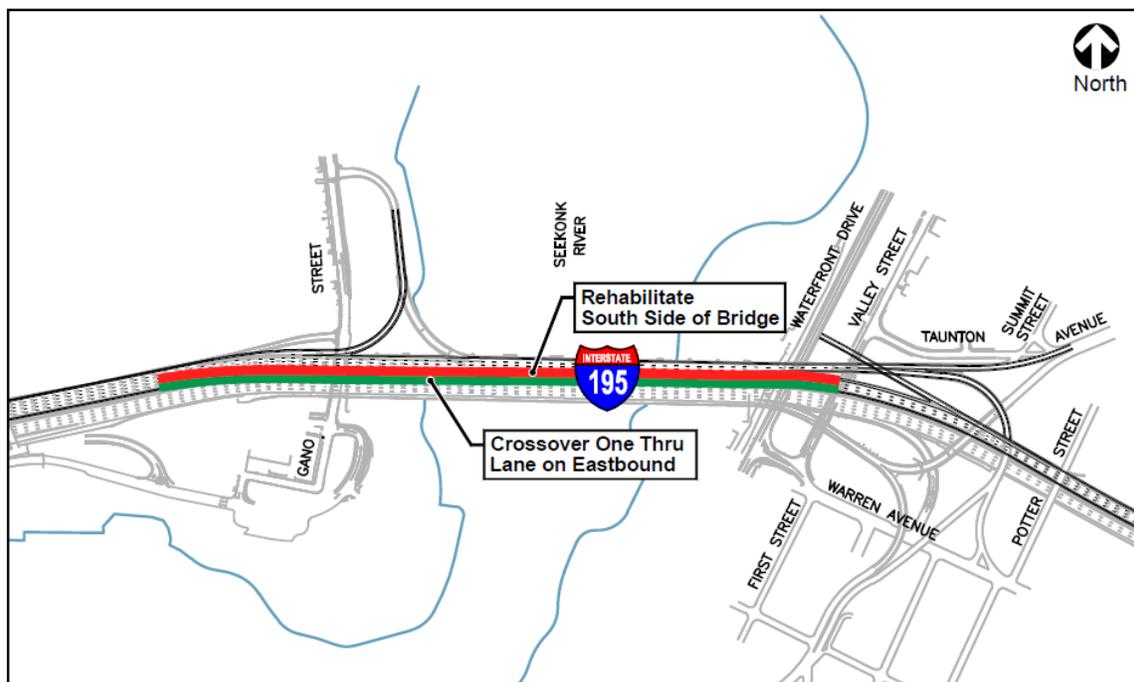
FIGURE 16-- PHASE 2 CONSTRUCTION



Phase 3: Rehabilitation of the Southern Portion of Bridge

The new on- and off-ramp structures will be complete by the end of the second phase of construction. The final remaining phase of construction will focus on rehabilitating the south side of the Washington Bridge structure.

FIGURE 17-- PHASE 3 CONSTRUCTION



V. Project Readiness

Upon project completion, the Crossover Lane will be removed, restoring the Eastbound direction to its full width and original condition. The final Westbound configuration will provide five through lanes across the Washington Bridge.

Required Approvals

The following approvals and documentation are required for the Washington Bridge Rehabilitation and Rebuild Project:

- Environmental Assessment (EA)
- Maintenance Assent
- Notification Documents

RIDOT's project management team will involve other state agencies and the public to gain project support and share information as the project develops. Stakeholder input will be incorporated into the design process to mitigate potential risks. Additional public input will be received and considered upon completion of the alternatives analysis.

Environmental Permits and Reviews

RIDOT has completed a high-level evaluation of the proposed project and project scope in efforts to determine which environmental documentation is required to effectively and accurately evaluate the environmental impact of this project's construction and rehabilitation.

Following the provisions of the National Environmental Policy Act (NEPA), RIDOT's review has confirmed that an Environmental Assessment (EA) is appropriate and necessary.

NEPA

Traffic flows from the Taunton Avenue and Veterans Memorial Parkway on- ramps onto the Washington Bridge will be interrupted throughout the duration of this project. Additionally, the closing of the Gano Street Off- Ramp, the relocation of the Gano Street On-ramp, and the opening of the new Waterfront Drive Off- Ramp will cause a substantial disruption in original traffic patterns and pose new environmental impacts to the bridge surroundings.

