Hampton Roads Regional Bridge Study

2018 Update

T18-05

the *heartbeat* of HAMPTON ROADS TPO

TRANSPORTATION PLANNING ORGANIZATION

May 2018

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HAMPTON ROADS REGIONAL BRIDGE STUDY

2018 UPDATE

Prepared by:

the heartbeat of HAMPTON ROADS TPO
TRANSPORTATION PLANNING ORGANIZATION

May 2018

TITLE:
Hampton Roads Regional Bridge Study – 2018 Update

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ABSTRACT
Bridges are a prominent part of the Hampton Roads landscape and a critical component of the Hampton Roads transportation system. Because of the importance of bridges to the regional transportation system and concerns about the condition and funding of bridges, the Hampton Roads Transportation Planning Organization began analyzing factors impacting regional bridges in 2007. The Hampton Roads Regional Bridge Study for the first time provided a regional analysis of bridge topics such as bridge inspections and ratings, deficient bridges, bridge funding and projects, and the impacts that the closure of major bridges would have on Hampton Roads travel patterns.

This 2018 update of the Hampton Roads Regional Bridge Study builds on the 2007 study and the update released in 2012. Sections regarding bridge definitions, regional summaries, bridge inspections and ratings, deficient bridges, fracture and scour critical bridges, health indices, bridge funding, bridge projects, and the anticipated cost of maintaining bridges through 2045 are included in this update. In many sections of this report, comparisons are made between the condition of bridges in Hampton Roads and those in other large metropolitan areas throughout the country. This report also includes a section detailing the new Federal bridge performance measures.

REPORT DATE:
May 2018

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ACKNOWLEDGMENTS & DISCLAIMERS
Prepared in cooperation with the U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA), and Virginia Department of Transportation (VDOT). The contents of this report reflect the views of the Hampton Roads Transportation Planning Organization (HRTPO). The HRTPO is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the FHWA, VDOT or Hampton Roads Planning District Commission. This report does not constitute a standard, specification, or regulation. FHWA or VDOT acceptance of this report as evidence of fulfillment of the objectives of this planning study does not constitute endorsement/approval of the need for any recommended improvements nor does it constitute approval of their location and design or a commitment to fund any such improvements. Additional project level environmental impact assessments and/or studies of alternatives may be necessary.

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INTRODUCTION

Bridges are a prominent part of the Hampton Roads landscape and a critical component of the Hampton Roads transportation system. Major spans such as the Coleman Bridge, Hampton Roads Bridge-Tunnel, and James River Bridge connect distinct areas of the region. Bridges on the Interstate system improve mobility throughout the region by creating a limited-access network. And smaller structures such as culverts span the large number of creeks, wetlands, and waterways in the region.

As bridges age, allocating adequate funding to maintain these structures has been difficult. Constructing bridges can cost four to six times more than typical urban roadway reconstruction costs according to VDOT planning level estimates. FHWA estimates that $46 billion would be needed to address the over 55,000 structurally deficient bridges throughout the country.

Because of the importance of bridges to the regional transportation system and concerns about the condition and funding of bridges, the Hampton Roads Transportation Planning Organization began analyzing factors impacting regional bridges in 2007. The *Hampton Roads Regional Bridge Study* for the first time provided a regional analysis of topics such as bridge inspections and ratings, deficient bridges, bridge funding and projects, and the impacts that the closure of major bridges would have on Hampton Roads travel patterns.

This 2018 update of the *Hampton Roads Regional Bridge Study* builds on the previous efforts. Sections in this update include:

- **Bridge Definitions** – This section includes the definition of a bridge used in this study and describes each type of bridge.

CHESAPEAKE BAY BRIDGE-TUNNEL SHUTTERSTOCK

- **Regional Bridge Summary** – This section includes summaries of bridges in Hampton Roads by ownership, type of service, length/area, and age.
- **Bridge Inspections and Ratings** – Based on detailed inspections, bridge inspectors assign ratings to various components of each bridge. This section describes these components and how each of them is rated.
- **Deficient Bridges** – This section describes structurally deficient and functionally obsolete classifications and includes a summary of those bridges in Hampton Roads that are deficient. Bridges with posted weight limits and height restrictions are also detailed, as are bridges in the region that have been closed.
- **Fracture and Scour Critical Bridges** – This section defines fracture critical and scour critical bridges, and details those bridges in Hampton Roads that are classified as fracture or scour critical.
- **Health Index** – This section details the Bridge Health Index, which is a measure of the physical condition of each bridge that provides a ranking system for bridge maintenance.

- **Bridge Performance Measures** - Recent federal legislation established that states and metropolitan areas will be required to prepare and use a set of federally-established performance measures and set targets in many different areas, including bridge condition. These bridge condition performance measures and targets are detailed in this section.
- **Bridge Funding** – This section details how bridges are funded through federal, state, and local bridge funding sources.
- **Bridge Projects** – This section describes bridges recently built and rehabilitated in Hampton Roads, and bridges that have rehabilitation or replacement projects programmed.
- **Cost of Maintaining Bridges** – Maintaining bridges will be critical as they age beyond their expected life spans in future decades. Regional bridge needs out to the year 2045 – the time horizon of the next regional Long-Range Transportation Plan – are examined in this section.
- **Conclusions**
- **Appendices** – The Appendices contain a glossary of bridge terms, definitions of bridge component ratings, a description and example of calculating State of Good Repair Scores for bridges, and bridge condition information for each jurisdiction.

It should be noted that Sufficiency Ratings are not included in this update to the Regional Bridge Study. Sufficiency ratings were numerical ratings that were calculated for each bridge based on its structural evaluation, design and function, and public importance. However, since federal funding for bridges is no longer based on sufficiency ratings, their value has been diminished.

In many sections of this report, comparisons are made between bridges in Hampton Roads and those in other similar metropolitan areas. These comparisons are made between Hampton Roads and the 36 other metropolitan areas throughout the United States with populations between one and three million people.

The information included in the report is based on HRTPO's analysis of bridge data obtained largely from the Virginia Department of Transportation's (VDOT) Structure and Bridge Division. Data for the 33 federally-maintained bridges in Hampton Roads and bridges in the 36 other comparable metropolitan areas was obtained from the Federal Highway Administration's (FHWA) National Bridge Inventory (NBI) database. Both databases contain over 100 types of information that is collected and rated for each bridge. Examples of information included for each bridge in these databases are bridge location, design type, geometric characteristics, traffic volumes, condition and appraisal ratings, inspection dates, etc.

The VDOT bridge data analyzed in this report was obtained in December 2017, and represents conditions as of that date. The FHWA NBI data was obtained in February 2018 and represents 2017 conditions. Every bridge is inspected on a regular basis, and bridge ratings are constantly updated based on these inspections. As such, bridges may currently have different ratings and classifications than shown in this report due to recent inspections. Up-to-date bridge ratings are available on VDOT's bridge website at http://virginiadot.org/info/Bridge.asp and FHWA's NBI website at https://www.fhwa.dot.gov/bridge/nbi.cfm.

Bridge Definitions

As part of the original HRTPO Regional Bridge Study, producing a definition of the term "bridge" was necessary to determine which structures to include in the analysis. HRTPO staff determined that using the National Bridge Inspection Standards (NBIS) definition of a bridge – which is used to determine those structures that are included in the National Bridge Inventory (NBI) – was appropriate. The NBIS definition of a bridge is as follows:

> "A structure including supports erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between under copings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening."

Using this definition as a guide, HRTPO staff determined that the following conditions should apply for each bridge to be included in the 2007 study analysis, and the same conditions are used in this update:

- **Location** – The structure must be located on roadways open to the general public. Bridges owned and maintained by local, state, and federal government agencies apply, as do bridges owned and maintained by private operators so long as they are open for public use. Bridges located within the security perimeter of military bases and other secure federal facilities are not included in this study.
- **Length** – The bridge must be more than 20 feet (6.1 meters) in length per the NBIS. Culverts are included, so long as the opening in the culvert is more than 20 feet in length.
- **Service** – The bridge must carry a roadway. Structures that carry only railroad or pedestrian traffic are not covered by NBIS regulations and are not included in this study.
- **Tunnels** – Tunnels are not considered bridges by the NBIS. Some information regarding Hampton Roads tunnels and tunnel inspection procedures are included in this study, but tunnels are not included in report statistics since many of the metrics used to measure bridge conditions do not apply to tunnels.

Bridge Types

Bridges vary greatly in design, from small culverts to mile-long suspension bridges. FHWA uses 22 classes to categorize structures based on the predominant type of design and construction. **Figure 1** on page 4 describes each bridge type and includes the number of each type of bridge in Hampton Roads.

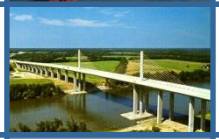
1 - SLAB 104 bridges		A slab bridge is a structure where the slab serves as both the superstructure and the deck of the bridge. This type of bridge is well-suited for shorter spans.	13 - SUSPENSION 0 bridges		A suspension bridge is a structure where the deck is supported by cables. These cables transfer loads over two towers to anchorages at either end of the bridge.
2 – STRINGER/ MULTI-BEAM OR GRIDER 813 bridges		This type of bridge uses three or more parallel beams or girders that transfer the load between the deck and the substructure. This type of bridge is commonly used on the Interstate system.	14 – STAYED GIRDER 0 bridges		A stayed girder bridge is a structure where the deck is supported by cables that are attached to one or more towers.
3 – GIRDER AND FLOORBEAM SYSTEM 7 bridges		This type of bridge uses two girders parallel to the roadway, with the deck on top of floorbeams that are connected to the griders. The roadway can be located either above or through the griders.	15 – MOVABLE - LIFT 2 bridges		A movable lift bridge is a type of bridge where the span is raised vertically to allow for passage below. The lifted span remains parallel to the roadway deck.
4 – TEE BEAM 38 bridges		A tee beam bridge is similar to other beam bridges except that the concrete beams are shaped in the form of a "T". Other beam bridges are typically shaped in the form of an "I".	16 – MOVABLE - BASCULE 5 bridges		A movable bascule bridge is a type of bridge where portions of the bridge deck rotate upward to allow for passage below.
5/6 – BOX BEAM OR GIRDER 49 bridges		A box beam or girder bridge is similar to other beam and girder bridges except that the beams or girders have a void in the middle.	17 – MOVABLE - SWING 4 bridges		A movable swing bridge is a type of bridge where segments of the bridge deck rotate horizontally to allow for passage below.
7 - FRAME 4 bridges		A frame bridge is a structure where the piers and deck are one integrated solid structure.	18 - TUNNEL 10 total*		Tunnels are underground roadway passages. 8 tunnels in Hampton Roads are underwater crossings, plus tunnels at Naval Station Norfolk and Colonial Williamsburg. * - Tunnels are not included in the statistics shown throughout this study.
9 – DECK TRUSS 0 bridges		A truss bridge (which is a simple skeletal structure that uses a series of triangles to transfer loads from the deck to the piers) where the roadway surface is located above the truss.	19 - CULVERT 213 total (only those >20')		A culvert is a channel that allows water to flow under a roadway. Culverts are often used for smaller streams and drainage canals.
10 – THROUGH TRUSS 2 bridges		A truss bridge where the deck is located below the truss and traffic travels through the truss system.	21 – SEGMENTAL BOX GIRDER 3 bridges		A segmental box girder bridge has a deck that is supported by a closed box formed from two sloping side walls that are attached on the bottom with a slab. This closed box acts as a beam.
11 – DECK ARCH 15 bridges		An arch bridge (which is a bridge that spans an opening with a curved structure member) where the roadway surface is located above the arch.	22 – CHANNEL BEAM 0 bridges		A channel beam bridge is constructed with precast beams that resemble inverted channels. They are similar in appearance to tee beam bridges.
12 – THROUGH ARCH 2 bridges		An arch bridge where the deck is hung from a segment of the arch that rises above the deck.	UNCLASSIFIED 0 bridges		

FIGURE 1 - BRIDGE TYPES

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017. Definitions of terms used in this figure are included in Appendix A.

REGIONAL BRIDGE SUMMARY

This section includes a summary of bridges in Hampton Roads, and comparisons between bridges in Hampton Roads and those in similar metropolitan areas. Topics described in this section include:

- **Total Bridges**
- **Bridges by Ownership**
- **Bridges by Type of Service**
- **Bridges by Length/Area**
- **Bridges by Age**

TOTAL BRIDGES

Based on the definition of a bridge described in the previous section, there are a total of 1,261 bridges in Hampton Roads[1] as of December 2017. This number does not include bridges and culverts that are shorter than or equal to 20 feet in length, bridges on private property, structures that are in areas that are not open to the general public such as military bases, pedestrian and railroad overpasses that are not also shared by a roadway, and tunnels.

As shown in **Figure 1** on the page 4, the most common structure type in Hampton Roads is beam or girder bridges, comprising 813 (64%) of all bridges in the region. Culverts are the second most common type of structure in Hampton Roads, comprising 213 bridges (17%).

Compared to other metropolitan areas, Hampton Roads has fewer bridges. Among 37 comparable metropolitan areas

[1] "Hampton Roads" in this study includes areas within the HRTPO boundary, rural areas included in the Hampton Roads Planning District Commission, and structures on boundaries with adjacent areas. Maps showing these boundaries are available at https://www.hrpdcva.gov/page/maps-and-gis.

REGIONAL BRIDGE SUMMARY

▶ Total bridges in Hampton Roads, and Hampton Roads rank among comparable metropolitan areas in terms of total bridges	1,261 26th highest of 37 areas
▶ Total area of bridges in Hampton Roads, and Hampton Roads rank among comparable metropolitan areas in terms of total bridge area	2,746,000 m^2 8th highest of 37 areas
▶ Median age of bridges in Hampton Roads, and Hampton Roads rank among comparable metropolitan areas in terms of median bridge age	39 years 23rd highest of 37 areas

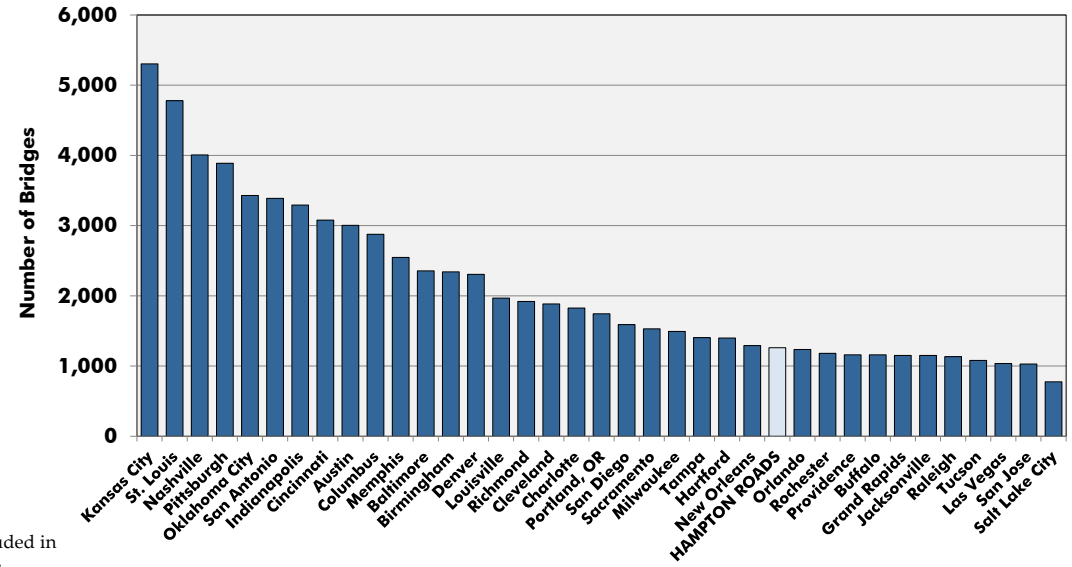


FIGURE 2 – TOTAL BRIDGES IN COMPARABLE METROPOLITAN AREAS

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017. Other areas based on 2017 NBI data.

throughout the country with populations between one and three million people, Hampton Roads ranks 26th highest in terms of total bridges (**Figure 2** on page 5). Some areas, such as Kansas City and St. Louis, have more than four times as many bridges as Hampton Roads.

Bridges by Ownership

Bridges in Hampton Roads are owned and maintained by various jurisdictions. Bridges that are located in counties are mostly owned and maintained by VDOT, as are bridges that are part of the Interstate system. Bridges that are located within cities (except for bridges on the Interstate system) are generally owned and maintained by those cities. The Federal Government also owns and maintains bridges in Hampton Roads, including two Army Corps of Engineers drawbridges and National Park System bridges on the Colonial Parkway, Jamestown Island Tour Road, and Yorktown Battlefield Tour Road. Some bridges are owned and maintained by the private sector or state commissions, such as the South Norfolk Jordan Bridge, the Chesapeake Bay Bridge-Tunnel, and bridges approaching the Midtown and Downtown Tunnels by Elizabeth River Crossings.

The majority of bridges in Hampton Roads are owned and maintained by VDOT. Of the 1,261 bridges in Hampton Roads, 751 (60%) are owned and maintained by VDOT (**Figure 3**). Cities own and maintain 437 bridges (35%), the Federal Government owns 33 bridges (3%), 12 bridges are part of the Chesapeake Bay Bridge-Tunnel, and the remaining 28 bridges are maintained by the private sector.

Bridges by Type of Service

Figure 4 shows the number of bridges in Hampton Roads by what they span, which is also referred to as type of service. The majority of

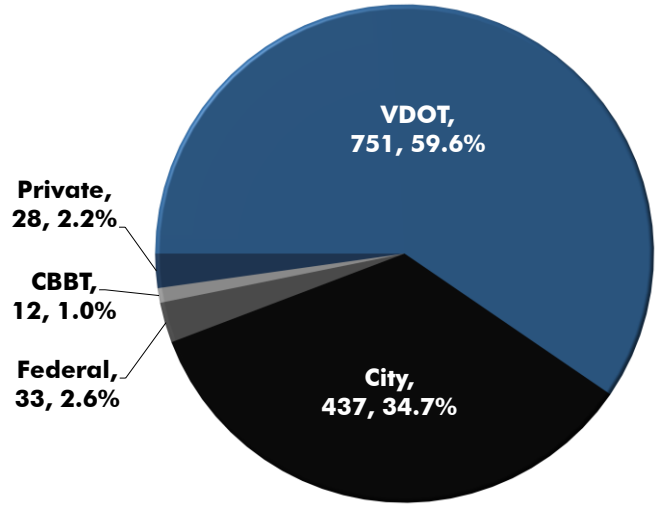


Figure 3 – Hampton Roads Bridges by Ownership

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

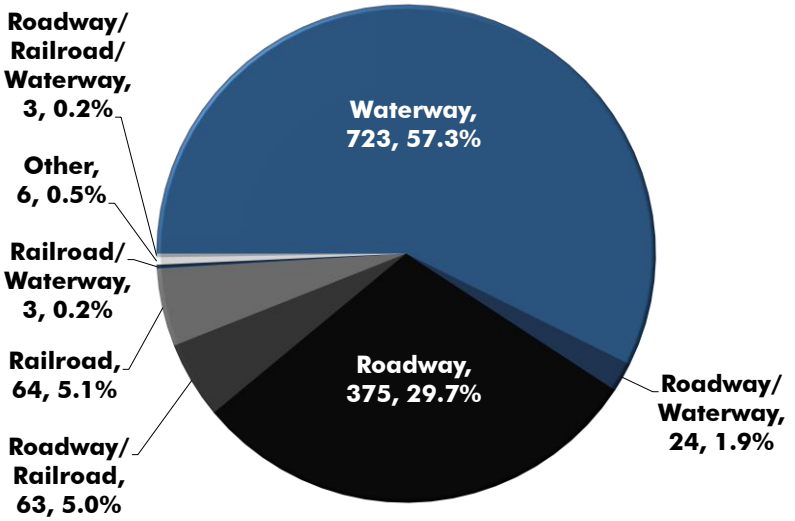


Figure 4 – Bridges in Hampton Roads by Type of Service

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

bridges in the region span waterways. Of the 1,261 bridges in Hampton Roads, 753 bridges (60%) involve roadways spanning a waterway. Bridges spanning over other roadways comprise 465 bridges (37%) in Hampton Roads, while roadways spanning railroads comprise 133 bridges (11%).

Bridges by Length/Area

Although the number of bridges in Hampton Roads is lower than in many other comparable metropolitan areas, bridges in Hampton Roads are on average much longer than those in other areas. The 1,261 bridges in Hampton Roads span 588,000 feet (which is over 111 miles), or an average of 466 feet for each bridge. Among the 37 metropolitan areas in the United States with populations between one and three million people, Hampton Roads has the second longest average bridge length behind only New Orleans.

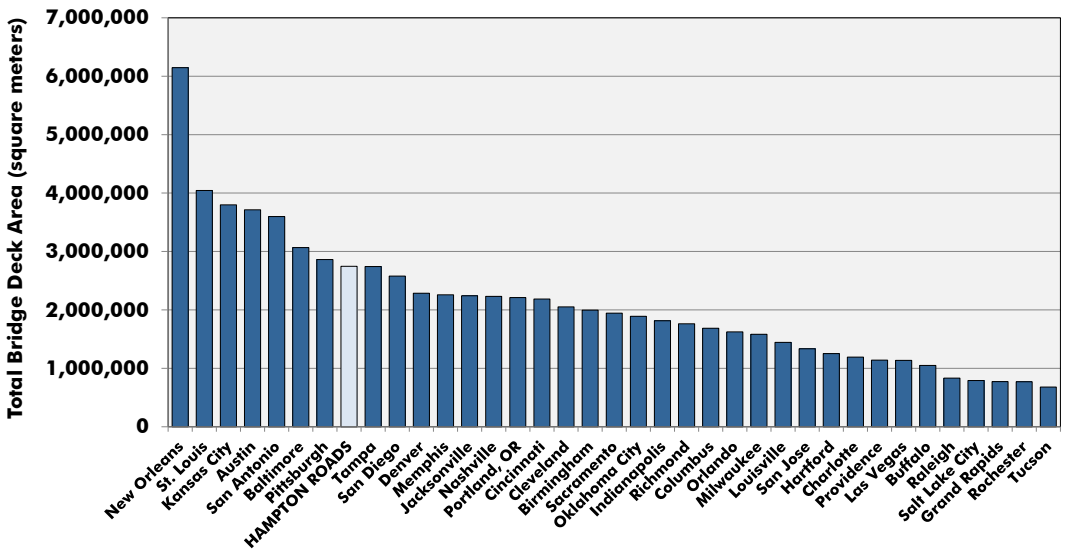


Figure 5 – Total Bridge Area in Comparable Metropolitan Areas

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017. Other areas based on 2017 NBI data.

The total deck area of bridges in Hampton Roads is 29,555,000 square feet, or 2,746,000 square meters. Hampton Roads has the 8th highest total bridge deck area among the 37 comparable metropolitan areas (**Figure 5**). Bridge maintenance costs are significantly higher than typical roadway maintenance costs, so having a high total bridge deck area compared to other metropolitan areas means more funding is needed in Hampton Roads to maintain these structures.

Bridges by Age

Aging infrastructure – especially bridges – is a concern nationally. The median age of bridges in the United States is 43 years as of 2017 according to data in the NBI database, and 40% of the bridges in the country are at least 50 years old. In Virginia, the median age of NBI

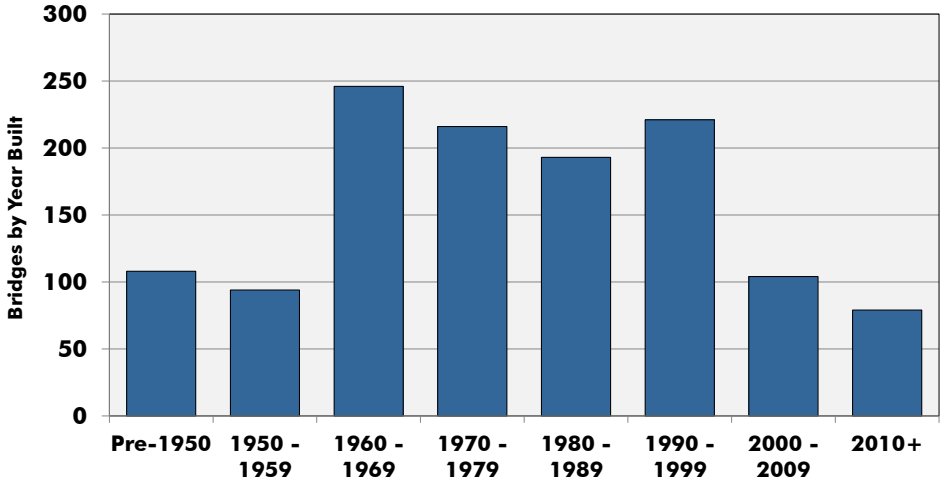
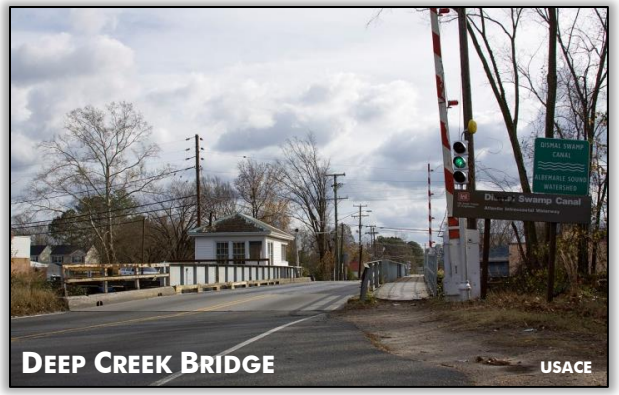


Figure 6 – Bridges in Hampton Roads by Year Built

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

bridges is 45 years as of December 2017 according to VDOT data, slightly higher than the national figure.



Bridges in Hampton Roads typically are not as old as national and statewide structures, with a median bridge age in Hampton Roads of 39 years as of December 2017. However, many bridges in Hampton Roads are much older, with 108 bridges being built prior to 1950 and another 94 bridges being built between 1950 and 1959 (**Figure 6** on page 7). As of December 2017, 392 bridges (31%) in Hampton Roads are at least 50 years old.

Figure 7 shows bridges by year built for each jurisdiction in Hampton Roads. Williamsburg has the highest median bridge age of any Hampton Roads jurisdiction at 57 years. Surry County and York County also have median bridge ages greater than 50 years.

The overall age of bridges in Hampton Roads is lower than those in other metropolitan areas. Among the 37 comparable metropolitan areas in the United States with populations between one and three million people, Hampton Roads ranked 23rd highest in median bridge age in 2017 (**Figure 8**).

Jurisdiction	Total Number of Bridges	Number of Bridges by Year Built								Median Bridge Age (Years)
		Pre 1950	1950 - 1959	1960 - 1969	1970 - 1979	1980 - 1989	1990 - 1999	2000 - 2009	2010+	
Chesapeake	183	8	3	20	16	39	46	24	27	26
Gloucester	24	5	3	3	5	0	3	1	4	45
Hampton	83	2	15	6	10	35	3	10	2	34
Isle of Wight	85	9	19	8	13	8	14	8	6	45
James City	62	8	9	5	19	1	16	4	-	41.5
Newport News	93	6	2	21	3	24	23	8	6	30
Norfolk	189	5	7	56	49	26	43	2	1	43
Poquoson	0	-	-	-	-	-	-	-	-	-
Portsmouth	48	1	2	14	4	4	4	12	7	28
Southampton/Franklin	138	28	7	31	31	18	13	6	4	46
Suffolk	135	13	10	17	35	14	24	16	6	42
Surry	32	8	7	5	6	1	2	2	1	52.5
Virginia Beach	125	3	-	41	13	22	26	6	14	33
Williamsburg	12	5	1	1	3	-	1	1	-	57
York	52	7	9	18	9	1	3	4	1	52
HAMPTON ROADS	1,261	108	94	246	216	193	221	104	79	39

FIGURE 7 – BRIDGES IN HAMPTON ROADS JURISDICTIONS BY YEAR BUILT

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

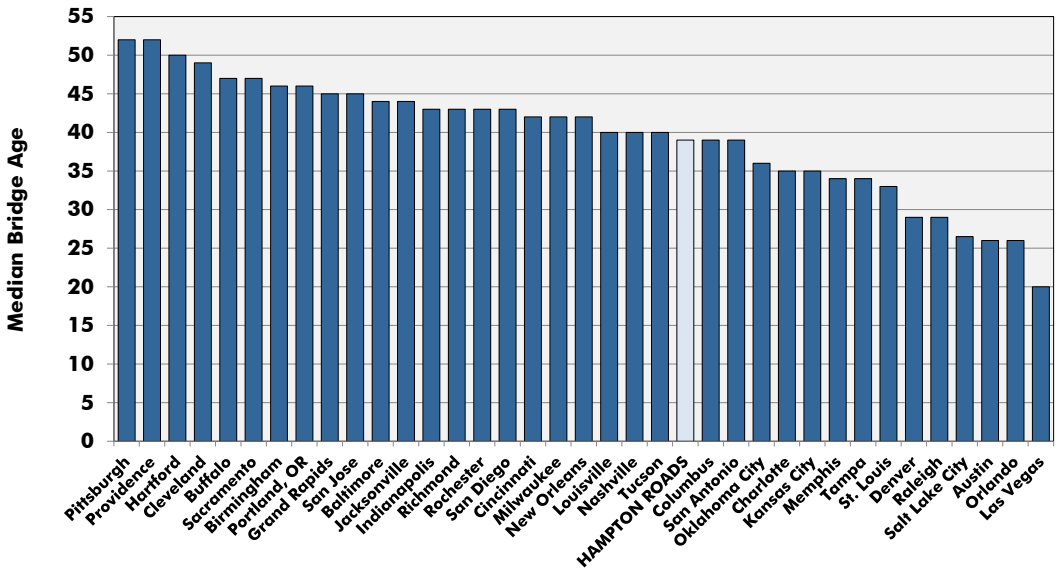


FIGURE 8 – MEDIAN BRIDGE AGE IN COMPARABLE METROPOLITAN AREAS

Source: HRTPO analysis of VDOT and FHWA data. Data represents median age as of 2017. Data for Hampton Roads bridges as of December 2017. Other areas based on 2017 NBI data.

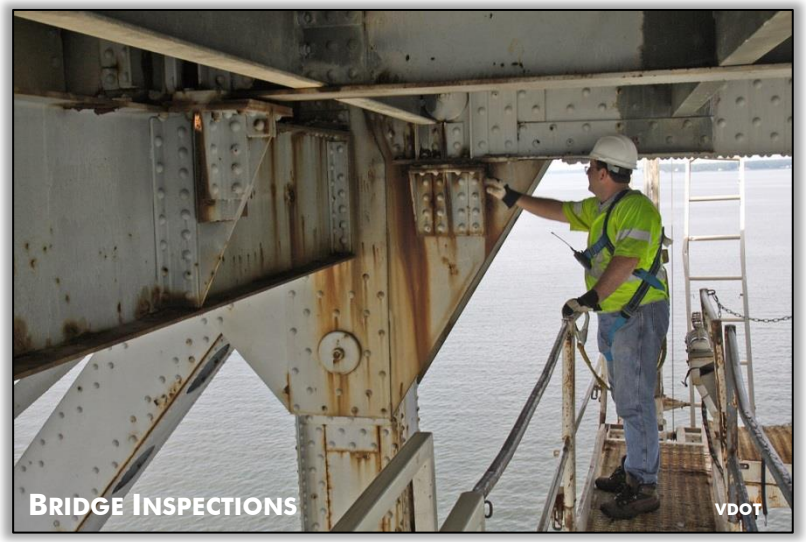
Bridge Inspections and Ratings

Bridges are inspected on a regular basis to ensure that they can safely remain in use. Bridges throughout Virginia and the United States are inspected based on the National Bridge Inspection Standards (NBIS). In accordance with federal law, the NBIS sets the national standards for the proper inspection and evaluation of all highway bridges included in the National Bridge Inventory (NBI). These standards include bridge inspection procedures, frequency of inspections, the components that must be inspected, qualifications of bridge inspectors, and reporting procedures.

Federal law requires that inspections be performed on most bridges once every two years, but some bridges in Virginia may be inspected more frequently based on their condition or design. For example, bridges that are classified as structurally deficient or fracture critical (which are described later in this report) are inspected on an annual basis to assure that they can safely remain in service. Underwater inspections are also performed at least once every five years on those structures where it is necessary.

In Virginia, VDOT is responsible for the inspections of VDOT-maintained bridges, while cities are responsible for inspecting bridges that they maintain. VDOT conducts over 10,000 bridge inspections each year on state-maintained structures. To conduct these inspections, VDOT employs more than 100 people and also uses qualified consultants. In Fiscal Year 2017, VDOT spent $31 million to conduct these inspections on state-maintained bridges.

Inspections on city-maintained bridges must also be done in accordance with National Bridge Inspection Standards, with VDOT District Structure and Bridge Engineers being responsible to ensure that bridge inspection requirements are met by each city. Although VDOT does not provide funding specifically for bridge inspections, Urban Maintenance Program funds can be used for each city's bridge inspection costs.



Bridge inspectors measure and observe various components of each bridge during their inspections. Based on these measurements and observations, inspectors assign multiple ratings to describe the existing condition of each bridge. These ratings are divided into general condition ratings and appraisal ratings.

General condition ratings are used to assess the physical condition of each bridge. General condition ratings are given to three components of each structure:

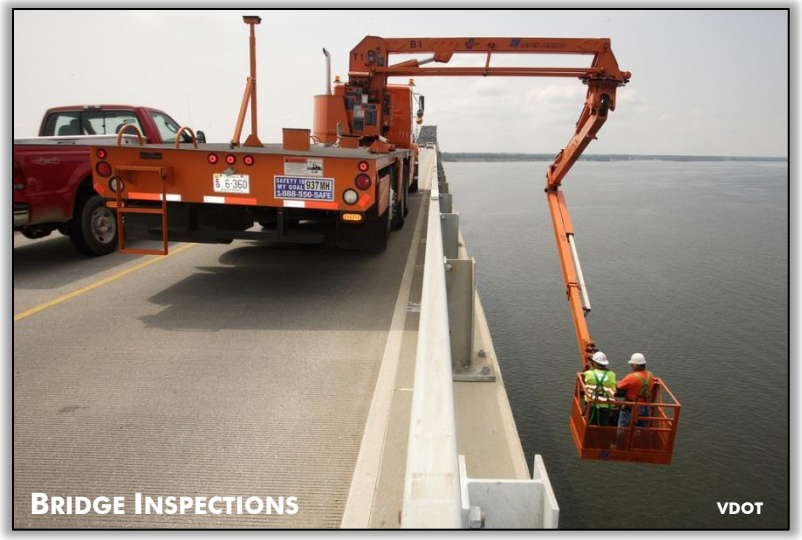
- **Deck** – The overall condition rating of the bridge's driving surface.
- **Superstructure** – The physical condition of all of the bridge's structural members such as beams and girders.

- **Substructure** – The physical condition of all of the bridge's piers, abutments, piles, footings, and other components of the bridge's foundation.

Each of these three components is rated by the bridge inspector from 0 to 9, with 9 representing a component in excellent condition and 0 representing a failed condition or a closed bridge. For culverts, a single rating is given in place of the deck, superstructure, and substructure ratings to assess the general condition of the entire culvert.

Appraisal ratings are used to evaluate a bridge relative to the level of service it provides based on the highway system it is located on. Each bridge is compared to a structure built to current design standards for that type of roadway. Appraisal ratings are given to the following items for each bridge:

- **Structural Evaluation** – This rating is generally equal to the lowest condition rating among the superstructure and substructure ratings. The structural evaluation rating, however, can be lower based on the capacity of the bridge and the volume of traffic it carries. The structural evaluation rating is also called the structural condition rating.
- **Deck Geometry** – The width of the bridge as well as the vertical clearance over the bridge roadway.
- **Vertical and Lateral Underclearances** – The height from the transversed roadway to the bottom of the structure, and the horizontal distance between the transversed roadway and the bridge supports.
- **Waterway Adequacy** – The ability of the bridge opening to allow water to flow through the passage, and the frequency of water overtopping the bridge.
- **Approach Roadway Alignment** – The alignment of the roadway approaches to the bridge as compared to the general roadway alignment for the section of roadway that the bridge is located on.



Similar to general condition ratings, each appraisal rating item is rated by the bridge inspector from 0 to 9, with 9 representing an item in excellent condition and 0 representing a closed bridge.

General condition and appraisal ratings are used to classify and prioritize bridges for rehabilitation or replacement. Bridges are classified as structurally deficient based on their general condition ratings, and both general condition and appraisal ratings are used to determine if a bridge is functionally obsolete.

The Moving Ahead for Progress in the 21st Century Act (MAP-21) federal surface transportation funding and authorization bill that was passed in 2012 included various regulations that aimed to improve the highway bridge inspection program. These regulations – which are continued under the current Fixing America's Surface Transportation (FAST) Act – include inspections and inventory of all highway bridges

on public roads, creating data risk-based inspections and inspection intervals, establishing procedures for reporting critical findings, requiring inspector training certifications, and establishing minimum standards for statewide bridge conditions.

MAP-21 and the FAST Act also require that element level data be collected for bridges on the National Highway System (NHS), which includes all roadways with a functional classification of Principal Arterial and above. Element level data provides much more detail on the condition of each component of the bridge than the general condition ratings described previously. For example, FHWA requires condition information for six elements of each bridge's deck, ten elements of each bridge's superstructure, and seven elements of each bridge's substructure.

MAP-21 also established the National Tunnel Inspection Standards (NTIS) for highway tunnels. These standards require a program for the inspection of highway tunnels, reporting inspection findings to FHWA, correcting any critical findings found during the inspections, the creation and maintenance of a National Tunnel Inventory, and the development of a training program for tunnel inspectors.

A glossary of many of the bridge terms used in this study is included in **Appendix A**, and more detailed descriptions of general condition and appraisal ratings are included in **Appendix B**.

DEFICIENT BRIDGES

Bridges can be considered deficient for a variety of reasons. Some bridges are deficient based on the condition of structural elements of the bridge, while others are deficient based on the bridge's design. This section includes the following topics regarding deficient bridges:

- **Structurally Deficient Bridges** – This section describes the definition of structurally deficient, what conditions lead to a bridge being classified as structurally deficient, structurally deficient bridges in Hampton Roads, and how Hampton Roads compares to other metropolitan areas in terms of structurally deficient bridges.
- **Functionally Obsolete** – This section details the definition of functionally obsolete and those bridges in Hampton Roads that are classified as functionally obsolete.
- **Weight-posted Bridges** – This section includes a summary of those structures in Hampton Roads that have weight limits posted so that they can safely remain in service, and how the percentage of weight-posted bridges in Hampton Roads compares to other metropolitan areas.
- **Height-restricted Bridges** – This section includes a summary of structures in Hampton Roads that have posted height restrictions due to vertical clearances that are below standards.
- **Closed Bridges in Hampton Roads** – In addition to the deficient bridges included in this section, two prominent bridges in Hampton Roads have been closed due to their deteriorated condition. One structure – the Jordan Bridge – was eventually replaced while the other structure – the Kings Highway Bridge in Suffolk – has not been replaced. More information on these two structures is included in this section.

STRUCTURALLY DEFICIENT BRIDGES

A bridge is classified as structurally deficient if it has elements that need to be monitored and/or repaired. Structurally deficient bridges typically require maintenance and eventually need to be rehabilitated or replaced to address deficiencies.

In spite of these deficiencies, it must be noted that **structurally deficient bridges are not necessarily unsafe. Bridge inspectors will close or impose weight limits on bridges that they feel are unsafe**. In order to assure the safety of structurally deficient bridges, they are inspected more frequently (generally on an annual basis) and more thoroughly than other bridges.

Bridges are classified as structurally deficient if at least one of the following conditions is true:

Component	Rating
Deck Condition Rating	≤ 4
Superstructure Condition Rating	≤ 4
Substructure Condition Rating	≤ 4
Culvert Condition Rating	≤ 4
Structural Condition Rating*	≤ 2
Waterway Adequacy Rating*	≤ 2

* As of January 2018, Structural Condition and Waterway Adequacy Ratings are no longer used to determine whether structures are classified as structurally deficient.

For definitions of these terms and ratings, see **Appendix B**.

It should be noted that two bridge condition ratings – Structural Condition and Waterway Adequacy – were removed from determining whether structures are classified as structurally deficient in January 2018 due to FHWA's Pavement and Bridge Condition Performance Measures final rule. However, since the bridge condition data used in

STRUCTURALLY DEFICIENT BRIDGES SUMMARY

- **Bridges in Hampton Roads that are classified as structurally deficient** — **66/5.2%** (77/6.3% in 2012)
- **Hampton Roads rank among comparable metropolitan areas in terms of the percentage of bridges that are classified as structurally deficient** — **24th highest** of 37 areas


CHURCHLAND BRIDGE HRTPO

this study was obtained in 2017, the previous definition of classifying structurally deficient bridges is used in this analysis.

Historically, bridges built or reconstructed within the last ten years could not be classified as structurally deficient, regardless of the condition of the bridge. However, this stipulation – known as the Ten Year Rule – was removed under the MAP-21 surface transportation authorization program that became law in 2012.

There are 66 bridges in Hampton Roads that are classified as structurally deficient as of December 2017. These bridges are shown in **Figure 12** on pages 16 and 17 and in **Map 1** on page 18. Among the most traveled structurally deficient bridges in Hampton Roads are the Churchland Bridge (High Street over the Western Branch of the Elizabeth River), the Denbigh Boulevard bridge over I-64, Fort Eustis Boulevard over the Newport News Reservoir, the I-264 bridge over First Colonial Road, Military Highway over Bainbridge Boulevard, and one of the westbound bridges at the Hampton Roads Bridge-Tunnel.

Of these 66 structurally deficient bridges, 6 were classified as structurally deficient based solely on their structural condition or waterway adequacy ratings, meaning that they are no longer classified as structurally deficient as of January 2018. These 6 bridges are highlighted in yellow in Figure 12.

Figure 9 shows structurally deficient bridges in Hampton Roads by jurisdiction and maintenance responsibility. Suffolk (16 bridges), Southampton County (12 bridges), Chesapeake (10 bridges), and Isle of Wight County (10 bridges) have the

Jurisdiction	Total Number of Bridges	Structurally Deficient Bridges		Maintenance Responsibility		
		Number	Percentage	Locality	VDOT	Other
Chesapeake	183	10	5.5%	10	-	-
Gloucester	24	3	12.5%	-	3	-
Hampton	83	3	3.6%	-	1	2
Isle of Wight	85	10	11.8%	-	10	-
James City	62	1	1.6%	-	1	-
Newport News	93	3	3.2%	2	1	-
Norfolk	189	1	0.5%	1	-	-
Poquoson	0	0	-	-	-	-
Portsmouth	48	2	4.2%	2	-	-
Southampton/Franklin	138	12	8.7%	-	12	-
Suffolk	135	16	11.9%	16	-	-
Surry	32	2	6.3%	-	2	-
Virginia Beach	125	3	2.4%	2	1	-
Williamsburg	12	0	0.0%	-	-	-
York	52	0	0.0%	-	-	-
HAMPTON ROADS	**1,261**	**66**	**5.2%**	**33 (7.6%)**	**31 (4.1%)**	**2 (2.7%)**

FIGURE 9 – STRUCTURALLY DEFICIENT BRIDGES IN HAMPTON ROADS BY JURISDICTION AND MAINTENANCE RESPONSIBILITY

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

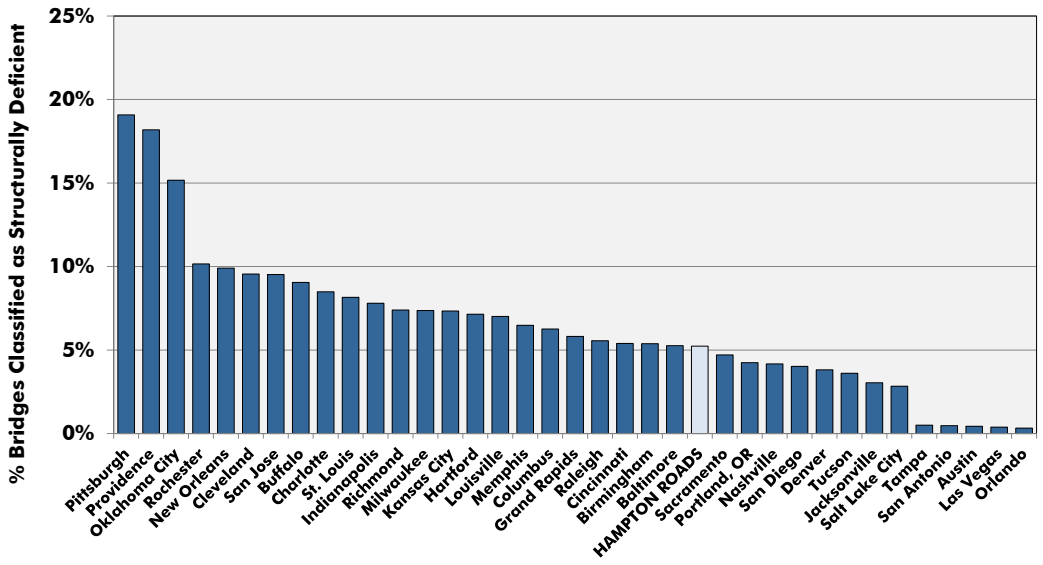


FIGURE 10 – STRUCTURALLY DEFICIENT BRIDGES IN COMPARABLE METROPOLITAN AREAS

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017. Other areas based on 2017 NBI data.

highest number of structurally deficient bridges. Combined, 73% of all structurally deficient bridges in Hampton Roads are located in these four localities.

The 66 bridges that are classified as structurally deficient comprise 5.2% of the 1,261 bridges in Hampton Roads. This is slightly higher than the 5.0% of NBI bridges throughout Virginia that are classified as structurally deficient as of December 2017 and the new 4.5% statewide goal that VDOT has established[2]. This percentage, however, is lower than the percentage seen in comparable metropolitan areas throughout the country. Among the 37 metropolitan areas with populations between one and three million people, Hampton Roads has the 24th highest percentage of bridges that are classified as structurally deficient (**Figure 10** on page 14).

The number of structurally deficient bridges in Hampton Roads has improved in recent years, after a period late last decade where the number of structurally deficient bridges increased (**Figure 11**). In 2008, 54 bridges were classified as structurally deficient, comprising 4.4% of all bridges in Hampton Roads. This number increased late last decade and in the early part of this decade, reaching a high of 80 bridges (6.6%) classified as structurally deficient in 2014. Since then, the number and percentage of structurally deficient bridges has decreased in the region each year.

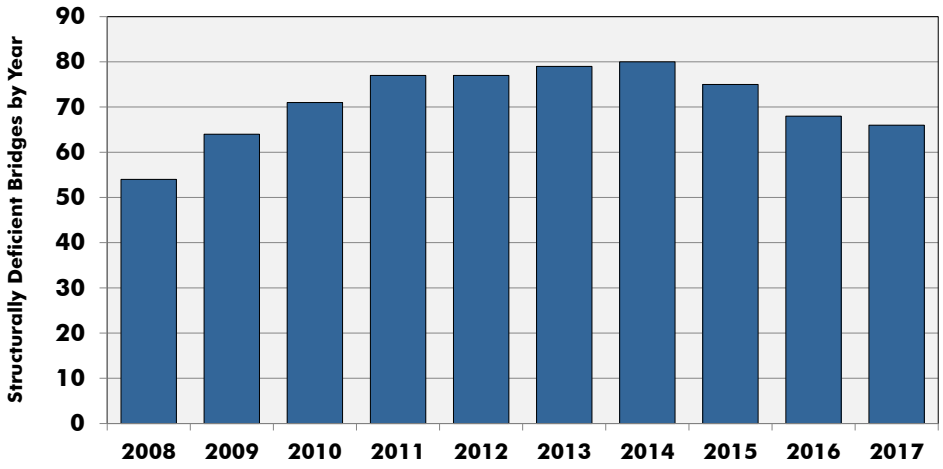


FIGURE 11 – STRUCTURALLY DEFICIENT BRIDGES IN HAMPTON ROADS BY YEAR

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017.

[2] Virginia Department of Transportation, *State of the Structures & Bridges Report*, July 2017. The previous statewide goal was no more than 8% of bridges being classified as Structurally Deficient.

Juris	Federal Bridge #	Facility	Crossing	Year Built	Year Recnst	Owner-ship	Deck Condition Rating	Super-Structure Condition Rating	Sub-Structure Condition Rating	Culvert Condition Rating	SD in 2012	Improve-ments Funded
CHES	21879	22nd Street	Seaboard Avenue & NS R/R	1938	-	City	4	3	4	N	Yes	Yes
CHES	21881	Bainbridge Blvd	Norfolk Southern R/R	1938	1947	City	7	6	4	N	No	No
CHES	21797	Centerville Turnpike	Chesapeake & Albemarle Canal	1955	1990	City	4	4	5	N	Yes	Yes
CHES	21824	Elbow Road	Stumpy Lake Spillway	1975	-	City	6	5	4	N	No	No
CHES	21827	Military Highway	Bainbridge Blvd & NS R/R	1948	1960	City	4	4	5	N	Yes	Yes
CHES	21830	Military Highway	Norfolk Southern R/R	1938	-	City	3	4	4	N	Yes	Yes
CHES	21816	Number Ten Lane	Lindsey Drainage Canal	1979	-	City	5	4	5	N	No	Yes
CHES	30267	Old Mill Road	Deep Creek	2013	-	City	N	N	N	4	No	No
CHES	21937	Ramp to Bainbridge Blvd & NS R/R	Bainbridge Blvd	1948	1960	City	6	4	5	N	Yes	Yes
CHES	21821	Rotunda Avenue	Trib Goose Creek	1969	-	City	5	6	4	N	No	No
GLO	10588	Adner Road (Rte 14)	Porpotank Creek	1938	-	VDOT	4	4	5	N	Yes	No
GLO	12086	Route 17 SB	Dragon Run	1957	-	VDOT	6	4	5	N	No	No
GLO	8548	Tidemill Road (Rte 641)	Northwest Br Sarah Creek	1974	-	VDOT	6	4	5	N	Yes	Yes
HAM	20353	Hampton Roads Bridge-Tunnel WB	Hampton Roads	1957	1999	VDOT	5	4	4	N	No	No
HAM	-	Park Lane Road	Bethel Reservoir	1935	-	Federal	5	4	4	N	Yes	No
HAM	-	Ruckman Road	West Crossing of Moat	1952	-	Federal	5	5	4	N	No	No
IW	10420	Bows & Arrows Road (Rte 641)	Ducks Swamp	1952	-	VDOT	6	5	6	N	No	No
IW	10441	Dews Plantation Road (Rte 683)	Stallings Creek	1954	-	VDOT	7	5	6	N	No	No
IW	10442	Ennis Mill Road (Rte 690)	Ennis Pond	1961	-	VDOT	6	4	5	N	No	No
IW	10424	Fire Tower Road (Rte 644)	Pope Swamp	1948	1979	VDOT	7	4	6	N	No	No
IW	10394	Jenkins Mill Road (Rte 615)	Kingsale Swamp	1964	1978	VDOT	6	4	6	N	No	No
IW	10382	Longview Drive (Rte 602)	Chuckatuck Creek	1951	-	VDOT	7	5	6	N	No	No
IW	10417	Mill Creek Road (Rte 638)	Burnt Mill Swamp	1951	1979	VDOT	6	4	5	N	No	No
IW	10416	Orbit Road (Rte 637)	Carbell Swamp	1972	-	VDOT	N	N	N	4	Yes	Yes
IW	22615	South Church Street (Rte 10)	Cypress Creek	1975	-	VDOT	5	4	6	N	No	Yes
IW	10445	Uzzell Church Road (Rte 692)	Champion Swamp	1951	1979	VDOT	5	4	4	N	Yes	Yes
JCC	24057	Glass House Ferry (Rte 31)	James River	1994	1995	VDOT	6	4	5	N	Yes	Yes
NN	20727	Denbigh Blvd	I-64 & CSX R/R	1965	1977	VDOT	5	5	4	N	Yes	Yes
NN	20720	Fort Eustis Blvd	Newport News Reservoir	1960	1985	City	5	4	5	N	No	Yes
NN	20679	Warwick Blvd	Lake Maury	1931	1960	City	5	4	5	N	Yes	Yes
NOR	20811	Ocean View Avenue EB	Tidewater Drive	1958	-	City	4	5	5	N	No	Yes
PORT	21199	High Street	W Branch Elizabeth River	1951	1975	City	5	5	4	N	Yes	Yes
PORT	21217	Victory Blvd	Paradise Creek	1944	-	City	5	5	4	N	Yes	No

FIGURE 12 – STRUCTURALLY DEFICIENT BRIDGES IN HAMPTON ROADS

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017. Bridges highlighted in yellow are not classified as Structurally Deficient as of January 2018 due to the new definition no longer including Structural Condition and Waterway Adequacy standards. Funded improvements include those in the current Six-Year Improvement Program (FY 2018-2023), Hampton Roads Transportation Improvement Program (FY 18-21), and/or city Capital Improvement Plans/Programs.

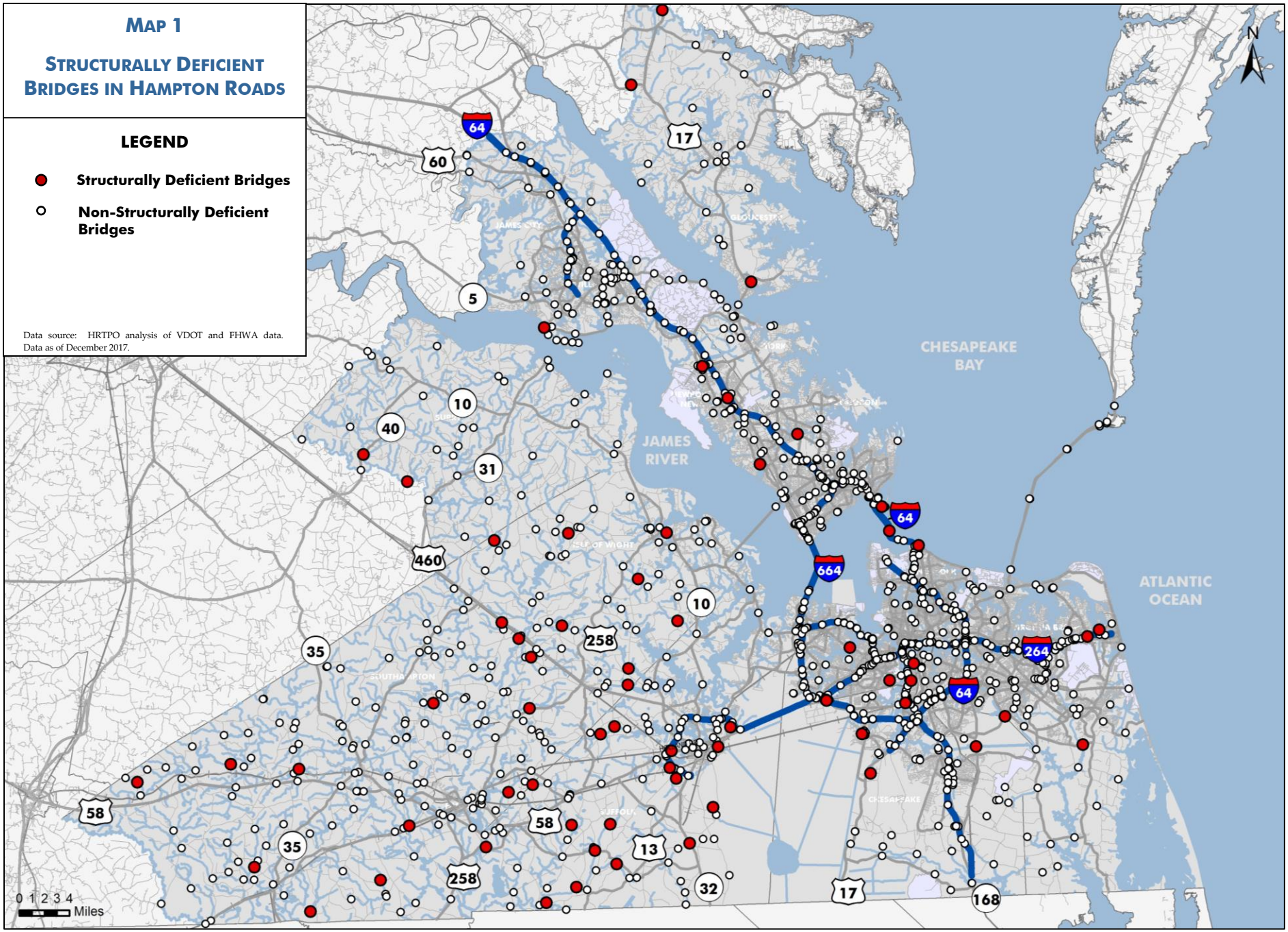
Juris	Federal Bridge #	Facility	Crossing	Year Built	Year Recnst	Owner-ship	Deck Condition Rating	Super-Structure Condition Rating	Sub-Structure Condition Rating	Culvert Condition Rating	SD in 2012	Improve-ments Funded
SH	17785	Adams Grove Road (Rte 615)	Browns Branch	1932	-	VDOT	8	5	6	N	Yes	No
SH	17838	Buckhorn Quarter Road (Rte 652)	Buckhorn Swamp	1963	-	VDOT	7	4	6	N	No	No
SH	17901	Burnt Reed Road (Rte 743)	Tarrara Creek	1932	1997	VDOT	7	4	6	N	No	Yes
SH	17796	Crumpler Road (Rte 618)	Terrapin Swamp	1962	-	VDOT	7	4	7	N	No	No
SH	17820	Drake Road (Rte 638)	Johnsons Mill	1961	-	VDOT	6	4	6	N	No	No
SH	17865	General Thomas Hwy (Rte 671)	Nottoway River	1960	-	VDOT	5	4	5	N	Yes	Yes
SH	17784	Seacock Chapel Road (Rte 614)	Blackwater River	1971	-	VDOT	7	7	4	N	No	No
SH/SUF	17755	South Quay Road (Rte 189)	Blackwater River	1940	1962	VDOT	5	3	4	N	Yes	Yes
SH	17859	Sykes Farm Road (Rte 667)	Tarrara Creek	1972	-	VDOT	7	4	6	N	No	No
SH	17757	Three Creek Road (Rte 308)	Three Creek	1948	-	VDOT	4	4	4	N	Yes	Yes
SH	17813	Tucker Swamp Road (Rte 635)	Norfolk Southern R/R	1915	-	VDOT	4	4	5	N	Yes	Yes
SH	17881	Woodland Road (Rte 682)	Br Darden Mill Run	1932	-	VDOT	7	4	5	N	No	No
SUF	22154	Badger Road	Washington Ditch	1945	-	City	5	5	4	N	Yes	Yes
SUF	22139	Box Elder Road	Norfleets Swamp	1958	1994	City	7	5	5	N	Yes	No
SUF	22027	Carolina Road	Cypress Swamp	1924	1972	City	5	4	5	N	Yes	Yes
SUF	22110	Elwood Road	Kingsale Swamp	1962	-	City	4	4	5	N	Yes	No
SUF	22148	Freeman Mill Road	Spivey Swamp	1954	1976	City	5	4	6	N	Yes	No
SUF	22121	Lake Cahoon Road	Norfolk Southern R/R	1962	1974	City	4	5	6	N	Yes	Yes
SUF	22137	Longstreet Lane	Somerton Creek	1968	-	City	6	4	4	N	Yes	Yes
SUF	22111	Mineral Springs Road	Jones Swamp	1955	1977	City	5	4	5	N	Yes	Yes
SUF	22091	Nansemond Parkway	Beamons Mill Pond	1920	-	City	5	4	5	N	Yes	Yes
SUF	22105	Old Mill Road	Cohoon Creek	1955	1981	City	4	4	6	N	Yes	No
SUF	22150	Pittmantown Road	Mill Swamp	1950	-	City	5	4	5	N	Yes	No
SUF	22107	Simons Drive	Cohoon Creek	1945	-	City	6	4	4	N	Yes	Yes
SUF	22138	Southwestern Blvd	Chapel Swamp	1956	-	City	5	4	4	N	Yes	Yes
SUF	22159	Turlington Road	Branch Kilby Creek - Spillway	1957	-	City	5	4	5	N	Yes	Yes
SUF	22158	Turlington Road	Kilby Creek	1973	-	City	N	N	N	4	No	No
SUF	22088	Washington Street	Jericho Canal	1932	-	City	6	5	6	N	No	Yes
SUR	18185	MLK Hwy (Rte 40)	Otterdam Swamp	1954	-	VDOT	5	4	5	N	No	Yes
SUR	18304	Three Bridges Road (Rte 603)	Blackwater River	1932	-	VDOT	5	4	5	N	Yes	No
VB	22239	I-264	First Colonial Road	1967	1986	VDOT	7	4	5	N	No	No
VB	22170	Indian River Road	West Neck Creek	1975	-	City	4	5	5	N	No	No
VB	22252	Laskin Road	Linkhorn Bay	1938	1956	City	5	4	4	N	Yes	Yes

FIGURE 12 – STRUCTURALLY DEFICIENT BRIDGES IN HAMPTON ROADS (CONTINUED)

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017. Bridges highlighted in yellow are not classified as Structurally Deficient as of January 2018 due to the new definition no longer including Structural Condition and Waterway Adequacy standards. Funded improvements include those in the current Six-Year Improvement Program (FY 2018-2023), Hampton Roads Transportation Improvement Program (FY 18-21), and/or city Capital Improvement Plans/Programs.

MAP 1

STRUCTURALLY DEFICIENT BRIDGES IN HAMPTON ROADS



FUNCTIONALLY OBSOLETE BRIDGES

A functionally obsolete bridge is a structure that was built to geometric standards that are no longer used today. Functionally obsolete bridges do not have adequate lane widths, shoulder widths, or vertical clearances to serve current traffic volumes or meet current geometric standards. Functionally obsolete bridges also may occasionally be flooded or have approaches that are difficult to navigate.

In spite of these deficiencies, **functionally obsolete bridges are not inherently unsafe. Bridge inspectors will close or impose weight limits on bridges that they feel are unsafe**.

Bridges are classified as functionally obsolete if at least one of the following conditions is true:

Component	Rating
Structural Condition Rating	= 3
Waterway Adequacy Rating	= 3
Deck Geometry Rating	≤ 3
Underclearances Rating	≤ 3
Approach Roadway Alignment Rating	≤ 3

For definitions of these terms and ratings, see **Appendix B**.

By rule, any structure that is classified as structurally deficient cannot also be classified as functionally obsolete. Structures that have ratings that would qualify the bridge to be classified as both structurally deficient and functionally obsolete are classified as structurally deficient.

Similar to structurally deficient bridges, bridges built or reconstructed within the last ten years historically could not be classified as

FUNCTIONALLY OBSOLETE BRIDGES SUMMARY

- **Bridges in Hampton Roads that are classified as functionally obsolete** — **261/20.7%** (379/31.0% in 2012)

HICKS ISLAND ROAD (RTE 601) IN JAMES CITY COUNTY HRTPO

functionally obsolete. The Ten Year Rule, however, was removed under the MAP-21 surface transportation authorization program.

There are 261 bridges in Hampton Roads that are classified as functionally obsolete as of December 2017, which comprises 20.7% of the 1,261 bridges in Hampton Roads. These bridges are shown **in Figure 14** on pages 21-26 and **Map 2** on page 27. This percentage is slightly higher than the percentage of NBI bridges throughout Virginia that are classified as functionally obsolete (18.7% as of December 2017).

Figure 13 shows functionally obsolete bridges in Hampton Roads by jurisdiction and maintenance responsibility. Norfolk (65 bridges), Chesapeake (31 bridges), and Virginia Beach (30 bridges) have the highest number of functionally obsolete bridges. The majority of bridges in Hampton Roads that are functionally obsolete (59%) are owned and maintained by VDOT. However, the percentage of bridges maintained by VDOT that are functionally obsolete (20.6%) is only slightly higher than the percentage of bridges maintained by localities that are functionally obsolete (17.6%).

It should be noted that as of 2016, FHWA is no longer tracking whether bridges are classified as functionally obsolete. MAP-21 discontinued the Highway Bridge Program (as described later in this report), and under the current funding and authorization bill bridges being classified as functionally obsolete has no impact on bridge funding levels or eligibility. Because of this, no comparison is made between bridges in Hampton Roads and those in comparable metropolitan areas in terms of functionally obsolete classifications.

Jurisdiction	Total Number of Bridges	Functionally Obsolete Bridges		Maintenance Responsibility		
		Number	Percentage	Locality	VDOT	Other
Chesapeake	183	31	16.9%	22	7	2
Gloucester	24	1	4.2%	-	1	-
Hampton	83	22	26.5%	12	9	1
Isle of Wight	85	22	25.9%	-	22	-
James City	62	18	29.0%	-	14	4
Newport News	93	21	22.6%	6	15	-
Norfolk	189	65	34.4%	12	49	4
Poquoson	0	0	-	-	-	-
Portsmouth	48	8	16.7%	2	5	1
Southampton/Franklin	138	13	9.4%	-	13	-
Suffolk	135	8	5.9%	7	1	-
Surry	32	3	9.4%	-	3	-
Virginia Beach	125	30	24.0%	13	8	9
Williamsburg	12	6	50.0%	3	-	3
York	52	13	25.0%	-	8	5
HAMPTON ROADS	**1,261**	**261**	**20.7%**	**77 (17.6%)**	**155 (20.6%)**	**29 (39.7%)**

FIGURE 13 – FUNCTIONALLY OBSOLETE BRIDGES IN HAMPTON ROADS BY JURISDICTION AND MAINTENANCE RESPONSIBILITY

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

Juris	Federal Bridge #	Facility	Crossing	Year Built	Year Recnst	Ownership
CHES	21840	Airline Blvd	Br Goose Creek	1932	-	City
CHES	23762	Bainbridge Blvd	Mains Creek	1993	-	City
CHES	21819	Barnes Road	I-464	1983	-	VDOT
CHES	21885	Battlefield Blvd	Military Highway	1990	-	City
CHES	30273	Benefit Road	Drainage Ditch	2013	-	City
CHES	21804	Benefit Road	Lead Ditch	1958	1976	City
CHES	30266	Campostella Road	Trib Deep Creek	2012	-	City
CHES	25185	Campostella Road SB Ramp	Norfolk Southern R/R	2000	-	City
CHES	28514	Cedar Road	Lindsey Drainage Canal	2006	-	City
CHES	21812	Dock Landing Road	Bailey Creek	1970	-	City
CHES	21805	Etheridge Manor Blvd	Coopers Ditch	1990	-	City
CHES	30367	Fentress Airfield Road	Pocaty Creek	2014	-	City
CHES	21810	Fentress Airfield Road	Pocaty Creek	1963	-	City
CHES	1818	George Washington Hwy	Dismal Swamp Canal	1934	2016	Federal
CHES	21906	Great Bridge Blvd	I-64	1967	-	VDOT
CHES	25566	Great Bridge Bypass NB	Battlefield Blvd	1998	-	City
CHES	25696	Hanbury Road	Chesapeake Expressway	1998	-	City
CHES	21941	I-464 NB	I-64	1967	-	VDOT
CHES	21943	I-464 SB	I-64	1967	-	VDOT
CHES	21911	I-664 NB	W Military Hwy & CSX R/R	1983	-	VDOT
CHES	21913	I-664 SB	W Military Hwy & CSX R/R	1983	-	VDOT
CHES	21799	Indian Creek Road	Indian Creek	1972	-	City
CHES	25188	Indian River Road	Norfolk Southern R/R	1998	-	City
CHES	21798	Land Of Promise Road	Pocaty Creek	1971	-	City
CHES	24742	Luray Street	Dismal Swamp Canal Splwy	1996	-	City
CHES	1826	Mount Pleasant Road	Chesapeake & Albemarle Canal	1951	2014	Federal
CHES	21932	Poindexter Street	I-464	1980	-	VDOT
CHES	28796	Route 17 NB	Bainbridge Blvd	2014	-	City
CHES	28795	Route 17 SB	Bainbridge Blvd	2015	-	City
CHES	28792	Route 17	Cedar Road	2016	-	City
CHES	27402	Route 17	Stream	2006	-	City
GLO	12085	Route 17 NB	Dragon Run	1931	-	VDOT
HAM	20293	Big Bethel Road	Newmarket Creek	1970	-	City
HAM	20362	Cunningham Drive EB	I-64	1974	-	City
HAM	20364	Cunningham Drive WB	I-64	1974	-	City
HAM	P1113	East Gate Road	East Crossing Of Moat	1950	-	Federal
HAM	20324	I-64	Armistead Avenue	1957	1986	VDOT
HAM	26145	I-64	Mercury Blvd	2005	-	VDOT
HAM	20316	I-64 EB	Pembroke Avenue & Hampton River	1958	1987	VDOT
HAM	20346	I-64 WB	Pembroke Avenue & Hampton River	1985	-	VDOT
HAM	20320	I-64	Rip Rap Road	1959	1984	VDOT
HAM	26146	I-64 Ramp	Mercury Blvd	2005	-	VDOT
HAM	20328	I-664 SB Ramp	I-64 & Newmarket Creek	1981	-	VDOT
HAM	25293	LaSalle Avenue NB	Mercury Blvd	1998	-	City

FIGURE 14 – FUNCTIONALLY OBSOLETE BRIDGES IN HAMPTON ROADS

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

Juris	Federal Bridge #	Facility	Crossing	Year Built	Year Recnst	Ownership
HAM	20367	LaSalle Avenue NB	Newmarket Creek	1965	-	City
HAM	25292	LaSalle Avenue SB	Mercury Blvd	1998	-	City
HAM	20368	LaSalle Avenue SB	Newmarket Creek	1965	-	City
HAM	26143	Magruder Blvd	I-64	2004	-	VDOT
HAM	20361	Mellen Street	Mill Creek	1961	1982	City
HAM	20381	Mercury Blvd	Mill Creek (Northern Bridge)	1989	-	City
HAM	20382	Mercury Blvd	Mill Creek (Southern Bridge)	1989	-	City
HAM	26149	Mercury Blvd Ramp	Mercury Blvd	2005	-	VDOT
HAM	20390	Power Plant Pkwy	Newmarket Creek	1962	-	City
HAM	20292	Powhatan Pkwy	Indian River	1929	1997	City
IW	10419	Barrett Town Road (Rte 641)	Antioch Swamp	1955	1984	VDOT
IW	26218	Butler Farm Road (Rte 691)	Beaverdam Swamp	1999	-	VDOT
IW	10431	Carroll Bridge Road (Rte 654)	Champion Swamp	1966	-	VDOT
IW	29863	Carrsville Hwy (Bus Rte 58)	Old Myrtle Road & CSX R/R	2017	-	VDOT
IW	10421	Colosse Road (Rte 641)	Corrowaugh Swamp	1955	1992	VDOT
IW	10440	Comet Road (Rte 681)	Comet Swamp	1955	1991	VDOT
IW	10389	Freeman Drive (Rte 612)	Corrowaugh Swamp	1954	-	VDOT
IW	10427	Garrison Drive (Rte 646)	Burnt Mill Swamp	1945	1978	VDOT
IW	10422	Harvest Drive (Rte 641)	Kingsale Swamp	1955	-	VDOT
IW	10443	Jamestown Lane (Rte 691)	Csx Railroad	1938	-	VDOT
IW	10413	Jones Town Drive (Rte 637)	Br. Rattlesnake Swamp	1945	-	VDOT
IW	10403	Mill Swamp Road (Rte 621)	Mill Swamp	1952	1987	VDOT
IW	10407	Mill Swamp Road (Rte 626)	Mount Holly Creek	1957	-	VDOT
IW	10406	Mill Swamp Road (Rte 626)	Stallings Creek	1945	-	VDOT
IW	10435	Nike Park Road (Rte 669)	Jones Creek	1961	-	VDOT
IW	10411	Old Myrtle Road (Rte 632)	Stream	1953	1991	VDOT
IW	10429	Pope Swamp Trail (Rte 647)	Pope Swamp	1952	-	VDOT
IW	27434	Rescue Road (Rte 704)	Stream	2004	-	VDOT
IW	10398	Scotts Factory Road (Rte 620)	Champion Swamp	1976	-	VDOT
IW	10384	Shiloh Drive (Rte 603)	Ennis Pond	1955	-	VDOT
IW	10434	Titus Creek Drive (Rte 668)	Titus Creek	1966	-	VDOT
IW	10436	Wrenns Mill Road (Rte 677)	Wrenns Mill Spillway	1946	1987	VDOT
JCC	10533	Hickory Signpost Road (Rte 629)	Mill Creek	1932	1997	VDOT
JCC	10516	Hicks Island Road (Rte 601)	Diascund Creek	1932	1974	VDOT
JCC	10498	I-64 WB	Six Mt Zion Road	1975	-	VDOT
JCC	4290029P	Jamestown Island Tour Road	Creek	1957	-	Federal
JCC	4290030P	Jamestown Island Tour Road	Creek	1957	-	Federal
JCC	4290031P	Jamestown Island Tour Road	Kingsmill Creek	1957	-	Federal
JCC	4290028P	Jamestown Island Tour Road	Pitch And Tar Swamp	1957	-	Federal
JCC	10476	Jamestown Road (Rte 31)	Powhatan Creek	1957	-	VDOT
JCC	10464	John Tyler Hwy (Rte 5)	Powhatan Creek	1937	1978	VDOT
JCC	10508	Route 199 WB	Colonial Pkwy	1976	-	VDOT
JCC	25513	Route 199 SB	Monticello Avenue	1999	-	VDOT
JCC	24228	Route 199 SB	Routes 60 & 603 & CSX R/R	1995	-	VDOT

FIGURE 14 – FUNCTIONALLY OBSOLETE BRIDGES IN HAMPTON ROADS (CONTINUED)

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

Juris	Federal Bridge #	Facility	Crossing	Year Built	Year Recnst	Ownership
JCC	10511	Route 199 EB	Tour Road	1976	-	VDOT
JCC	10513	Route 199 WB	Tour Road	1976	-	VDOT
JCC	10486	Route 60 EB	CSX R/R	1964	-	VDOT
JCC	10487	Route 60 WB	CSX R/R	1968	-	VDOT
JCC	10531	Stewarts Road (Rte 622)	Branch Of Diascund Creek	1937	1997	VDOT
JCC	10532	Stewarts Road (Rte 622)	Diascund Creek	1937	1997	VDOT
NN	20653	23rd-25th Street	I-664/Warwick Blvd/CSX R/R	1988	-	VDOT
NN	29307	26th Street	I-664	1988	-	VDOT
NN	20651	26th Street	I-664 & CSX R/R	1987	-	VDOT
NN	20663	28th Street	I-664/Warwick Blvd/CSX R/R	1980	-	VDOT
NN	20647	34th Street EB	I-664/Warwick Blvd/CSX R/R	1988	-	VDOT
NN	20649	34th Street WB	I-664/Warwick Blvd/CSX R/R	1988	-	VDOT
NN	30990	Gwynn Circle	Lucas Creek	2017	-	City
NN	20661	Huntington Avenue	Former Shipyard R/R Spur	1899	-	City
NN	20710	I-64 EB	Fort Eustis Blvd	1965	-	VDOT
NN	30639	I-64 EB	Industrial Park Drive & R/R	2017	-	VDOT
NN	30640	I-64 WB	Industrial Park Drive & R/R	2017	-	VDOT
NN	20740	I-664	39th Street	1987	-	VDOT
NN	20738	I-664	Roanoke Avenue	1985	-	VDOT
NN	20759	I-664 Ramp	Ramp A	1990	-	VDOT
NN	20761	I-664 Ramp	Terminal Avenue	1990	-	VDOT
NN	20731	J Clyde Morris Blvd NB	CSX R/R	1975	-	City
NN	20729	J Clyde Morris Blvd SB	CSX R/R	1958	1975	City
NN	25809	Jefferson Avenue	I-64	2000	-	VDOT
NN	20643	Old Oyster Point Road	I-64	1991	-	VDOT
NN	20681	Warwick Blvd WB	Fort Eustis Blvd	1960	1985	City
NN	20659	Washington Avenue	Former Shipyard R/R Spur	1946	-	City
NOR	20943	26th Street	Lafayette River	1938	-	City
NOR	21021	Admiral Taussig Blvd	I-564 Ramps	1977	-	VDOT
NOR	20781	Berkley Avenue EB	Norfolk Southern R/R	1985	-	City
NOR	20782	Berkley Avenue WB	Norfolk Southern R/R	1985	-	City
NOR	20961	Berkley Avenue Ramp	Emergency Vehicle Ramp	1988	-	VDOT
NOR	20805	Brambleton Avenue WB	Hampton Blvd	1962	-	Private
NOR	20768	First View Street	Tidewater Drive	1958	-	City
NOR	20764	Frontage Road	I-264	1967	-	VDOT
NOR	20770	Government Avenue	Tidewater Drive	1956	-	City
NOR	21034	Granby Street	Tidewater Drive	1958	-	City
NOR	21024	Hampton Blvd NB	Lafayette River	1970	-	City
NOR	21019	Hampton Blvd SB Ramp	Hampton Blvd NB	1962	-	Private
NOR	21002	I-264 EB	Ballentine Avenue	1968	1998	VDOT
NOR	21004	I-264 WB	Ballentine Avenue	1968	1998	VDOT
NOR	20947	I-264 WB	E Branch Elizabeth River	1952	1991	VDOT
NOR	20992	I-264 EB	Holt Street & NS R/R	1972	1990	VDOT
NOR	21000	I-264 WB	Holt Street & NS R/R	1972	1991	VDOT

FIGURE 14 – FUNCTIONALLY OBSOLETE BRIDGES IN HAMPTON ROADS (CONTINUED)

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

Juris	Federal Bridge #	Facility	Crossing	Year Built	Year Recnst	Ownership
NOR	20971	I-264 EB	I-264 EB Ramp	1990	-	VDOT
NOR	20955	I-264 WB	I-264 & I-464 Ramps	1988	-	Private
NOR	20795	I-264 EB	Kempsville Road	1967	1983	VDOT
NOR	20793	I-264 WB	Kempsville Road	1967	1992	VDOT
NOR	20953	I-264 EB & I-464 NB	I-264 & I-464 Ramps	1986	-	Private
NOR	23046	I-264 WB Ramp	City Hall Avenue	1952	1991	VDOT
NOR	20973	I-264 Ramp	Holt Street & NS R/R	1990	-	VDOT
NOR	20959	I-264 WB Ramp	I-264 WB	1988	-	VDOT
NOR	20813	I-264 EB Ramp	I-264 WB & I-64	1985	-	VDOT
NOR	21037	I-264 Ramp	Waterside Drive	1990	-	VDOT
NOR	20957	I-264 & I-464 Ramps	I-264 EB	1986	-	VDOT
NOR	21053	I-464 NB	Berkley Avenue	1988	-	VDOT
NOR	21065	I-464 SB	Emergency Vehicle Ramp	1988	-	VDOT
NOR	21051	I-464 SB	I-264 & I-464 Ramps	1988	-	VDOT
NOR	21057	I-464 SB	I-264 EB	1987	-	VDOT
NOR	21074	I-564 NB	Granby Street	1972	-	VDOT
NOR	21072	I-564 SB	Granby Street	1972	1991	VDOT
NOR	23216	I-564 HOV Lanes	Little Creek Road	1992	-	VDOT
NOR	21068	I-564 Ramp	I-64 & I-564	1990	-	VDOT
NOR	20909	I-64 EB	13th View Street	1972	-	VDOT
NOR	20911	I-64 WB	13th View Street	1972	-	VDOT
NOR	20879	I-64 EB	I-264 WB	1968	1985	VDOT
NOR	20881	I-64 WB	I-264 WB	1968	1992	VDOT
NOR	20837	I-64 WB	Military Hwy	1966	-	VDOT
NOR	20858	I-64 EB	Northampton Blvd	1967	1977	VDOT
NOR	20860	I-64 WB	Northampton Blvd	1967	1977	VDOT
NOR	20845	I-64 EB	Ramp From NB Tidewater Drive	1967	-	VDOT
NOR	20852	I-64 EB	Ramp From Northampton Blvd	1967	1977	VDOT
NOR	20815	I-64 EB	Sewells Point Road	1965	1977	VDOT
NOR	20875	I-64 EB	Va Beach Blvd	1968	1986	VDOT
NOR	20877	I-64 WB	Va Beach Blvd	1968	1992	VDOT
NOR	23342	I-64 HOV Lanes	Curlew Dr & HRT Light Rail	1992	-	VDOT
NOR	23306	I-64 HOV Lanes	I-264 EB	1992	-	VDOT
NOR	23304	I-64 HOV Lanes	I-264 WB	1992	-	VDOT
NOR	23214	I-64 HOV Lanes	I-564 & Little Creek Road	1992	-	VDOT
NOR	23302	I-64 HOV Lanes	Ramp From Tidewater Drive	1992	-	VDOT
NOR	23059	I-64 HOV Lanes	Sewells Point Road	1992	-	VDOT
NOR	23272	I-64 HOV Lanes	Va Beach Blvd	1992	-	VDOT
NOR	20898	I-64 EB Ramp	I-64 WB Ramp at Tidewater Dr	1971	-	VDOT
NOR	20996	I-64 WB Ramp	I-264 WB	1968	-	VDOT
NOR	21026	Int Terminal Blvd WB	I-564 & NS R/R	1975	-	VDOT
NOR	20934	Little Creek Road	Tidewater Drive	1959	2014	City
NOR	26334	Military Highway	I-264	2000	-	VDOT
NOR	25327	Military Highway	Va Beach Blvd	1999	-	City

FIGURE 14 – FUNCTIONALLY OBSOLETE BRIDGES IN HAMPTON ROADS (CONTINUED)

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

Juris	Federal Bridge #	Facility	Crossing	Year Built	Year Recnst	Ownership
NOR	20778	North Shore Road	Branch Of Lafayette River	1979	-	City
NOR	20767	Robin Hood Road	Norfolk Water Supply Canal	1944	1987	City
NOR	20949	Waterside Drive EB	East Main Street	1972	1990	VDOT
NOR	20776	Willow Wood Drive	Branch Of Lafayette River	1987	-	City
PORT	21193	Court Street	I-264 WB	1951	1990	VDOT
PORT	21190	Greenwood Drive	I-264	1976	-	VDOT
PORT	21220	I-264	McLean Avenue	1964	1979	VDOT
PORT	21202	London Boulevard	MLK Freeway	1971	-	City
PORT	21200	London Boulevard	N&P R/R & Virginia Ave	1971	-	City
PORT	26653	MLK Freeway	Cleveland Street & CSX R/R	2005	-	Private
PORT	21210	Route 164 EB	W Norfolk Road & Commonwealth R/R	1991	-	VDOT
PORT	21212	Route 164 WB	W Norfolk Road & Commonwealth R/R	1991	-	VDOT
SH	17797	Burdette Road (Rte 619)	Black Creek	1932	1983	VDOT
SH	17846	Cedar View Road (Rte 658)	Angelico Creek	1932	2010	VDOT
SH	17767	Farmers Bridge Road (Rte 607)	Assamoosic Swamp	1932	-	VDOT
SH	17866	General Thomas Hwy (Rte 671)	Nottoway River Overflow	1960	-	VDOT
SH	17812	Indian Branch Lane (Rte 634)	Indian Branch	1932	2016	VDOT
SH	29902	Meherrin Road (Rte 35)	Nottoway River	2015	-	VDOT
SH	17728	Meherrin Road (Rte 35)	Overflow, Nottoway River	1979	-	VDOT
SH	17768	Mill Neck Road (Rte 608)	Racoon Swamp	1932	-	VDOT
SH	17795	Sadler Road (Rte 618)	Bar B Q Run	1932	-	VDOT
SH	17874	Sands Road (Rte 674)	Darden Mill Run	1932	2000	VDOT
SH	17782	Seacock Chapel Road (Rte 614)	Branch	1932	2015	VDOT
SH	17833	Storys Station Road (Rte 650)	Flaggy Run	1932	-	VDOT
SH	17848	Vicks Millpond Road (Rte 659)	Vicks Creek	1932	-	VDOT
SUF	22099	Lake Prince Drive	Lake Prince	1954	-	City
SUF	22002	Main Street	Nansemond River	1935	1987	City
SUF	22163	Pineview Road	Chapel Swamp	1949	-	City
SUF	30571	Robbie Road	Mill Swamp	2015	-	City
SUF	23098	Route 164 EB	Route 17	1991	-	VDOT
SUF	27625	Wilroy Road	Burnetts Mill Creek	2003	-	City
SUF	30980	Wilroy Road	Magnolia Creek	2017	-	City
SUF	22125	Wilroy Road	Shingle Creek	1958	-	City
SUR	18216	Alliance Road (Rte 634)	College Run	1932	2003	VDOT
SUR	18220	Hog Island Road (Rte 650)	Vepco Discharge Canal	1969	-	VDOT
SUR	23137	Scotland Wharf (Rte 31)	James River	1991	1995	VDOT
VB	12750	CBBT NB	Chesapeake Bay	1964	-	State Authority
VB	12752	CBBT NB	Chesapeake Bay	1964	-	State Authority
VB	12754	CBBT NB	Chesapeake Bay	1964	-	State Authority
VB	12755	CBBT NB	Chesapeake Bay	1964	-	State Authority
VB	26630	CBBT SB	Chesapeake Bay	1998	-	State Authority
VB	26721	CBBT SB	Chesapeake Bay	1999	-	State Authority
VB	12747	CBBT NB	Chesapeake Bay & Lookout Rd	1964	-	State Authority
VB	26056	CBBT SB	Chesapeake Bay & Lookout Rd	1998	-	State Authority

FIGURE 14 – FUNCTIONALLY OBSOLETE BRIDGES IN HAMPTON ROADS (CONTINUED)

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

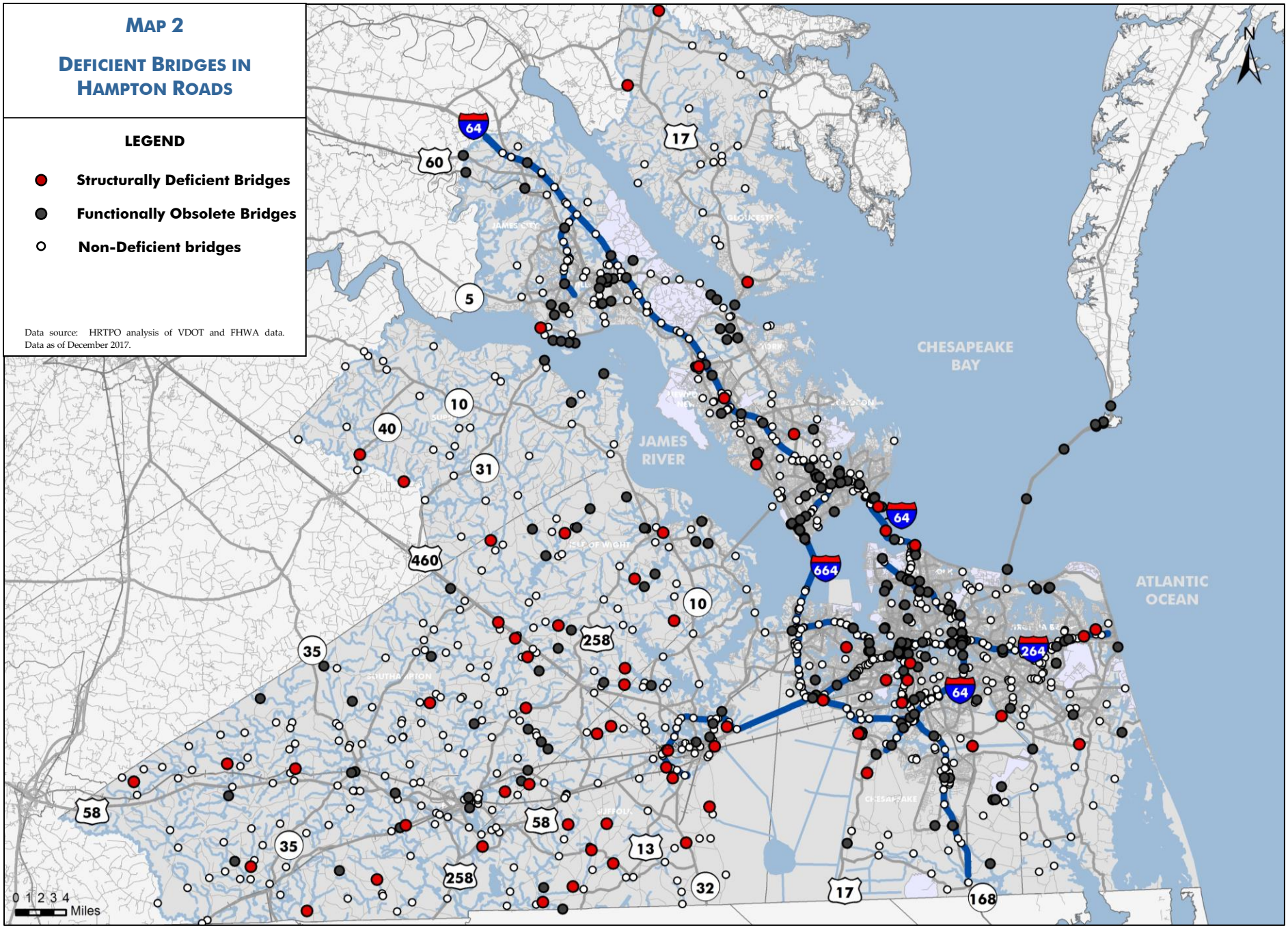
Juris	Federal Bridge #	Facility	Crossing	Year Built	Year Recnst	Ownership
VB	12753	CBBT SB	Fisherman's Inlet	1964	-	State Authority
VB	22176	Elbow Road	North Landing River	1960	-	City
VB	24173	General Booth Blvd NB	Rudee Inlet	1995	-	City
VB	22191	General Booth Blvd SB	Rudee Inlet	1968	-	City
VB	22280	Great Neck Road NB	Broad Bay Road & Long Creek	1988	-	City
VB	22278	Great Neck Road SB	Broad Bay Road & Long Creek	1988	-	City
VB	22267	I-64 EB	E Br Elizabeth River	1967	1992	VDOT
VB	22265	I-64 WB	E Br Elizabeth River	1967	1992	VDOT
VB	22222	I-264	Independence Blvd	1967	1992	VDOT
VB	22232	I-264	London Bridge Road	1967	1982	VDOT
VB	22217	I-264 EB Ramp	Baxter Road	1990	-	VDOT
VB	25480	Inlet Road	Inlet Of Lynnhaven River	1982	-	City
VB	22212	International Parkway EB	Drainage Canal #2	1987	-	City
VB	26138	International Parkway WB	Drainage Canal #2	1997	-	City
VB	30128	Lynnhaven Parkway	Charlestwn Lakes N Canal	2016	-	City
VB	22186	Potters Road	London Bridge Creek	1977	-	City
VB	24949	Princess Anne Road	West Neck Creek	1997	-	City
VB	22287	Providence Road EB	I-64	1967	-	VDOT
VB	22285	Providence Road WB	I-64	1967	-	VDOT
VB	22183	Sandbridge Road	Hells Point Creek	1961	-	City
VB	22255	Virginia Beach Blvd	I-264 WB Ramp	1967	-	VDOT
VB	22180	W Great Neck Road	Long Creek & Broad Bay Road	1961	-	City
WMB	22328	Capitol Landing Road	CSX R/R	1977	-	City
WMB	4290019P	Lafayette Street	Colonial Parkway	1936	-	Federal
WMB	22338	Merrimac Trail	Colonial Parkway	1948	-	City
WMB	4290020P	Newport Avenue	Colonial Parkway	1957	-	Federal
WMB	4290018P	Page Street	Colonial Parkway	1936	-	Federal
WMB	23768	Quarterpath Road	Tutters Neck Pond	1993	-	City
YC	19824	Coleman Bridge	York River	1952	1996	VDOT
YC	4290009P	Colonial Parkway	Naval Weapons Road	1931	-	Federal
YC	4290008P	Colonial Parkway	North Pier Access Road	1962	-	Federal
YC	19883	East Queens Drive (Rte 716)	Queens Creek - Spillway	1932	1997	VDOT
YC	19820	George Washington Hwy NB (Rte 17)	Yorktown Battlefield Tour Road	1968	-	VDOT
YC	19822	George Washington Hwy SB (Rte 17)	Yorktown Battlefield Tour Road	1968	-	VDOT
YC	19838	I-64 EB	Colonial Pkwy	1965	-	VDOT
YC	19840	I-64 WB	Colonial Pkwy	1965	-	VDOT
YC	19855	Magruder Blvd WB (Rte 134)	Brick Kiln Creek	1930	-	VDOT
YC	19857	Route 143	I-64	1965	-	VDOT
YC	4290002P	Yorktown Battlefield Tour Road	Beaverdam Creek	1975	-	Federal
YC	4290003P	Yorktown Battlefield Tour Road	Crawford Road	1956	-	Federal
YC	4290004P	Yorktown Battlefield Tour Road	Route 17	1959	-	Federal

FIGURE 14 – FUNCTIONALLY OBSOLETE BRIDGES IN HAMPTON ROADS (CONTINUED)

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

MAP 2

DEFICIENT BRIDGES IN HAMPTON ROADS



WEIGHT-POSTED BRIDGES

A weight-posted bridge is defined as a structure that has a rated load-carrying capacity that is less than the designated legal truck weights. In Virginia, the maximum legal truck weight is 27 tons for a three-axle, single unit vehicle and 40 tons for trucks with semi-trailers. Structures are also posted if they have weight restrictions for five-axle, 45-ton vehicles that can obtain blanket operating permits, which are DMV-issued permits that allow an overweight truck to travel on any designated route throughout the state. Bridge inspectors impose weight restrictions on bridges as necessary for the structure to remain safely in service.