In alignment with the NEPA EA process, RIDOT must receive a Finding of No Significant Impact (FONSI) from the FHWA to continue on to construction. RIDOT is currently in the early phases of EA development.

Reviews, Approvals, and Permits by Other Agencies

Rhode Island's Coastal Resource Management Council (CRMC) requires a Maintenance Assent. This permit is required for any new construction project regardless of project scope. In addition, project notifications must also be sent to the United States Coast Guard (USCG) and Army Corp of Engineers (ACOE). USCG and ACOE permit and approval is required prior to start of construction.

V. Project Readiness

These three agencies will play an active role in the EA process. RIDOT will seek concurrence from USCG, ACOE, and CRMC to determine the preferred action in efforts to minimize delay and response costs.

Environmental Studies

Environmental studies shall be conducted in combined efforts with the EA to determine the impact of bridge rehabilitation and exit demolition and construction on both the land and water areas surrounding the Washington Bridge.

This project requires Air Quality Analysis to determine the damage costs for pollutant emissions. Mesoscale Analysis indicates that there will be an emissions savings of \$476,000 in just the opening year alone (2026).

Discussions with DOT Field Office Regarding Compliance

RIDOT will work closely with FHWA-RI throughout the EA development and review process to ensure that the project meets all federal requirements and proceeds on-schedule.

Public Engagement

RIDOT will provide multiple opportunities for the general public to comment on the project details as the project moves forward. In accordance with Federal Highway policy, as listed in 23 CFR 771.105(c), “Public involvement and a systematic interdisciplinary approach are essential parts of the development process.” These requirements will be followed carefully by the Department, with support from FHWA and the relevant community stakeholders.

In addition, the enhancement of the entrance to the City of East Providence at Waterfront Drive at I-195, one element of this project, is included within the [City’s Comprehensive Plan Update 2010-2015](#). Public meetings were held during the development of the Plan Update and community members were given the opportunity to discuss the proposals made in that document.

RIDOT has met with local officials from both the City of Providence and the City of East Providence to coordinate the planning and implementation of this project. The Department will continue to engage with local stakeholders throughout the life of this project. While dialogue continues on the project, stakeholders can find letter of support, project summary information, and learn more about the project at <http://www.dot.ri.gov/projects/washingtonbridge/index.php>.

State and Local Approvals

Aside from the permitting approvals listed in the prior section, no additional planning approvals are required for this project at this time.

Right-of-Way

All right-of-way required to complete this project is either [1] owned by the State already, or [2] in use for transportation purposes.

VI. Benefit-Cost Analysis

Federal Transportation Requirements Affecting State and Local Planning

This project is included in the Statewide Transportation Improvement Program for FFY2018-2027 with mixed funding sources. The project will secure all necessary federal approvals—including a FONSI referenced above—before construction begins.

Assessment of Project Risks and Mitigation Strategies

The most significant risk to mitigate in this project is the redirection and interruption of regular traffic flows on the Westbound portion of I-195 that crosses the Washington Bridge during construction. This section of roadway is the main connector between the East Bay Area and Providence, and therefore experiences heavy congestion during typical work commute times.

The traffic flows entering the Washington Bridge from the Taunton Avenue and Veterans Memorial Parkway On-ramps will no longer enter from two separate lanes. During construction, both ramps will merge into one lane, creating new congestion. Projection analysis indicates that vehicles will reroute and enter the bridge from the Broadway On-ramp, adding an additional 1-mile diversion. The Crossover Thru Lane on the Eastbound portion of I-195 will serve as a mitigation plan to reduce the severity of this process.

Replacing and removing the current Gano Street On-and Off-ramp will disrupt and establish new traffic flows. Creating a new Waterfront Drive Off-ramp in Phase 2 of construction will help mitigate the construction from closing the Gano Street Off-ramp, but there are still further measures required, such as the Crossover Lane, to fully mitigate the impact on traffic flows.