A total of 69 of the 1,261 bridges (5.5%) in Hampton Roads have weight limits posted as of December 2017. These bridges are shown in **Figure 15** on pages 29-30. These weight-posted bridges are generally on lesser traveled roadways; none of the weight-posted bridges carry over 10,000 vehicles per day. The most heavily-used weight-posted bridge in the region is the Sunray Bridge (Military Highway over the Norfolk Southern Railroad near Bowers Hill), which carries an average of 8,500 vehicles per day. Many are also on federal park roadways such as the Jamestown Island Tour Road and Yorktown Battlefield Tour Road.

The number of weight-posted bridges in Hampton Roads has decreased through the years. In the 2007 Regional Bridge Study, 119 bridges in Hampton Roads had weight restrictions posted. In the 2012 study, this number had decreased to 102 bridges posted with weight restrictions.

The percentage of weight-posted bridges in Hampton Roads is typical of those in comparable metropolitan areas. At 5.5%, Hampton Roads has the 18th highest percentage of weight-posted bridges among the 37 metropolitan areas with populations between one and three million people.

WEIGHT-POSTED BRIDGES SUMMARY

- **Bridges in Hampton Roads that have posted weight restrictions** — **69/5.5%**
- **Hampton Roads rank among comparable metropolitan areas in terms of the percentage of bridges that have weight limits posted** — **18th highest of 37 areas**

Federal Bridge #	Juris	Facility	Crossing	Posted Weight Limit (tons)		
				All Vehicles	SU Trucks	Semi-Trailers
21879	CHES	22nd Street	Seaboard Avenue & NS R/R	5	-	-
21799	CHES	Indian Creek Road	Indian Creek	-	14	20
21830	CHES	Military Highway	Norfolk Southern R/R	-	19	31
10588	GLO	Adner Road (Rte 14)	Porpotank Creek	-	27	40
P1113	HAM	East Gate Road	East Crossing of Moat	N/A		
J50170	HAM	Park Lane Road	Bethel Reservoir	N/A		
P1049	HAM	Ruckman Road	West Crossing of Moat	N/A		
10392	IW	Ballard Road (Rte 614)	Corrowaugh Swamp	10	-	-
10419	IW	Barrett Town Road (Rte 641)	Antioch Swamp	18	-	-
10420	IW	Bows & Arrows Road (Rte 641)	Ducks Swamp	12	-	-
10431	IW	Carroll Bridge Road (Rte 654)	Champion Swamp	18	-	-
10378	IW	Deer Path Trail (Rte 600)	Ennis Pond	15	-	-
10441	IW	Dews Plantation Road (Rte 683)	Stallings Creek	16	-	-
10442	IW	Ennis Mill Road (Rte 690)	Ennis Pond	15	-	-
10389	IW	Freeman Drive (Rte 612)	Corrowaugh Swamp	10	-	-
10427	IW	Garrison Drive (Rte 646)	Burnt Mill Swamp	10	-	-
10422	IW	Harvest Drive (Rte 641)	Kingsale Swamp	18	-	-
10394	IW	Jenkins Mill Road (Rte 615)	Kingsale Swamp	18	-	-
10413	IW	Jones Town Drive (Rte 637)	Br. Rattlesnake Swamp	15	-	-
10382	IW	Longview Drive (Rte 602)	Chuckatuck Creek	9	-	-
10403	IW	Mill Swamp Road (Rte 621)	Mill Swamp	14	-	-
10406	IW	Mill Swamp Road (Rte 626)	Stallings Creek	18	-	-
10429	IW	Pope Swamp Trail (Rte 647)	Pope Swamp	17	-	-
10384	IW	Shiloh Drive (Rte 603)	Ennis Pond	12	-	-
10445	IW	Uzzell Church Road (Rte 692)	Champion Swamp	11	-	-
10381	IW	Woodland Drive (Rte 600)	Great Swamp	15	-	-
24057	JCC	Glass House Ferry (Rte 31)	James River	-	16	28
10533	JCC	Hickory Signpost Road (Rte 629)	Mill Creek	18	-	-
10516	JCC	Hicks Island Road (Rte 601)	Diascund Creek	15	-	-
4290029	JCC	Jamestown Island Tour Road	Creek	N/A		
4290030	JCC	Jamestown Island Tour Road	Creek	N/A		
4290031	JCC	Jamestown Island Tour Road	Kingsmill Creek	N/A		
4290028	JCC	Jamestown Island Tour Road	Pitch and Tar Swamp	N/A		
17785	SH	Adams Grove Road (Rte 615)	Browns Branch	10	-	-

FIGURE 15 – WEIGHT-POSTED BRIDGES IN HAMPTON ROADS

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017. SU = Single Unit trucks. The specific weight limits on federal bridges are not included in the NBI data and are shown as "N/A" above.

Federal Bridge #	Juris	Facility	Crossing	Posted Weight Limit (tons)		
				All Vehicles	SU Trucks	Semi-Trailers
17838	SH	Buckhorn Quarter Road (Rte 652)	Buckhorn Swamp	18	-	-
17797	SH	Burdette Road (Rte 619)	Black Creek	14	-	-
17796	SH	Crumpler Road (Rte 618)	Terrapin Swamp	24	-	-
17820	SH	Drake Road (Rte 638)	Johnsons Mill	14	-	-
17767	SH	Farmers Bridge Road (Rte 607)	Assamoosic Swamp	10	-	-
17768	SH	Mill Neck Road (Rte 608)	Racoon Swamp	9	-	-
17811	SH	Saint Lukes Road (Rte 633)	Horse Pen Run	21	-	-
17874	SH	Sands Road (Rte 674)	Darden Mill Run	24	-	-
17781	SH	Seacock Chapel Road (Rte 614)	Seacock Swamp	27	-	-
17755	SH/SUF	South Quay Road (Rte 189)	Blackwater River	9	-	-
17757	SH	Three Creek Road (Rte 308)	Three Creek	-	27	40
17813	SH	Tucker Swamp Road (Rte 635)	Norfolk Southern R/R	11	-	-
22154	SUF	Badger Rd	Washington Ditch	8	-	-
22139	SUF	Box Elder Road	Norfleets Swamp	13	-	-
22110	SUF	Elwood Road	Kingsale Swamp	6	-	-
22148	SUF	Freeman Mill Road	Spivey Swamp	10	-	-
22099	SUF	Lake Prince Drive	Lake Prince	18	-	-
22137	SUF	Longstreet Lane	Somerton Creek	18	-	-
22111	SUF	Mineral Springs Road	Jones Swamp	13	18	-
22091	SUF	Nansemond Parkway	Beamons Mill Pond	-	23	30
22105	SUF	Old Mill Road	Cohoon Creek	27	-	-
22163	SUF	Pineview Road	Chapel Swamp	-	27	38
22150	SUF	Pittmantown Road	Mill Swamp	8	-	-
22107	SUF	Simons Drive	Cohoon Creek	6	-	-
22138	SUF	Southwestern Blvd	Chapel Swamp	9	-	-
22159	SUF	Turlington Road	Branch Kilby Creek- Spillway	19	-	-
18206	SUR	Beaverdam Road (Rte 626)	Sunken Meadow Creek	15	-	-
18187	SUR	Goodrich Fork Road (Rte 604)	Terrapin Swamp	21	-	-
18185	SUR	MLK Hwy (Rte 40)	Otterdam Swamp	-	27	40
23137	SUR	Scotland Wharf (Rte 31)	James River	-	16	28
18304	SUR	Three Bridges Road (Rte 603)	Blackwater River	8	-	-
19883	YC	East Queens Drive (Rte 716)	Queens Creek - Spillway	11	-	-
4290002	YC	Yorktown Battlefield Tour Road	Beaverdam Creek	N/A		
4290003	YC	Yorktown Battlefield Tour Road	Crawford Road	N/A		
4290004	YC	Yorktown Battlefield Tour Road	Route 17	N/A		

FIGURE 15 – WEIGHT-POSTED BRIDGES IN HAMPTON ROADS (CONTINUED)

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017. SU = Single Unit trucks. The specific weight limits on federal bridges are not included in the NBI data and are shown as "N/A" above.

Height-Restricted Bridges

A height-restricted bridge is a structure that has a vertical clearance that is less than legal standards. This restriction can be based on the elevation of the structure spanning the roadway, the clearance for a bridge where the roadway travels through the structure such as a truss bridge, or the vertical clearance in a tunnel.

Virginia law dictates that the maximum height for vehicles traveling on Virginia roadways is 13 feet, 6 inches. Oversize permits, however, are available from the Virginia Department of Motor Vehicles (DMV) when the size of the load cannot be reduced to meet this limit.

According to both the Manual of Uniform Traffic Control Devices (MUTCD) and the Virginia Supplement to the MUTCD, bridges shall be posted with a low clearance sign when the vertical clearance of the bridge is less than 14 feet, 6 inches, which is one foot above the statutory maximum vehicle height. The vertical clearance posted on the warning signs shall be 3 inches less than the actual vertical clearance. The Virginia Supplement to the MUTCD also states that warning signs may be posted for bridges with a vertical clearance of 14 feet, 6 inches or greater based upon engineering judgment. **Figure 16** on page 32 includes those structures in Hampton Roads with a vertical clearance of less than 14 feet, 6 inches. It should be noted, however, that Figure 16 only includes those bridges that are part of the National Bridge Inventory (NBI). The NBI does not include any bridges that do not carry roadways, such as bridges that only carry railroads or structures restricted to pedestrians and bicyclists.

Most tunnels in Hampton Roads have height-restrictions posted at the statutory height of 13 feet, 6 inches, although many have vertical clearances of at least 14 feet, 6 inches. The tunnel with the most prominent issues related to height restrictions is the westbound Hampton Roads Bridge-Tunnel (HRBT). The westbound HRBT – while posted at 13 feet, 6 inches – has an actual vertical clearance only a few inches taller. This leads to many vehicles being turned around due to this limitation. In 2016, 7,100 vehicles approaching the westbound

HRBT were stopped, measured, and turned around for being overheight. This includes 1,437 vehicles at the tunnel entrance on the South Island, which greatly impacts congestion and safety since traffic has to be stopped in both directions to complete the turnaround.

Federal Bridge #	Juris	Facility	Crossing	Posted Vertical Clearance
21797	CHES	Centerville Turnpike	Chesapeake & Albemarle Canal	13' 9"
21937	CHES	Ramp to Bainbridge Blvd & NS R/R	Bainbridge Blvd	13' 8"
20324	HAM	I-64	Armistead Avenue	13' 8"
20326	HAM	I-64	LaSalle Avenue	13' 6"
20320	HAM	I-64	Rip Rap Road	13' 2"
20384	HAM	Mercury Blvd EB	King Street	14' 2"
20386	HAM	Mercury Blvd WB	King Street	14' 2"
10511	JCC	Route 199 EB	Tour Road	11' 4"
10513	JCC	Route 199 WB	Tour Road	11' 3"
20673	NN	Mercury Blvd EB	Warwick Boulevard	14' 2"
20675	NN	Mercury Blvd WB	Warwick Boulevard	14' 2"
20805	NOR	Brambleton Avenue WB	Hampton Blvd	13' 11"
20768	NOR	First View Street	Tidewater Drive	13' 10"
20770	NOR	Government Avenue	Tidewater Drive	13' 10"
21034	NOR	Granby Street	Tidewater Drive	13' 10"
20831	NOR	I-64 EB	Azalea Garden Road	14' 0"
20833	NOR	I-64 WB	Azalea Garden Road	14' 0"
20835	NOR	I-64 EB	Military Highway	14' 2"
20837	NOR	I-64 WB	Military Highway	14' 2"
20858	NOR	I-64 EB	Northampton Blvd	14' 0"
20860	NOR	I-64 WB	Northampton Blvd	14' 0"
20856	NOR	I-64 EB Ramp	Northampton Blvd	13' 10"
20827	NOR	I-64 EB	Robin Hood Road	14' 2"
20829	NOR	I-64 WB	Robin Hood Road	14' 2"
20815	NOR	I-64 EB	Sewells Point Road	13' 7"
20817	NOR	I-64 WB	Sewells Point Road	13' 7"
20896	NOR	I-64 EB Ramp	Thole Street	14' 5"
20841	NOR	I-64 EB	Tidewater Drive	14' 3"
20843	NOR	I-64 WB	Tidewater Drive	14' 3"
20934	NOR	Little Creek Road	Tidewater Drive	13' 10"
20811	NOR	Ocean View Avenue EB	Tidewater Drive	14' 2"
20949	NOR	Waterside Drive EB	East Main Street	13' 10"
21220	PORT	I-264	McLean Avenue	13' 9"
21218	PORT	I-264	Rodman Avenue	14' 4"
12747	VB	Chesapeake Bay Bridge-Tunnel NB	Lookout Road	12' 4"
26056	VB	Chesapeake Bay Bridge-Tunnel SB	Lookout Road	12' 4"
22243	VB	I-264	Birdneck Road	14' 1"
22239	VB	I-264	First Colonial Road	14' 1"
22222	VB	I-264	Independence Blvd	14' 0"
22232	VB	I-264	London Bridge Road	13' 8"
22228	VB	I-264	Lynnhaven Parkway	14' 0"
22226	VB	I-264	South Plaza Trail	13' 10"
22224	VB	I-264	Rosemont Road	14' 0"
22213	VB	Northampton Blvd NB	Shore Drive	14' 1"
22215	VB	Northampton Blvd SB	Shore Drive	14' 1"
22180	VB	West Great Neck Road	Long Creek & Broad Bay Road	12' 5"
19820	YC	George Washington Hwy NB	Yorktown Battlefield Tour Road	13' 8"
19822	YC	George Washington Hwy SB	Yorktown Battlefield Tour Road	13' 6"
4290003P	YC	Yorktown Battlefield Tour Road	Crawford Road	13' 9"

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

FIGURE 16 – HEIGHT-RESTRICTED BRIDGES IN HAMPTON ROADS

CLOSED BRIDGES IN HAMPTON ROADS

Two bridges in Hampton Roads have been closed in recent years due to their deteriorating condition. One of these structures – the South Norfolk Jordan Bridge – has been rebuilt while the other one – the Kings Highway Bridge – has not.

JORDAN BRIDGE

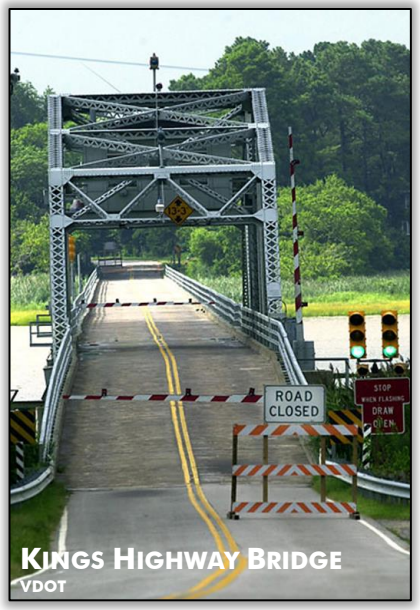
The original Jordan Bridge – which spanned the Southern Branch of the Elizabeth River between Chesapeake and Portsmouth – opened in 1928 as a privately-owned toll facility, creating a convenient fixed route between Norfolk and points to the west.

By the middle of last decade, the Jordan Bridge was the oldest operating drawbridge in Virginia, and was falling into disrepair despite undergoing maintenance through the years. The weight limit was restricted to three tons in order to remain in service. On November 8, 2008, the City of Chesapeake – which had owned the bridge since 1977 – closed the Jordan Bridge to traffic.

Two months later, the Chesapeake City Council approved a proposal from Figg Bridge Developers for a privately-funded, tolled structure to replace the Jordan Bridge. On October 29, 2012 – nearly four years after the original bridge was closed – the new South Norfolk Jordan Bridge opened to traffic. With a 145-foot vertical clearance, the new structure is the tallest bridge in Hampton Roads.

KINGS HIGHWAY BRIDGE

The Kings Highway Bridge was a structure that carried Virginia Route 125 across the Nansemond River in the Chuckatuck area of the City of Suffolk. Similar to the Jordan Bridge, the Kings Highway Bridge opened to traffic in 1928 as a privately-owned toll facility. VDOT purchased the bridge in 1963 and maintained the bridge as a toll-free facility.



In 2002, the Kings Highway Bridge carried 2,700 vehicles each day. By this time, however, the bridge was falling into disrepair and load limits were implemented which prohibited heavy vehicles, including school buses and emergency vehicles, from using the bridge.

On March 19, 2005, the Kings Highway Bridge was closed to all traffic. This created a 16-mile detour from one side of the bridge to the other, since the adjacent bridges are five miles to the north (Bridge Road) and five miles to the south (Suffolk Bypass). The Kings Highway Bridge was demolished in early 2008.

According to city officials, the cost to replace the Kings Highway Bridge is estimated to be $60 million. There is currently no funding in place for the project, nor is it eligible for State of Good Repair funding (as described later in this report). Replacing the Kings Highway Bridge is also not included in the fiscally-constrained Hampton Roads 2040 Long-Range Transportation Plan. However, the bridge is included in the Hampton Roads 2040 Regional Transportation Vision Plan.

FRACTURE AND SCOUR CRITICAL BRIDGES

Certain structures, due to their design or location, require more monitoring than typical bridges. Two types of structures that require this additional monitoring are fracture critical bridges and bridges that are vulnerable to scouring.

Most bridges are designed so that loads can be redistributed to other structural members if any one structural member loses its ability to distribute loads. However, fracture critical bridges are structures that are designed with few or no redundant supporting elements and are in danger of collapsing if a key structural member fails. Examples of fracture critical bridges include most truss bridges, drawbridges, and certain beam or girder bridges designed without redundant elements.

Despite this lack of redundant elements, **fracture critical bridges are not necessarily unsafe. Bridge inspectors will close or impose limits on structures that they feel are unsafe.** Fracture critical bridges undergo more extensive and more frequent inspections – usually on an annual basis – to ensure that they remain safe.

A total of 38 bridges in Hampton Roads are classified as fracture critical as of December 2017 (**Figure 17**). This is the same number of bridges that were classified as fracture critical in the 2012 Regional Bridge Study. Notable examples include the Berkley Bridge, Coleman Bridge, High Rise Bridge, and James River Bridge. Based on their design, all drawbridges in Hampton Roads are classified as fracture critical.

Bridges with underwater substructure sections may be vulnerable to scouring, or the exposure of portions of the substructure due to changes in the river bed. In cases where a bridge is at risk of failure due to scouring, the bridge is classified as scour critical. Underwater substructure sections are inspected regularly (usually every five years) to assure that bridges that could potentially be vulnerable to scouring do not become scour critical. As of December 2017, no bridges in Hampton Roads are classified as scour critical.

Federal Bridge #	Juris	Facility	Crossing
27874	CHES	Battlefield Blvd	Chesapeake & Albemarle Canal
21797	CHES	Centerville Turnpike	Chesapeake & Albemarle Canal
1818	CHES	George Washington Hwy	Dismal Swamp Canal
27144	CHES	Gilmerton Bridge	S Branch Elizabeth River
21868	CHES	High Rise Bridge	S Branch Elizabeth River & SR 166
26355	CHES	I-64 EB Collector Road	Battlefield Blvd Ramp
26354	CHES	I-64 WB Collector Road	Greenbrier Pkwy Ramp
21915	CHES	I-664 Ramp	Route 58 & 460 EB
21937	CHES	Ramp to Bainbridge Blvd & NS R/R	Bainbridge Blvd
19824	GLO/YC	Coleman Bridge	York River
20314	HAM	I-64 EB	East Branch Hampton River
20399	HAM	I-64 Ramps	Newmarket Creek
20346	HAM	I-64 WB	Pembroke Avenue & Hampton River
20396	HAM	I-664 NB	I-64 Ramp & Newmarket Creek
20328	HAM	I-664 SB Ramp	I-64 & Newmarket Creek
10364	IW/NN	James River Bridge	James River
24057	JCC	Glass House Ferry	James River
10516	JCC	Hicks Island Road	Diascund Creek
20750	NN	I-664	Terminal Avenue
20754	NN	I-664 Ramp	Terminal Avenue & CSX R/R
20761	NN	I-664 Ramp	Terminal Avenue
23186	NOR	I-64 HOV Ramp	I-64 WB & I-264 & Ramps
23191	NOR	I-64 HOV Lanes	I-64 WB
23214	NOR	I-64 HOV Lanes	I-564 & Little Creek Road
20962	NOR	I-264 EB	E Branch Elizabeth River
20971	NOR	I-264 EB	I-264 EB Ramp
20979	NOR	I-264 WB	City Hall Avenue
20947	NOR	I-264 WB	E Branch Elizabeth River
21000	NOR	I-264 WB	Holt Street & NS R/R
21224	PORT	I-264	Norfolk & Portsmouth R/R
21242	PORT	I-264	WB Ramp from Effingham Street
21208	PORT	Route 164 EB	Former Coast Guard Blvd
21206	PORT	Route 164 WB	Former Coast Guard Blvd
17755	SH	South Quay Road	Blackwater River
26972	SH	Sunbeam Road	Cokemoke Mill
17813	SH	Tucker Swamp Road	Norfolk Southern R/R
23137	SUR	Scotland Wharf	James River
12752	VB	CBBT NB	Chesapeake Bay

FIGURE 17 – FRACTURE CRITICAL BRIDGES IN HAMPTON ROADS

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

HEALTH INDEX

VDOT and many other state DOTs use a measure referred to as the Health Index to measure the physical condition of the bridge and provide a reliable ranking system for bridge maintenance.

The Health Index is determined based on the physical condition of various elements of the bridge – such as railings, joints, and girders – which are each rated from "new condition" to "serious or badly deteriorated condition". These elements are then assigned a dollar value based on their condition relative to a new structure. Each element is assigned a weight and the elements are combined to determine a current dollar value of the entire structure. The Health Index of a structure is calculated by dividing this current dollar value by the sum of the total value of all the structure's elements in new condition. A Health Index of 100% indicates that all of the elements of the structure are in the best possible condition, while a Health Index of 0% indicates that all of the elements are in the worst possible condition. **A low Health Index, however, does not mean that the bridge is unsafe. Bridge inspectors will close or impose weight limits on bridges that they feel are unsafe**.

VDOT uses the Health Index as a factor to prioritize bridges for State of Good Repair funding. VDOT calculates the Health Index for most VDOT and locality-maintained structures and includes this information in its bridge database.

The bridges in Hampton Roads with the lowest Health Indices are shown in **Figure 18**.

Juris	Federal Structure ID	Facility	Crossing	VDOT Health Index
IW	10416	Orbit Road (Rte 637)	Carbell Swamp	31.97
SH	17820	Drake Road (Rte 638)	Johnsons Mill	34.89
SH	17881	Woodland Road (Rte 682)	Br Darden Mill Run	38.66
SUR	18304	Three Bridges Road (Rte 603)	Blackwater River	44.46
WMB	22342	Monticello Avenue	Stream	45.99
SH	17792	Ivor Road (Rte 616)	Br Round Hill Swamp	46.67
SH	17797	Burdette Road (Rte 619)	Black Creek	47.55
SH	17813	Tucker Swamp Road (Rte 635)	Norfolk Southern R/R	48.08
SH	17901	Burnt Reed Road (Rte 743)	Tarrara Creek	48.37
IW	10442	Ennis Mill Road (Rte 690)	Ennis Pond	48.90
VB	25480	Inlet Road	Inlet Of Lynnhaven River	49.06
VB	22252	Laskin Road	Linkhorn Bay	49.07
SUR	18208	Beechland Road (Rte 626)	Trib. Moores Swamp	49.66
SH	17728	Meherrin Road (Rte 35)	Overflow, Nottoway River	50.00
IW	10394	Jenkins Mill Road (Rte 615)	Kingsale Swamp	50.96
IW	10423	Bowling Green Road (Rte 644)	Great Swamp	51.02
SUR	18204	Southwark Road (Rte 618)	Grays Creek	53.30
IW	10417	Mill Creek Road (Rte 638)	Burnt Mill Swamp	53.48
SH	17859	Sykes Farm Road (Rte 667)	Tarrara Creek	53.54
IW	10382	Longview Drive (Rte 602)	Chuckatuck Creek	54.75
SUR	18187	Goodrich Fork Road (Rte 604)	Terrapin Swamp	54.79
IW	10445	Uzzell Church Road (Rte 692)	Champion Swamp	55.26
SUR	14080	Montpelier Road (Rte 600)	Upper Chippokes Creek	56.48
SUF	21996	Armistead Road (Rte 810)	I-664	56.77
IW	10371	Route 258	Champion Swamp	57.89
SH	17838	Buckhorn Quarter Road (Rte 652)	Buckhorn Swamp	58.40
SH	17806	Womble Mill Road (Rte 626)	Wade Mill Pond	58.87
SH	17780	Fortsville Road (Rte 612)	Apple White Swamp	59.24
CHES	21830	Military Highway	Norfolk Southern R/R	59.50
SUR	18185	MLK Hwy (Rte 40)	Otterdam Swamp	60.33
SH	17864	General Thomas Hwy (Rte 671)	Branch	60.93
SH	17823	Cobb Road (Rte 642)	Branch	61.11
SH	17877	Barns Church Cir (Rte 677)	Branch	61.28
SH	17755	South Quay Road (Rte 189)	Blackwater River	61.81
SH	17796	Crumpler Road (Rte 618)	Terrapin Swamp	62.15
IW	10441	Dews Plantation Road (Rte 683)	Stallings Creek	62.53
NOR	21070	I-564 NB	Little Creek Road	62.75
JCC	10464	John Tyler Hwy (Rte 5)	Powhatan Creek	63.24
SH	17862	Clarksbury Road (Rte 668)	Rosa Swamp	63.37
NOR	20787	Military Highway	Branch Of Broad Creek	63.64

FIGURE 18 – BRIDGES IN HAMPTON ROADS WITH THE LOWEST HEALTH INDICES

Source: HRTPO analysis of VDOT data. Data for Hampton Roads bridges as of December 2017.

FEDERAL BRIDGE PERFORMANCE MEASURES

Recent federal legislation established that states and Metropolitan Planning Organizations (MPOs) will be required to prepare and use a set of federally-established performance measures and set targets. These measures and targets will be required in areas including safety, pavement condition, roadway performance, freight, and bridge condition.

There are two bridge condition measures that states and MPOs will be required to track and establish targets for:

- Percentage of bridges by deck area on the National Highway System (NHS) that are in good condition
- Percentage of bridges by deck area on the NHS that are in poor condition

The condition of each bridge (except for culverts) is determined using the deck, superstructure, and substructure ratings, which are described in detail earlier in the report. The condition of the deck, superstructure, and substructure are all rated from 0 to 9, with 9 representing a component in excellent condition and 0 representing a failed condition or a closed bridge. For culverts, a single rating is given in place of the deck, superstructure, and substructure ratings to assess the general condition of the entire culvert.

The lowest of these three condition ratings (or the culvert condition rating) is the rating used to determine whether the bridge is in good, fair, or poor condition. If the lowest condition rating is ≥ 7, the bridge is considered to be in good condition. If the lowest condition rating is 5 or 6, the bridge is in fair condition. Those bridges with the lowest condition rating ≤ 4 are considered to be in poor condition.

Once each bridge on the NHS is classified as good, fair, or poor, the bridge deck area is summed up for each classification to determine the percentage of NHS bridge area in each MPO in good or poor condition.

Map 3 on page 39 shows the condition of each bridge in Hampton Roads, and **Figure 19** shows the number and area of bridges in the region that are in good, fair, and poor condition based on these standards for all bridges (as defined in this study), as well as only for those bridges that carry the NHS.

In Hampton Roads, almost 30% of all bridges are in good condition as of December 2017. Nearly two thirds of bridges (65.6%) are in fair condition, while the remaining 4.8% are in poor condition. When looking at the area of bridges in Hampton Roads, 35.0% is in good condition, 61.9% is in fair condition, and 3.0% is in poor condition.

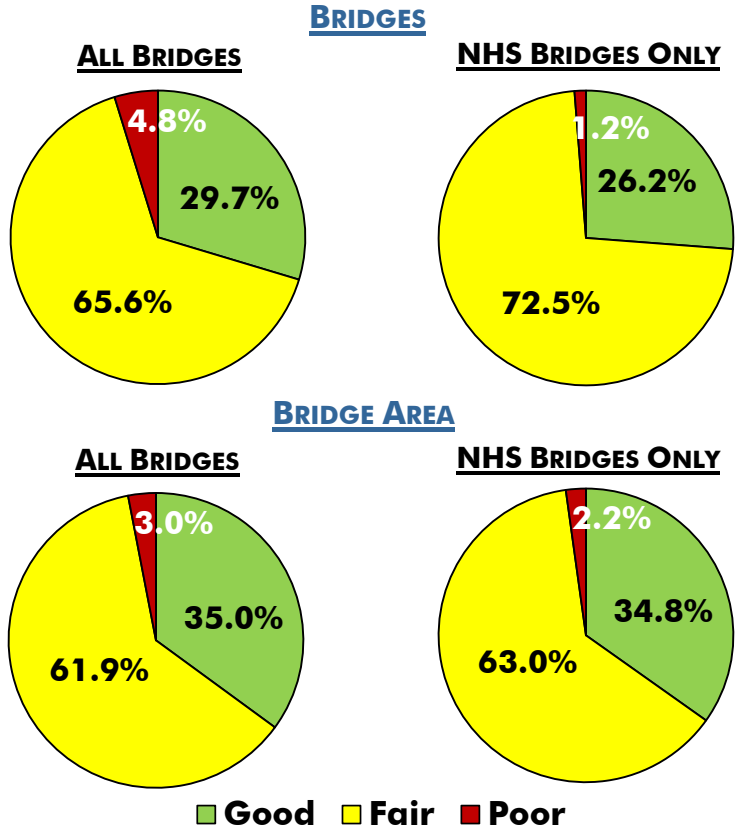


FIGURE 19 – PERCENTAGE OF BRIDGES AND BRIDGE AREA IN HAMPTON ROADS IN GOOD/FAIR/POOR CONDITION

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017.

The condition improves when looking only at Hampton Roads bridges that carry the NHS. Only 1.2% of bridges on the NHS in Hampton Roads are in poor condition, with 26.2% in good condition and the remaining 72.5% in fair condition. In terms of bridge area for those bridges carrying the NHS, 34.8% is in good condition, 63.0% is in fair condition, and only 2.2% is in poor condition.

Figure 20 shows the number of bridges in good, fair, and poor condition in Hampton Roads, Virginia and other comparable large metropolitan areas with populations between one and three million people. There is a lower percentage of bridges in Hampton Roads that are in good condition compared to the rest of Virginia and other comparable metropolitan areas. While almost 30% of bridges in Hampton Roads are in good condition, 34.5% of bridges in Virginia and 48.7% of bridges in large metropolitan areas are in good condition. The percentage of bridges in poor condition in Hampton Roads (4.8%) is comparable to the statewide figure (4.7%), but is lower than the percentage seen in other large metropolitan areas (6.3%).

Looking only at those bridges that carry the NHS, the percentage of bridges that are in poor condition is much lower in Hampton Roads (1.2%) than statewide (2.9%) and in comparable metropolitan areas (3.5%). However, the percentage of NHS bridges in good condition is much lower in Hampton Roads (26.2%) than in comparable metropolitan areas (49.3%).

Figure 21 on page 38 shows the area of bridges in good, fair, and poor condition in Hampton Roads, Virginia and other comparable large metropolitan areas. There is a lower percentage of bridge area in Hampton Roads that is in good condition compared to other areas, but also a lower percentage that is in poor condition. The percentage of bridge area in Hampton Roads in good condition (35.0%) is comparable to the statewide percentage (35.7%), but is much lower than the 46.7% of bridge area in large metropolitan areas that is in good condition. The percentage of bridge area in poor condition, however, is also lower in Hampton Roads (3.0%) than across Virginia (3.7%) and in comparable metropolitan areas (5.5%)

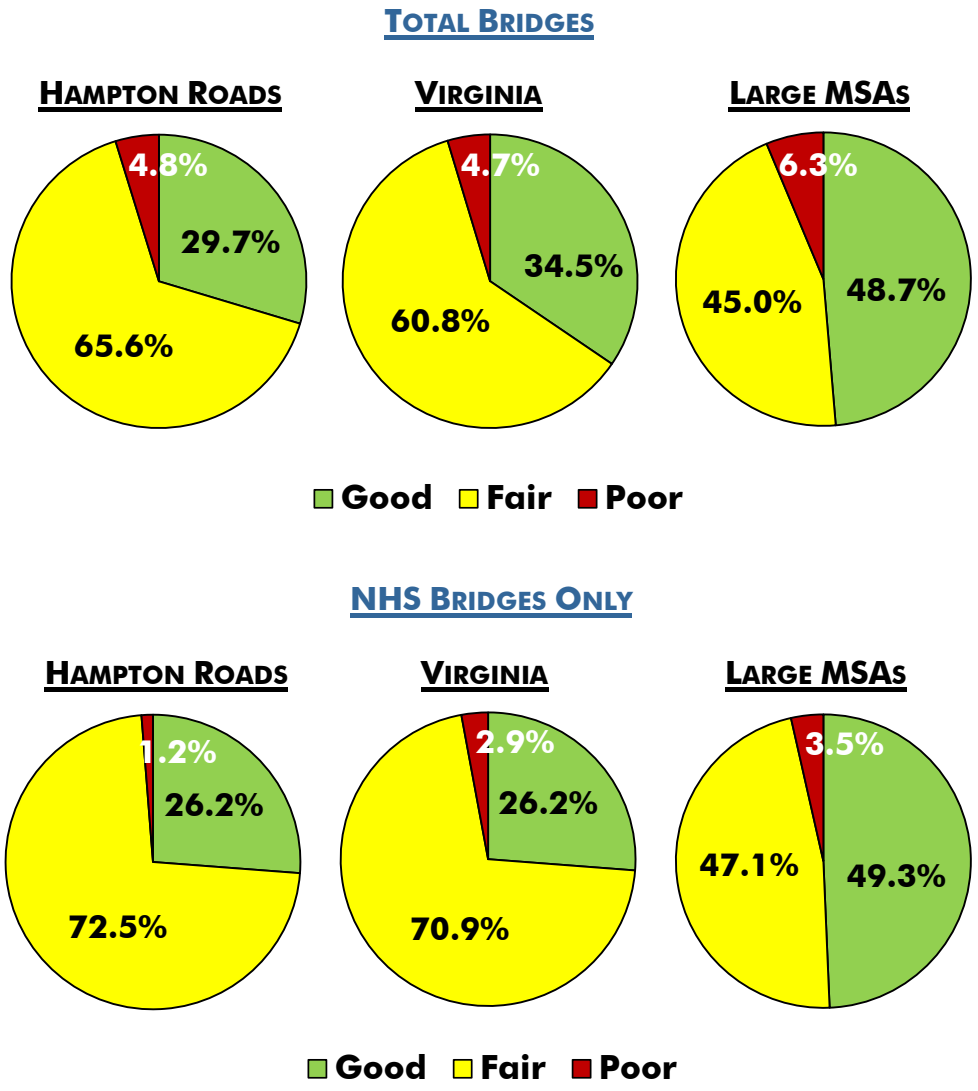


FIGURE 20 – PERCENTAGE OF BRIDGES IN GOOD/FAIR/POOR CONDITION

Source: VDOT, FHWA, and HRTPO analysis of VDOT data. Includes only NBI bridges. Data for Hampton Roads and Virginia bridges as of December 2017. Data reflects 2017 conditions for Comparable MPO bridges.

Looking only at the bridge area for those bridges on the NHS – which is the measure that is reported for the federal performance measures – the percentage of bridge area in poor condition is lower in Hampton Roads (2.2%) than statewide (3.4%) and in comparable metropolitan areas (5.2%). The percentage of NHS bridge area in good condition, however, is lower in Hampton Roads (34.8%) than in comparable metropolitan areas (45.1%).

TARGETS

Targets must be set by each state and MPO for the percentage of NHS bridges by deck area that are in good and poor condition. MPOs may adopt the statewide targets but report metrics specific to the Metropolitan Planning Area (MPA); select unique, MPO-specific targets and report metrics specific to the MPA; or use a combination of statewide and unique targets.

Although there are no "penalties" for MPOs for not meeting their performance targets, it can be addressed during the MPO's quadrennial certification review to ensure adequate performance-based planning. For the statewide bridge targets, if for 3 consecutive years more than 10.0% of a State DOT's NHS bridge total deck area is classified as structurally deficient, the State DOT must obligate and set aside National Highway Performance Program (NHPP) funds for eligible projects on bridges on the NHS. As mentioned previously, Hampton Roads is well below this threshold, with only 2.2% in poor condition as of December 2017.

The initial bridge performance targets for each Metropolitan Planning Organization (MPO) will be due 180 days after the statewide targets have been submitted. With statewide bridge targets being due on May 20, 2018, MPO targets will be due in November 2018. HRTPO staff, in cooperation with the Transportation Technical Advisory Committee (TTAC), will produce the bridge performance measures and targets as required by the federal legislation.

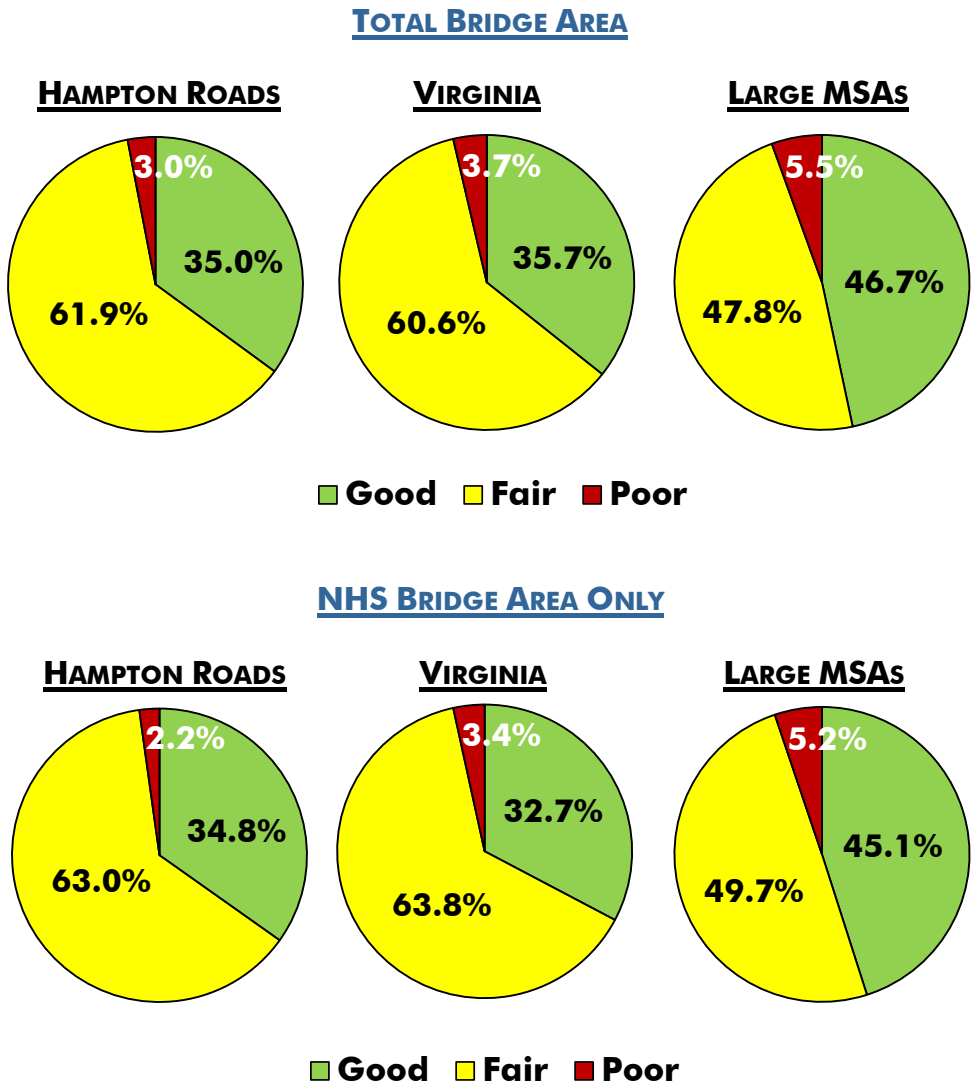
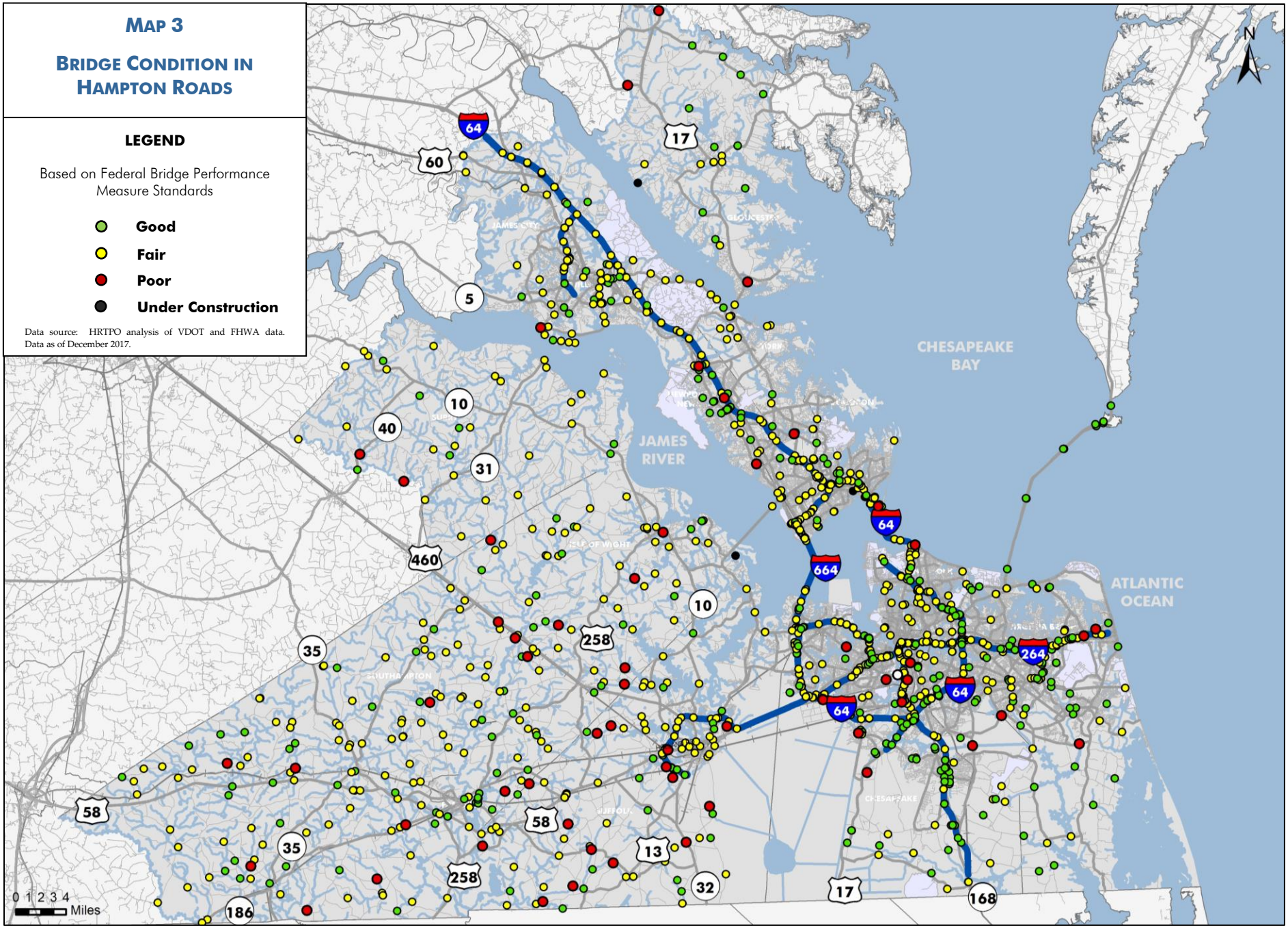


FIGURE 21 – PERCENTAGE OF BRIDGE AREA IN GOOD/FAIR/POOR CONDITION

Source: VDOT, FHWA, and HRTPO analysis of VDOT data. Includes only NBI bridges. Data for Hampton Roads and Virginia bridges as of December 2017. Data reflects 2017 conditions for Comparable MPO bridges.

MAP 3

BRIDGE CONDITION IN HAMPTON ROADS



Bridge Funding

Funding for bridge projects comes from a variety of federal, state, and local sources, and even tolls in some cases. However, the process for funding bridges both on the federal and state level has changed in recent years. This section details these various bridge funding sources.

Federal Bridge Funding

On July 6, 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) federal surface transportation funding and authorization bill was signed into law, which significantly changed how bridge rehabilitation and reconstruction is funded on the federal level. The current federal surface transportation funding and authorization bill – the Fixing America's Surface Transportation (FAST) Act – largely continues these changes from the MAP-21 program. The FAST Act was signed into law on December 4, 2015, and will remain in effect until September 30, 2020.

Prior to MAP-21, the primary federal program for funding bridge projects was the Highway Bridge Program. This program, which was created by Congress in 1978 as the Highway Bridge Replacement and Rehabilitation Program (HBRRP), provided dedicated funding to states to enable them to improve the condition of highway bridges.

Allocating federal bridge funds to each state through the Highway Bridge Program was done through a complex formula. The amount of allocations was determined by each state's relative share of the total costs to rehabilitate or replace all eligible deficient bridges. Bridges were considered eligible for federal bridge replacement funds if they were classified as structurally deficient or functionally obsolete and had a sufficiency rating of less than 50.0, and were considered eligible for federal bridge rehabilitation funds if they were classified as structurally deficient or functionally obsolete and had a sufficiency rating between 50.0 and 80.0. Funding levels were also determined by whether each eligible deficient bridge was on a federal-aid roadway, which generally includes all roadways that are not classified as locals or rural minor collectors. The total deck area of all deficient bridges throughout the state for each group (rehabilitation vs. replacement and federal-aid roadway vs. non-federal-aid roadway) was summed together and multiplied by a state average unit construction cost. These groups were then combined to produce a statewide total cost that would be needed to rehabilitate or replace all eligible bridges.

Although there were a number of stipulations, each state largely controlled how they allocated federal bridge funding for their bridges under the Highway Bridge Program.

Nationwide, $6.0 billion was authorized for the Highway Bridge Program in Federal Fiscal Year 2012, which was the final year of the program. Of that total, Virginia received $134 million, which was the 15th highest total apportionment and 31st highest apportionment per capita among the 50 states and the District of Columbia.

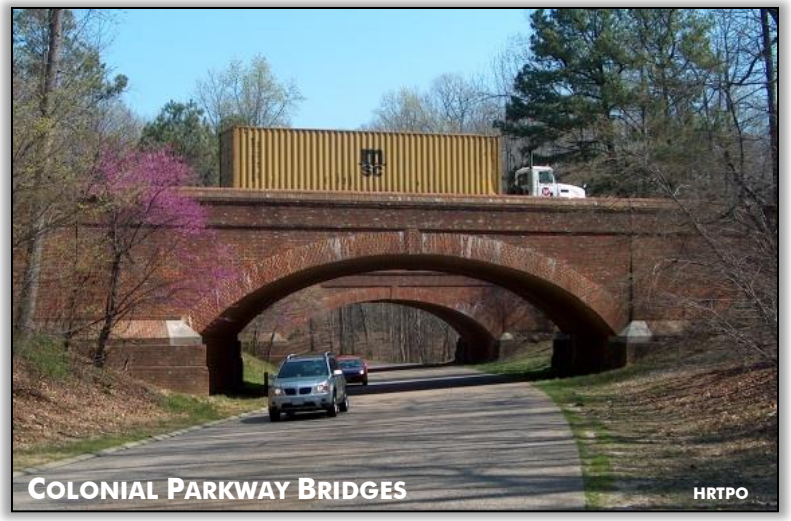
MAP-21 greatly consolidated the number of programs – including the Highway Bridge Program – from the previous authorization bill (the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, or SAFETEA-LU). This consolidation continues under the FAST Act. There are seven primary programs included in the FAST Act: the National Highway Performance Program ($23.3 billion in funding nationwide for FFY 2018), Surface Transportation Block Grant Program ($11.7 billion), Highway Safety Improvement Program ($2.3 billion), Congestion Mitigation and Air Quality Program ($2.4 billion), Railway-Highway Crossings Program ($0.2 billion), Metropolitan Planning ($0.3 billion), and the National Highway Freight Program ($1.2 billion).

Under MAP-21, funding for bridges was moved from the Highway Bridge Program to the National Highway Performance Program (NHPP) and the Surface Transportation Program (STP). This continues under the FAST Act, although the Surface Transportation Program has been renamed the Surface Transportation Block Grant Program.

The National Highway Performance Program provides funding for the condition and performance of the National Highway System (NHS), and for the construction of new facilities on the NHS. This includes funding for the construction, replacement, rehabilitation, preservation, inspection, and protection of bridges and tunnels. The NHS was expanded under MAP-21 to include all roadways classified as principal arterial and above.

The NHPP program continues under the FAST Act, but there was a significant change related to bridges. In the FAST Act, there is no longer a requirement that bridges must be on the National Highway System under the NHPP program. NHPP funds can now be used on any bridge project on a federal-aid roadway.

Another change in MAP-21 – which is continued under the FAST Act – is the emphasis on performance measures and targets. The FAST Act establishes a standard where no more than 10 percent of the total deck area of bridges on the NHS in a state can be classified as structurally deficient. If a state has more than 10 percent of the total deck area of bridges on the NHS classified as structurally deficient for three consecutive years, the state must devote an amount equal to 50 percent of that state's Federal Fiscal Year 2009 bridge apportionment from the state's NHPP apportionment to bridges on the NHS each year until the threshold is met. No additional funds are provided to the state to improve bridges to the threshold.



The FAST Act also provides funding through the Surface Transportation Block Grant Program. This program, which replaced the Surface Transportation Program that was in previous federal surface transportation authorization bills, provides flexible funding that may be used for federal-aid highway projects, active transportation facilities, and transit capital projects. In addition, the replacement, rehabilitation, preservation, and protection of all bridges on public roadways may be funded through the Surface Transportation Block Grant Program, regardless of whether or not they are on the NHS.

There is a funding requirement in MAP-21 (and continued under the FAST Act) for bridges that are not on federal-aid highways. A portion of each state's Surface Transportation Block Grant Program funds of no less than 15 percent of the state's Federal Fiscal Year 2009 Highway Bridge Program apportionment is to be set aside for bridges not on federal-aid highways (also referred to as off-system bridges), unless federal officials determine that the State has insufficient needs to justify this amount.

STATE BRIDGE FUNDING

The Virginia General Assembly passed two bills that significantly changed how roadway maintenance and construction is funded and prioritized throughout the Commonwealth. While the selection of roadway improvement projects was changed by House Bill 2 (which is now referred to as SMART SCALE), House Bill 1887 – which is now referred to as the State of Good Repair (SGR) program – was instituted to provide a dedicated funding source for improving the condition of Virginia's bridges and pavements.

House Bill 1887 requires that 45% of the state's construction program be allocated to improve deficient bridges and pavements. This funding is allocated to each of the nine VDOT Construction Districts based on needs, with guarantees that each district will receive a minimum of 5.5% and a maximum of 17.5% of the total yearly allocation. This funding is then further split within each district between VDOT-maintained and locality-maintained structures.

For bridges, the State of Good Repair program replaces the Dedicated Bridge Fund (DBF) and other funds allocated by the CTB. There will be a transition period between the DBF/CTB funds and the SGR program for funding bridges. While funding for structures through the SGR program began in FY 2017, bridges will continue to be funded with previously-allocated DBF funds through Fiscal Year 2020. Starting in Fiscal Year 2021, all funding for rehabilitating or replacing bridges will be allocated through the SGR program. However, new bridges, as well as existing bridges on roadway corridor improvement projects, may be funded through the SMART SCALE program. **Figure 22** shows the statewide bridge funding breakdown through this transition period.

Fiscal Year	DBF and CTB Funds - All Sources	SGR - VDOT Bridges	SGR - Local Bridges	Bridge Funds - All Sources
FY 2016	$123,658,554	N/A	N/A	$123,658,554
FY 2017	$118,943,248	$99,384,417	$17,634,814	$235,962,479
FY 2018	$158,500,763	$47,633,571	$8,452,121	$214,586,455
FY 2019	$204,374,544	$40,671,454	$8,387,756	$253,433,754
FY 2020	$203,338,182	$23,988,473	$5,463,088	$232,789,743
FY 2021	N/A	$206,734,414	$37,930,646	$244,665,060
FY 2022	N/A	$203,188,815	$37,342,553	$240,531,368

FIGURE 22 – STATEWIDE BRIDGE FUNDING BREAKDOWN FY 2016-2022

Source: VDOT State of Structures and Bridges Report

The Commonwealth Transportation Board approved a resolution in June 2016 that stated that structures will be selected for SGR program funds based on a prioritization formula. Bridge projects will be eligible for SGR funding if they meet the following criteria:

- The bridge is classified as structurally deficient
- The bridge meets the definition required to be included in the National Bridge Inventory (which is described previously in this report.)
- The project meets the definition of bridge rehabilitation and replacement in FHWA's Bridge Preservation Guide
- The proposed project must take the bridge out of structurally deficient status
- Inspections on the structure must be current

Bridge projects receiving funding from the SGR program must initiate the Preliminary Engineering or Construction phase within 24 months of the funds being awarded. If it is not initiated, funds for the bridge project could be deallocated.

A State of Good Repair (SGR) Score is calculated for each bridge, and structurally deficient bridges are prioritized for replacement or rehabilitation based on the SGR Score. There are two prioritized lists for each VDOT district, one for VDOT-maintained structures and one for locality-maintained structures. Those bridges with higher SGR Scores are prioritized for funding over those with lower SGR Scores, although bridges in the list can be skipped over for reasons such as cost effectiveness, maintenance of traffic, or the possible use of other funding sources.

Five factors are assigned a specific percentage towards the overall SGR Score for each bridge, and each factor can have a value of between 0 and 1. The five factors are:

- Importance Factor (30%) – The Importance Factor measures the relative importance of each bridge to the overall highway network.
- Condition Factor (25%) – The Condition Factor uses the Health Index (which was described previously in this report) to measure the overall physical condition of each bridge based on the condition of each individual element.
- Design Redundancy Factor (15%) – This factor measures four risk factors related to redundancy, scour susceptibility, fatigue, and vulnerability to earthquakes.
- Structure Capacity Factor (10%) – The Structure Capacity Factor measures the capacity of the structure to carry traffic, including the impacts of weight restrictions, waterway adequacy, vertical clearance, and the width of the bridge.
- Cost-Effectiveness Factor (20%) – This factor measures the cost-effectiveness of the work required.

The method for calculating each of these factors is described in much more detail in **Appendix C**.

Based on the regulations included in the FAST Act that were detailed previously, a portion of each state's Surface Transportation Block Grant Program funds of no less than 15 percent of the state's Federal Fiscal Year 2009 Highway Bridge Program apportionment is to be set aside for bridges that are not on federal-aid highways. This equates to approximately $18.9 million annually in Virginia.

As mentioned previously, the amount of SGR funding varies by VDOT Construction District. For Fiscal Years 2018-2023, Hampton Roads is expected to receive $167.2 million in SGR funding (**Figure 23**). Of this amount, $53.5 million is for pavements and $113.7 million is for bridges. Further, of this $113.7 million in SGR funding for bridges in Hampton Roads, $63.5 million (56%) is for VDOT-maintained bridges and $50.2 million (44%) is for locality-maintained bridges.

State of Good Repair Funding Distribution
FY2018 – FY2023
(in millions)

	VDOT		Localities		Total	
District	Pavement	Bridge	Pavement	Bridge	Pavement	Bridge
Bristol	$27.8	$84.7	$2.6	$17.2	$30.4	$101.9
Culpeper	$17.0	$30.5	$2.0	$18.3	$19.0	$48.8
Fredericksburg	$24.6	$105.2	$2.7	$4.1	$27.3	$109.3
Hampton Roads	$11.7	$63.5	$41.8	$50.2	$53.5	$113.7
Lynchburg	$24.9	$54.2	$4.3	$2.6	$29.2	$56.8
Northern Virginia	$32.2	$72.9	$13.1	$1.2	$45.4	$74.1
Richmond	$49.3	$128.3	$7.9	$11.8	$57.2	$140.1
Salem	$28.7	$91.6	$4.1	$12.3	$32.8	$103.8
Staunton	$11.6	$67.5	$3.6	$6.2	$15.1	$73.8
Subtotal	$227.8	$698.4	$82.2	$123.9	$310.0	$822.3
Total*	**$926.2**		**$206.1**		**$1,132.3**	

**$10.4million in SGR funding is set aside for rest areas.*

VDOT | DRPT

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FIGURE 23 – SGR FUNDING DISTRIBUTION BY VDOT CONSTRUCTION DISTRICT, FY 2018-2023

Source: VDOT

The $113.7 million in SGR funding for bridges in Hampton Roads comprises almost 14% of the $822.3 million in statewide SGR funding for bridges. Among the nine VDOT Construction Districts, only the Richmond District is receiving a larger share of SGR funding for bridges.

In addition to the SGR program for bridges, funds are annually allocated to cities and eligible towns for street and bridge maintenance, construction, and reconstruction via the Urban Maintenance Program and Urban Construction Program. Urban Maintenance Program funds can be used for any eligible roadway maintenance activity. For bridges this includes substructure and superstructure repair, culvert repair, waterproofing bridge decks, and paying for the operational expenses related to drawbridges. Urban Maintenance Program funds can also be used by cities for bridge inspections, since cities are responsible for inspecting the bridges that they own and maintain.

Urban Maintenance Program funds are allocated to cities based on the number of lane-miles of roadway by functional classification that each locality maintains. The number or condition of bridges in each city has no impact on the level of maintenance funds each city receives. There is an exception for the City of Chesapeake, which receives an additional $1 million annually from the Urban Maintenance Program for bridge operations and maintenance due to the high number of movable bridges operated and maintained by the city. This funding, however, only covered about a third of the $3.2 million that Chesapeake budgeted in Fiscal Year 2018 to cover bridge operations and maintenance.

The bridge projects in Hampton Roads that are slated to be funded using SGR funding and other sources are detailed in the next section.


GREAT BRIDGE BRIDGE USACE

Regional/Local Bridge Funding

In addition to state and federal funding sources, transportation funding is also available through the Regional Surface Transportation Program (RSTP). RSTP funds are federal funds that are matched with state funds that are allocated by each region's Metropolitan Planning Organization (MPO). Many bridge projects in Hampton Roads were funded (at least partially) with RSTP funds. Recent examples include the Gilmerton Bridge, Pinners Point Interchange, and Middle Ground Boulevard railroad overpass. RSTP funding is also allocated to upcoming bridge projects including the Campostella Bridge over the Eastern Branch of the Elizabeth River, the Granby Street Bridge over the Lafayette River in Norfolk, the new Skiffes Creek Connector spanning the CSX Railroad in James City County, and a bridge on Turlington Road in Suffolk.

Many cities also provide local funds for bridge construction and maintenance. Local funds are required as matching funds for certain projects, and some cities fully fund smaller bridge projects through Capital Improvement Plan/Program (CIP) allocations. Upcoming examples of bridge projects fully funded with CIP allocations include the 20th Street bridge over Salters Creek and the J. Clyde Morris Boulevard bridge over the CSX Railway in Newport News, Sandbridge Road over Hells Point Creek in Virginia Beach, and the Fentress Airfield Road over Pocaty Creek, Indian River Road over Indian River, Number Ten Lane over Lindsey Drainage Canal, and Route 168 Bypass over Battlefield Boulevard bridges in Chesapeake.

Tolls

Tolls are also used as a mechanism for funding bridge construction and maintenance costs. Bridges in Hampton Roads that charge tolls include the Coleman Bridge, Chesapeake Bay Bridge-Tunnel, South Norfolk Jordan Bridge, and the Veterans Bridge. Tolls were also implemented at the Midtown Tunnel and Downtown Tunnel to fund the recent Midtown Tunnel/Downtown Tunnel/MLK Freeway project.

GILMERTON BRIDGE VDOT

SOUTH NORFOLK JORDAN BRIDGE CITY OF CHESAPEAKE

BRIDGE PROJECTS

Since 2010, there have been 102 bridges throughout Hampton Roads built, replaced, or that underwent a major rehabilitation. Of these 102 bridges (which are shown in **Figure 25** on pages 48-50), 59 are replacements of existing bridges, 22 are new structures where bridges did not exist previously, and 21 are major rehabilitations of existing bridges. Examples of bridges built or replaced in Hampton Roads in this decade include the Gilmerton Bridge, Middle Ground Boulevard over the CSX Railroad, and the South Norfolk Jordan Bridge. A number of bridges were also built as part of the Dominion Boulevard and MLK Freeway Extension projects.

In addition, a number of bridges in Hampton Roads are currently under construction. This list includes the Eastbound Lesner Bridge in Virginia Beach, the Sunray Overpass on Military Highway near Bowers Hill in Chesapeake, the Warwick Boulevard bridge over Lake Maury in Newport News, and the Churchland Bridge in Portsmouth. Bridges are also being added or rebuilt as part of ongoing major regional priority projects including I-64 widening on the Peninsula and the I-64/I-264 Interchange in Norfolk/Virginia Beach.

Upcoming bridge projects in Hampton Roads are included HRTPO's Hampton Roads Transportation Improvement Program (TIP), VDOT's Six-Year Improvement Program (SYIP), and in each city's Capital Improvement Plan/Program (CIP). The TIP is a federally-mandated, fiscally-constrained regional document that identifies the programming of transportation funds over a four year period. It lists all projects for which federal funds are anticipated, along with non-federally funded projects that are determined to be regionally significant.

The SYIP is a statewide document through which the Virginia Commonwealth Transportation Board (CTB) allocates funds for the construction, development, or study of transportation projects. Per its

name, the Six-Year Improvement Program includes information on funding allocations for each project over the course of the upcoming six state fiscal years. The SYIP is developed annually by VDOT and the CTB, and most projects included in the TIP are also included in the SYIP and vice-versa.

A total of 51 existing bridges in Hampton Roads are programmed for replacement, rehabilitation, or removal in the current Six-Year Improvement Program[3], Transportation Improvement Program[4], or a city Capital Improvement Plan/Program (**Figure 26** on page 51-52). Of these 51 bridges, 36 are classified as structurally deficient (or were classified as structurally deficient before construction started), 11 are classified as functionally obsolete, and the remaining 4 bridges are not deficient. Two projects involving new bridges – Route 58 at the Route

[3] *FY 2018-2023 Six-Year Improvement Program*, Commonwealth Transportation Board, June 2017.

[4] *FY 2018-2021 Transportation Improvement Program*, HRTPO, April 2017.

58 Business intersection east of Courtland and the Skiffes Creek Connector in James City County – are also included in the SYIP, as are many roadway widening and construction projects that will involve constructing new and replacement bridges.

A total of $475 million is allocated in the current SYIP, TIP, and CIPs to these 51 bridge projects. Of this total, $244 million was allocated in previous years and $231 million is allocated between Fiscal Years 2018 and 2023. However, the total estimated cost to replace these bridges is $502 million dollars, leaving a shortfall that will require additional allocations.

The majority of structurally deficient bridges in Hampton Roads have funding in place for improvement projects. Among the 66 bridges in Hampton Roads classified as structurally deficient as of December 2017, 19 bridges (29%) are included in the current SYIP, TIP, or a locality CIP for replacement (**Figure 24**). Of these 19 bridges, construction on 6 bridges is currently underway or expected to begin in 2018, construction on 8 bridges is expected to begin in 2019, 3 bridges are expected to start construction in 2020, and the remaining 2 bridges are expected to start construction in 2021. Another 13 bridges (20%) are included in the SYIP, TIP, or a CIP for rehabilitation, and one bridge has funds allocated for removal. Five of the bridges that do not have funding allocated are no longer classified as structurally deficient as of January 2018, due to the structurally deficient classification no longer including structural condition and waterway adequacy ratings. The remaining 28 structurally deficient bridges (42%) in Hampton Roads have no funding currently included in the SYIP, TIP, or a locality CIP.

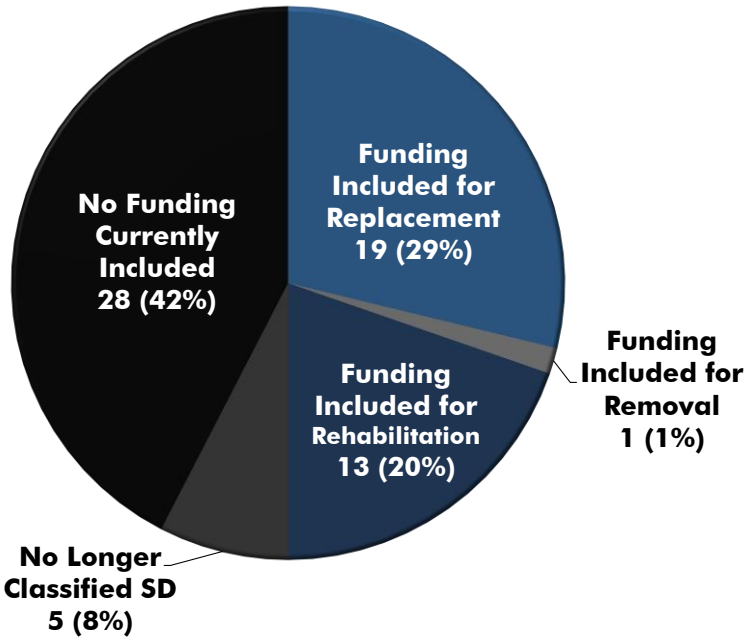


FIGURE 24 – FUNDING FOR STRUCTURALLY DEFICIENT BRIDGES IN HAMPTON ROADS

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017. Figure includes those bridges in the current Six-Year Improvement Program (FY 2018-2023), Hampton Roads Transportation Improvement Program (FY 18-21), and/or city Capital Improvement Plans/Programs.

Juris	Federal Bridge #	Facility	Type	Opening Date
CHES	29969	Beaver Dam Road over Drainage Ditch	Replacement	2012
CHES	30096	Bells Mill Road over Mill Creek	Replacement	2012
CHES	30273	Benefit Road over Drainage Ditch	Replacement	2013
CHES	29532	Blackwater Road over Pocaty Creek	Replacement	2010
CHES	30266	Campostella Road over Trib Deep Creek	Replacement	2012
CHES	30272	Cedar Road over Trib Bells Mill Creek	Replacement	2013
CHES	30280	Copper Knoll Lane over Trib C&A Canal	Replacement	2013
CHES	30271	Deep Creek Blvd over Drainage Ditch	Replacement	2013
CHES		Dominion Blvd Corridor Project		
	28792	Dominion Blvd NB over Cedar Road	New	2016
	28793	Dominion Blvd SB over Cedar Road	New	2016
	28794	Veterans (Steel) Bridge NB	Replacement	2014
	26479	Veterans (Steel) Bridge SB	Replacement	2016
	28796	Dominion Blvd NB over Bainbridge Blvd	New	2014
	28795	Dominion Blvd SB over Bainbridge Blvd	New	2015
	30685	Dominion Blvd over Mains Creek Culvert	Replacement	2013
	28798	Dominion Blvd NB over Great Bridge Blvd	New	2016
	28797	Dominion Blvd SB over Great Bridge Blvd	New	2016
	28799	Ramp K over Ramp L	New	2015
CHES	30367	Fentress Airfield Road over Pocaty Creek	Replacement	2014
CHES	29531	George Washington Hwy over Deep Creek	Replacement	2011
CHES	27144	Gilmerton Bridge	Replacement	2013
CHES	30093	Lake Drummond Causeway over Lead Ditch	Replacement	2012
CHES	29509	Lake Shore Drive over Trib of Goose Creek	Replacement	2011
CHES/VB	1826	Mount Pleasant Rd/North Landing Rd over C&A Canal	Rehabilitation	2014
CHES	30267	Old Mill Road over Deep Creek	Replacement	2013
CHES	-	South Norfolk Jordan Bridge	Replacement	2012
CHES	30281	Station Road over Trib Drum Point Creek	Replacement	2013
CHES	29508	Willow Lake Road over Trib of Goose Creek	Replacement	2011
GLO	29427	Burkes Pond Road (Rte 602) over Burkes Pond	Replacement	2015
GLO	30573	Cunningham Lane (Rte 627) over Wilson Creek	Replacement	2017
GLO	8533	Dutton Road (Rte 198) over Harpers Creek	Rehabilitation	2016
GLO	27069	Main Street SB over Fox Mill Run	Replacement	2012
GLO	8538	Old Pinetta Road (Rte 610) over Coffee Creek	Rehabilitation	2013
HAM	20294	Bridge St over Salters Creek	Replacement	2017
HAM	27473	Commander Shepard Blvd over Magruder Blvd	Replacement	2011
IW	29863	Carrsville Highway (Bus Rte 58) over Route 632 & CSX R/R	Replacement	2017
IW	10421	Collosse Road (Rte 641) over Corrowaugh Swamp	Rehabilitation	2017
IW	10414	Jones Town Drive (Rte 637) Bridge over Rattlesnake Swamp	Rehabilitation	2016
IW	10409	Lawrence Drive (Rte 630) over Stream	Rehabilitation	2016

FIGURE 25 – BRIDGES CONSTRUCTED, REPLACED, OR REHABILITATED IN HAMPTON ROADS, 2010-2017

Source: HRTPO analysis of VDOT and locality data. Includes all bridges complete by the end of 2017.

Juris	Federal Bridge #	Facility	Type	Opening Date
IW	29858	Longview Drive (Rte 602) over Pagan Creek	Replacement	2015
IW	29859	Mill Swamp Road (Rte 621) over Passenger Swamp	Replacement	2016
IW	29856	Orbit Road (Rte 637) over Nuby Run	Replacement	2014
IW	30284	Stallings Creek Rd (Rte 680) over Stallings Creek	Replacement	2016
IW	29488	Whippingham Pkwy (Rte 662) over Ragged Island Creek	Replacement	2017
NN	20658	Chestnut Avenue over Newmarket Creek	Rehabilitation	2016
NN	30415	Fort Eustis Blvd over CSX Railroad	Replacement	2015
NN	30979	Freedom Way over Deep Creek	New	2017
NN	30990	Gwynn Circle over Lucas Creek	Replacement	2017
NN		I-64 Widening Project		
	30639	I-64 EB over Industrial Park Dr	Replacement	2017
	30640	I-64 WB over Industrial Park Dr	Replacement	2017
	-	I-64 EB over Fort Eustis Blvd	Replacement	2017
NN	-	I-64 WB over Fort Eustis Blvd	Replacement	2017
NN	29266	Middle Ground Blvd over CSX Railroad	New	2014
NN	20659	Washington Avenue over NNS Railroad	Replacement	2017
NOR	30075	Granby Street over Mason Creek	Rehabilitation	2012
NOR	30488	Kimball Terrace over Ohio Creek	Replacement	2014
NOR	20934	Little Creek Rd over Tidewater Dr	Rehabilitation	2014
NOR	20777	North Shore Rd over Branch of Lafayette River	Rehabilitation	2015
NOR	20778	North Shore Rd over Branch of Lafayette River	Rehabilitation	2015
NOR	-	R/R over Hampton Boulevard at NIT North Entrance	New	2015
PORT		Midtown Tunnel/Downtown Tunnel/MLK Fwy Project		
	21233	I-264 over Des Moines Ave	Rehabilitation	2016
	21224	I-264 over N&P Belt Line R/R	Rehabilitation	2016
	30133	MLK Expressway - Mainline	New	2016
	30134	MLK Expressway - Ramp N	New	2016
	30135	MLK Expressway - Ramp S	New	2016
	30136	MLK Expressway - Ramp EN	New	2016
	30137	MLK Expressway - Ramp EN	New	2016
	30138	MLK Expressway - Ramp WN	New	2016
	30139	MLK Expressway - Ramp SW	New	2016
SH	17854	Cross Keys Road (Rte 665) over Deal Swamp	Rehabilitation	2013
SH	17812	Indian Branch Lane (Rte 634) over Indian Branch	Rehabilitation	2016
SH	17793	Ivor Road (Rte 616) over Seacock Swamp	Replacement	2016
SH	17809	Mission Church Road (Rte 631) over Black Creek	Rehabilitation	2017
SH	30763	Old Place Road (Rte 657) over Tarrara Creek	Rehabilitation	2015
SH	17773	Popes Station Road (Rte 609) over Branch	Rehabilitation	2013
SH	17779	Rivers Mill Road (Rte 612) over Rivers Mill	Rehabilitation	2012
SH	29358	Rose Valley Road (Rte 688) over Branch	Replacement	2010

FIGURE 25 (CONTINUED) – BRIDGES CONSTRUCTED, REPLACED, OR REHABILITATED IN HAMPTON ROADS, 2010-2017

Source: HRTPO analysis of VDOT and locality data. Includes all bridges complete by the end of 2017.

Juris	Federal Bridge #	Facility	Type	Opening Date
SH	29902	Route 35 over Nottoway River	Replacement	2015
SH	29862	Route 35 over Tarrara Creek	Replacement	2017
SH	17782	Seacock Chapel Road (Rte 614) over Branch	Rehabilitation	2015
SH	30444	Vicks Millpond Rd (Rte 659) over Flat Swamp	Replacement	2016
SUF	30826	Arthur Drive over Spivey Swamp	Replacement	2017
SUF	30827	Arthur Drive over Langston Swamp	Replacement	2017
SUF	29441	Corinth Chapel Road over March Swamp	Replacement	2010
SUF	30571	Robbie Road over Mill Swamp	Replacement	2015
SUF	30980	Wilroy Road over Magnolia Creek	Replacement	2017
SUR	29857	Loafers Oak Rd (Rte 630) over Cypress Swamp	Replacement	2014
VB	29370	Constitution Drive over Thalia Creek	New	2010
VB	30676	Crags Causeway over Mill Dam Creek	Replacement	2015
VB	29367	Diamond Springs Road SB over Waterworks Canal	Replacement	2010
VB	22230	I-264 over London Bridge Creek	Rehabilitation	2012
VB	29394	Kempsville Road over Fox Run	Replacement	2014
VB	30155	Lesner Bridge (WB Lanes)	Replacement	2016
VB	30128	Lynnhaven Parkway over Charlestown Lakes Canal	New	2016
VB	29369	Lynnhaven Parkway over Drainage Canal	Replacement	2010
VB	28706	Lynnhaven Parkway over London Bridge Creek	Replacement	2010
VB	30326	Lynnhaven Parkway over Stream	New	2016
VB	27513	Nimmo Parkway over Hunt Club Tributary	New	2014
VB	27067	Nimmo Parkway over West Neck Creek	New	2014
VB	30052	Pinewood Road over Little Neck Creek	Replacement	2013
VB	30816	Providence Road over Cedar Hill Canal	Replacement	2016
YC	27508	George Washington Highway over Poquoson River	Replacement	2015

FIGURE 25 (CONTINUED) – BRIDGES CONSTRUCTED, REPLACED, OR REHABILITATED IN HAMPTON ROADS, 2010-2017

Source: HRTPO analysis of VDOT and locality data. Includes all bridges complete by the end of 2017.

Juris	Federal Bridge #	Facility	Type	SD/ FO	UPC Code	Construction Start|End	Estimated Project Cost	Allocations Prior to FY 2018	FY 2018 - FY 2023 Allocations	Remaining Allocations Required	Funding Sources
CHES	21879	22nd Street Overpass	Replacement	SD	108665	2019|2021	$18,349,000	$18,349,000	-	-	CIP & Revenue Sharing
CHES	21797	Centerville Turnpike Bridge	Rehabilitation	SD	107350	2018|2018	$8,872,000	$5,520,000	$1,686,000	$1,666,000	SGR
CHES	1818	Deep Creek Bridge	Replacement	FO	109382	2020|2022	$48,468,000	$28,468,000	$20,000,000	-	DGP & USACE
CHES	21830	Sunray Overpass	Rehabilitation	SD	111220	Underway|2019	$3,187,000	$1,500,000	$1,412,000	$275,000	SGR
CHES	21827	Triple Decker Bridge - Upper Level	Rehabilitation	SD	111002	2019|2020	$5,110,000	$50,000	$5,060,000	-	SGR
CHES	21937	Triple Decker Bridge - Lower Level	Rehabilitation	SD	111032	2019|2020	$2,672,000	-	$2,216,000	$456,000	SGR
CHES	21810	Fentress Airfield Rd over Pocaty Creek	Rehabilitation	FO	-	Various|2022	$2,960,000	$460,000	$2,500,000	-	CIP only, grouped project
CHES	21935	Indian River Road over Indian River	Rehabilitation	-							
CHES	21816	Number Ten Lane over Lindsey Drainage Canal	Rehabilitation	SD							
CHES	25566	Route 168 Bypass over Battlefield Boulevard	Rehabilitation	FO							
GLO	8552	Almondsville Rd (Rte 662) over Fox Creek	Replacement	***	98807	Complete (2018)	$2,470,000	$1,454,000	$1,016,000	-	SGR
GLO	8548	Tidemill Rd over Northwest Br Sarah Creek	Rehabilitation	SD	110109*	2018|2020	$1,500,000	$1,000,000	$500,000	-	SGR
HAM/YC	19855/19856	Route 134 over Brick Kiln Creek	Replacement	FO	105222	2019|2021	$7,013,000	$2,089,000	$4,925,000	-	Legacy CN and Specialized Federal
IW	10416	Orbit Rd (Rte 637) over Carbell Swamp	Rehabilitation	SD	To be funded and scheduled under Maintenance and Repair Contract						
IW	22615	South Church Street (Bus Rte 258) over Cypress Creek	Rehabilitation	SD	111338	2020|2021	$1,600,000	-	$1,600,000	-	SGR
IW	10445	Uzzell Church Road (Rte 692) over Champion Swamp	Replacement	SD	111339	2021|2022	$1,250,000	-	$1,250,000	-	SGR
JCC	24057	Glass House Ferry at James River	Rehabilitation	SD	To be funded and scheduled under Maintenance and Repair Contract						
JCC	10516	Hicks Island Rd (Rte 601) over Diascund Creek	Replacement	FO	98823	2021|2022	$3,259,000	$524,000	$2,734,000	-	Legacy CN
JCC	-	Skiffes Creek Connector	New	N/A	100200	2021|2024	$50,504,000	$10,000,000	$42,048,000	-	DGP & RSTP
NN	25086	20th Street over Salters Creek	Rehabilitation	-	-	Underway|2018	$70,500				CIP only
NN	20727	Denbigh Blvd over I-64/CSX Railroad	Replacement	SD	93077	2018|2023	$32,500,000	$5,740,000	$26,760,000	-	Both SGR and Legacy CN
NN	20720	Fort Eustis Blvd over Newport News Reservoir	Replacement	SD	105624	2019|2021	$23,100,000	$4,100,000	$2,100,000	$16,900,000	SGR
NN	20661	Huntington Avenue over NNS Railroad	Replacement	FO	94832	2018|2019	$5,956,000	$5,956,000	-	-	Revenue Sharing
NN	20731	J. Clyde Morris Boulevard NB Bridge over CSX Railway	Rehabilitation	FO	-	2018|2019	$241,000	-	$241,000	-	CIP only
NN	20679	Warwick Blvd over Lake Maury	Replacement	SD	101279	Underway|2018	$8,863,000	$7,623,000	$1,240,000	-	DGP, Revenue Sharing, and Other
NOR	20936	Campostella Avenue over Eastern Branch Elizabeth River	Rehabilitation	-	107039	2021|2022	$6,000,000	-	$6,000,000	-	RSTP
NOR	21040	Granby Street over Lafayette River	Rehabilitation	-	109568	2018|2019	$3,500,000	$3,500,000	-	-	RSTP and others
NOR	20811	Ocean View Ave EB over Tidewater Drive	Removal	SD	108729	2018|2019	$2,540,000	$2,476,000	-	$64,000	Revenue Sharing
PORT	21199	High St over Western Branch Elizabeth River	Replacement (P)	SD	102715	Underway|2019	$35,500,000	$28,793,000	$6,707,000	-	Legacy CN and Revenue Sharing
SH	17901	Burnt Reed Rd (Rte 743) over Tarrara Creek	Rehabilitation	SD	To be funded and scheduled under Maintenance and Repair Contract						
SH	17865	General Thomas Hwy (Rte 671) over Nottoway River	Replacement	SD	108976	2019|2020	$7,000,000	-	$7,000,000	-	SGR
SH	17864/17866	General Thomas Hwy (Rte 671) over Nottoway River	Replacement	FO	101495	2019|2021	$15,725,000	$1,331,000	$7,459,000	$6,935,000	Legacy CN
SH	-	Route 58 Business over Route 58 east of Courtland	New	N/A	17728	Underway|2018	$26,402,000	$10,672,000	$15,730,000	-	Various

FIGURE 26 – CURRENT AND UPCOMING BRIDGE PROJECTS IN HAMPTON ROADS

Source: HRTPO analysis of VDOT, HRTPO, and locality data. Figure includes those bridges in the current Six-Year Improvement Program (FY 2018-2023), Hampton Roads Transportation Improvement Program (FY 18-21), and/or city Capital Improvement Plans/Programs. * - This UPC includes 3 bridge rehabilitation projects in the Fredericksburg District. Only Structure #8548 is in Gloucester County. ** - This UPC also includes widening roadway and removing frontage roads from west of First Colonial Road to Birdneck Road. *** - Original bridges were classified as SD before replacement project began.

Funding sources: CIP – Locality Capital Improvement Plan/Program; CN – Legacy Bridge Construction Funds; DGP – District Grant Program; Revenue Sharing – 50% VDOT/50% Locality funds; RSTP – Regional Surface Transportation Program; SGR – State of Good Repair Program; USACE – U.S. Army Corps of Engineers

Juris	Federal Bridge #	Facility	Type	SD/ FO	UPC Code	Construction Start|End	Estimated Project Cost	Allocations Prior to FY 2018	FY 2018 - FY 2023 Allocations	Remaining Allocations Required	Funding Sources
SH	17757	Three Creek Rd (Rte 308) over Three Creek	Replacement	SD	104965	2018|2019	$3,872,000	$3,872,000	-	-	SGR
SH	17813	Tucker Swamp Rd (Rte 635) over N/S Railroad	Replacement	SD	93078	Underway|2019	$3,607,000	$1,954,000	$1,653,000	-	SGR
SUF/SH	17755	South Quay Road (Rte 189) over Blackwater River	Replacement	SD	98813	2020|2022	$25,077,000	$2,633,000	$22,445,000	-	SGR
SUF	22154	Badger Road over Washington Ditch	Rehabilitation	SD	111043	2019|2019	$575,000	-	$414,000	$161,000	SGR
SUF	22027	Carolina Road over Cypress Swamp	Replacement	SD	111033	2019|2023	$2,706,000	-	$1,989,000	$717,000	SGR
SUF	22121	Lake Cahoon Road over CSX Railroad	Rehabilitation	SD	111042	2019|2023	$3,440,000	-	$2,838,000	$602,000	SGR
SUF	22137	Longstreet Lane over Somerton Creek	Replacement	SD	111040	2020|2023	$2,590,000	-	$1,981,000	$609,000	SGR
SUF	22111	Mineral Springs Road over Jones Swamp	Replacement	SD	111039	2019|2019	$1,815,000	-	$1,398,000	$418,000	SGR
SUF	22091	Nansemond Pkwy over Beamons Mill Pond	Replacement	SD	111037	2019|2022	$1,121,000	$239,000	$641,000	$241,000	SGR
SUF	22107	Simons Drive over Cohoon Creek	Replacement	SD	111041	2019|2019	$641,000	-	$470,000	$170,000	SGR
SUF	22138	Southwestern Blvd over Chapel Swamp	Rehabilitation	SD	111044	2019|2019	$567,000	-	$408,000	$159,000	SGR
SUF	22159	Turlington Road over Kilby Creek Spillway	Replacement	SD	108984	2020|2023	$1,350,000	-	$2,128,000	-	SGR & RSTP
SUF	22088	E. Washington Street over Jericho Canal	Replacement	SD	111038	2019|2022	$621,000	-	$480,000	$141,000	SGR
SUR	18185	Route 40 over Otterdam Swamp	Replacement	SD	111342	2021|2022	$1,715,000	-	$1,715,000	-	SGR
VB	22252	Laskin Road over Linkhorn Bay	Replacement	SD	12546**	2018|2021	$21,160,000	$21,160,000	-	-	Various
VB	30155	Lesner Bridge WB	Replacement	***	97737	Underway|2018	$98,400,000	$73,224,000	$25,176,000	-	Various
VB	22264	Lesner Bridge EB	Replacement	***							
VB	22183	Sandbridge Road over Hells Point Creek	Replacement	FO	-	2018|2020	$8,043,000	$1,250,000	$6,793,000	-	CIP only

FIGURE 26 (CONTINUED) – CURRENT AND UPCOMING BRIDGE PROJECTS IN HAMPTON ROADS

Source: HRTPO analysis of VDOT, HRTPO, and locality data. Figure includes those bridges in the current Six-Year Improvement Program (FY 2018-2023), Hampton Roads Transportation Improvement Program (FY 18-21), and/or city Capital Improvement Plans/Programs. * - This UPC includes 3 bridge rehabilitation projects in the Fredericksburg District. Only Structure #8548 is in Gloucester County. ** - This UPC also includes widening roadway and removing frontage roads from west of First Colonial Road to Birdneck Road. *** - Original bridges were classified as SD before replacement project began.

Funding sources: CIP – Locality Capital Improvement Plan/Program; CN – Legacy Bridge Construction Funds; DGP – District Grant Program; Revenue Sharing – 50% VDOT/50% Locality funds; RSTP – Regional Surface Transportation Program; SGR – State of Good Repair Program; USACE – U.S. Army Corps of Engineers

Cost of Maintaining Bridges

There are 1,261 bridges in Hampton Roads, but only 80 bridges in the region were replaced or had major rehabilitation projects between 2010 and 2017. As structures continue to age – the median age for bridges in Hampton Roads is currently 39 years – allocating adequate funding to maintain these structures will continue to be difficult.

Regional long term transportation planning is conducted by the HRTPO. The Hampton Roads Long-Range Transportation Plan (LRTP) is a comprehensive and multimodal transportation blueprint that identifies and plans for critically important transportation improvements that impact the region's economic vitality and quality of life. LRTPs must be fiscally-constrained, which means that the cost of all of the projects included in the plan cannot exceed the funding that is reasonably expected to be available over the horizon period.