VI. Benefit-Cost Analysis

The Washington Bridge Rehabilitation and Redevelopment Project has a favorable Benefit-Cost ratio of 4.60 and a net present value (NPV) of \$344.93 million and is therefore a cost-effective investment. Of the benefits, the most substantial areas involve time travel savings, safety, emissions, and job creation benefits. In addition, completion of this project will help RIDOT continue to pursue its goal of 90% bridge sufficiency by 2025. The following figures summarize the overall benefits and costs of the project. The benefit-cost analysis for this project assumes a yearly, primary discount rate of 7%. The alternative yearly discount rate, 3%, is also shown and calculated.

FIGURE 18 -- SUMMARY AND EVALUATION OF BENEFIT-COST RATIO

Benefit Evaluation Period (Years, Post-Substantial Completion)	25
Primary Discount Rate:	7.00%
Alternative Discount Rate:	3.00%
Present Value Benefit (7%):	\$440,794,402.90
Present Value Cost (7%):	\$95,865,625.35
Project Benefit-Cost Ratio (7%):	4.60
Net Present Value (NPV) (7%)	\$344,928,777.55

VI. Benefit-Cost Analysis

FIGURE 19 -- SUMMARY OF PROJECT BENEFITS AND COSTS

Present Day Total Foregone Cost Savings (Development and Construction Years Only):	\$17,160,000.00
Present Day Total Job Creation Benefits (Development and Construction Years Only):	\$5,685,699.79
Sub-Total Average Annual Benefit w/ BUILD (Development and Construction Years Only):	\$2,855,712.47
Present Day <u>Total</u> Future Benefit (Safety, Travel Time, Emissions):	\$1,635,926,583.78
Sub-Total <u>Average Annual</u> Benefit, w/ BUILD (Post-Substantial Completion):	\$65,437,063.35
Present Day Total Construction Costs:	\$70,000,000.00
Present Day Work Zone Impact Cost:	\$76,688,575.33
Sub-Total Average Annual <u>Cost</u> w/ BUILD (Development and Construction Years Only):	\$18,336,071.92
Present Day <u>Total</u> Future Maintenance and Operations Costs:	\$41,210,000.00
Sub-Total <u>Average Annual</u> Cost, Post-Build w/ BUILD (Post-Substantial Completion):	\$1,373,666.67

Safety Benefits

The major safety issues this project aims to correct include the queues and bottlenecks created by the current on- and off- ramp configuration.

Analysis results indicate that the project will reduce **C- Level injuries and property damage only (PDO) crashes**. Weaving sections pose their own safety threats and eliminating these sections will reduce safety costs and proportionally increase safety benefits. The analysis also predicts fewer multi-vehicle crashes as well, generating an estimated annual crash reduction of 9.25%.

Overall, the annual safety benefit is estimated to be **\$167,697.82** per year.

Emissions Benefits

As a result of safety and operational improvements, daily vehicle hours travelled (VHT) within the project limits are expected to decrease, and average speed is projected to increase. Vehicle miles travelled (VMT) is expected to increase. These increases are measured relative to the No Build Condition versus the Preferred Action Conditions.

The project will reduce congestion and increase speeds, allowing for more throughput across the area, thereby increasing VMT. Although an increase in VMT is associated with higher emission rates, emission rates will decrease proportionally in relation to the speed increase and congestion reduction, thereby minimizing the cost- impact of an increasing VMT.

VI. Benefit-Cost Analysis

CO₂, VOC, PM₁₀, and PM_{2.5} emissions will decrease annually. NO_x is projected to slightly increase relative to the average speed increase. **Overall, emissions benefits are estimated at \$269,382.42 annually.**

Time Travel Savings

Improvements from this project will alleviate congestion and improve traffic flow over the western portion of the Washington Bridge. As a result, over the analyzed 25 years of traffic flows, time travel savings are projected to increase.

In the first year of completion (2025), the baseline improvements will be **\$38.39 million under the proposed action condition**. The following year, 2026, serves as the first accrual period of time-travel savings and benefits, which total **\$1.64 billion over 25 years**. **The average yearly time travel savings benefit is \$65.48 million.**

Job Creation Benefits

The Washington Bridge Rehabilitation and Redevelopment Project will generate direct and indirect job growth. RIDOT anticipates 910 job-years resulting from this project, which will create 35 new jobs. These translate into \$5.68 million in job creation benefits during construction years alone. Although not quantified in the benefit-cost analysis, projection completion is expected to promote job creation in the Providence area, and to bolster the economic benefits the nearby Opportunity Zones.