The current 2040 Hampton Roads Long-Range Transportation Plan was approved and adopted by the HRTPO Board in July 2016. HRTPO staff has started working on the 2045 LRTP, which will be approved by the HRTPO Board by July 2021.

Although the LRTP largely focuses on new roadway construction and fixed guideway transit improvements, funding for roadway maintenance needs is also included in the fiscal constraint analysis. In the 2040 Hampton Roads LRTP, it is anticipated that the region will receive approximately $12 billion in funding for maintenance between 2016 and 2040.

In the 2012 Regional Bridge Study, HRTPO Staff estimated the cost of sustaining existing bridge connections throughout the time horizon of the 2040 Hampton Roads LRTP. Based on the analysis done for the study, HRTPO staff determined that it would cost nearly $8 billion over the time period from 2016-2040 to sustain existing bridge connections in Hampton Roads. This $8 billion exceeded the $7.3 billion cost of *all* of the construction projects that were included in the 2034 Hampton Roads Long-Range Transportation Plan.

On a statewide level, VDOT annually prepares an analysis of the anticipated statewide bridge monetary needs and projected funding levels available. As part of this analysis, VDOT makes assumptions on what the typical age of a bridge will be when it will need to be replaced. According to VDOT, bridges built prior to 2007 have a 50-year design service life, and as part of their analysis makes the assumption that they will need to be replaced on average at 70 years old. Since 2007, bridges have been designed and built using new standards and construction materials, which have resulted in an increase in the anticipated design service life from 50 years up to 75 years.

According to VDOT's most recent analysis, if the Commonwealth replaced all of its bridges that have a 50-year design service life as they reached 70 years old, the cost over a 35-year period (2016-2050) would be $45 billion. However, based on current funding levels and mechanisms, VDOT estimates that only $13 billion will be available in combined maintenance and construction funds to address bridges during this time horizon (**Figure 27**). Most of the funding will be needed in later years as shown in **Figure 28**, since the number of bridges that will reach 70 years old statewide will escalate starting around 2027.

In spite of these needs, VDOT has only allocated $1.4 billion for bridges in the State of Good Repair and legacy bridge programs between Fiscal Years 2017 and 2022. Because of these funding constraints, VDOT uses a proactive approach in order to ensure bridges can remain in service for an optimal period of time before requiring replacement and achieving the most value for the funds that are invested in bridges. This approach includes:

- Exceeding FHWA requirements in its bridge inspection program.
- Cost-effectively prioritizing the rehabilitation and replacement of structures through the State of Good Repair program.
- Instituting a bridge maintenance program that balances preserving, repairing, and rehabilitating structures.
- Funding a proactive research program that allows for early implementation of innovative techniques.
- Allowing decisions to be made at the local and district level through its organizational structure.
- Using performance measures and targets, and reporting measures on a quarterly basis.

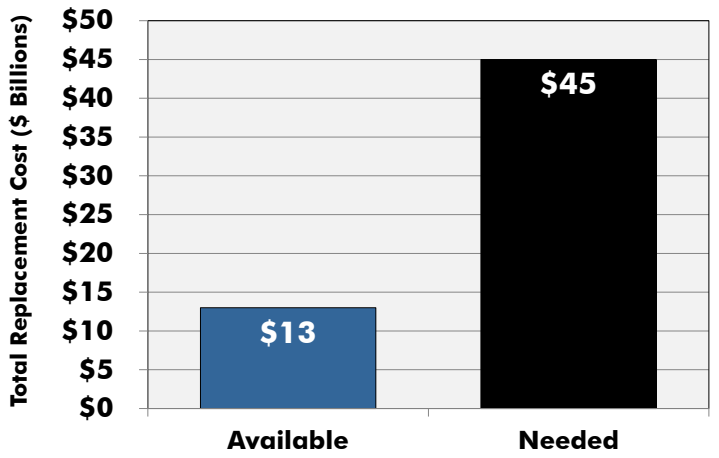


FIGURE 27 – STATEWIDE 35 YEAR FUNDING OUTLOOK TO REPLACE ALL BRIDGES AT AGE 70, 2016-2050

Source: VDOT

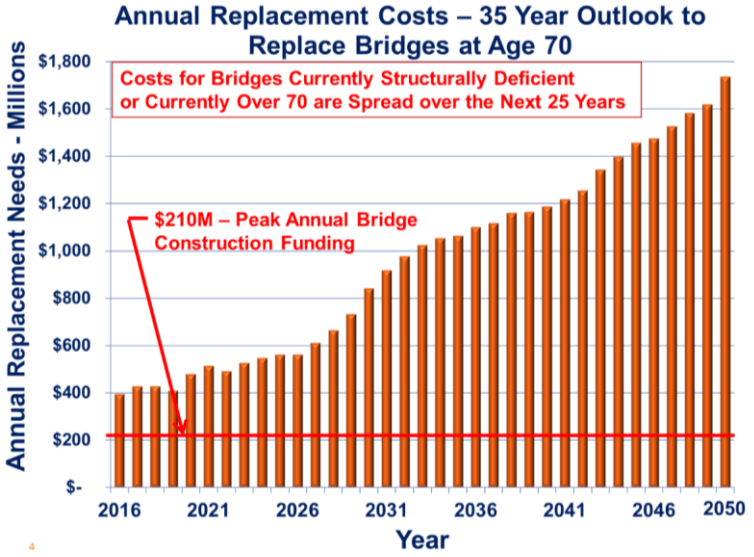


FIGURE 28 – STATEWIDE ANNUAL REPLACEMENT COSTS TO REPLACE BRIDGES AT AGE 70, 2016-2050

Source: VDOT

It is important to note that it is generally more cost-efficient to rehabilitate bridges on a timely basis than waiting and having to allocate more funds for a full replacement at a later date. However, rehabilitating bridges on a timely basis is largely dependent on the availability of adequate funding. Bridges deteriorate over a period of decades (rather than months or years), so the impacts of funding deficiencies on the condition of bridges is usually not evident in the short term. If funding for bridge maintenance is not increased over the long-term, a degradation of the condition of bridges throughout Hampton Roads and the state is likely.

The condition of bridges and bridge maintenance needs will likely be even more of an issue in Hampton Roads over the next few decades than the statewide figures indicate. Among the bridges that currently exist in Hampton Roads, the decade with the most bridges built is the 1960s (**Figure 29**). This was the decade when many of the Interstates in the region were constructed, and 132 of the 246 bridges built throughout the region in the 1960s are on the Interstate system.

Of the 1,261 structures in the region, 392 (31%) are 50 years old or older as of December 2017, which means that they have exceeded their anticipated design service life (**Figure 30**). Using VDOT's 70-year

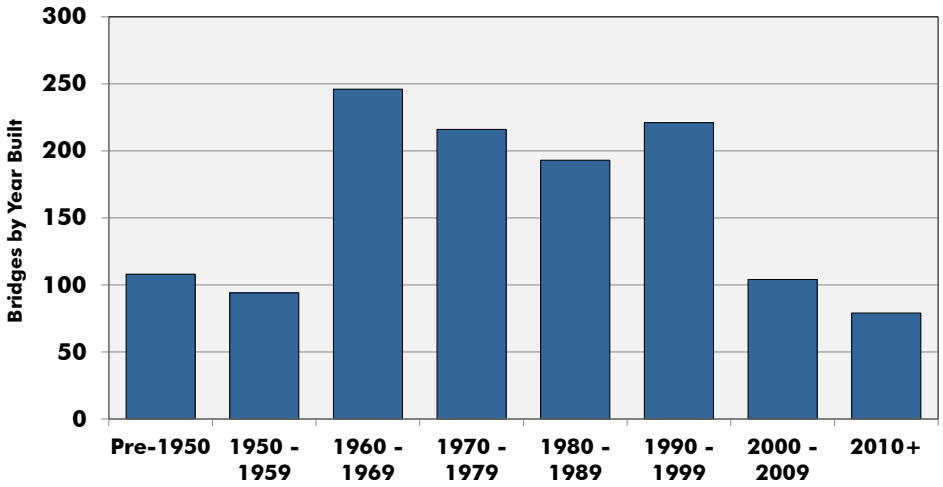


FIGURE 29 – BRIDGES IN HAMPTON ROADS BY YEAR BUILT

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

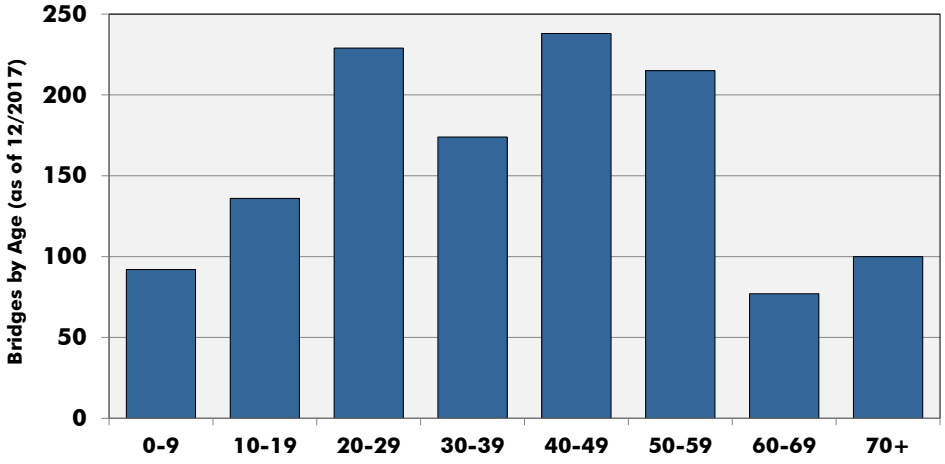


FIGURE 30 – BRIDGES IN HAMPTON ROADS BY AGE

Source: HRTPO analysis of VDOT and FHWA data. Data for Hampton Roads bridges as of December 2017.

threshold for their replacement needs analysis, 100 bridges in Hampton Roads (7.9%) are 70 years old or older as of December 2017. By comparison, 16.9% of the bridges statewide are 70 years old or older as of December 2017, which is more than double the Hampton Roads rate.

The number of bridges in Hampton Roads that will be 70 years old or older is expected to grow exponentially in future years. If none of the existing bridges are replaced between now and 2045 (the horizon of the upcoming Hampton Roads LRTP), 600 bridges in Hampton Roads will be 70 years old or older by 2045 (**Figure 31**). This is nearly half (48%) of the 1,261 bridges that currently exist in the region. Statewide, 7,502 NBI bridges will be 70 years old or older by 2045 if none of the existing bridges are replaced, which is 55% of the bridges that currently exist statewide (**Figure 32**).

Although the statewide rate of 70+ year old bridges is expected to remain higher than the rate in Hampton Roads, the difference between the regional and statewide rate will narrow from the current rate. As of 2017, 4.4% of the bridges statewide that are 70 years old or older are in the Hampton Roads area. By 2045, this percentage is expected to increase to 8.0% of the existing bridges statewide.

In order to determine the cost of maintaining bridges in Hampton Roads through 2045, HRTPO staff used a methodology that is similar to the one used by VDOT. For the analysis, HRTPO staff assumed that bridges would need to be replaced at an age of 70 years. Also similar to the statewide analysis, the replacement cost for those bridges that are currently 70+ years old and/or currently classified as structurally deficient are also divided up over the next 25 years.

The bridge replacement costs used in this analysis are based on the Statewide Planning Level Cost Estimates provided by VDOT's Transportation and Mobility Planning Division (TMPD). TMPD provides unit cost estimates for many types of improvements, including

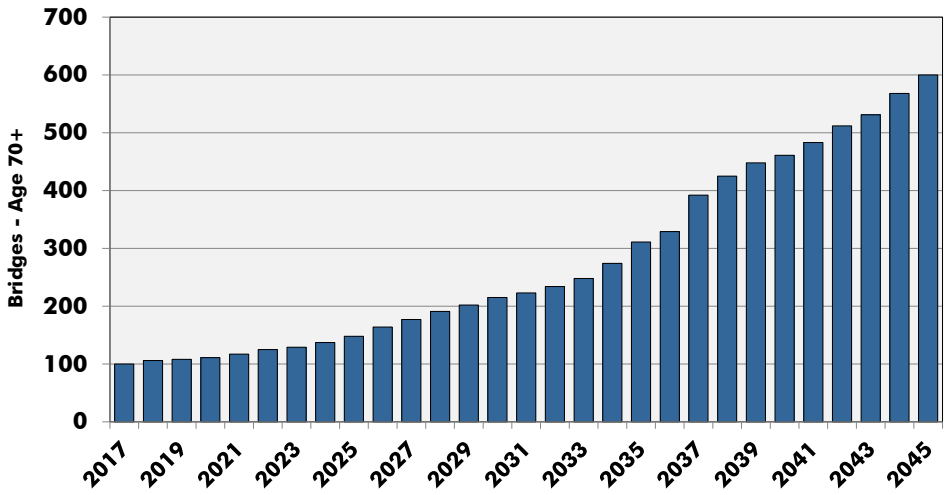


FIGURE 31 – BRIDGES IN HAMPTON ROADS AGE 70+

Source: HRTPO analysis of VDOT and FHWA data.

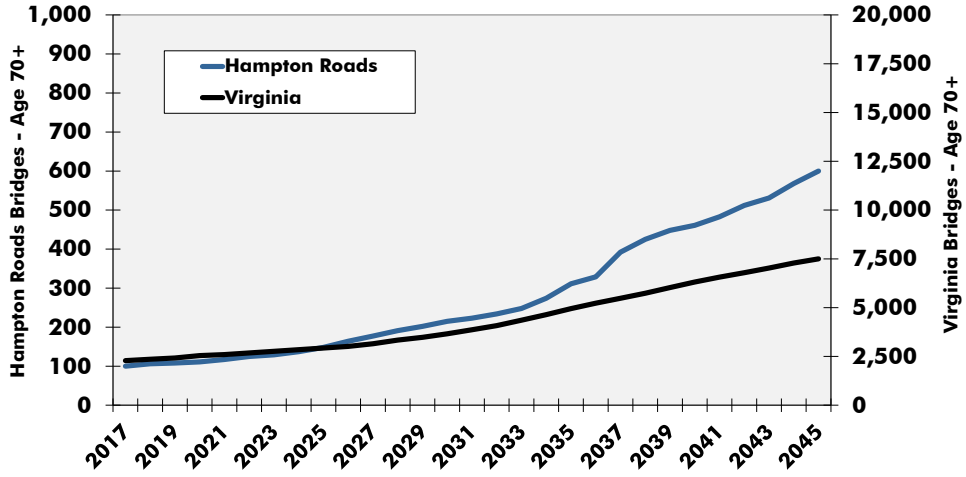


FIGURE 32 – BRIDGES IN HAMPTON ROADS AND STATEWIDE AGE 70+

Source: HRTPO analysis of VDOT and FHWA data.

bridges. The most recent bridge replacement unit costs (2015) for Hampton Roads are broken down as follows:

- Bridges less than 3,000 square feet - $300 ft² - $500 ft²
- Bridges between 3,000 square feet and 12,500 square feet - $240 ft² - $330 ft²
- Bridges greater than 12,500 square feet - $180 ft² - $250 ft²

The averages of these values were used in this analysis: $400 for bridges less than 3,000 ft², $285 for bridges between 3,000 ft² and 12,500 ft², and $215 for bridges greater than 12,500 ft². These average unit costs were then inflated by 3% annually to advance from 2015 to the year that the bridge would need to be replaced, which is assumed to occur at 70 years old. This 3% inflation rate is used by VDOT in their planning level cost estimates as well as by HRTPO in their long-range transportation planning efforts.

Based on these assumptions, HRTPO staff calculated that $4.5 billion would be necessary to fund the maintenance of bridges in Hampton Roads through 2045. As shown in **Figure 33**, most of these funds – over $3.5 billion – will be needed in 2034 and later years.

It must be noted that this is assumed to be a "worst-case" scenario, where bridges are replaced rather than rehabilitated in a timely manner due to funding limitations. It is expected that this $4.5 billion number would be lower if timely maintenance extends the service life of older bridges. It also does not take into account bridges that may have already had major rehabilitations to extend their useful life beyond the 50 and 70 year-thresholds used in this analysis.

Many of these bridges in Hampton Roads that will need to be maintained, however, are outside the purview of HRTPO's Long-Range Transportation Plan. These bridges include:

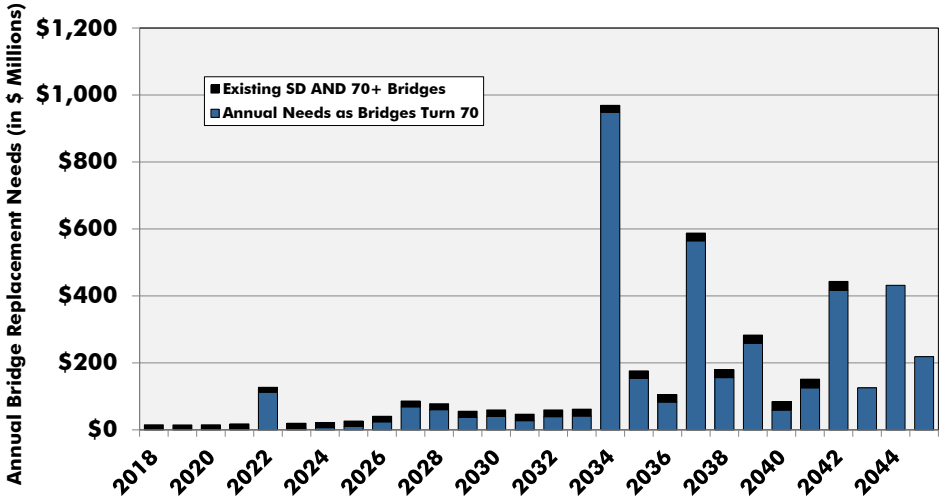


FIGURE 33 – REGIONAL ANNUAL BRIDGE REPLACEMENT NEEDS, 2018-2045

Source: HRTPO analysis of VDOT and FHWA data. Costs reflect year of expenditure. The replacement cost for those bridges that are currently 70+ years old and/or are currently classified as structurally deficient are divided up over 25 years (2018-2042).

- **Bridges outside of the Metropolitan Planning Area (MPA)** - The bridge analysis in this study uses the Hampton Roads Planning District Commission (HRPDC) boundary to represent "Hampton Roads" as noted on page 5. The Hampton Roads Long-Range Transportation Plan, however, only reflects projects within the Hampton Roads MPA. The Hampton Roads MPA does not include Surry County, the majority of Franklin and Southampton County, and the northern portion of Gloucester County. Of the 1,261 bridges analyzed in this study, 174 bridges are outside of the MPA.
- **Private bridges** – There are 40 bridges in Hampton Roads that are either privately maintained or maintained by state commissions. These bridges include the South Norfolk Jordan Bridge, the Chesapeake Bay Bridge-Tunnel, and bridges

approaching the Midtown and Downtown Tunnels maintained by Elizabeth River Crossings. These 40 bridges are largely maintained through funding streams that are not included in the regional LRTP.

- **Federally-maintained bridges** – There are 33 bridges in Hampton Roads that are federally maintained. These bridges include the Jamestown Tour Road, Yorktown Tour Road, and most of the bridges on the Colonial Parkway. Two bridges over the Intracoastal Waterway – the Deep Creek Bridge and the North Landing Bridge – are also federally-maintained. Maintenance for federal roadways and bridges is largely not included in the maintenance needs reflected by the regional LRTP, although there are some exceptions such as the upcoming replacement and widening of the Deep Creek Bridge.

Combined, these three exceptions comprise 247 of the 1,261 bridges analyzed in this study. Removing these 247 bridges from the analysis, the funding that would be necessary to maintain bridges through 2045 that are within the purview of the HRTPO Long-Range Transportation Plan is $3.4 billion (**Figure 34**). This is 28% of the approximately $12 billion in funding for maintenance provided in the 2040 Hampton Roads LRTP.

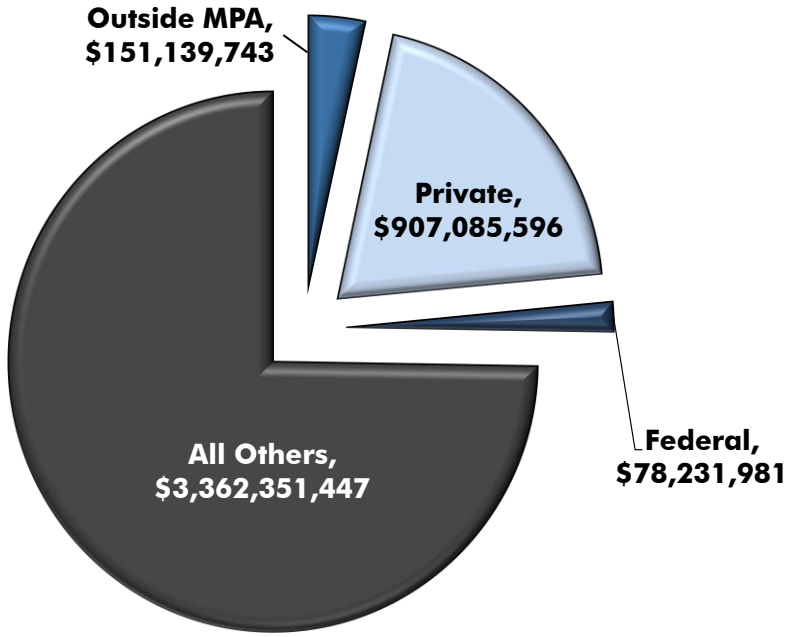


FIGURE 34 – HAMPTON ROADS LRTP BRIDGE REPLACEMENT NEEDS, 2018-2045

Source: HRTPO analysis of VDOT and FHWA data. Costs reflect year of expenditure. Private bridges include those maintained by private sources and state commissions. The replacement cost for those bridges that are currently 70+ years old and/or are currently classified as structurally deficient are divided up over 25 years (2018-2042).

CONCLUSIONS

Because of the importance of bridges to the regional transportation system and concerns about the condition and funding of bridges, the Hampton Roads Transportation Planning Organization prepared this update to the Regional Bridge Study. The following conclusions are made concerning bridges in Hampton Roads based on the analyses included in this study:

- Hampton Roads has 1,261 bridges (based on the NBI definition of a bridge used in this study), which is lower than the number in other comparable metropolitan areas. Among the 37 metropolitan areas in the United States with populations between one and three million people, Hampton Roads ranks 26th highest in terms of the number of bridges.
- Hampton Roads, however, does have longer bridges than most other areas, with the 2nd longest average bridge length among the 37 comparable metropolitan areas and the 8th highest total bridge area.
- The median age of bridges in Hampton Roads is 39 years as of December 2017. This is typical to other metropolitan areas, ranking 23rd highest among the 37 comparable metropolitan areas.
- The number of bridges in Hampton Roads that are classified as structurally deficient is decreasing. There are 66 bridges in Hampton Roads that are classified as structurally deficient as of December 2017, down from 77 bridges in August 2012.
- The percentage of structurally deficient bridges in Hampton Roads (5.2%) is lower than in many other comparable areas. Hampton Roads ranks only 24th highest among the 37 metropolitan areas with populations between one and three million people in terms of the percentage of bridges that are classified as structurally deficient.
- The number of bridges in Hampton Roads classified as functionally obsolete is also decreasing. There are 261 bridges (20.7%) classified as functionally obsolete in the region as of December 2017. This is down from 379 bridges as of August 2012.

Component	Number in Hampton Roads (Dec. 2017)	Change in Number in Hampton Roads since August 2012	Percentage of Total Bridges in Hampton Roads (Dec. 2017)	Rank Among 37 Metro Areas with Populations between 1 and 3 Million
Total Number of Bridges	1,261	+38	N/A	26th highest
Total Bridge Area	2,746,000 m^2	+124,000 m^2	N/A	8th highest
Median Bridge Age	39 years	+2 years	N/A	23rd highest
Structurally Deficient Bridges	66	-11	5.2%	24th highest
Functionally Obsolete Bridges	261	-118	20.7%	N/A
Bridges with Posted Weight Limits	69	-33	5.5%	18th highest
Total Bridges in Poor Condition	60	N/A	4.8%	23rd highest
Total Bridge Area in Poor Condition	83,400 m^2	N/A	3.0%	27th highest
NHS Bridges in Poor Condition	8	N/A	1.2%	30th highest
NHS Bridge Area in Poor Condition	4,680 m^2	N/A	2.2%	26th highest

FIGURE 35 – SUMMARY OF HAMPTON ROADS BRIDGE CONDITIONS

Source: HRTPO analysis of VDOT and FHWA data.

- Weight limits are posted on 69 bridges in Hampton Roads (5.5%) as of December 2017. This number has decreased by 33 bridges since August 2012. Hampton Roads has the 18th highest percentage of bridges with posted weight limits among the 37 comparable metropolitan areas.
- There are 60 bridges that are classified as being in poor condition in Hampton Roads as of December 2017 using the new federal bridge performance measures. This comprises 4.8% of the total bridges in the region, and 3.0% of the bridge deck area.
- Looking only at bridges on the National Highway System (NHS), only 1.2% of the bridges in Hampton Roads are classified in poor condition. This compares to 2.9% of NHS bridges in Virginia and 3.5% in comparable metropolitan areas. Looking at NHS bridge area, 2.2% is in poor condition in Hampton Roads, which is better than the 3.4% statewide figure and 5.2% in comparable metropolitan areas.
- Since 2010, there have been 102 bridges throughout Hampton Roads built, replaced, or that underwent a major rehabilitation. Of these

102 bridges, 59 are replacements of existing bridges, 22 are new structures where bridges did not exist previously, and 21 are major rehabilitations of existing bridges.

- A total of 51 existing bridges in Hampton Roads are programmed for replacement, rehabilitation, or removal in the current Six-Year Improvement Program, Transportation Improvement Program, or a city Capital Improvement Plan/Program. Of these 51 bridges, 36 are classified as structurally deficient (or were classified as structurally deficient before construction started), 11 are classified as functionally obsolete, and the remaining 4 bridges are not deficient. A total of $475 million is allocated in the current SYIP, TIP, and CIPs to these 51 bridge projects.
- The majority of structurally deficient bridges in Hampton Roads have funding in place for improvement projects. Among the 66 bridges in Hampton Roads classified as structurally deficient, 19 bridges (29%) are included in the current SYIP, TIP, or a locality CIP for replacement, 13 bridges (20%) are included for rehabilitation, and one bridge has funds allocated for removal. Five of the bridges that do not have funding allocated are no longer classified as structurally deficient as of January 2018, due to the structurally deficient classification no longer including structural condition and waterway adequacy ratings. The remaining 28 structurally deficient bridges (42%) in Hampton Roads have no funding currently included in the SYIP, TIP, or a locality CIP.
- HRTPO staff calculated that $4.5 billion would be necessary to fund the maintenance of bridges in Hampton Roads through 2045. Most of these funds – over $3.5 billion – will be needed in 2034 and later years.
- Of the $4.5 billion needed to maintain existing bridges in Hampton Roads through 2045, $3.4 billion are within the purview of the HRTPO Long-Range Transportation Plan. This $3.4 billion is 28% of the approximately $12 billion in funding for maintenance provided in the 2040 Hampton Roads LRTP.

GLOSSARY OF BRIDGE TERMS

Many terms are used throughout this study to describe various components and aspects of bridges. This section includes a glossary of selected terms used throughout this study.

Bridge – For the purposes of this study, the definition of a bridge is similar to the definition used for bridges in the National Bridge Inventory. A bridge is defined as any structure carrying a roadway open to the general public with a length of more than 20 feet. Bridges less than or equal to 20 feet in length are not included in this report, nor are bridges on secure areas of military bases and tunnels.

Culvert – A culvert is a smaller drainage structure, such as a drain, pipe, or channel, which allows water to pass under a roadway. Culverts are included in this report if the opening is more than 20 feet.

Deck – The portion of the bridge that directly supports motorized and pedestrian traffic.

Fatigue – For bridges, fatigue is the weakening of a material (such as steel) caused by repeatedly applied loads.

Fracture Critical – A fracture critical bridge is a structure that is designed with few or no redundant supporting elements. If a key structural member fails in a fracture critical bridge, the structure is in danger of collapsing. Examples of fracture critical bridges include most truss bridges and drawbridges.

Despite the lack of redundancy, fracture critical bridges are not inherently unsafe. Fracture critical bridges undergo more frequent and extensive inspections than non-fracture critical bridges, and inspectors will close or impose limits on bridges that they feel are unsafe.

Functionally Obsolete – A functionally obsolete bridge is a structure that was built to standards that are no longer used today. Functionally obsolete bridges are not inherently unsafe; they are bridges that do not have adequate lane widths, shoulder widths, or vertical clearances to serve current traffic volumes or meet current geometric standards.

Inventory Rating – The inventory rating is the load level that can safely utilize an existing structure for an indefinite period of time. This is based on the type of vehicle used in the rating.

Health Index – The Health Index is a measure of the physical condition of a bridge, which provides a reliable ranking system for bridge maintenance. The Health Index of a structure is calculated by dividing the sum of this current dollar value of all the structure's elements by the sum of the total value of all the structure's elements in new condition. A Health Index of 100% indicates that all of the elements of the structure

are in the best possible condition, while a Health Index of 0% indicates that all of the elements are in the worst possible condition.

National Bridge Inspection Standards (NBIS) – Federal regulations that establish the requirements for all facets of bridge inspections and reporting.

National Bridge Inventory (NBI) – A database compiled by FHWA containing bridge characteristics for all structures that meet the previously shown definition of a bridge.

Operating Rating – The operating rating is the maximum permissible load level that can safely utilize an existing structure. This is based on the type of vehicle used in the rating.

Scour Critical – A scour critical bridge is a structure that could fail or become structurally unstable due to scouring, or the exposure of portions of the bridge's substructure due to changes in the river bed.

Structurally Deficient – A structurally deficient bridge is a structure with elements that need to be monitored and/or repaired. A structurally deficient bridge is not necessarily unsafe; bridge inspectors will close or impose limits on bridges they feel are unsafe.

Substructure – The parts of a bridge, such as the piers, abutments, piles, and footings, which support the superstructure of the bridge.

Superstructure – The structural members of a bridge, such as the beams and girders, which carry the load from the deck to the substructure.

Underclearances – The height and the width of the underside of a bridge that passes over a road and/or a railroad. The underclearance rating evaluates the adequacy of these heights and widths.

Waterway Adequacy – The ability of a waterway under a bridge to handle floodwaters, and the potential for these floodwaters to overtop the bridge.

Bridge Component Rating Basics

Several components of each bridge are graded based on factors such as the design of the bridge, the type of roadway carried by the bridge, traffic volumes, and the observations of bridge inspectors. These rated components include:

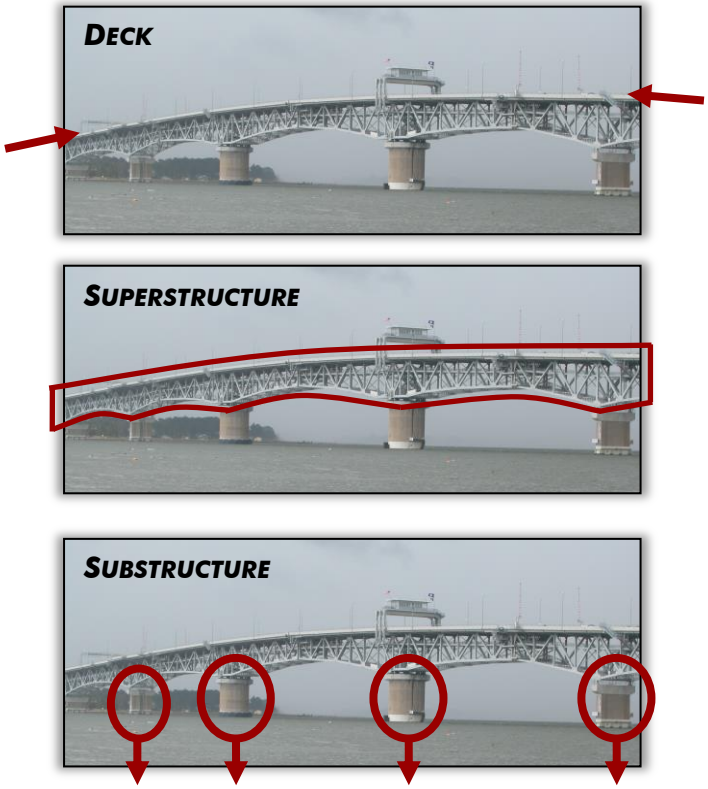
- **Deck, Superstructure, and Substructure Condition**
- **Culvert Condition**
- **Inventory Rating**
- **Structural Evaluation**
- **Deck Geometry**
- **Underclearances**
- **Waterway Adequacy**
- **Approach Roadway Alignment**

These general condition and appraisal ratings are used in a variety of ways to determine the overall existing condition of the structure, including determining if a bridge is classified as structurally deficient or functionally obsolete. This appendix describes in detail how each of these ratings are produced.

Deck, Superstructure, and Substructure General Condition Ratings

These items describe the overall condition of the bridge's roadway surface (bridge deck), the physical condition of all of the bridge's structural members such as beams and girders (superstructure), and the physical condition of the piers, abutments, piles, fenders, and footings (substructure).

The condition of the deck, superstructure, and substructure are rated based on the descriptions listed to the right. If the structure is a culvert, the general conditions will be rated as "N" for each of these three components.



Condition Rating	Description
N	**Not Applicable**
9	**Excellent Condition**
8	**Very Good Condition** No problems noted.
7	**Good Condition** Some minor problems.
6	**Satisfactory Condition** Structural elements show some minor deterioration.
5	**Fair Condition** All primary structural elements are sound but may have some minor section loss, cracking, spalling or scour.
4	**Poor Condition** Advanced section loss, deterioration, spalling or scour.
3	**Serious Condition** Loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
2	**Critical Condition** Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
1	**"Imminent" Failure Condition** Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put it back in light service.
0	**Failed Condition** Out of service - beyond corrective action.

General Condition Ratings and Descriptions for Decks, Superstructures, and Substructures

Source: FHWA.

Culvert General Condition Ratings

The culvert general condition rating evaluates the alignment, settlement, joints, structural condition, scour, and all other items associated with culverts. The rating code is intended to be an overall condition evaluation of the culvert. If the structure is not a culvert, this general condition rating will be rated as "N".

Condition Rating	Description
N	Not Applicable. Use if structure is not a culvert.
9	No deficiencies.
8	No noticeable or noteworthy deficiencies which affect the condition of the culvert. Insignificant scrape marks caused by drift.
7	Shrinkage cracks, light scaling, and insignificant spalling which does not expose reinforcing steel. Insignificant damage caused by drift with no misalignment and not requiring corrective action. Some minor scouring has occurred near curtain walls, wingwalls, or pipes. Metal culverts have a smooth symmetrical curvature with superficial corrosion and no pitting.
6	Deterioration or initial disintegration, minor chloride contamination, cracking with some leaching, or spalls on concrete or masonry walls and slabs. Local minor scouring at curtain walls, wingwalls, or pipes. Metal culverts have a smooth curvature, non-symmetrical shape, significant corrosion or moderate pitting.
5	Moderate to major deterioration or disintegration, extensive cracking and leaching, or spalls on concrete or masonry walls and slabs. Minor settlement or misalignment. Noticeable scouring or erosion at curtain walls, wingwalls, or pipes. Metal culverts have significant distortion and deflection in one section, significant corrosion or deep pitting.
4	Large spalls, heavy scaling, wide cracks, considerable efflorescence, or opened construction joint permitting loss of backfill. Considerable settlement or misalignment. Considerable scouring or erosion at curtain walls, wingwalls, or pipes. Metal culverts have significant distortion and deflection throughout, extensive corrosion or deep pitting.
3	Any condition described in Condition Rating 4 but which is excessive in scope. Severe movement or differential settlement of the segments, or loss of fill. Holes may exist in walls or slabs. Integral wingwalls nearly severed from culvert. Severe scour or erosion at curtain walls, wingwalls or pipes. Metal culverts have extreme distortion and deflection in one section, extensive corrosion, or deep pitting with scattered perforations.
2	Integral wingwalls collapsed, severe settlement of roadway due to loss of fill. Section of culvert may have failed and can no longer support embankment. Complete undermining at curtain walls and pipes. Corrective action required to maintain traffic. Metal culverts have extreme distortion and deflection throughout with extensive perforations due to corrosion.
1	Bridge closed. Corrective action may put back in light service.
0	Bridge closed. Replacement necessary.

General Condition Ratings and Descriptions for Culverts

Source: FHWA.

Inventory Rating

The inventory rating is the load level that can safely utilize an existing structure for an indefinite period of time. This is currently done in Virginia using HS loading procedures (in tons) as defined by AASHTO, with HS representing the type of vehicles a bridge can accommodate.

For inventory ratings using HS loading, the first number indicates the type of loading and the last two numbers represent the load level in tons. Using an inventory rating of 231 as an example, the 2 represents HS loading procedures, and the load level that the bridge can safely utilize for an indefinite period of time is 31 tons.

MS loading is the metric equivalent of HS loading. Converting the last two numbers of the HS loading inventory ratings from tons to metric tons produces the MS loading inventory rating.

Structural Evaluation

This item evaluates the structural condition of the bridge based on the superstructure, substructure, and culvert general condition ratings, inventory rating, and average daily traffic volumes.

For structures other than culverts, the lowest value among the superstructure condition rating, substructure condition rating, and the value in the table to the right is used to determine the structural evaluation rating. For culverts, the lowest value among the culvert condition rating and the value in the table to the right is used to determine the structural evaluation rating.

If the superstructure, substructure, or culvert ratings are equal to one, the structural evaluation rating is equal to zero, regardless of whether the structure is actually closed.

Structural Evaluation Rating Code	Inventory Rating Average Daily Traffic (ADT)		
	0-500	501-5000	> 5000
9	> 236 (HS) or > 32.4 (MS)	> 236 (HS) or > 32.4 (MS)	> 236 (HS) or > 32.4 (MS)
8	236 (HS) or 32.4 (MS)	236 (HS) or 32.4 (MS)	236 (HS) or 32.4 (MS)
7	231 (HS) or 27.9 (MS)	231 (HS) or 27.9 (MS)	231 (HS) or 27.9 (MS)
6	223 (HS) or 20.7 (MS)	225 (HS) or 22.5 (MS)	227 (HS) or 24.3 (MS)
5	218 (HS) or 16.2 (MS)	220 (HS) or 18.0 (MS)	222 (HS) or 19.8 (MS)
4	212 (HS) or 10.8 (MS)	214 (HS) or 12.6 (MS)	218 (HS) or 16.2 (MS)
3	Inventory rating less than value in rating code of 4 and requiring corrective action.		
2	Inventory rating less than value in rating code of 4 and requiring replacement.		
0	Bridge closed.		

Structural Evaluation Rating (Based on ADT and Inventory Rating)

Source: FHWA.

Notes: 1) Use the lower rating code for values between those listed in the table.

2) HS loading represents the load level which can safely utilize an existing structure for an indefinite period of time. MS loading is the metric equivalent of the HS loading.

3) All bridges coded with a functional class of Interstate, Freeway, or Expressway shall be evaluated using the ADT column of > 5000 vehicles per day, regardless of the actual ADT on the bridge.

Deck Geometry

This item evaluates the deck geometry of the structure based on the bridge width and the minimum vertical clearance over the bridge roadway.

The lower of the deck geometry ratings among the bridge width and vertical clearance tables shall be used as the deck geometry rating. When an individual table lists several deck geometry rating codes for the same roadway width under a specific ADT, the lower rating code is used. For values between those listed in the tables, the lower code is used.

Deck Geometry Rating Code	Minimum Vertical Clearance			
	Functional Class			
	Interstate and Other Freeways			
	All Routes Except as noted for Urban Areas	Undesignated Routes, Urban Areas*	Other Principal and Minor Arterials	Major and Minor Collectors and Locals
9	>17'-0"	>16'-6"	>16'-6"	>16'-6"
8	17'-0"	16'-6"	16'-6"	16'-6"
7	16'-9"	15'-6"	15'-6"	15'-6"
6	16'-6"	14'-6"	14'-6"	14'-6"
5	15'-9"	14'-3"	14'-3"	14'-3"
4	15'-0"	14'-0"	14'-0"	14'-0"
3	Vertical clearance less than value in rating code 4 and requiring corrective action.			
2	Vertical clearance less than value in rating code 4 and requiring replacement.			
0	Bridge closed.			

Deck Geometry Rating Based on Minimum Vertical Clearance over Bridge Roadway

Source: FHWA.

Notes: * Use for routes in highly developed urban areas only when there is an alternative Interstate, freeway or expressway facility with a minimum of 16'-0" clearance.

1) Use the lower rating code for values between those listed in the table.

Deck Geometry Rating Code	TABLE A						TABLE B	
	Bridge Roadway Width 2 Lanes; 2 Way Traffic						Bridge Roadway Width 1 Lane; 2 Way Traffic	
	ADT - Both Directions						Directions	
	0-100	100-400	401-1000	1001-2000	2001-5000	>5000	0-100	>100
9	>32'	>36'	>40'	>44'	>44'	>44'	-	-
8	32'	36'	40'	44'	44'	44'	15'-11"	-
7	28'	32'	36'	40'	44'	44'	15'	-
6	24'	28'	30'	34'	40'	44'	14'	-
5	20'	24'	26'	28'	34'	38'	13'	-
4	18'	20'	22'	24'	28'	32' (28'*)	12'	-
3	16'	18'	20'	22'	26'	30' (26'*)	11'	15'-11"
2	Any width less than required for a code of 3 & structure open.							
0	Bridge closed.							

Deck Geometry Rating Code	TABLE C				TABLE D	
	Bridge Roadway Width 2 or More Lanes Each Direction				Bridge Roadway Width; 1 Way Traffic	
	Interstate and Other Divided Freeways		Other Multilane Divided Facilities		Ramps Only	
	2 Lanes	3 or more	2 Lanes	3 or more	1 Lane	2 or more
9	>42'	>12N + 24'	>42'	>12N + 18'	>26'	>12N + 12'
8	42'	12N + 24'	42'	12N + 18'	26'	12N + 12'
7	40'	12N + 20'	38'	12N + 15'	24'	12N + 10'
6	38'	12N + 16'	36'	12N + 12'	22'	12N + 8'
5	36'	12N + 14'	33'	11N + 10'	20'	12N + 6'
4	34' (29')	11N + 12' (11N+7)*	30'	11N + 6'	18'	12N + 4'
3	33' (28')	11N + 11' (11N+6)*	27'	11N + 5'	16'	12N + 2'
2	Any width less than required for a code of 3 & structure open.					
0	Bridge closed.					

Deck Geometry Rating Based on Bridge Roadway Width

Source: FHWA.

Notes: * Use the value in parentheses for bridges longer than 200 feet.

1) Use the lower rating code for values between those listed in the table.

2) For one lane of one-way traffic use Table A.

3) One-lane bridges 16 feet and greater in width, which are not ramps, are evaluated using Table A.

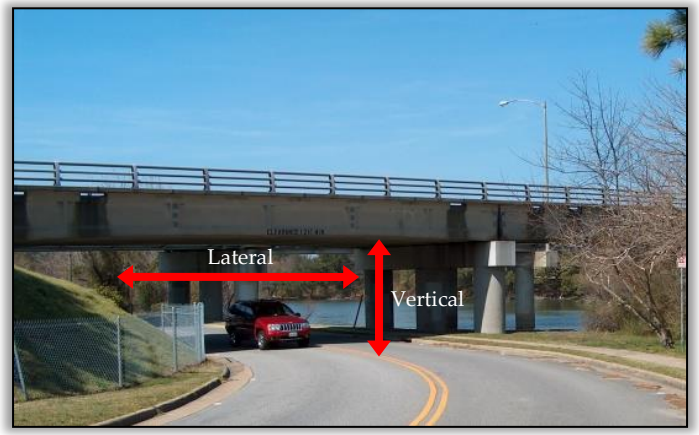
4) N = Number of lanes

5) Use Table C, Other Multilane Divided Facilities, for 3 or more undivided lanes of 2-way traffic.

UNDERCLEARANCES

This item evaluates the adequacy of the vertical and lateral underclearances of the structure. Although bridges are seldom closed due to deficient underclearances, they are often candidates for rehabilitation or replacement.

The lower of the vertical and lateral underclearance ratings shall be used as the structure's underclearance rating.



Underclearance Rating Code	Minimum Vertical Underclearance				
	Functional Class				
	Interstate and Other Freeways		Other Principal and Minor Arterials	Major and Minor Collectors and Locals	Railroad
	Except as noted for Urban Areas	Undesignated Routes, Urban Areas*			
9	>17'-0"	>16'-6"	>16'-6"	>16'-6"	>23'-0"
8	17'-0"	16'-6"	16'-6"	16'-6"	23'-0"
7	16'-9"	15'-6"	15'-6"	15'-6"	22'-6"
6	16'-6"	14'-6"	14'-6"	14'-6"	22'-0"
5	15'-9"	14'-3"	14'-3"	14'-3"	21'-0"
4	15'-0"	14'-0"	14'-0"	14'-0"	20'-0"
3	Vertical clearance less than value in rating code 4 and requiring corrective action.				
2	Vertical clearance less than value in rating code 4 and requiring replacement.				
0	Bridge closed.				

Source: FHWA.

VERTICAL UNDERCLEARANCE RATING

Notes: 1) Use the lower rating code for values between those listed in the table.

2) The roadway functional classification of the underpassing route shall be used in the evaluation. If an "under" record is not coded, the underpassing route shall be considered a major or minor collector or a local road.

Underclearance Rating Code	Minimum Lateral Underclearance						
	Functional Class						
	1-Way Traffic				2-Way Traffic		
	Interstate, Freeways, or Expressways				Other Principal and Minor Arterials	Major & Minor Collectors and Locals	Railroad
	Main Line		Ramp				
	Left	Right	Left	Right			
9	>30'	>30'	>4'	>10'	>30'	>12'	>20'
8	30'	30'	4'	10'	30'	12'	20'
7	18'	21'	3'	9'	21'	11'	17'
6	6'	12'	2'	8'	12'	10'	14'
5	5'	11'	2'	6'	10'	8'	11'
4	4'	10'	2'	4'	8'	6'	8'
3	Lateral clearance less than value in rating code 4 and requiring corrective action.						
2	Lateral clearance less than value in rating code 4 and requiring replacement.						
0	Bridge closed.						

Source: FHWA.

LATERAL UNDERCLEARANCE RATING

Notes: 1) Use the lower rating code for values between those listed in the table.

2) When acceleration or deceleration lanes or ramps are provided under 2-way traffic, use the value from the right ramp column.

3) The roadway functional classification of the underpassing route shall be used in the evaluation. If an "under" record is not coded, the underpassing route shall be considered a major or minor collector or a local road.

Waterway Adequacy

This item evaluates the adequacy of the waterway opening with respect to the passage of water flow under the bridge. In some cases, site conditions may warrant higher or lower ratings than are indicated in the table.

Roadway Functional Classification			Description
Principal Arterials, Interstates, Freeways, or Expressways	Other Principal and Minor Arterials and Major Collectors	Minor Collectors and Locals	
Waterway Adequacy Rating Code			
N	N	N	Bridge not over a waterway.
9	9	9	Bridge deck and roadway approaches above floodwater elevations (high water). Chance of overtopping is remote.
8	8	8	Bridge deck above roadway approaches. Slight chance of overtopping roadway approaches.
6	6	7	Slight chance of overtopping bridge deck and roadway approaches.
4	5	6	Bridge deck above roadway approaches. Occasional overtopping of roadway approaches with insignificant traffic delays.
3	4	5	Bridge deck above roadway approaches. Occasional overtopping of roadway approaches with significant traffic delays.
2	3	4	Occasional overtopping of bridge deck and roadway approaches with significant traffic delays.
2	2	3	Frequent overtopping of bridge deck and roadway approaches with significant traffic delays.
2	2	2	Occasional or frequent overtopping of bridge deck and roadway approaches with severe traffic delays.
0	0	0	Bridge closed.

Waterway Adequacy Rating

Source: FHWA.

Note: In the above table, the descriptions for chances of overtopping mean the following:

Remote: Greater than 100 years
Slight: 11 to 100 years
Occasional: 3 to 10 years
Frequent: Less than 3 years

Adjectives in this table describing traffic delay mean the following:

Insignificant: Minor inconvenience. Highway passable in a matter of hours.
Significant: Traffic delay of up to several days.
Severe: Long term delay to traffic with resulting hardship.

Approach Roadway Alignment

This item evaluates the adequacy of the approach roadway alignment and identifies those bridges that do not function properly or adequately due to the alignment of the approaches. This rating differs from the previously listed ratings in that it is not intended that the approach roadway alignment be compared to current standards but rather to the existing highway alignment.

Each individual structure shall be rated in accordance with the general appraisal ratings listed in the table. The approach roadway alignment should only be rated intolerable (a rating code of 3 or less) if the horizontal or vertical curvature require a substantial reduction in speed from the prevailing speed on the highway section. A very minor speed reduction should be rated a 6, and when speed reduction is not necessary the approach roadway alignment should be rated an 8. Additional ratings between these general values may be selected.

Speed reductions due to the width of the structure rather than the alignment approaching the structure shall not be considered in evaluating this item.

Rating Code	Description
N	Not Applicable
9	Superior to present desirable criteria
8	Equals present desirable criteria
7	Better than present desirable criteria
6	Equal to present desirable criteria
5	Somewhat better than minimum adequacy to tolerate being left in place as is
4	Meets minimum tolerable limits to be left in place as is
3	Basically intolerable requiring high priority of corrective action
2	Basically intolerable requiring high priority of replacement
0	Bridge Closed

Approach Roadway Alignment Rating

Source: FHWA.

STATE OF GOOD REPAIR PRIORITIZATION FORMULA - BRIDGES

Virginia House Bill 1887, passed into law in March 2015, established the State of Good Repair (SGR) program to supplement the SMART SCALE prioritization program and provide a dedicated funding source for the improvement of the condition of Virginia's bridges and pavements.

The Commonwealth Transportation Board approved a resolution in June 2016 that stated that structures will be selected for SGR program funds based on a prioritization formula. A State of Good Repair Score is calculated for each bridge, and structurally deficient bridges are prioritized for replacement or rehabilitation based on the SGR Score. Those bridges with higher SGR Scores are prioritized over those with lower SGR Scores.

Five factors are assigned a specific percentage towards the overall SGR Score for each bridge, and each factor can have a value of between 0 and 1. The five factors are:

- **Importance Factor (30%)** – The Importance Factor measures the relative importance of each bridge to the overall highway network.
- **Condition Factor (25%)** – The Condition Factor uses the Health Index (which was described previously in this report) to measure the overall physical condition of each bridge based on the condition of each individual element.
- **Design Redundancy Factor (15%)** – This factor measures four risk factors related to redundancy, scour susceptibility, fatigue, and vulnerability to earthquakes.
- **Structure Capacity Factor (10%)** – The Structure Capacity Factor measures the capacity of the structure to carry traffic, including the impacts of weight restrictions, waterway adequacy, vertical clearance, and the width of the bridge.
- **Cost-Effectiveness Factor (20%)** – This factor measures the cost-effectiveness of the work required.

The structure's SGR Score is determined by the following equation:

Structure SGR Score = (0.30 x Importance Factor) + (0.25 x Condition Factor) + (0.15 x Design Redundancy Factor) + (0.10 x Structure Capacity Factor) + (0.20 x Cost-Effectiveness Factor)

The following pages include the methodology used to calculate each bridge's SGR Score from VDOT's SGR Program Bridge Prioritization Formula document[5]. The SGR Score calculation for the Centerville Turnpike Bridge in Chesapeake is also included as an example.

[5] State of Good Repair (SGR) Program Bridge Prioritization Formula, VDOT, November 2, 2017.

Factor #1 – Importance Factor

The Importance Factor measures the relative importance of every structure to the Virginia highway network. This importance is measured independently of other factors such as the condition and design of the bridge.

The Importance Factor is calculated using the following formula:

Importance Factor = (0.30 x A) + (0.10 x B) + (0.15 x C) + (0.20 x D) + (0.05 x E) + (0.20 x F)

Where each of the components is:

A = Average Daily Traffic Factor
B = Future Average Daily Traffic Factor
C = Truck ADT
D = Bypass Impact Factor
E = National Highway System
F = Corridor of Statewide Significance

Each of these components is described further on the following pages.

CENTERVILLE TURNPIKE BRIDGE EXAMPLE

Bridge Information

- Current ADT = 15,980 (2014)
- Future ADT = 24,772 (2035)
- Truck ADT Percentage = 2%
- Number of Lanes = 2
- Bypass Detour Length = 13 miles
- Base Highway Network = N
- STRAHNET = N
- Designated National Network = N
- Virginia Highway System = Urban
- Virginia Corridor of Statewide Significance = N
- Deck Condition = 4
- Superstructure Condition = 4
- Substructure Condition = 5
- Health Index = 74.71
- Fracture Critical = Y
- Scour Critical = N
- Seismically Vulnerable = N
- Presence of Fatigue Prone Details = N
- Operating Rating = 35.4
- Waterway Adequacy = 7
- Vertical Clearance = N/A
- Approach Width = 7.3 m = 24 ft
- Deck Width = 8.2 m = 27 ft
- Recommended Action Cost = $3,361,947
- Structure Replacement Cost = $8,877,060

Component A – Average Daily Traffic Factor

Component A is an estimate of the current travel demand for the structure. Component A is determined by the chart and equation shown in Figure C-1, with the value of Component A (V_A) determined by the Average Daily Traffic.

If the Average Daily Traffic is lower than 50 then Component A will have a value of 0. If the Average Daily Traffic is higher than 25,000, Component A will have a value of 1.

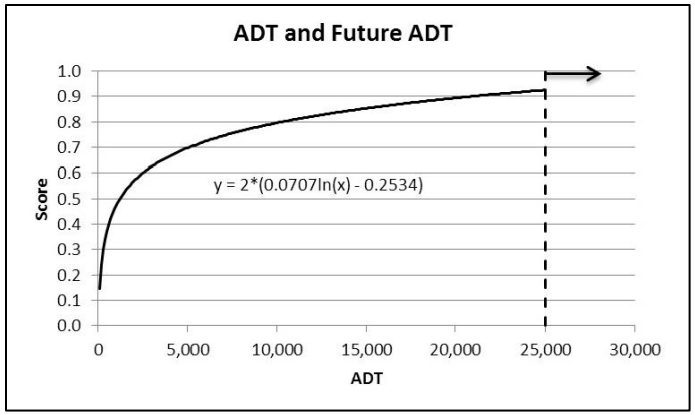


FIGURE C-1: Index Value Function for Variable A: Average Daily Traffic

For the Centerville Turnpike Bridge:
Current ADT = 15,980
$V_A = 2 * (0.0707 \ln (15{,}980) – 0.2534) = 0.862$

Component B – Future Average Daily Traffic Factor

Component B is an estimate of the future travel demand for the structure. Component B is determined by the chart and equation shown in Figure C-2, with the value of Component B (V_B) determined by the Future Average Daily Traffic.

If the Future Average Daily Traffic is lower than 50 then Component B will have a value of 0. If the Future Average Daily Traffic is higher than 25,000, Component B will have a value of 1.

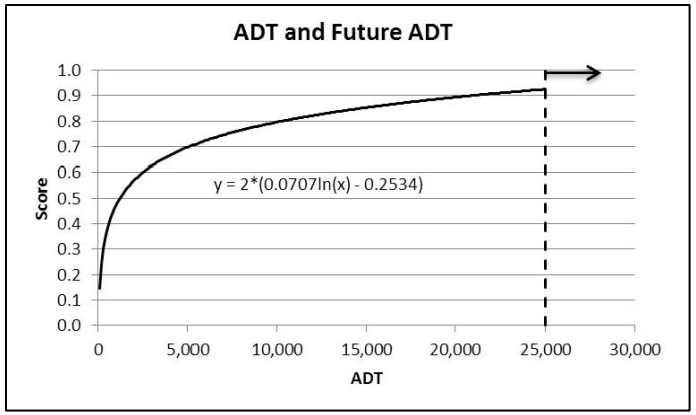


FIGURE C-2: Index Value Function for Variable B: Future Average Daily Traffic

For the Centerville Turnpike Bridge:
Future ADT = 24,772
$V_B = 2 * (0.0707 \ln (24{,}772) – 0.2534) = 0.924$

Component C – Truck ADT

Component C conveys the importance of the structure for commerce and infers the magnitude of potential negative impacts caused by truck traffic on detour routes if the structure was taken out of service. Component C is determined by the chart and equation shown in Figure C-3, with the value of Component C (V_C) determined by the Average Daily Truck Traffic volume.

If the Truck ADT is lower than 50 then Component C will have a value of 0. If the Truck ADT is higher than 25,000, Component C will have a value of 1.

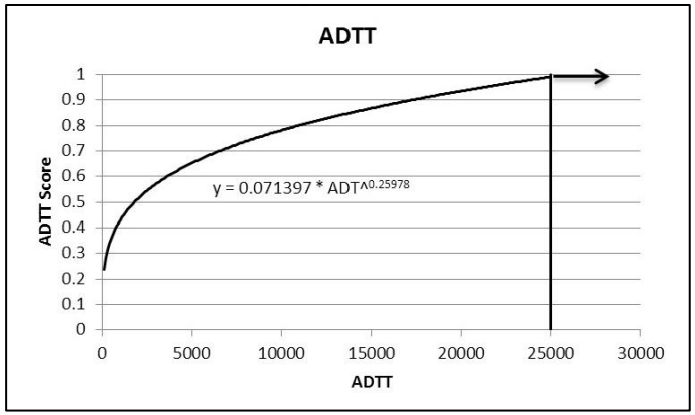


FIGURE C-3: Index Value Function for Variable C: Average Daily Truck Traffic

For the Centerville Turnpike Bridge:
Current ADT = 15,980
Truck ADT Percentage = 2%
$V_C = 0.071397 * (15{,}980*.02)^{0.25978} = 0.319$

Component D – Bypass Impact Factor

Component D reflects the inconvenience to drivers of vehicles that would be diverted by a structure's closure by combining the Bypass Detour Length (BYP) around a structure with the structure's current ADT and the classification of the roadway.

For roadways that are classified as Interstates, Component D = 1.0. For roadways that are classified as a Primary, Component D = 0.75. For Secondary, Urban, and other roadways, two variables are used to calculate Component D. The first variable, BYP_D, reflects the bypass detour length of the structure. The second variable, ADT_D, reflects the volume of traffic that would be impacted by the structure's closure. The value of Component D is determined by using these two variables in the chart below (Figure C-4).

ADT_D	BYP_D (mi)					
	0	**2**	**4**	**6**	**8.5**	**>8.5**
85	0.06	0.18	0.24	0.29	0.44	0.56
175	0.11	0.23	0.29	0.34	0.49	0.61
300	0.15	0.27	0.33	0.38	0.53	0.65
525	0.19	0.31	0.37	0.42	0.57	0.69
1000	0.23	0.36	0.41	0.46	0.62	0.73
2200	0.29	0.41	0.47	0.52	0.67	0.79
5000	0.35	0.47	0.53	0.58	0.73	0.85
11000	0.40	0.53	0.58	0.63	0.79	0.90
25000	0.46	0.58	0.64	0.69	0.84	0.96
>25000	0.50	0.62	0.68	0.73	0.88	1.00

FIGURE C-4: Index Value Function for Bypass Detour Length Factor in Variable D

For the Centerville Turnpike Bridge:
Current ADT = 15,980
Bypass Detour Length = 13 miles
Roadway Classification = Urban
$V_D = 0.92$

Component E – National Highway System

Component E is a component that reflects whether the structure carries a roadway included in the National Highway System (NHS). These designated routes have unique objectives that must be supported with maintenance and replacement expenditures as needed to keep structures in service.

If the roadway carried by the structure is part of the NHS, Component E = 1.0. If the roadway carried by the structure is not part of the NHS, Component E = 0.0.

For the Centerville Turnpike Bridge:
NHS = 0 (The roadway is not a part of the NHS)
$V_E = 0$

Component F – Corridor of Statewide Significance

Component F is determined based on whether the structure carries a roadway that is designated as a Virginia "Corridor of Statewide Significance (CoSS)". If the roadway carried by the structure is a CoSS, Component F = 1.0. If the roadway carried by the structure is not a CoSS, Component F = 0.0.

For the Centerville Turnpike Bridge:
CoSS = 0 (The roadway is not a Virginia Corridor of Statewide Significance)
$V_F = 0$

For the Centerville Turnpike Bridge – Importance Factor

Importance Factor = (0.30 x A) + (0.10 x B) + (0.15 x C) + (0.20 x D) + (0.05 x E) + (0.20 x F)
= (0.30 x 0.862) + (0.10 x 0.924) + (0.15 x 0.319) + (0.20 x 0.92) + (0.05 x 0) + (0.20 x 0)
= 0.583

Factor #2 – Condition Factor

The Condition Factor aims to use the Health Index to measure the overall physical condition of each bridge based on the condition of each individual element.

The Health Index (which was described previously in this report) is determined based on the condition of various elements of the bridge – such as railings, joints, and girders – which are each rated from "new condition" to "serious or badly deteriorated condition". These elements are then assigned a dollar value based on their condition relative to a new structure. Each element is assigned a weight and the elements are combined to determine a current dollar value of the entire structure.

The Health Index of a structure is calculated by dividing this current dollar value by the sum of the total value of all the structure's elements in new condition. A Health Index of 100% indicates that all of the elements of the structure are in the best possible condition, while a Health Index of 0% indicates that all of the elements are in the worst possible condition.

The Condition Factor is calculated using the following formula:

Condition Factor = 1.0 – (Health Index/100)

Although VDOT currently calculates a Health Index for each bridge, VDOT believes the Health Index may be unreliable due to federally-mandated changes in the nature of the data that are used to calculate the index. VDOT plans to have the issue resolved before the next round of SGR funding but will use an approximate "Interim Health Index" in the meantime in place of the Health Index in the Condition Factor equation.

The Interim Health Index uses a Blended General Condition Rating (BGCR). The BGCR for bridges is calculated as follows:

BGCR (For bridges) = (0.25 x Deck General Condition Rating) + (0.35 x Superstructure General Condition Rating) + (0.40 x Substructure General Condition Rating)

For culverts, the BGCR is calculated as follows:

BGCR (For culverts) = (1.0 x Culvert General Condition Rating)

The Interim Health Index is calculated using the following equation:

Interim Health Index = $100 - [100 \times (9 - BGCR)^3 / 5.5^3]$

The Interim Health Index is used in place of the Health Index to calculate the Condition Factor for the structure. If the value of the BGCR is less than or equal to 3, then the value of 1 is used for the Condition Factor. If the value of the BGCR is greater than or equal to 7, then the value of 0 is used for the Condition Factor.

For the Centerville Turnpike Bridge – Condition Factor

Deck Condition Rating = 4
Superstructure Rating = 4
Substructure Rating = 5
BGCR = (0.25 x 4) + (0.35 x 4) + (0.40 x 5) = 4.4
Interim Health Index = $100 - [100 \times (9\text{-BGCR})^3/5.5^3]$
$= 100 - [100 \times (9\text{-}4.4)^3/5.5^3] = 41.5$
Condition Factor = 1.0 – (Health Index/100)
= 1.0 – (41.5/100)
= 0.585

Factor #3 – Design Redundancy Factor

The Design Redundancy Factor measures the vulnerability each structure has for four risk factors. These risk factors are:

- **Redundancy** – Most bridges are designed so that loads can be redistributed to other structural members if any one structural member loses its ability to distribute loads. However, some bridges were designed with few or no redundant supporting elements and could collapse if a key structural member fails. Despite this lack of redundant elements, these bridges – classified as fracture critical – are not necessarily unsafe but they undergo more extensive and more frequent inspections. Examples of fracture critical bridges include most truss bridges, drawbridges, and those beam or girder bridges designed without redundant elements.
- **Scour Susceptibility** – Bridges with underwater substructure sections may be vulnerable to scouring, or the exposure of portions of the substructure due to changes in the river bed. In cases where a bridge is at risk of failure due to scouring, the bridge is classified as scour critical.
- **Seismically Vulnerable** – This factor measures the vulnerability of structures to damage caused by earthquakes.
- **Fatigue Prone** – The definition of fatigue is the tendency of a component of a bridge to fail at a stress level below its yield stress when subject to cyclical loading. "Fatigue prone details" are defined as details meeting the AASHTO fatigue detail categories of C through E on bridges that either carry a route that has 500 or more trucks per day or carry an interstate route.

The value of the Design Redundancy Factor is comprised of these four risk factors using the following formula:

Design Redundancy Factor = 0.4 x (Fracture Critical) + 0.4 x (Scour Critical) + 0.1 x (Seismically Vulnerable) + 0.1 x (Fatigue Prone)

For each of these four risk factors, a value of 1.0 is given if the bridge is vulnerable to that risk factor and a value of 0 is given if the bridge is not vulnerable to that risk factor.

For the Centerville Turnpike Bridge – Design Redundancy Factor

Fracture Critical = Y
Scour Critical = N
Seismically Vulnerable = N
Presence of Fatigue Prone Details = N

Design Redundancy Factor = 0.4 x (Fracture Critical) + 0.4 x (Scour Critical) + 0.1 x (Seismically Vulnerable) + 0.1 x (Fatigue Prone)
Design Redundancy Factor = (0.4 x 1) + (0.4 x 0) + (0.1 x 0) + (0.1 x 0)
Design Redundancy Factor = **0.4**

FACTOR #4 – STRUCTURE CAPACITY FACTOR

The Structure Capacity Factor measures the capacity of a structure to carry traffic, including the impacts of weight restrictions, waterway adequacy, vertical clearance, and the width of the bridge. The Structure Capacity Factor is comprised of three components: Weight Reduction Factor, Waterway/Vertical Clearance Factor, and Width Factor.

Component A – Weight Reduction Factor

The Weight Reduction Factor measures the ability of the structure to carry fire trucks, ambulances, school buses, and trucks. Component A– which has a value between 0 and 1 – is comprised of three variables: V_A – Safe Structure Load, V_B – Weight Posting, and V_C – Sufficiency to Carry Public Vehicles. The values for V_A and V_B are calculated using the following graphs:

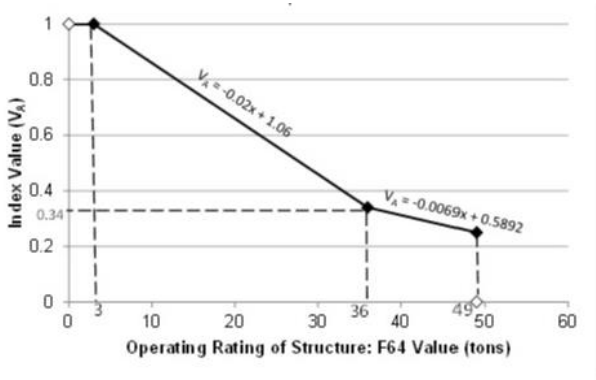


FIGURE C-5: Index Value Function for Variable V_A: Safe Structure Load

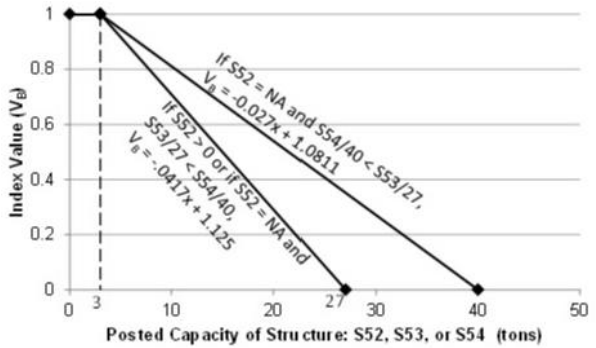


FIGURE C-6: Index Value Function for Variable V_B: Weight Posting

The values for V_C – Sufficiency to Carry Public Vehicles are calculated using three graphs. V_{C1} represents sufficiency to carry school buses, V_{C2} represents ambulances, and V_{C3} represents fire trucks:

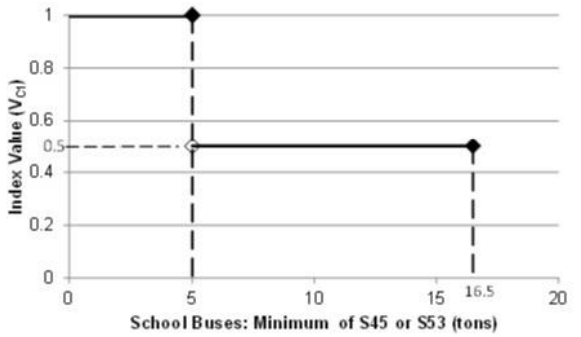


FIGURE C-7: Index Value Function for Variable V_{C1}: Sufficiency to Carry School Buses

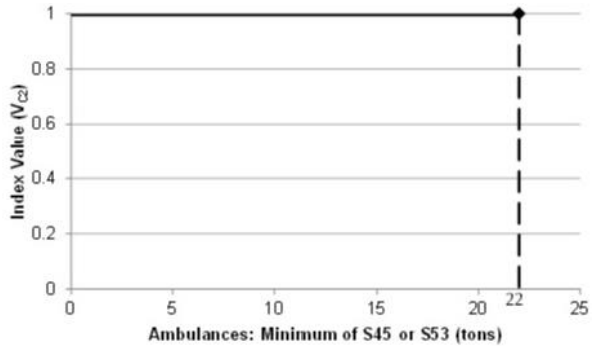


FIGURE C-8: Index Value Function for Variable V_{C2}: Sufficiency to Carry Ambulances

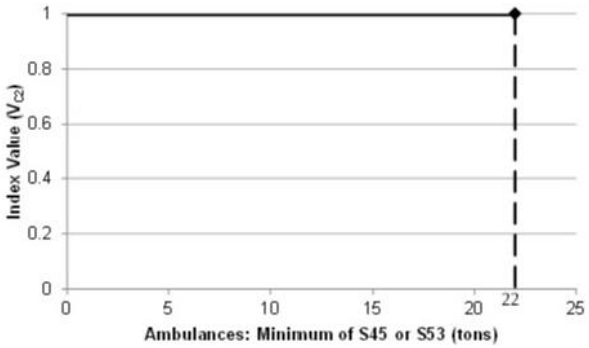


FIGURE C-9: Index Value Function for Variable V_{C3}: Sufficiency to Carry Fire Trucks

Component A is calculated using the following formula:

Component A = (0.333 x V_A) + (0.333 x V_B) + 0.333 x [(0.333 X V_{C1}) + (0.333 x V_{C2}) + (0.333 x V_{C3})]

Component B – Waterway/Vertical Clearance Factor

The Waterway/Vertical Clearance Factor measures the adequacy of the vertical clearance for waterways, railways, and trucks. This factor – which has a value between 0 and 1 – is based on the waterway adequacy and vertical clearance scores.

Waterway Adequacy describes the condition of the opening of the structure with respect to the passage of water flow through the bridge. Based on the rating that bridge inspectors assign to a bridge, VDOT assigns a Waterway Adequacy Score based on the following figure:

Waterway Adequacy Score Index:

Waterway Adequacy	0	1	2	3	4	5	6	7	8	9	N
WA Score	1.0	1.0	0.9	0.6	0.2	0.1	0	0	0	0	0

FIGURE C-10: Waterway Adequacy Score Index

The value for the Vertical Clearance Score is based on the vertical clearance under the structure and the functional class of the roadway under the structure, and is calculated using the following graph:

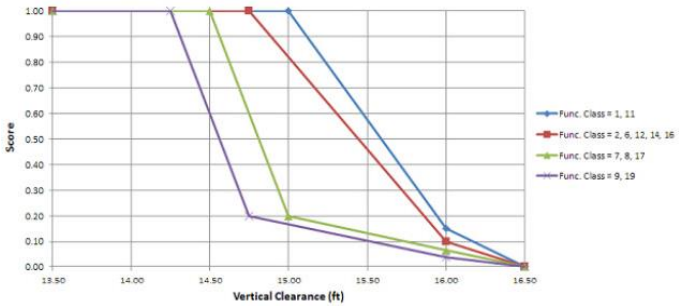


FIGURE C-11: Vertical Clearance Score

Component B is calculated as the minimum of the Waterway Adequacy Score and the Vertical Clearance Score.

Component B = Minimum (Waterway Adequacy Score, Vertical Clearance Score)

Component C – Width Factor

The Width Factor measures the adequacy of the width of the bridge. The Width Factor has a value between 0 and 1 and is based on the approach roadway width and deck width of the bridge.

The Width Factor has a value of 0 for culverts. For bridges, the Width Factor is calculated using the following figure:

$$\text{Raw Score} = \frac{(\text{Approach Width}) - (\text{Deck Width})}{\#\ \text{of Lanes}}$$

Width Score Index

Raw Score(RS)	Width Score
RS > 2	1
2 ≥ RS ≥ 0	(Raw Score)/2
0 > RS	0

FIGURE C-12: Deck Width Score

The Structure Capacity Factor is calculated using the following weights for each of the three components:

Structure Capacity Factor = (0.50 x Component A) + (0.35 x Component B) + (0.15 x Component C)

For the Centerville Turnpike Bridge – Structure Capacity Factor

Operating Rating = 35.4 metric tons = 39.0 tons
Posted Capacity - Single = N/A
Posted Capacity - Semi 27 = N/A
Posted Capacity - Semi 40 = N/A
Waterway Adequacy Rating = 7
Approach Width = 24 feet
Deck Width = 27 feet
# of Lanes = 2

Component A = (0.333 x V_A) + (0.333 x V_B) + 0.333 x [(0.333 X V_{C1}) + (0.333 x V_{C2}) + (0.333 x V_{C3})]
Component A = (0.333 x 0.320) + (0.333 x 0) + 0.333 x [(0.333 x 0) + (0.333 x 0) + (0.333 x 0)]
Component A = 0.107

Component B = Minimum (Waterway Adequacy Score, Vertical Clearance Score)
Component B = Minimum (0, N/A) = 0

Component C = Lookup [(Approach Width – Deck Width)/# of Lanes]
Component C = Lookup [(24 ft – 27 ft)/2]
Component C = Lookup [(-3 ft)/2] = -1.5
Component C = 0

Structure Capacity Factor = (0.50 x Component A) + (0.35 x Component B) + (0.15 x Component C)

Structure Capacity Factor = (0.50 x 0.107) + (0.35 x 0) + (0.15 x 0)
Structure Capacity Factor **= 0.053**

FACTOR #5 – COST-EFFECTIVENESS FACTOR

The Cost-Effectiveness Factor measures the cost-effectiveness of the work required on the structure. It is a function of the ratio of the "Action Cost" to repair the structure versus the cost to replace the structure. The Action Cost is also the amount of State of Good Repair (SGR) funding requested, and excludes any funding available from non-SGR sources.

The Cost-Effectiveness Factor – which has a value of between 0 and 1 – is calculated using the following figure:

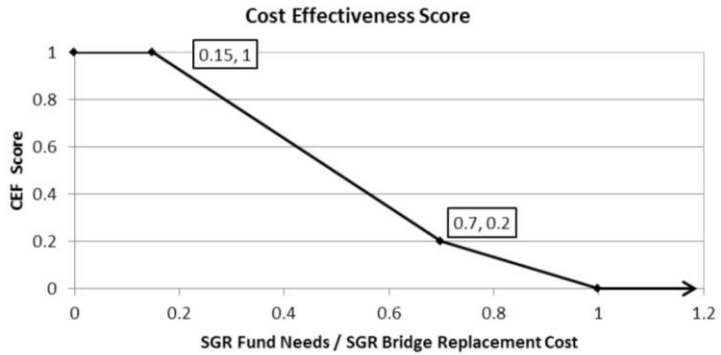


FIGURE C-13: Cost-Effectiveness Score

In the above figure, the SGR Fund Needs are the same as the Action Cost referred to above. In cases where bridge replacement is recommended, the "Action Cost" will be equal to the SGR Bridge Repacement Cost Estimate.

For the Centerville Turnpike Bridge – Cost-Effectiveness Factor
(Note: These estimates are from the FY 2017 SGR submittal)

Action Cost = $3,361,947
Structure Replacement Cost = $8,877,060
Action Cost/Structure Replacement Cost = $3,361,947 / $8,877,060 = 0.379
Cost-Effectiveness Factor = **0.667**

SGR Score - Centerville Turnpike Bridge

Importance Factor = 0.583
Condition Factor = 0.585
Design Redundancy Factor = 0.400
Structure Capacity Factor = 0.053
Cost-Effectiveness Factor = 0.667

Structure SGR Score = (0.30 x Importance Factor) + (0.25 x Condition Factor) + (0.15 x Design Redundancy Factor) + (0.10 x Structure Capacity Factor) + (0.20 x Cost-Effectiveness Factor)

SGR Score = (0.30 x 0.583) + (0.25 x 0.585) + (0.15 x 0.400) + (0.10 x 0.053) + (0.20 x 0.667)

SGR Score = (0.175) + (0.146) + (0.060) + (0.005) + (0.133)

SGR Score = 0.519

REGIONAL BRIDGE INVENTORY

Appendix D contains an inventory of the 1,261 bridges in Hampton Roads, broken down by jurisdiction. Maps and tables describing details of each bridge are included. The data included in the tables in this appendix is described below:

1. **Federal Bridge # (Structure ID)** – A unique number designated for each bridge. This is different than the Virginia Bridge ID.

2. **Structurally Deficient (SD)** – This column indicates if a bridge is classified as structurally deficient.

3. **Functionally Obsolete (FO)** – This column indicates if a bridge is classified as functionally obsolete.

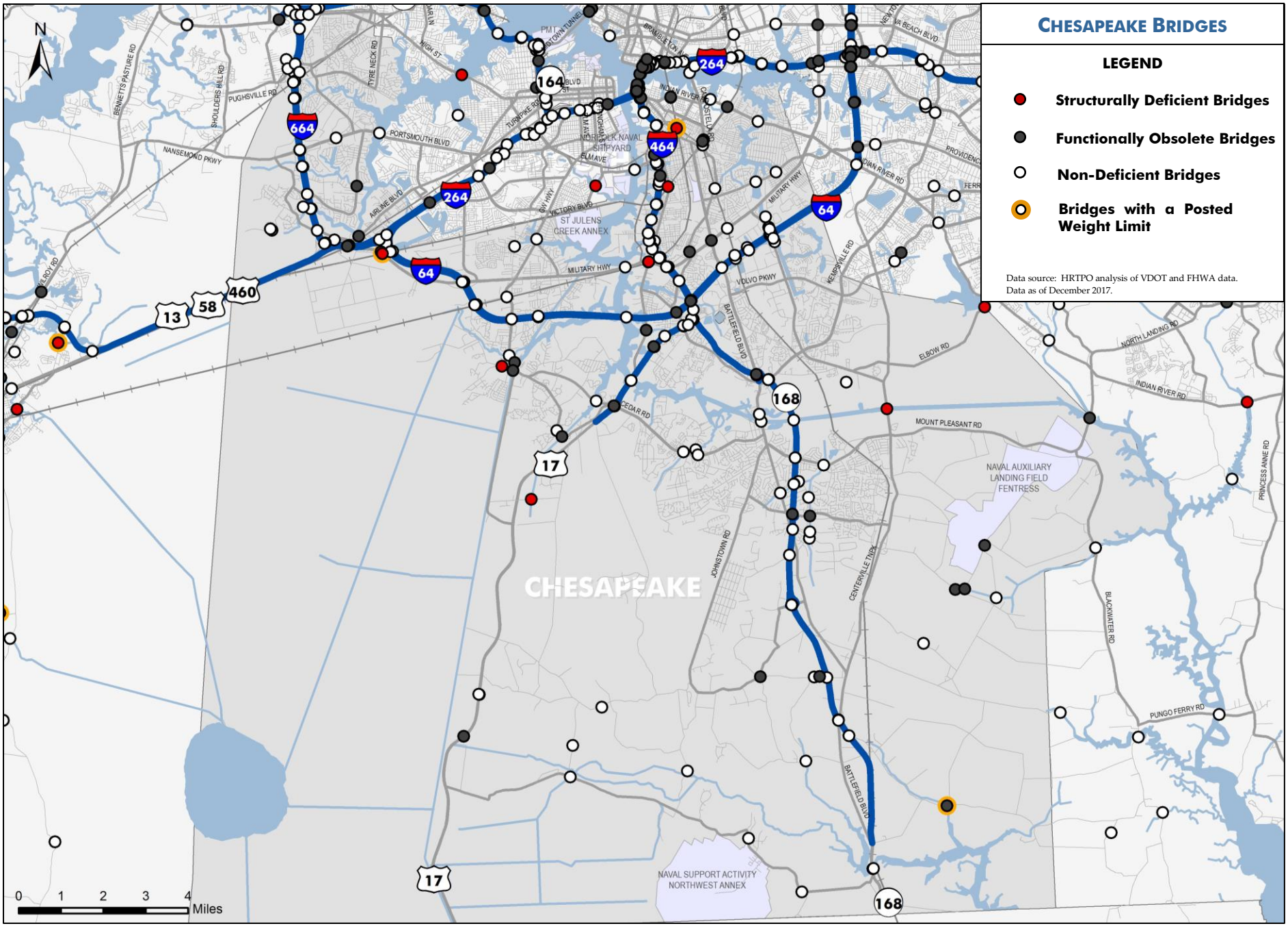
4. **Bridge Condition Ratings** – General condition ratings are included for each bridge. These ratings include the deck condition, superstructure condition, substructure condition, and culvert condition (if applicable). Descriptions of each of these bridge ratings are included in Appendix B.

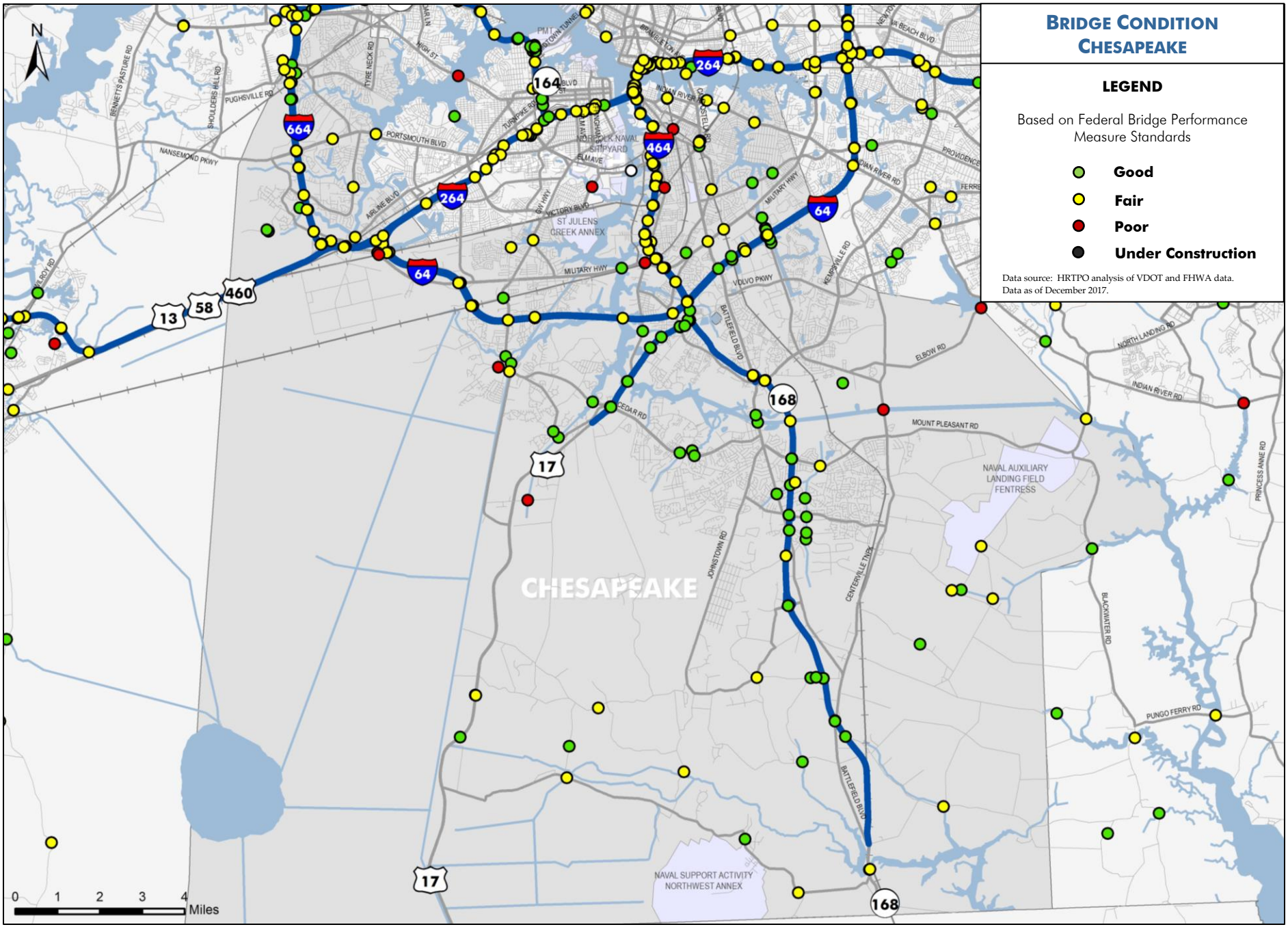
5. **Federal Performance Measure (PM) Bridge Condition** – This column includes each bridge's condition, based on the new Federal Performance Measure standards. Bridges can be rated as Good, Fair, or Poor.

6. **Fracture Critical** – This column indicates whether the bridge is classified as fracture critical. Fracture critical bridges are bridges that are designed with few or no redundant supporting elements, and the bridge is in danger of collapse if a key structural member fails.

7. **Posted Weight Limit** – This column lists the posted weight limit of the bridge in tons. The posted weight limit of the bridge is shown as X/Y/Z, with the first number (X) representing the posted weight limit for all vehicles, the second number (Y) representing the posted weight limit for single unit trucks, and the third number (Z) representing the posted weight limit for trucks with semi-trailers. A '-' indicates that there is no posted weight limit on the bridge for that type of vehicle. For federally-maintained bridges, the NBI data only specifies whether weight limits are in place, not specific weight limit levels.

Juris	Federal Bridge # (1)	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD (2)	FO (3)	Bridge Condition Ratings (4) Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition (5)	Fracture Critical (6)	Posted Weight Limit (tons) (7)
CHES	21879	166	22nd Street	Seaboard Avenue & N/S R/R	1938	-	City	SD	-	4	3	4	N	Poor	-	5/-/-
CHES	21840	58	Airline Blvd	Br Goose Creek	1932	-	City	-	FO	5	5	5	N	Fair	-	-
CHES	25186	168	Atlantic Avenue	N/S R/R And SB Ramp	1998	-	City	-	-	7	7	7	N	Good	-	-
CHES	25182	168	Atlantic Avenue	Norfolk Southern R/R	1999	-	City	-	-	7	7	7	N	Good	-	-
CHES	23762	166	Bainbridge Blvd	Mains Creek	1993	-	City	-	FO	7	7	7	N	Good	-	-
CHES	21882	166	Bainbridge Blvd	Milldam Creek	1985	-	City	-	-	7	6	6	N	Fair	-	-
CHES	21881	166	Bainbridge Blvd	Norfolk Southern R/R	1938	1947	City	SD	-	7	6	4	N	Poor	-	-
CHES	24840		Ballahack Road	Lead Ditch	1997	-	City	-	-	N	N	N	6	Fair	-	-


CHESAPEAKE BRIDGES
LEGEND
Structurally Deficient Bridges
Functionally Obsolete Bridges
Non-Deficient Bridges
Bridges with a Posted Weight Limit
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
0 1 2 3 4 Miles
CHESAPEAKE
PORTSMOUTH BLVD
MILITARY HWY
VOLVO PKWY
BATTLEFIELD BLVD
ELBOW RD
MOUNT PLEASANT RD
NORTH LANDING RD
INDIAN RIVER RD
PUNGO FERRY RD
NAVAL AUXILIARY LANDING FIELD FENTRESS
NAVAL SUPPORT ACTIVITY NORTHWEST ANNEX
ST JULENS CREEK ANNEX
NANSEMOND PKWY
AIRLINE BLVD
CEDAR RD
JOHNSTOWN RD
CENTERVILLE TPKE
BLACKWATER RD
PRINCESS ANNE RD
KEMPSVILLE RD
PUGHSVILLE RD
TURNPIKE RD
VA BEACH BLVD
664
264
64
460
58
13
164
464
168
17


BRIDGE CONDITION
CHESAPEAKE
LEGEND
Based on Federal Bridge Performance Measure Standards
Good
Fair
Poor
Under Construction
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
CHESAPEAKE
0 1 2 3 4 Miles
PORTSMOUTH BLVD
MILITARY HWY
VOLVO PKWY
BATTLEFIELD BLVD
ELBOW RD
MOUNT PLEASANT RD
NORTH LANDING RD
INDIAN RIVER RD
PUNGO FERRY RD
NAVAL AUXILIARY LANDING FIELD FENTRESS
NAVAL SUPPORT ACTIVITY NORTHWEST ANNEX
ST JULENS CREEK ANNEX
NORFOLK NAVAL SHIPYARD
664
164
264
464
64
460
58
13
168
17

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
CHES	21879	166	22nd Street	Seaboard Avenue & N/S R/R	1938	-	City	SD	-	4	3	4	N	Poor	-	5/-/-
CHES	21840	58	Airline Blvd	Br Goose Creek	1932	-	City	-	FO	5	5	5	N	Fair	-	-
CHES	25186	168	Atlantic Avenue	N/S R/R And SB Ramp	1998	-	City	-	-	7	7	7	N	Good	-	-
CHES	25182	168	Atlantic Avenue	Norfolk Southern R/R	1999	-	City	-	-	7	7	7	N	Good	-	-
CHES	23762	166	Bainbridge Blvd	Mains Creek	1993	-	City	-	FO	7	7	7	N	Good	-	-
CHES	21882	166	Bainbridge Blvd	Milldam Creek	1985	-	City	-	-	7	6	6	N	Fair	-	-
CHES	21881	166	Bainbridge Blvd	Norfolk Southern R/R	1938	1947	City	SD	-	7	6	4	N	Poor	-	-
CHES	24840		Ballahack Road	Lead Ditch	1997	-	City	-	-	N	N	N	6	Fair	-	-
CHES	25081		Ballahack Road	Lead Ditch	1997	-	City	-	-	N	N	N	7	Good	-	-
CHES	21813		Ballahack Road	Newland Swamp	1974	-	City	-	-	6	5	5	N	Fair	-	-
CHES	21819		Barnes Road	I-464	1983	-	VDOT	-	FO	7	6	6	N	Fair	-	-
CHES	27874	168	Battlefield Blvd	Chesapeake & Albemarle Canal	2004	-	City	-	-	7	7	7	N	Good	Yes	-
CHES	26940	168	Battlefield Blvd	Chesapeake Expressway	2001	-	City	-	-	7	7	7	N	Good	-	-
CHES	27047	168	Battlefield Blvd	I-64	2008	-	VDOT	-	-	7	7	7	N	Good	-	-
CHES	28148	168	Battlefield Blvd	Inlet Of C&A Canal	2005	-	City	-	-	7	7	7	N	Good	-	-
CHES	21885	168	Battlefield Blvd	Military Highway	1990	-	City	-	FO	6	6	6	N	Fair	-	-
CHES	26887	168	Battlefield Blvd NB	Northwest River	2001	-	City	-	-	6	7	6	N	Fair	-	-
CHES	21887	168	Battlefield Blvd SB	Northwest River	1987	-	City	-	-	7	7	6	N	Fair	-	-
CHES	24003	168	Battlefield Blvd	Poplar Branch	1993	-	City	-	-	7	7	7	N	Good	-	-
CHES	29969		Beaver Dam Road	Drainage Ditch	2012	-	City	-	-	8	8	8	N	Good	-	-
CHES	30096		Bells Mill Road	Bells Mill Creek	2012	2012	City	-	-	8	8	8	N	Good	-	-
CHES	21803		Benefit Road	Branch Northwest River	1986	-	City	-	-	7	6	6	N	Fair	-	-
CHES	26883		Benefit Road	Chesapeake Expressway	2001	-	City	-	-	7	7	7	N	Good	-	-
CHES	30273		Benefit Road	Drainage Ditch	2013	-	City	-	FO	N	N	N	7	Good	-	-
CHES	21804		Benefit Road	Lead Ditch	1958	1976	City	-	FO	6	5	6	N	Fair	-	-
CHES	24257		Benefit Road	Lead Ditch	1993	-	City	-	-	N	N	N	7	Good	-	-
CHES	29532		Blackwater Road	Pocaty Creek	2010	-	City	-	-	7	7	7	N	Good	-	-
CHES	24704		Bunch Walnuts Road	Northwest River	1996	-	City	-	-	7	6	7	N	Fair	-	-
CHES	21791		Campostella Road	I-464	1966	-	VDOT	-	-	5	6	5	N	Fair	-	-
CHES	21884	168	Campostella Road	Norfolk Southern R/R	1938	1985	City	-	-	7	6	6	N	Fair	-	-
CHES	30266		Campostella Road	Trib Deep Creek	2012	-	City	-	FO	N	N	N	8	Good	-	-
CHES	25185	168	Campostella Road SB Ramp	Norfolk Southern R/R	2000	-	City	-	FO	6	7	6	N	Fair	-	-
CHES	26696	165	Cedar Road	Bells Mill Creek	1999	-	City	-	-	7	7	7	N	Good	-	-
CHES	28514	165	Cedar Road	Lindsey Drainage Canal	2006	-	City	-	FO	N	N	N	7	Good	-	-
CHES	29507	165	Cedar Road	New Mill Creek	2007	-	City	-	-	N	N	N	7	Good	-	-
CHES	30272	165	Cedar Road	Trib Bells Mill Creek	2013	-	City	-	-	N	N	N	7	Good	-	-
CHES	21797		Centerville Turnpike	Chesapeake & Albemarle Canal	1955	1990	City	SD	-	4	4	5	N	Poor	Yes	-
CHES	26885	168	Chesapeake Expressway NB	Battlefield Blvd South	2001	-	City	-	-	7	7	7	N	Good	-	-
CHES	26886	168	Chesapeake Expressway SB	Battlefield Blvd South	2001	-	City	-	-	7	7	7	N	Good	-	-
CHES	26881	168	Chesapeake Expressway NB	Hillcrest Parkway	2001	-	City	-	-	7	7	7	N	Good	-	-
CHES	26882	168	Chesapeake Expressway SB	Hillcrest Parkway	2001	-	City	-	-	7	7	7	N	Good	-	-
CHES	24206	168	Chesapeake Expressway NB	Poplar Branch	1993	-	City	-	-	7	7	8	N	Good	-	-
CHES	24207	168	Chesapeake Expressway SB	Poplar Branch	1993	-	City	-	-	7	7	8	N	Good	-	-
CHES	30280		Copper Knoll Lane	Trib Ches & Albem Canal	2013	-	City	-	-	N	N	N	8	Good	-	-
CHES	30271		Deep Creek Blvd	Drainage Ditch	2013	-	City	-	-	N	N	N	6	Fair	-	-
CHES	21812		Dock Landing Road	Bailey Creek	1970	-	City	-	FO	6	6	5	N	Fair	-	-
CHES	23104		Dock Landing Road	I-664	1991	-	VDOT	-	-	6	6	7	N	Fair	-	-
CHES	30685	17	Dominion Boulevard	Mains Creek Culvert	2013	-	VDOT	-	-	N	N	N	7	Good	-	-
CHES	21824		Elbow Road	Stumpy Lake Spillway	1975	-	City	SD	-	6	5	4	N	Poor	-	-
CHES	21805		Etheridge Manor Blvd	Coopers Ditch	1990	-	City	-	FO	7	7	7	N	Good	-	-

CHESAPEAKE BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings				Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
										Deck	Super-Structure	Sub-Structure	Culvert			
CHES	21822		Etheridge Road	Coopers Ditch	1989	-	City	-	-	7	7	7	N	Good	-	-
CHES	30367		Fentress Airfield Road	Pocaty Creek	2014	2014	City	-	FO	N	N	N	8	Good	-	-
CHES	21810		Fentress Airfield Road	Pocaty Creek	1963	-	City	-	FO	6	5	6	N	Fair	-	-
CHES	24202		Forest Road	Coopers Ditch	1993	-	City	-	-	7	7	7	N	Good	-	-
CHES	29531	17	George Washington Hwy	Deep Creek	2011	2010	City	-	-	7	7	7	N	Good	-	-
CHES	1818		George Washington Hwy	Dismal Swamp Canal	1934	2016	Federal	-	FO	6	5	7	N	Fair	Yes	-
CHES	21836	17	George Washington Hwy	I-64	1969	-	VDOT	-	-	5	6	6	N	Fair	-	-
CHES	21833	17	George Washington Hwy	St Julians Creek	1985	-	City	-	-	7	6	6	N	Fair	-	-
CHES	21838	17	George Washington Hwy	Yadkins Road & NS R/R	1992	1992	City	-	-	7	7	7	N	Good	-	-
CHES	27144	13	Gilmerton Bridge	S Br Elizabeth River	2013	-	City	-	-	7	7	7	N	Good	Yes	-
CHES	21906	190	Great Bridge Blvd	I-64	1967	-	VDOT	-	FO	7	6	6	N	Fair	-	-
CHES	25566	168	Great Bridge Bypass NB	Battlefield Blvd	1998	-	City	-	FO	7	5	7	N	Fair	-	-
CHES	21898	168	Great Bridge Bypass SB	Battlefield Blvd	1981	-	City	-	-	6	7	7	N	Fair	-	-
CHES	21891	168	Great Bridge Bypass	Chesapeake & Albemarle Canal	1981	-	City	-	-	5	5	6	N	Fair	-	-
CHES	21900	168	Great Bridge Bypass NB	Kempsville Rd	1981	-	City	-	-	7	7	6	N	Fair	-	-
CHES	21902	168	Great Bridge Bypass SB	Kempsville Rd	1981	-	City	-	-	7	7	6	N	Fair	-	-
CHES	21894	168	Great Bridge Bypass NB	Mount Pleasant Road	1981	-	City	-	-	7	7	7	N	Good	-	-
CHES	21896	168	Great Bridge Bypass SB	Mount Pleasant Road	1981	-	City	-	-	7	7	7	N	Good	-	-
CHES	21793		Greenbrier Parkway	I-64	1978	-	VDOT	-	-	7	7	6	N	Fair	-	-
CHES	23021		Gum Court	Drum Point Creek	1991	-	VDOT	-	-	N	N	N	7	Good	-	-
CHES	25696		Hanbury Road	Chesapeake Expressway	1998	-	City	-	FO	7	7	7	N	Good	-	-
CHES	21868	64	High Rise Bridge	S Br Eliz River & SR 166	1969	1991	VDOT	-	-	5	5	5	N	Fair	Yes	-
CHES	21823		Hillwell Road	Poplar Branch	1989	-	City	-	-	7	6	7	N	Fair	-	-
CHES	21844	64	I-64	Canal	1967	1995	VDOT	-	-	N	N	N	6	Fair	-	-
CHES	21862	64	I-64 EB	Military Highway	1969	-	VDOT	-	-	7	6	6	N	Fair	-	-
CHES	21864	64	I-64 WB	Military Highway	1969	-	VDOT	-	-	7	6	5	N	Fair	-	-
CHES	25192	64	I-64	Norfolk Southern R/R	1998	-	VDOT	-	-	7	7	7	N	Good	-	-
CHES	21920	64	I-64 EB	N/S R/R & Rotunda Ave	1969	1993	VDOT	-	-	6	5	6	N	Fair	-	-
CHES	21922	64	I-64 WB	N/S R/R & Rotunda Ave	1969	1993	VDOT	-	-	6	5	5	N	Fair	-	-
CHES	21858	64	I-64 EB	N/S R/R & Yadkin Road	1969	-	VDOT	-	-	6	7	5	N	Fair	-	-
CHES	21860	64	I-64 WB	N/S R/R & Yadkin Road	1969	-	VDOT	-	-	6	6	6	N	Fair	-	-
CHES	21856	64	I-64 EB	Shell Road	1969	-	VDOT	-	-	6	6	6	N	Fair	-	-
CHES	21854	64	I-64 WB	Shell Road	1969	-	VDOT	-	-	7	7	5	N	Fair	-	-
CHES	26355	64	I-64 EB Collector Road	Battlefield Blvd Ramp	2008	-	VDOT	-	-	6	7	7	N	Fair	Yes	-
CHES	26354	64	I-64 WB Collector Road	Greenbrier Pkwy Ramp	2008	-	VDOT	-	-	6	7	7	N	Fair	Yes	-
CHES	26357	64	I-64 EB Collector Road	Norfolk Southern R/R	2008	-	VDOT	-	-	7	7	7	N	Good	-	-
CHES	26356	64	I-64 WB Collector Road	Norfolk Southern R/R	2008	-	VDOT	-	-	7	7	7	N	Good	-	-
CHES	21870	64	I-64 EB Ramp	Canal	1978	-	VDOT	-	-	N	N	N	7	Good	-	-
CHES	21871	64	I-64 WB Ramp	Canal	1978	-	VDOT	-	-	N	N	N	7	Good	-	-
CHES	21872	64	I-64 EB Ramp	Canal	1978	-	VDOT	-	-	N	N	N	7	Good	-	-
CHES	21873	64	I-64 WB Ramp	Canal	1978	-	VDOT	-	-	N	N	N	7	Good	-	-
CHES	21925	264	I-264 EB	I-64 EB	1963	1993	VDOT	-	-	5	5	5	N	Fair	-	-
CHES	21927	264	I-264 EB	I-64 Ramp	1963	1993	VDOT	-	-	6	6	5	N	Fair	-	-
CHES	21918	264	I-264 WB Ramp	I-64	1969	-	VDOT	-	-	6	6	5	N	Fair	-	-
CHES	21945	464	I-464 NB	Bainbridge Blvd	1984	-	VDOT	-	-	6	6	7	N	Fair	-	-
CHES	21947	464	I-464 SB	Bainbridge Blvd	1984	-	VDOT	-	-	6	6	6	N	Fair	-	-
CHES	21957	464	I-464 NB	Freeman Avenue	1987	-	VDOT	-	-	7	7	6	N	Fair	-	-
CHES	21959	464	I-464 SB	Freeman Avenue	1987	-	VDOT	-	-	7	7	6	N	Fair	-	-
CHES	21961	464	I-464 NB	Gilligan Creek & NS R/R	1987	-	VDOT	-	-	6	6	7	N	Fair	-	-
CHES	21962	464	I-464 SB	Gilligan Creek & NS R/R	1987	-	VDOT	-	-	6	6	7	N	Fair	-	-

CHESAPEAKE BRIDGES

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Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings				Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
										Deck	Super-Structure	Sub-Structure	Culvert			
CHES	21941	464	I-464 NB	I-64	1967	-	VDOT	-	FO	6	6	6	N	Fair	-	-
CHES	21943	464	I-464 SB	I-64	1967	-	VDOT	-	FO	6	6	5	N	Fair	-	-
CHES	21963	464	I-464 NB	Jones Creek	1987	-	VDOT	-	-	6	6	7	N	Fair	-	-
CHES	21964	464	I-464 SB	Jones Creek	1987	-	VDOT	-	-	7	6	7	N	Fair	-	-
CHES	21965	464	I-464 NB	Jones Creek	1987	-	VDOT	-	-	7	7	7	N	Good	-	-
CHES	21966	464	I-464 SB	Jones Creek	1987	-	VDOT	-	-	7	7	7	N	Good	-	-
CHES	21949	464	I-464 NB	Military Hwy	1984	-	VDOT	-	-	6	6	7	N	Fair	-	-
CHES	21951	464	I-464 SB	Military Hwy	1984	-	VDOT	-	-	6	6	7	N	Fair	-	-
CHES	21955	464	I-464 NB	Milldam Creek	1986	-	VDOT	-	-	6	7	6	N	Fair	-	-
CHES	21956	464	I-464 SB	Milldam Creek	1986	-	VDOT	-	-	6	6	7	N	Fair	-	-
CHES	21953	464	I-464 NB	NS R/R & Br Milldam Creek	1984	-	VDOT	-	-	7	6	6	N	Fair	-	-
CHES	21954	464	I-464 SB	NS R/R & Br Milldam Creek	1984	-	VDOT	-	-	7	6	6	N	Fair	-	-
CHES	21967	464	I-464 NB	South Norfolk Basin	1980	-	VDOT	-	-	6	6	6	N	Fair	-	-
CHES	21968	464	I-464 SB	South Norfolk Basin	1980	-	VDOT	-	-	6	7	6	N	Fair	-	-
CHES	21969	464	I-464 SB	South Norfolk Basin	1980	-	VDOT	-	-	6	7	6	N	Fair	-	-
CHES	23105	664	I-664 NB	Bailey Creek	1991	-	VDOT	-	-	7	7	7	N	Good	-	-
CHES	23106	664	I-664 SB	Bailey Creek	1991	-	VDOT	-	-	6	7	7	N	Fair	-	-
CHES	23037	664	I-664	Br Drum Point Creek	1991	-	VDOT	-	-	N	N	N	5	Fair	-	-
CHES	23017	664	I-664	Drum Point Creek	1991	-	VDOT	-	-	N	N	N	7	Good	-	-
CHES	23102	664	I-664 NB	Goose Creek	1991	-	VDOT	-	-	6	7	7	N	Fair	-	-
CHES	23103	664	I-664 SB	Goose Creek	1991	-	VDOT	-	-	7	7	6	N	Fair	-	-
CHES	23109	664	I-664 NB	Norfolk Southern R/R	1991	-	VDOT	-	-	6	7	7	N	Fair	-	-
CHES	23110	664	I-664 SB	Norfolk Southern R/R	1991	-	VDOT	-	-	6	6	7	N	Fair	-	-
CHES	23014	664	I-664 NB	Route 13/58/460	1991	-	VDOT	-	-	6	7	7	N	Fair	-	-
CHES	23015	664	I-664 SB	Route 13/58/460	1991	-	VDOT	-	-	6	7	7	N	Fair	-	-
CHES	21911	664	I-664 NB	W Military Hwy & CSX R/R	1983	-	VDOT	-	FO	6	6	6	N	Fair	-	-
CHES	21913	664	I-664 SB	W Military Hwy & CSX R/R	1983	-	VDOT	-	FO	6	6	6	N	Fair	-	-
CHES	21915	664	I-664 Ramp	Route 58 & 460 EB	1983	-	VDOT	-	-	6	6	6	N	Fair	Yes	-
CHES	26884		Indian Creek Road	Chesapeake Expressway	2001	-	City	-	-	7	7	7	N	Good	-	-
CHES	21799		Indian Creek Road	Indian Creek	1972	-	City	-	FO	6	6	5	N	Fair	-	-/14/20
CHES	21935	407	Indian River Road	Indian River	1974	-	City	-	-	6	5	5	N	Fair	-	-
CHES	25188	407	Indian River Road	Norfolk Southern R/R	1998	-	City	-	FO	6	7	7	N	Fair	-	-
CHES	21908	191	Jolliff Road	I-664	1991	-	VDOT	-	-	6	7	7	N	Fair	-	-
CHES	30093	17	Lake Drummond Causeway	Lead Ditch	2012	-	City	-	-	N	N	N	7	Good	-	-
CHES	29509		Lake Shore Drive	Tributary Of Goose Creek	2011	-	City	-	-	N	N	N	8	Good	-	-
CHES	21798		Land Of Promise Road	Pocaty Creek	1971	-	City	-	FO	7	6	5	N	Fair	-	-
CHES	21800		Long Ridge Road	Pocaty Creek	1973	-	City	-	-	6	6	5	N	Fair	-	-
CHES	24742		Luray Street	Dismal Swamp Canal Spillway	1996	-	City	-	FO	7	7	7	N	Good	-	-
CHES	21827	13	Military Highway	Bainbridge Blvd & NS R/R	1948	1960	City	SD	-	4	4	5	N	Poor	-	-
CHES	21826	13	Military Highway	Norfolk Southern R/R	1990	-	City	-	-	6	7	7	N	Fair	-	-
CHES	21830	13	Military Highway	Norfolk Southern R/R	1938	-	City	SD	-	3	4	4	N	Poor	-	-/19/31
CHES	24180		Millstone Road	Coopers Ditch	1993	-	City	-	-	7	7	7	N	Good	-	-
CHES	28523	165	Moses Grandy Trail	New Mill Creek	2006	-	City	-	-	7	8	7	N	Good	-	-
CHES	1826		Mount Pleasant Road	Chesapeake & Albemarle Canal	1951	2014	Federal	-	FO	7	6	5	N	Fair	-	-
CHES	21877	165	Mount Pleasant Road	Coopers Ditch	1985	-	City	-	-	6	7	7	N	Fair	-	-
CHES	21816		Number Ten Lane	Lindsey Drainage Canal	1979	-	City	SD	-	5	4	5	N	Poor	-	-
CHES	30270	17	Old Dock Landing Rd	Trib Goose Creek	1990	-	City	-	-	N	N	N	7	Good	-	-
CHES	30267	17	Old Mill Road	Deep Creek	2013	-	City	SD	-	N	N	N	4	Poor	-	-
CHES	26701		Peaceful Road	Chesapeake Expressway	2001	-	City	-	-	7	7	6	N	Fair	-	-
CHES	21932	337	Poindexter Street	I-464	1980	-	VDOT	-	FO	6	6	6	N	Fair	-	-

CHESAPEAKE BRIDGES

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Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
CHES	23107	337	Portsmouth Blvd EB	I-664	1992	-	VDOT	-	-	6	6	6	N	Fair	-	-
CHES	23108	337	Portsmouth Blvd WB	I-664	1992	-	VDOT	-	-	6	6	6	N	Fair	-	-
CHES	24256	337	Portsmouth Blvd	Trib Bailey's Creek	1990	-	City	-	-	N	N	N	6	Fair	-	-
CHES	21934	337	Portsmouth Blvd	W Br Elizabeth River	1983	-	City	-	-	6	6	5	N	Fair	-	-
CHES	21795		Providence Road	Branch Of Indian River	1970	-	City	-	-	N	N	N	7	Good	-	-
CHES	21796		Providence Road	Branch Of Indian River	1970	-	City	-	-	N	N	N	7	Good	-	-
CHES	23039		Pughsville Road	Br Drum Point Creek	1991	-	VDOT	-	-	N	N	N	6	Fair	-	-
CHES	23112		Pughsville Road	I-664	1991	-	VDOT	-	-	7	7	7	N	Good	-	-
CHES	21937	460	Ramp To Bainbridge Blvd & NS R/R	Bainbridge Blvd	1948	1960	City	SD	-	6	4	5	N	Poor	Yes	-
CHES	25570	168	Ramp To Dominion Blvd	I-464 & Oak Grove Conn	1999	-	VDOT	-	-	7	7	7	N	Good	-	-
CHES	21817		Rosemont Avenue	I-464	1983	-	VDOT	-	-	7	7	6	N	Fair	-	-
CHES	21821		Rotunda Avenue	Trib Goose Creek	1969	-	City	SD	-	5	6	4	N	Poor	-	-
CHES	28796	17	Route 17 NB	Bainbridge Blvd	2014	-	City	-	FO	8	8	8	N	Good	-	-
CHES	28795	17	Route 17 SB	Bainbridge Blvd	2015	-	City	-	FO	8	8	8	N	Good	-	-
CHES	28792	17	Route 17 NB	Cedar Road	2016	-	City	-	FO	8	8	8	N	Good	-	-
CHES	28793	17	Route 17 SB	Cedar Road	2016	-	City	-	-	8	8	8	N	Good	-	-
CHES	28798	17	Route 17 NB	Great Bridge Blvd	2016	-	City	-	-	8	8	8	N	Good	-	-
CHES	28797	17	Route 17 SB	Great Bridge Blvd	2016	-	City	-	-	8	8	8	N	Good	-	-
CHES	27402	17	Route 17	Stream	2006	-	City	-	FO	N	N	N	7	Good	-	-
CHES	27231	17	Route 17 NB	Wetlands	2005	-	City	-	-	6	7	6	N	Fair	-	-
CHES	27232	17	Route 17 SB	Wetlands	2005	-	City	-	-	7	7	7	N	Good	-	-
CHES	28799	17	Route 17 - Ramp K Over Ramp L	Ramp L	2015	-	City	-	-	8	8	8	N	Good	-	-
CHES	25568	168	Route 168 SB	Dominion Blvd And Ramps	1998	-	VDOT	-	-	7	7	7	N	Good	-	-
CHES	25567	168	Route 168 NB	Ramp To I-64 WB	1999	-	VDOT	-	-	7	7	7	N	Good	-	-
CHES	25569	64	Route 168 SB Ramp	Dominion Blvd And Ramps	1999	-	VDOT	-	-	7	7	7	N	Good	-	-
CHES	29359		Saint Brides Road	Lead Ditch	2009	-	City	-	-	N	N	N	8	Good	-	-
CHES	23038		Service Road	Br Drum Point Creek	1991	-	VDOT	-	-	N	N	N	5	Fair	-	-
CHES	21931		South Norfolk Jordan Bridge	Southern Branch Elizabeth River	2012	-	Private	-	-	-	-	-	N	N/A	-	-
CHES	30281		Station Road	Trib Drum Point Creek	2013	-	City	-	-	N	N	N	7	Good	-	-
CHES	28794	17	Veterans Bridge NB	S Br Elizabeth River	2014	-	City	-	-	7	7	7	N	Good	-	-
CHES	26479	17	Veterans Bridge SB	S Br Elizabeth River	2016	-	City	-	-	8	8	8	N	Good	-	-
CHES	29508		Willow Lake Rd	Tributary Of Goose Creek	2011	-	City	-	-	N	N	N	8	Good	-	-
CHES	24203		Woodlake Drive	Drainage Channel	1975	1988	City	-	-	N	N	N	7	Good	-	-

CHESAPEAKE BRIDGES

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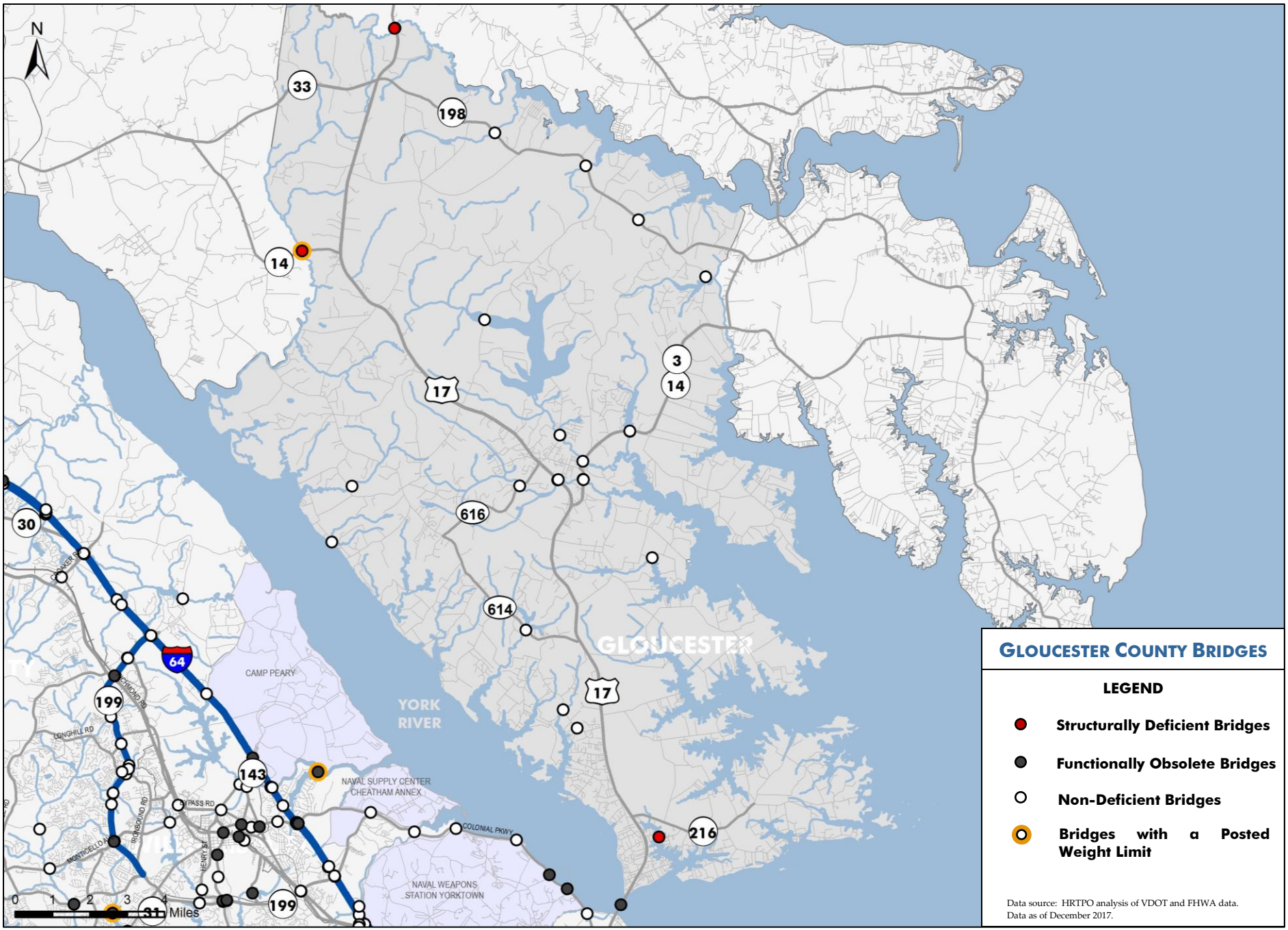
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CAMP PEARY
YORK RIVER
NAVAL SUPPLY CENTER CHEATHAM ANNEX
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COLONIAL PKWY
LONGHILL RD
BYPASS RD
IRONBOUND RD
MONTICELLO
HENRY ST
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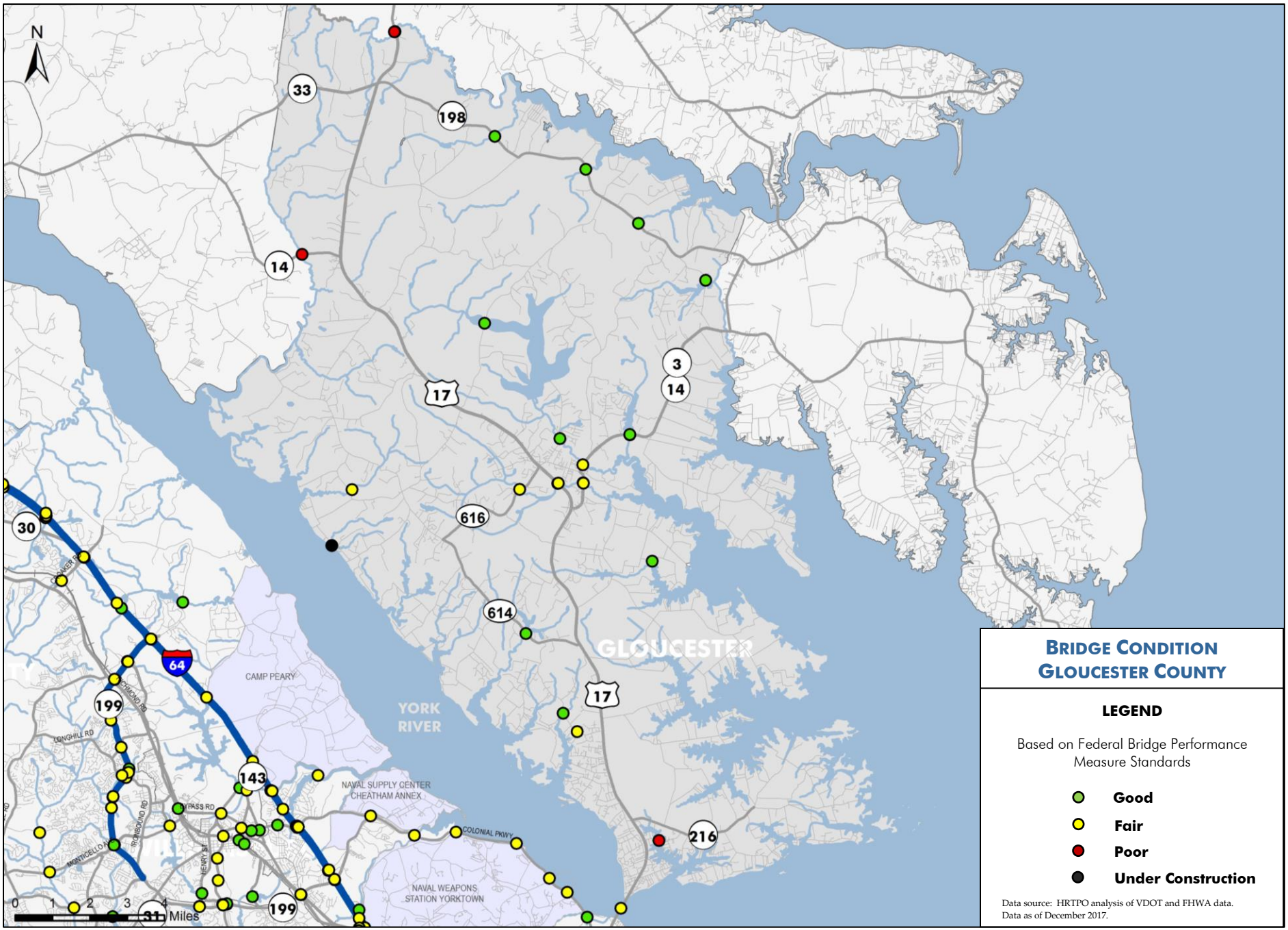
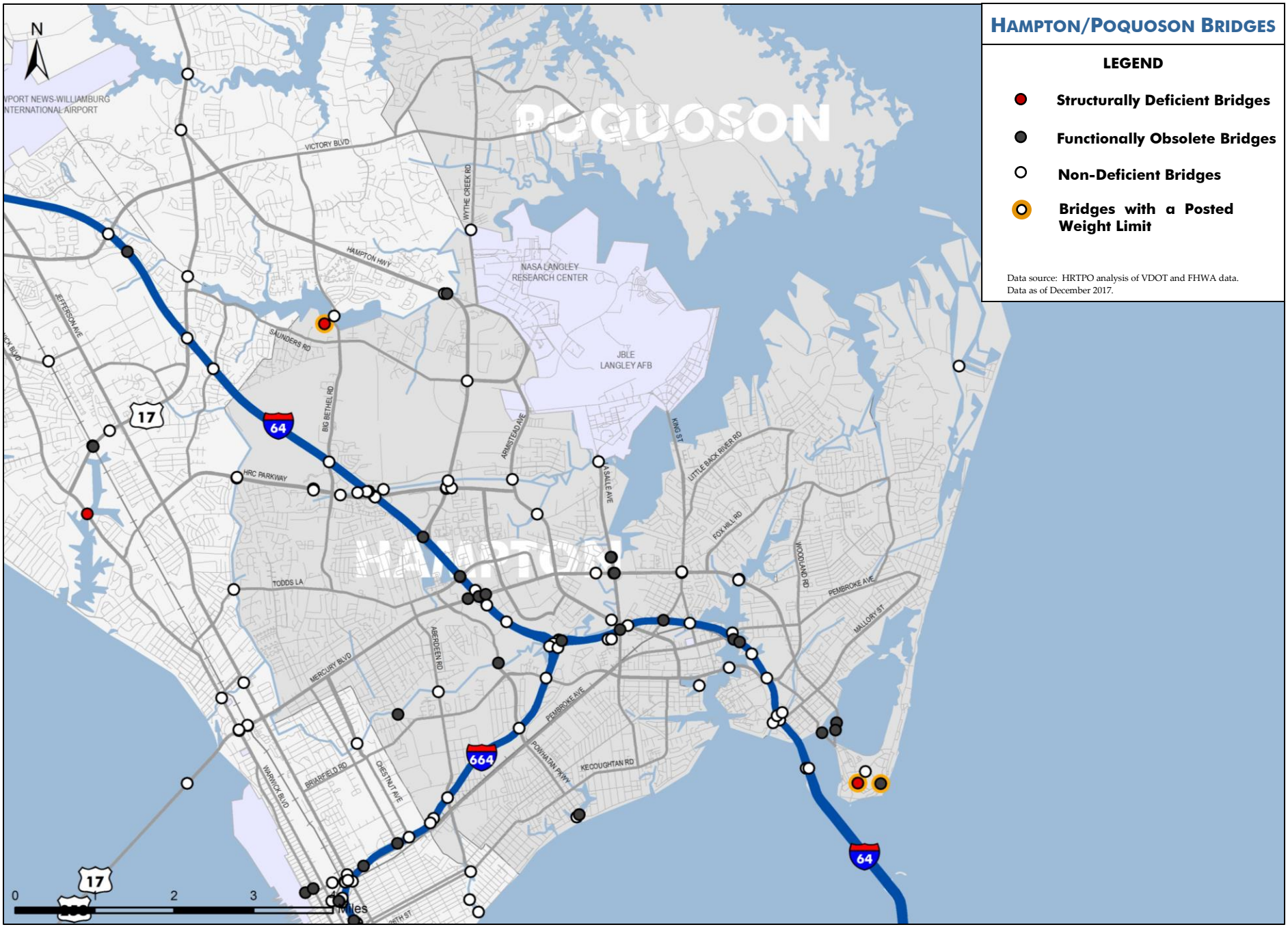
GLOUCESTER
GLOUCESTER COUNTY BRIDGES
LEGEND
Structurally Deficient Bridges
Functionally Obsolete Bridges
Non-Deficient Bridges
Bridges with a Posted Weight Limit
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.

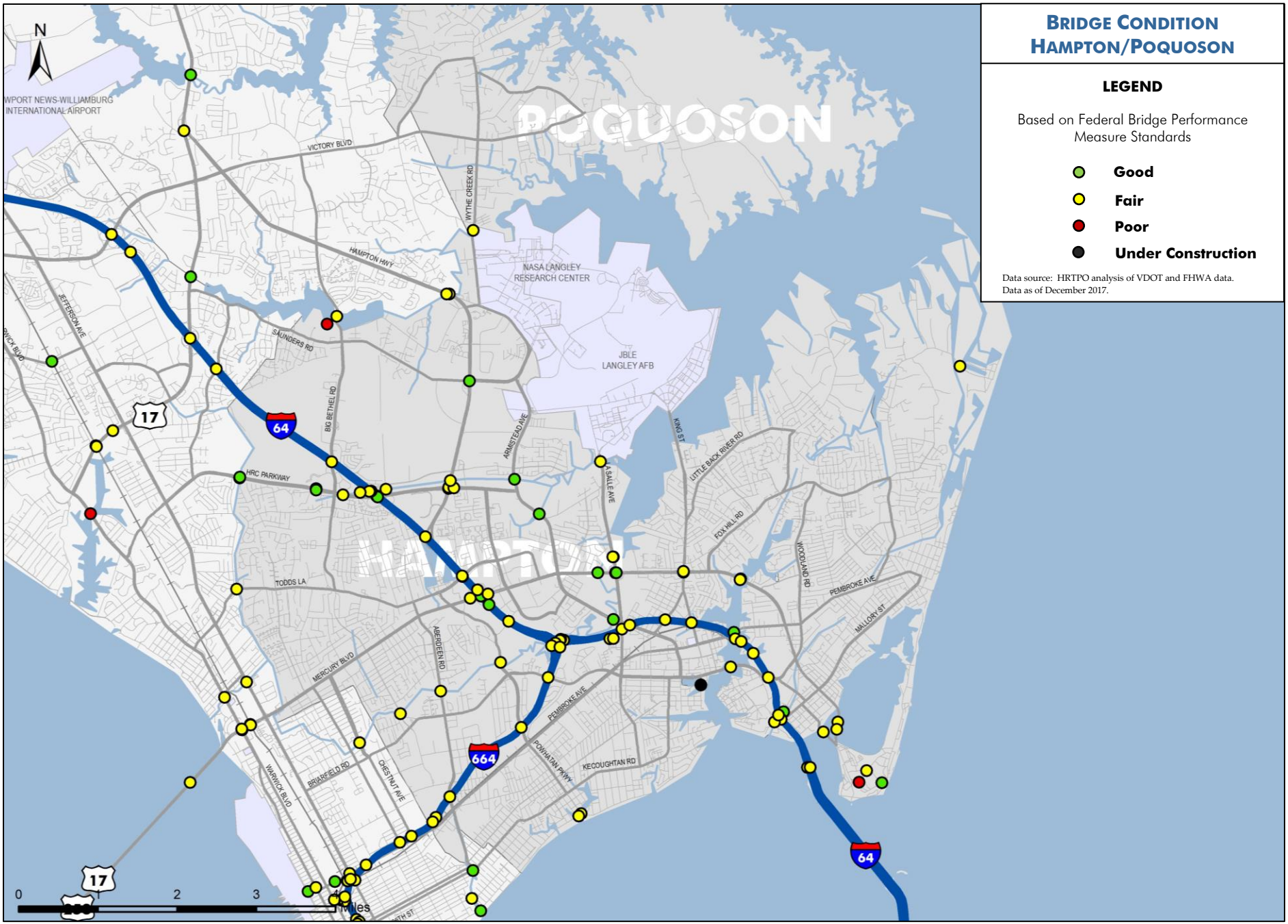

N
33
198
14
17
3
14
616
614
17
216
30
64
199
143
199
CAMP PEARY
YORK RIVER
NAVAL SUPPLY CENTER CHEATHAM ANNEX
NAVAL WEAPONS STATION YORKTOWN
COLONIAL PKWY
GLOUCESTER
0 1 2 3 4 Miles
BRIDGE CONDITION
GLOUCESTER COUNTY
LEGEND
Based on Federal Bridge Performance Measure Standards
Good
Fair
Poor
Under Construction
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings				Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
										Deck	Super-Structure	Sub-Structure	Culvert			
GLO	10588	14	Adner Road	Porpotank Creek	1938	-	VDOT	SD	-	4	4	5	N	Poor	-	-/27/40
GLO	8552	662	Allmondsville Road	Fox Creek	2018	-	VDOT	-	-	N/A	N/A	N/A	N/A	N/A	-	-
GLO	8544	616	Belroi Road	Fox Mill Run	1958	-	VDOT	-	-	N	N	N	6	Fair	-	-
GLO	29427	602	Burke's Pond Road	Burkes Pond	2015	-	VDOT	-	-	8	8	8	N	Good	-	-
GLO	30573	627	Cunningham Lane	Wilson Creek	2017	-	VDOT	-	-	8	8	8	N	Good	-	-
GLO	8532	198	Dutton Road	Ferry Creek	1938	1999	VDOT	-	-	8	8	7	N	Good	-	-
GLO	8533	198	Dutton Road	Harper Creek	1941	2016	VDOT	-	-	8	8	7	N	Good	-	-
GLO	8537	606	Farys Mill Road	Beaverdam Swamp	1964	-	VDOT	-	-	N	N	N	7	Good	-	-
GLO	12085	17	George Washington Hwy NB	Dragon Run	1931	-	VDOT	-	FO	5	5	6	N	Fair	-	-
GLO	12086	17	George Washington Hwy SB	Dragon Run	1957	-	VDOT	SD	-	6	4	5	N	Poor	-	-
GLO	8530	17	George Washington Hwy NB	Fox Mill Run	1972	-	VDOT	-	-	N	N	N	6	Fair	-	-
GLO	8529	17	George Washington Hwy SB	Fox Mill Run	1972	-	VDOT	-	-	N	N	N	7	Good	-	-
GLO	8534	198	Glenns Road	Carvers Creek	1950	-	VDOT	-	-	N	N	N	7	Good	-	-
GLO	26610	614	Hickory Fork Road	Carters Creek	2006	-	VDOT	-	-	7	7	8	N	Good	-	-
GLO	8524	3	John Clayton Hwy	Beaverdam Swamp	1974	-	VDOT	-	-	N	N	N	6	Fair	-	-
GLO	8523	3	John Clayton Hwy EB	Cow Creek	1938	2003	VDOT	-	-	7	8	7	N	Good	-	-
GLO	8525	3	John Clayton Hwy WB	Cow Creek	1974	-	VDOT	-	-	N	N	N	7	Good	-	-
GLO	8528	17	Main Street NB	Fox Mill Run	1964	-	VDOT	-	-	5	5	5	N	Fair	-	-
GLO	27069	17	Main Street SB	Fox Mill Run	2012	-	VDOT	-	-	8	8	8	N	Good	-	-
GLO	8538	610	Old Pinetta Road	Bland Creek	1960	2013	VDOT	-	-	8	8	5	N	Fair	-	-
GLO	8547	636	Providence Road	Timberneck Creek	1990	-	VDOT	-	-	N	N	N	7	Good	-	-
GLO	8546	636	Providence Road	Trib. Of Timberneck Creek	1990	-	VDOT	-	-	N	N	N	6	Fair	-	-
GLO	23898	616	Roaring Springs Road	Beaverdam Swamp	1993	-	VDOT	-	-	7	7	7	N	Good	-	-
GLO	8548	641	Tidemill Road	Northwest Br Sarah Creek	1974	-	VDOT	SD	-	6	4	5	N	Poor	-	-

GLOUCESTER COUNTY BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.


HAMPTON/POQUOSON BRIDGES
LEGEND
Structurally Deficient Bridges
Functionally Obsolete Bridges
Non-Deficient Bridges
Bridges with a Posted Weight Limit
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
POQUOSON
HAMPTON
NASA LANGLEY RESEARCH CENTER
JBLE LANGLEY AFB
VICTORY BLVD
WYTHE CREEK RD
HAMPTON HWY
SAUNDERS RD
BIG BETHEL RD
ARMISTEAD AVE
KINGS ST
LITTLE BACK RIVER RD
FOX HILL RD
WOODLAND RD
PEMBROKE AVE
MALLORY ST
LA SALLE AVE
HRC PARKWAY
TODDS LA
MERCURY BLVD
ABERDEEN RD
WARWICK BLVD
BRIARFIELD RD
CHESTNUT AVE
POWHATAN PKWY
KECOUGHTAN RD
17
64
664
0
2
3
Miles


BRIDGE CONDITION
HAMPTON/POQUOSON
LEGEND
Based on Federal Bridge Performance Measure Standards
Good
Fair
Poor
Under Construction
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
POQUOSON
HAMPTON
NASA LANGLEY RESEARCH CENTER
JBLE LANGLEY AFB
VICTORY BLVD
HAMPTON HWY
WYTHE CREEK RD
SAUNDERS RD
BIG BETHEL RD
ARMISTEAD AVE
JEFFERSON AVE
HRC PARKWAY
TODDS LA
MERCURY BLVD
ABERDEEN RD
WARWICK BLVD
BRIARFIELD RD
CHESTNUT AVE
POWHATAN PKWY
KECOUGHTAN RD
PEMBROKE AVE
KING ST
LITTLE BACK RIVER RD
FOX HILL RD
WOODLAND RD
MALLORY ST
LASALLE AVE
17
64
664
0 1 2 3 Miles

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings				Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
										Deck	Super-Structure	Sub-Structure	Culvert			
HAM	20295		Aberdeen Road	Newmarket Creek	1981	-	City	-	-	5	5	6	N	Fair	-	-
HAM	20299		Armistead Avenue	Billy Wood Canal	1987	-	City	-	-	7	7	7	N	Good	-	-
HAM	26349	134	Armistead Avenue	Newmarket Creek	2004	-	City	-	-	7	7	7	N	Good	-	-
HAM	20300		Armistead Avenue	Tide Mill Creek	1987	-	City	-	-	7	7	7	N	Good	-	-
HAM	20291		Beach Road	Long Creek	1958	-	City	-	-	6	5	5	N	Fair	-	-
HAM	20287		Big Bethel Road	I-64	1989	-	VDOT	-	-	7	5	7	N	Fair	-	-
HAM	20293		Big Bethel Road	Newmarket Creek	1970	-	City	-	FO	6	6	7	N	Fair	-	-
HAM	20294		Bridge Street	Salters Creek	2017	-	City	-	-	N/A	N/A	N/A	N/A	N/A	-	-
HAM	20373	167	Chesapeake Avenue	Indian River	1985	-	City	-	-	7	7	5	N	Fair	-	-
HAM	27473	172	Commander Shepard Blvd	Magruder Blvd	2011	-	City	-	-	7	7	8	N	Good	-	-
HAM	20362	152	Cunningham Drive EB	I-64	1974	-	City	-	FO	6	6	6	N	Fair	-	-
HAM	20364	152	Cunningham Drive WB	I-64	1974	-	City	-	FO	6	6	6	N	Fair	-	-
HAM	OP1113		East Gate Road	East Crossing Of Moat	1950	-	Federal	-	FO	7	7	7	N	Good	-	Posted
HAM	20339	64	Hampton Roads Bridge-Tunnel EB	Hampton Roads	1974	-	VDOT	-	-	5	5	5	N	Fair	-	-
HAM	20353	64	Hampton Roads Bridge-Tunnel WB	Hampton Roads	1957	1999	VDOT	SD	-	5	4	4	N	Poor	-	-
HAM	20352	64	Hampton Roads Bridge-Tunnel EB	Hampton Roads	1974	-	VDOT	-	-	5	5	5	N	Fair	-	-
HAM	20355	64	Hampton Roads Bridge-Tunnel WB	Hampton Roads	1957	1999	VDOT	-	-	6	5	5	N	Fair	-	-
HAM	20302		Hampton Roads Center Pkwy	Billy Wood Canal	1989	-	VDOT	-	-	N	N	N	5	Fair	-	-
HAM	20283		Hampton Roads Center Pkwy EB	I-64	1989	-	VDOT	-	-	7	7	7	N	Good	-	-
HAM	20281		Hampton Roads Center Pkwy WB	I-64	1989	-	VDOT	-	-	7	7	7	N	Good	-	-
HAM	20303		Hampton Roads Center Pkwy EB	Magruder Blvd	1989	-	City	-	-	7	6	6	N	Fair	-	-
HAM	20305		Hampton Roads Center Pkwy WB	Magruder Blvd	1989	-	City	-	-	7	6	6	N	Fair	-	-
HAM	26131		Hampton Roads Center Pkwy EB	Over Vernal Pool/Depress	2001	-	City	-	-	7	8	8	N	Good	-	-
HAM	26130		Hampton Roads Center Pkwy WB	Over Vernal Pool/Depress	2001	-	City	-	-	7	8	8	N	Good	-	-
HAM	20307		Hampton Roads Center Pkwy	Stream	1989	-	City	-	-	N	N	N	6	Fair	-	-
HAM	20348	64	Hampton Roads Center Pkwy Ramp	Billy Wood Canal	1989	-	VDOT	-	-	N	N	N	6	Fair	-	-
HAM	20349	64	Hampton Roads Center Pkwy Ramp	Billy Wood Canal	1989	-	VDOT	-	-	N	N	N	6	Fair	-	-
HAM	20324	64	I-64	Armistead Avenue	1957	1986	VDOT	-	FO	6	6	6	N	Fair	-	-
HAM	20337	64	I-64 EB	Billy Wood Canal	1959	1989	VDOT	-	-	7	6	6	N	Fair	-	-
HAM	20336	64	I-64 WB	Billy Wood Canal	1959	1989	VDOT	-	-	7	6	6	N	Fair	-	-
HAM	20312	64	I-64	County Street	1987	-	VDOT	-	-	6	6	6	N	Fair	-	-
HAM	20314	64	I-64 EB	E. Branch Hampton River	1958	1987	VDOT	-	-	5	5	5	N	Fair	Yes	-
HAM	20344	64	I-64	Johns Creek	1985	-	VDOT	-	-	N	N	N	6	Fair	-	-
HAM	20318	64	I-64	King Street	1959	1984	VDOT	-	-	6	5	6	N	Fair	-	-
HAM	20326	64	I-64	Lasalle Avenue	1959	1984	VDOT	-	-	6	5	5	N	Fair	-	-
HAM	26145	64	I-64	Mercury Blvd	2005	-	VDOT	-	FO	7	7	7	N	Good	-	-
HAM	20331	64	I-64 EB	Newmarket Creek	1959	2005	VDOT	-	-	7	7	6	N	Fair	-	-
HAM	20330	64	I-64 WB	Newmarket Creek	1959	1981	VDOT	-	-	7	6	6	N	Fair	-	-
HAM	20316	64	I-64 EB	Pembroke Avenue & Hampton River	1958	1987	VDOT	-	FO	5	6	6	N	Fair	-	-
HAM	20346	64	I-64 WB	Pembroke Avenue & Hampton River	1985	-	VDOT	-	FO	5	5	5	N	Fair	Yes	-
HAM	20320	64	I-64	Rip Rap Road	1959	1984	VDOT	-	FO	6	6	6	N	Fair	-	-
HAM	20345	64	I-64 Ramps	Johns Creek	1985	-	VDOT	-	-	N	N	N	7	Good	-	-
HAM	26146	64	I-64 Ramp	Mercury Blvd	2005	-	VDOT	-	FO	6	7	7	N	Fair	-	-
HAM	20399	664	I-64 Ramps	Newmarket Creek	1982	-	VDOT	-	-	6	5	6	N	Fair	Yes	-
HAM	20342	64	I-64 EB Off Ramp	Pond	1985	-	VDOT	-	-	6	6	7	N	Fair	-	-
HAM	20343	64	I-64 EB On Ramp	Ramp F Over Pond	1985	-	VDOT	-	-	6	7	7	N	Fair	-	-
HAM	20393	664	I-664	Aberdeen Road	1983	-	VDOT	-	-	6	6	6	N	Fair	-	-
HAM	20395	664	I-664	CSX R/R Spur	1983	-	VDOT	-	-	6	6	6	N	Fair	-	-
HAM	20396	664	I-664 NB	I-64 Ramp & Newmarket Creek	1982	-	VDOT	-	-	6	6	6	N	Fair	Yes	-
HAM	20391	664	I-664	Queen Street	1982	-	VDOT	-	-	6	6	6	N	Fair	-	-

HAMPTON/POQUOSON BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
HAM	20400	664	I-664	VPA R/R Spur	1983	-	VDOT	-	-	6	6	6	N	Fair	-	-
HAM	20328	664	I-664 SB Ramp	I-64 & Newmarket Creek	1981	-	VDOT	-	FO	6	6	5	N	Fair	Yes	-
HAM	20398	664	I-664 Ramp	Newmarket Creek	1982	-	VDOT	-	-	7	6	6	N	Fair	-	-
HAM	25293	167	LaSalle Avenue NB	Mercury Blvd	1998	-	City	-	FO	7	8	7	N	Good	-	-
HAM	25292	167	LaSalle Avenue SB	Mercury Blvd	1998	-	City	-	FO	7	8	7	N	Good	-	-
HAM	20367	167	LaSalle Avenue NB	Newmarket Creek	1965	-	City	-	FO	7	6	6	N	Fair	-	-
HAM	20368	167	LaSalle Avenue SB	Newmarket Creek	1965	-	City	-	FO	7	6	6	N	Fair	-	-
HAM	20366	167	LaSalle Avenue	Tide Mill Creek	1965	-	City	-	-	6	6	5	N	Fair	-	-
HAM	20358	134	Magruder Blvd	Billy Wood Canal	1963	1990	City	-	-	6	6	6	N	Fair	-	-
HAM	26143	134	Magruder Blvd	I-64	2004	-	VDOT	-	FO	7	7	6	N	Fair	-	-
HAM	20279		Mallory Street	I-64	1985	-	VDOT	-	-	7	6	6	N	Fair	-	-
HAM	20298		Mallory Street	Johns Creek	1985	-	City	-	-	N	N	N	6	Fair	-	-
HAM	20361	143	Mellen Street	Mill Creek	1961	1982	City	-	FO	5	5	6	N	Fair	-	-
HAM	20383	258	Mercury Blvd EB	Hampton Creek	1971	-	City	-	-	7	6	6	N	Fair	-	-
HAM	20380	258	Mercury Blvd WB	Hampton Creek	1983	-	City	-	-	7	7	7	N	Good	-	-
HAM	20384	258	Mercury Blvd EB	King St	1971	-	City	-	-	7	7	6	N	Fair	-	-
HAM	20386	258	Mercury Blvd WB	King St	1971	-	City	-	-	7	7	6	N	Fair	-	-
HAM	20381	258	Mercury Blvd	Mill Creek (Northern Bridge)	1989	-	City	-	FO	6	6	7	N	Fair	-	-
HAM	20382	258	Mercury Blvd	Mill Creek (Southern Bridge)	1989	-	City	-	FO	7	7	6	N	Fair	-	-
HAM	25127	258	Mercury Blvd	Newmarket Creek	1998	-	City	-	-	7	7	7	N	Good	-	-
HAM	26148	64	Mercury Blvd Ramp	I-64	2005	-	VDOT	-	-	7	7	7	N	Good	-	-
HAM	26150	64	Mercury Blvd Ramp	I-64 Ramp	2005	-	VDOT	-	-	6	8	7	N	Fair	-	-
HAM	26149	64	Mercury Blvd Ramp	Mercury Blvd	2005	-	VDOT	-	FO	6	6	6	N	Fair	-	-
HAM	0P1051		North Gate Road	North Crossing of Moat	1975	-	Federal	-	-	6	5	5	N	Fair	-	-
HAM	J50170		Park Lane Rd	Bethel Reservoir	1935	-	Federal	SD	-	5	4	4	N	Poor	-	Posted
HAM	26382	351	Pembroke Avenue	Hampton Creek	2003	-	City	-	-	7	7	7	N	Good	-	-
HAM	20285		Pine Chapel Road	I-64	1978	-	VDOT	-	-	6	7	6	N	Fair	-	-
HAM	20390	415	Power Plant Pkwy	Newmarket Creek	1962	-	City	-	FO	6	6	5	N	Fair	-	-
HAM	20296		Powhatan Pkwy	I-664	1983	-	VDOT	-	-	6	5	6	N	Fair	-	-
HAM	20292		Powhatan Pkwy	Indian River	1929	1997	City	-	FO	7	7	6	N	Fair	-	-
HAM	0P1049		Ruckman Road	West Crossing of Moat	1952	-	Federal	SD	-	5	5	4	N	Poor	-	Posted
HAM	20310	60	Settlers Landing Road	Hampton River	1985	-	City	-	-	7	6	5	N	Fair	-	-
HAM	20378	172	Wythe Creek Road	Brick Kiln Creek	1981	-	City	-	-	6	6	6	N	Fair	-	-

HAMPTON/POQUOSON BRIDGES

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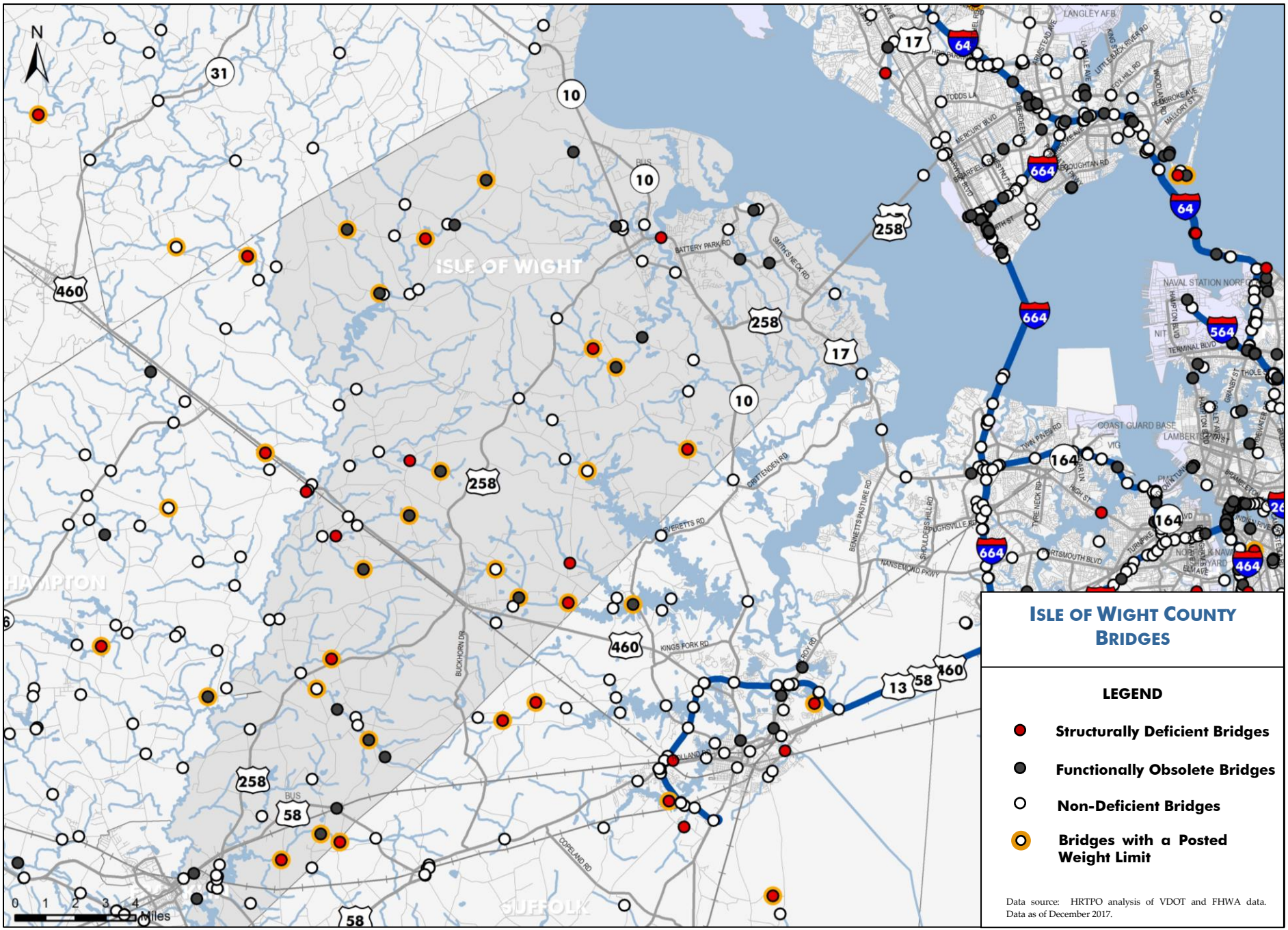
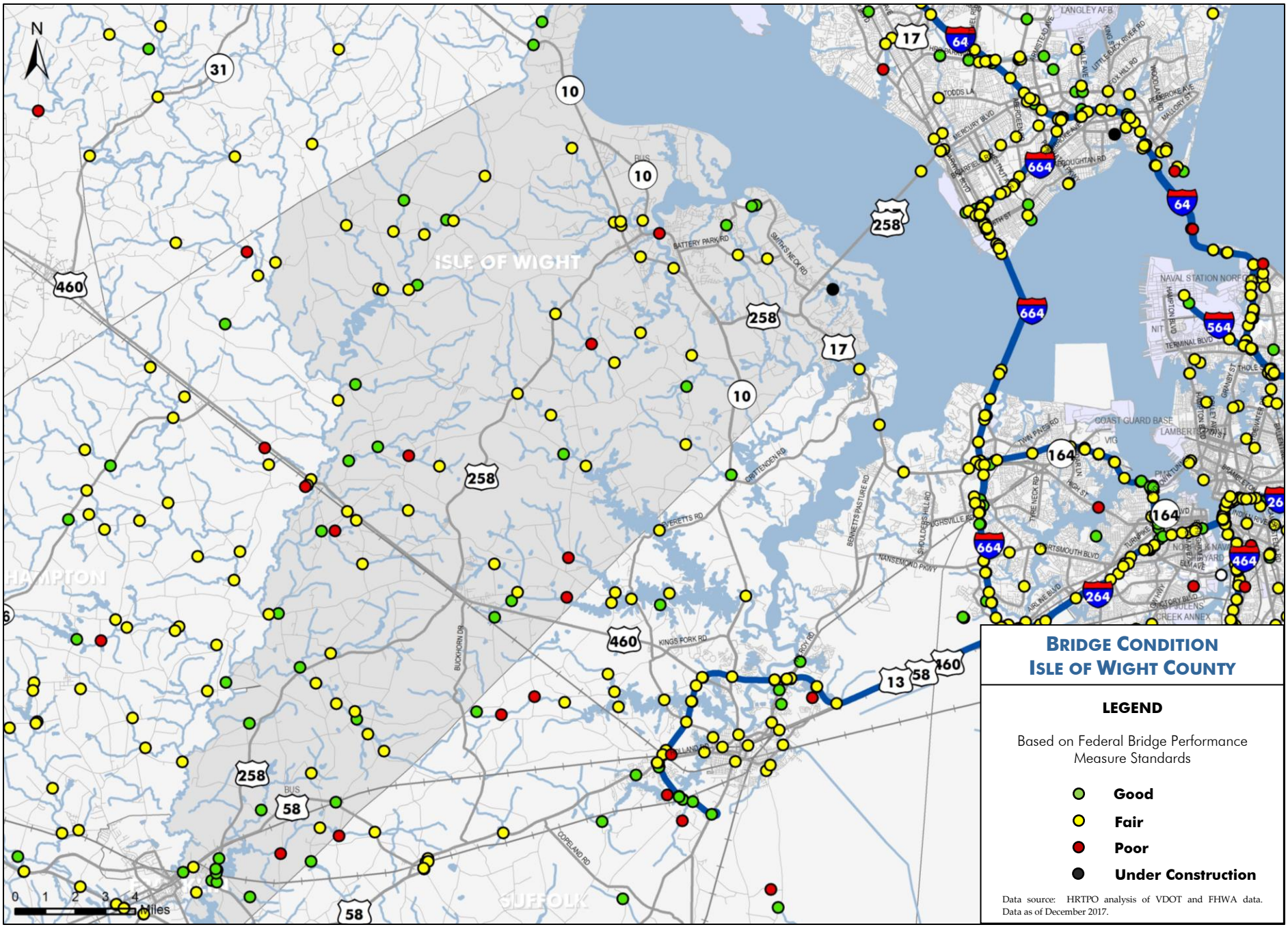

N
ISLE OF WIGHT
HAMPTON
SUFFOLK
LANGLEY AFB
NAVAL STATION NORFOLK
COAST GUARD BASE
31
10
460
258
17
64
664
564
164
464
13
58
0 1 2 3 4 Miles
ISLE OF WIGHT COUNTY BRIDGES
LEGEND
Structurally Deficient Bridges
Functionally Obsolete Bridges
Non-Deficient Bridges
Bridges with a Posted Weight Limit
Data source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017.


N
ISLE OF WIGHT
SUFFOLK
HAMPTON
LANGLEY AFB
NAVAL STATION NORFOLK
COAST GUARD BASE
31
10
460
258
17
64
664
564
164
264
464
58
13
0 1 2 3 4 Miles
BRIDGE CONDITION
ISLE OF WIGHT COUNTY
LEGEND
Based on Federal Bridge Performance Measure Standards
Good
Fair
Poor
Under Construction
Data source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
IW	10392	614	Ballard Road	Corrowaugh Swamp	1945	-	VDOT	-	-	7	5	6	N	Fair	-	10/-/-
IW	10419	641	Barrett Town Road	Antioch Swamp	1955	1984	VDOT	-	FO	6	5	6	N	Fair	-	18/-/-
IW	10418	641	Barrett Town Road	Burnt Mill Swamp	1958	-	VDOT	-	-	N	N	N	6	Fair	-	-
IW	23874	646	Beale Place Drive	Pope Creek	1994	-	VDOT	-	-	7	7	8	N	Good	-	-
IW	24600	630	Beaverdam Road	Beaverdam Swamp	1996	-	VDOT	-	-	8	8	8	N	Good	-	-
IW	10386	603	Blackwater Road	Blackwater River	1970	-	VDOT	-	-	7	6	7	N	Fair	-	-
IW	10385	603	Blackwater Road	Horse Swamp	1968	-	VDOT	-	-	N	N	N	7	Good	-	-
IW	10423	644	Bowling Green Road	Great Swamp	1972	-	VDOT	-	-	N	N	N	5	Fair	-	-
IW	10420	641	Bows & Arrows Road	Ducks Swamp	1952	-	VDOT	SD	-	6	5	6	N	Fair	-	12/-/-
IW	10401	620	Broadwater Road	Blackwater River	1964	-	VDOT	-	-	5	5	6	N	Fair	-	-
IW	23500	620	Broadwater Road	Villines Swamp	1992	-	VDOT	-	-	7	7	7	N	Good	-	-
IW	26218	691	Butler Farm Road	Beaverdam Swamp	1999	-	VDOT	-	FO	6	8	8	N	Fair	-	-
IW	10431	654	Carroll Bridge Road	Champion Swamp	1966	-	VDOT	-	FO	5	5	5	N	Fair	-	18/-/-
IW	29863	B58	Carrsville Hwy	Old Myrtle Road & CSX R/R	2017	-	VDOT	-	FO	8	8	8	N	Good	-	-
IW	22613	626	Cary Street	Route 10 Bypass	1972	-	VDOT	-	-	6	5	7	N	Fair	-	-
IW	10421	641	Colosse Road	Corrowaugh Swamp	1955	2017	VDOT	-	FO	7	7	6	N	Fair	-	-
IW	10440	681	Comet Road	Comet Swamp	1955	1991	VDOT	-	FO	8	5	7	N	Fair	-	-
IW	10408	629	Dardens Mill Road	Corrowaugh Swamp	1976	-	VDOT	-	-	N	N	N	6	Fair	-	-
IW	10378	600	Deer Path Trail	Ennis Pond	1956	-	VDOT	-	-	6	5	6	N	Fair	-	15/-/-
IW	10441	683	Dews Plantation Road	Stallings Creek	1954	-	VDOT	SD	-	7	5	6	N	Fair	-	16/-/-
IW	10442	690	Ennis Mill Road	Ennis Pond	1961	-	VDOT	SD	-	6	4	5	N	Poor	-	15/-/-
IW	25069	710	Fairway Drive	Route 10 Bypass	1997	-	VDOT	-	-	7	8	6	N	Fair	-	-
IW	10424	644	Fire Tower Road	Pope Swamp	1948	1979	VDOT	SD	-	7	4	6	N	Poor	-	-
IW	10389	612	Freeman Drive	Corrowaugh Swamp	1954	-	VDOT	-	FO	7	5	6	N	Fair	-	10/-/-
IW	10427	646	Garrison Drive	Burnt Mill Swamp	1945	1978	VDOT	-	FO	5	5	7	N	Fair	-	10/-/-
IW	24777	1190	Gatling Pointe Parkway	Branch	1996	-	VDOT	-	-	7	8	7	N	Good	-	-
IW	10404	623	Green Level Road	Pouches Swamp	1971	-	VDOT	-	-	8	5	6	N	Fair	-	-
IW	10422	641	Harvest Drive	Kingsale Swamp	1955	-	VDOT	-	FO	6	5	6	N	Fair	-	18/-/-
IW	10364	17	James River Bridge	James River	1980	-	VDOT	-	-	5	5	5	N	Fair	Yes	-
IW	10443	691	Jamestown Lane	CSX Railroad	1938	-	VDOT	-	FO	6	6	6	N	Fair	-	-
IW	10394	615	Jenkins Mill Road	Kingsale Swamp	1964	1978	VDOT	SD	-	6	4	6	N	Poor	-	18/-/-
IW	10413	637	Jones Town Drive	Br. Rattlesnake Swamp	1945	-	VDOT	-	FO	6	5	7	N	Fair	-	15/-/-
IW	10414	637	Jones Town Drive	Rattlesnake Creek	1945	-	VDOT	-	-	8	7	6	N	Fair	-	-
IW	10388	611	Joyner's Bridge Road	Blackwater River	1984	-	VDOT	-	-	6	7	7	N	Fair	-	-
IW	24659	611	Joyner's Bridge Road	Corrowaugh Swamp	1996	-	VDOT	-	-	7	7	7	N	Good	-	-
IW	10409	630	Lawerence Drive	Stream	1956	2016	VDOT	-	-	8	8	7	N	Good	-	-
IW	10397	616	Lee's Mill Road	Beaverdam Swamp	1982	-	VDOT	-	-	7	7	7	N	Good	-	-
IW	26637	616	Lee's Mill Road	Stream	2001	-	VDOT	-	-	N	N	N	7	Good	-	-
IW	10382	602	Longview Drive	Chuckatuck Creek	1951	-	VDOT	SD	-	7	5	6	N	Fair	-	9/-/-
IW	29858	602	Longview Drive	Pagan Creek	2015	-	VDOT	-	-	8	8	8	N	Good	-	-
IW	25742	600	Lovers Lane	Ennis Pond	1998	-	VDOT	-	-	N	N	N	7	Good	-	-
IW	10417	638	Mill Creek Road	Burnt Mill Swamp	1951	1979	VDOT	SD	-	6	4	5	N	Poor	-	-
IW	10403	621	Mill Swamp Road	Mill Swamp	1952	1987	VDOT	-	FO	5	5	6	N	Fair	-	14/-/-
IW	10407	626	Mill Swamp Road	Mount Holly Creek	1957	-	VDOT	-	FO	5	5	5	N	Fair	-	-
IW	29859	621	Mill Swamp Road	Passenger Swamp	2016	-	VDOT	-	-	8	8	8	N	Good	-	-
IW	10406	626	Mill Swamp Road	Stallings Creek	1945	-	VDOT	-	FO	5	5	6	N	Fair	-	18/-/-
IW	10405	625	Modest Neck Road	Rattlesnake Swamp	1970	-	VDOT	-	-	7	6	6	N	Fair	-	-
IW	10400	620	Muddy Cross Drive	Cypress Creek	1987	-	VDOT	-	-	N	N	N	5	Fair	-	-
IW	10435	669	Nike Park Road	Jones Creek	1961	-	VDOT	-	FO	6	6	6	N	Fair	-	-
IW	23090	10	North Church Street	Pagan River	1991	-	VDOT	-	-	6	7	7	N	Fair	-	-

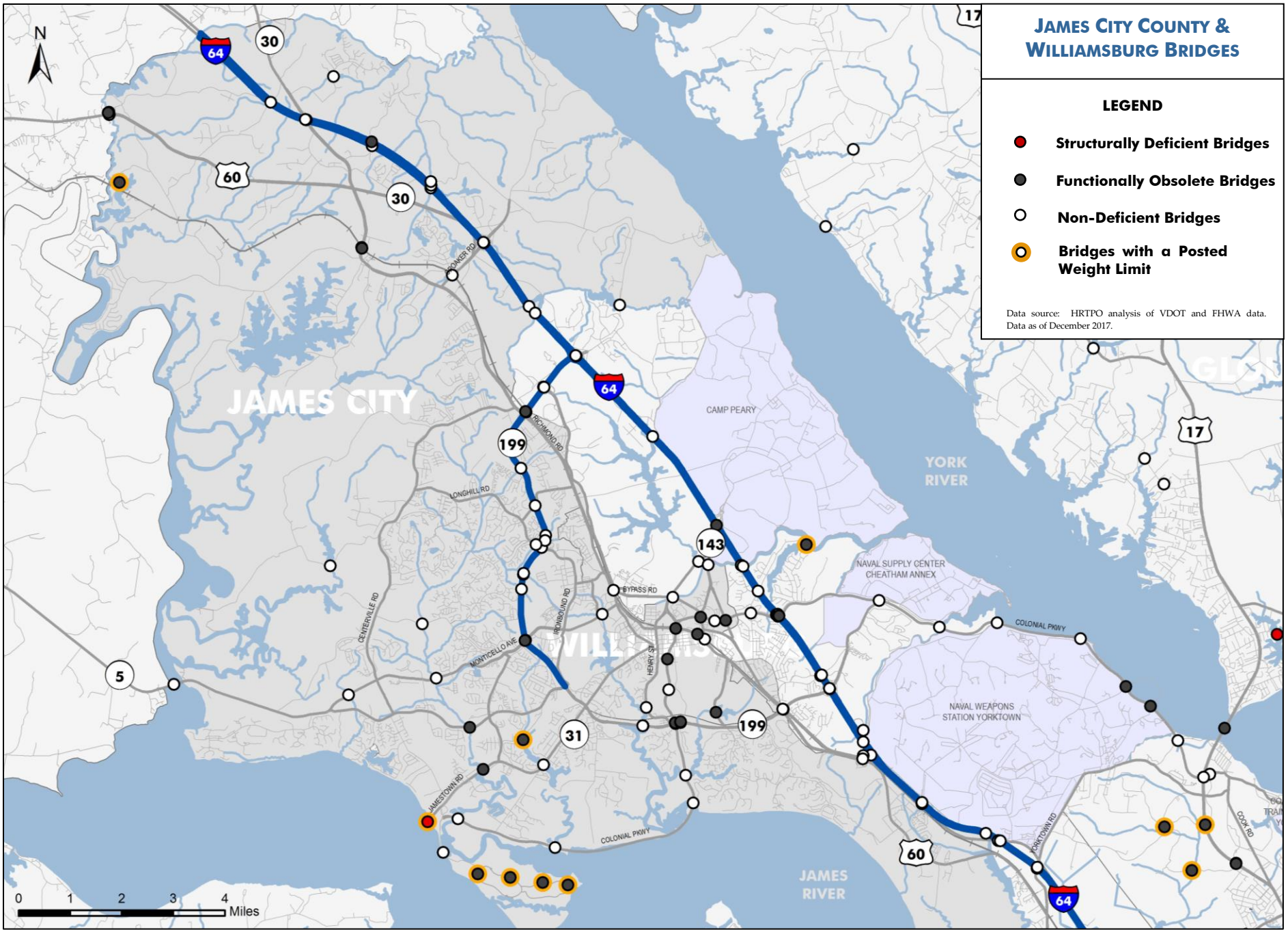
Isle of Wight County Bridges

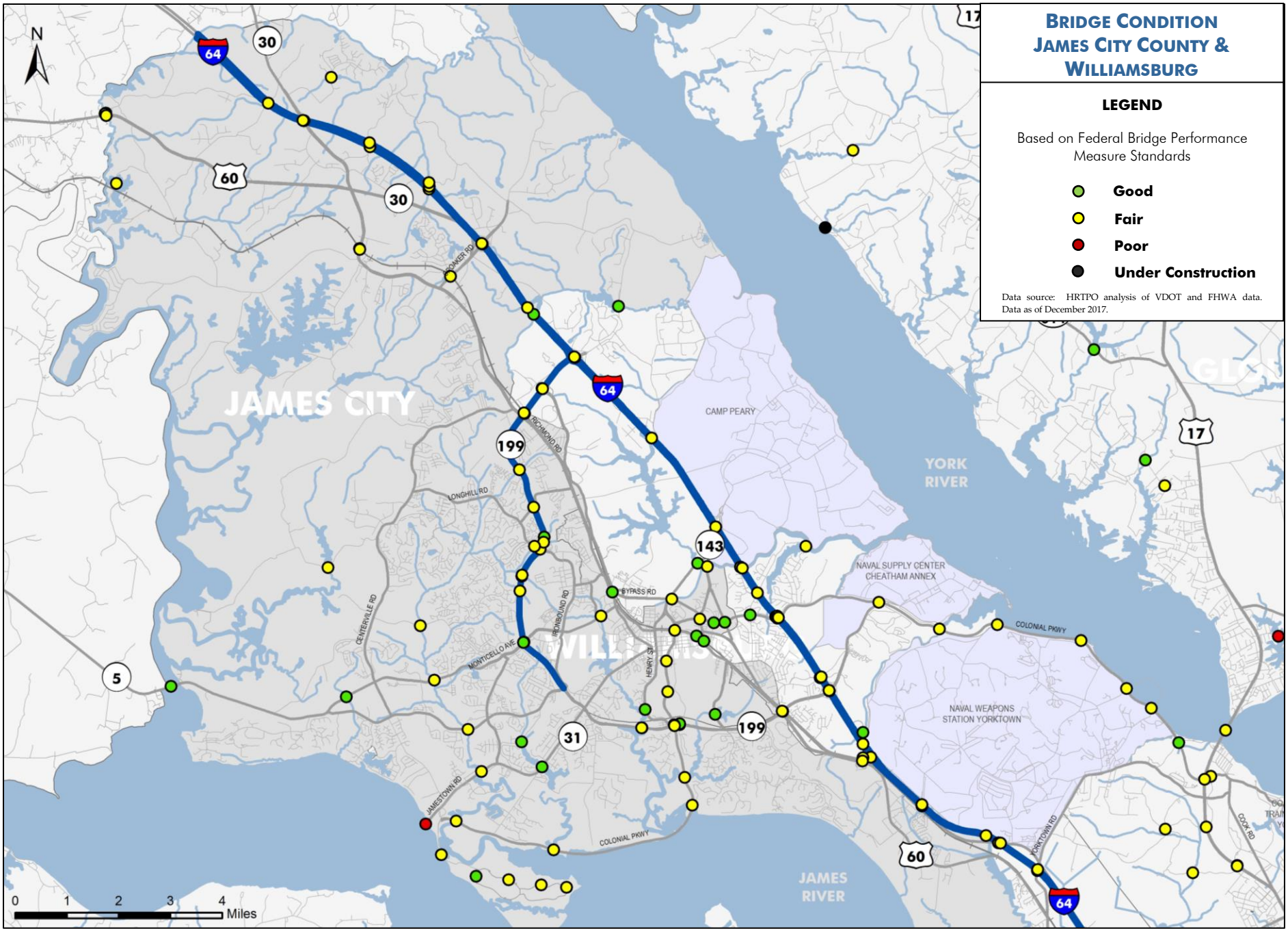
Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings				Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
										Deck	Super-Structure	Sub-Structure	Culvert			
IW	10411	632	Old Myrtle Road	Stream	1953	1991	VDOT	-	FO	6	5	7	N	Fair	-	-
IW	26219	10	Old Stage Highway	Lawnes Creek	1999	-	VDOT	-	-	8	8	8	N	Good	-	-
IW	25258	636	Old Suffolk Road	Stream	1997	-	VDOT	-	-	N	N	N	7	Good	-	-
IW	10416	637	Orbit Road	Carbell Swamp	1972	-	VDOT	SD	-	N	N	N	4	Poor	-	-
IW	29856	637	Orbit Road	Nuby Run	2014	-	VDOT	-	-	7	7	8	N	Good	-	-
IW	10429	647	Pope Swamp Trail	Pope Swamp	1952	-	VDOT	-	FO	6	5	6	N	Fair	-	17/-/-
IW	10446	696	Pruden Road	Beaverdam Swamp	1977	-	VDOT	-	-	N	N	N	6	Fair	-	-
IW	24466	681	Raynor Road	Rattlesnake Swamp	1996	-	VDOT	-	-	8	8	8	N	Good	-	-
IW	26753	704	Rescue Road	Jones Creek	2004	-	VDOT	-	-	8	8	8	N	Good	-	-
IW	27434	704	Rescue Road	Stream	2004	-	VDOT	-	FO	8	8	8	N	Good	-	-
IW	24214	614	River Run Trail	Ducks Swamp	1995	-	VDOT	-	-	7	7	7	N	Good	-	-
IW	22618	10	Route 10 Bypass	Cypress Creek	1973	-	VDOT	-	-	6	6	6	N	Fair	-	-
IW	22617	10	Route 10 Bypass	Pagan River	1973	-	VDOT	-	-	6	6	6	N	Fair	-	-
IW	26640	258	Route 258	Beaverdam Swamp	2002	-	VDOT	-	-	7	8	7	N	Good	-	-
IW	26643	258	Route 258	Beaverdam Swamp	2002	-	VDOT	-	-	7	8	7	N	Good	-	-
IW	10371	258	Route 258	Champion Swamp	1932	1976	VDOT	-	-	5	5	5	N	Fair	-	-
IW	10370	258	Route 258	Great Swamp	1952	1980	VDOT	-	-	6	5	5	N	Fair	-	-
IW	26651	258	Route 258	Lee's Mill Road	2002	-	VDOT	-	-	7	8	7	N	Good	-	-
IW	26649	258	Route 258	Norfolk Southern R/R	2001	-	VDOT	-	-	7	8	7	N	Good	-	-
IW	26650	258	Route 258	Trib Beaverdam Swamp	2003	-	VDOT	-	-	N	N	N	7	Good	-	-
IW	10377	460	Route 460	Blackwater River	1987	-	VDOT	-	-	5	5	6	N	Fair	-	-
IW	10398	620	Scotts Factory Road	Champion Swamp	1976	-	VDOT	-	FO	7	5	7	N	Fair	-	-
IW	10384	603	Shiloh Drive	Ennis Pond	1955	-	VDOT	-	FO	7	5	6	N	Fair	-	12/-/-
IW	22615	10	South Church Street	Cypress Creek	1975	-	VDOT	SD	-	5	4	6	N	Poor	-	-
IW	30284	680	Stallings Creek Drive	Stallings Creek	2016	-	VDOT	-	-	8	8	8	N	Good	-	-
IW	10390	614	Thomas Woods Trail	Antioch Swamp	1987	-	VDOT	-	-	7	7	7	N	Good	-	-
IW	10393	614	Thomas Woods Trail	Blackwater River	1970	-	VDOT	-	-	N	N	N	5	Fair	-	-
IW	10434	668	Titus Creek Drive	Titus Creek	1966	-	VDOT	-	FO	6	6	6	N	Fair	-	-
IW	10430	649	Tomlin Hill Road	Pope Creek	1999	-	VDOT	-	-	N	N	N	8	Good	-	-
IW	10373	656	Union Camp Drive	Beaverdam Swamp	1986	-	VDOT	-	-	7	7	7	N	Good	-	-
IW	10445	692	Uzzell Church Road	Champion Swamp	1951	1979	VDOT	SD	-	5	4	4	N	Poor	-	11/-/-
IW	29488		Whippingham Parkway	Ragged Island Creek	2017	-	VDOT	-	-	N/A	N/A	N/A	N/A	N/A	-	-
IW	10381	600	Woodland Drive	Great Swamp	1967	-	VDOT	-	-	7	5	5	N	Fair	-	15/-/-
IW	10436	677	Wrenns Mill Road	Wrenns Mill Spillway	1946	1987	VDOT	-	FO	6	5	6	N	Fair	-	-
IW	10426	645	Yellow Hammer Road	Norfolk Southern R/R	1984	-	VDOT	-	-	6	6	6	N	Fair	-	-

ISLE OF WIGHT COUNTY BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.


JAMES CITY COUNTY & WILLIAMSBURG BRIDGES
LEGEND
Structurally Deficient Bridges
Functionally Obsolete Bridges
Non-Deficient Bridges
Bridges with a Posted Weight Limit
Data source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017.
N
JAMES CITY
CAMP PEARY
YORK RIVER
JAMES RIVER
NAVAL SUPPLY CENTER CHEATHAM ANNEX
NAVAL WEAPONS STATION YORKTOWN
WILLIAMSBURG
64
30
60
199
143
31
5
17
RICHMOND RD
LONGHILL RD
CENTERVILLE RD
IRONBOUND RD
BYPASS RD
MONTICELLO AVE
HENRY ST
COLONIAL PKWY
JAMESTOWN RD
YORKTOWN RD
COOK RD
0 1 2 3 4 Miles


BRIDGE CONDITION
JAMES CITY COUNTY &
WILLIAMSBURG
LEGEND
Based on Federal Bridge Performance Measure Standards
Good
Fair
Poor
Under Construction
Data source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017.
N
JAMES CITY
CAMP PEARY
YORK RIVER
NAVAL SUPPLY CENTER CHEATHAM ANNEX
NAVAL WEAPONS STATION YORKTOWN
JAMES RIVER
RICHMOND RD
LONGHILL RD
CENTERVILLE RD
MONTICELLO AVE
IRONBOUND RD
BYPASS RD
HENRY ST
COLONIAL PKWY
JAMESTOWN RD
YORKTOWN RD
COCK RD
64
30
60
199
143
31
5
17
0 1 2 3 4 Miles

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
JCC	10518	601	Barnes Road	I-64	1971	-	VDOT	-	-	6	5	6	N	Fair	-	-
JCC	4290026P		Colonial Parkway	Back River	1956	-	Federal	-	-	6	7	7	N	Fair	-	-
JCC	4290023P		Colonial Parkway	College Creek	1956	-	Federal	-	-	7	7	6	N	Fair	-	-
JCC	4290022P		Colonial Parkway	Halfway Creek	1942	-	Federal	-	-	6	6	5	N	Fair	-	-
JCC	4290024P		Colonial Parkway	Mill Creek	1956	-	Federal	-	-	6	7	7	N	Fair	-	-
JCC	4290025P		Colonial Parkway	Powhatan Creek	1956	-	Federal	-	-	6	6	5	N	Fair	-	-
JCC	10523	607	Croaker Road	CSX R/R	1979	-	VDOT	-	-	6	6	5	N	Fair	-	-
JCC	10472	30	Croaker Road NB	I-64	1979	-	VDOT	-	-	6	6	5	N	Fair	-	-
JCC	10474	30	Croaker Road SB	I-64	1979	-	VDOT	-	-	6	5	6	N	Fair	-	-
JCC	24057	31	Glass House Ferry	James River	1994	1995	VDOT	SD	-	6	4	5	N	Poor	Yes	-/16/28
JCC	10533	629	Hickory Signpost Road	Mill Creek	1932	1997	VDOT	-	FO	7	7	7	N	Good	-	18/-/-
JCC	10516	601	Hicks Island Road	Diascund Creek	1932	1974	VDOT	-	FO	5	5	5	N	Fair	Yes	15/-/-
JCC	10494	64	I-64 EB	France Swamp	1975	-	VDOT	-	-	N	N	N	5	Fair	-	-
JCC	10495	64	I-64 WB	France Swamp	1975	-	VDOT	-	-	N	N	N	6	Fair	-	-
JCC	10489	64	I-64 EB	Naval Weapons Station Access	1965	1982	VDOT	-	-	7	5	6	N	Fair	-	-
JCC	10491	64	I-64 WB	Naval Weapons Station Access	1965	1982	VDOT	-	-	7	5	6	N	Fair	-	-
JCC	10496	64	I-64 EB	Six Mt Zion Road	1975	-	VDOT	-	-	6	5	6	N	Fair	-	-
JCC	10498	64	I-64 WB	Six Mt Zion Road	1975	-	VDOT	-	FO	6	5	5	N	Fair	-	-
JCC	10493	64	I-64	Skiffes Creek	1965	-	VDOT	-	-	N	N	N	5	Fair	-	-
JCC	10488	64	I-64	Tributary Old Mill Pond	1932	1979	VDOT	-	-	N	N	N	5	Fair	-	-
JCC	4290029P		Jamestown Island Tour Road	Creek	1957	-	Federal	-	FO	7	7	6	N	Fair	-	Posted
JCC	4290030P		Jamestown Island Tour Road	Creek	1957	-	Federal	-	FO	7	7	6	N	Fair	-	Posted
JCC	4290031P		Jamestown Island Tour Road	Kingsmill Creek	1957	-	Federal	-	FO	7	7	5	N	Fair	-	Posted
JCC	4290028P		Jamestown Island Tour Road	Pitch And Tar Swamp	1957	-	Federal	-	FO	7	7	7	N	Good	-	Posted
JCC	26215	31	Jamestown Road	Lake Powell	1999	-	VDOT	-	-	7	7	8	N	Good	-	-
JCC	10476	31	Jamestown Road	Powhatan Creek	1957	-	VDOT	-	FO	5	5	5	N	Fair	-	-
JCC	28011	5	John Tyler Hwy	Chickahominy River	2009	-	VDOT	-	-	7	7	7	N	Good	-	-
JCC	10464	5	John Tyler Hwy	Powhatan Creek	1937	1978	VDOT	-	FO	7	6	6	N	Fair	-	-
JCC	10534	633	Jolly Pond Road	Jolly Pond Spillway	1982	-	County	-	-	7	7	5	N	Fair	-	-
JCC	25978	612	Longhill Road	Chisel Run	1999	-	VDOT	-	-	N	N	N	6	Fair	-	-
JCC	25207	612	Longhill Road	Route 199	1999	-	VDOT	-	-	6	7	6	N	Fair	-	-
JCC	25054	1221	Mill Pond Run	Mill Swamp	1997	-	VDOT	-	-	6	7	7	N	Fair	-	-
JCC	26142	321	Monticello Avenue	Powhatan Creek	2001	-	VDOT	-	-	6	7	6	N	Fair	-	-
JCC	26141	321	Monticello Avenue	Shellbank Creek	2001	-	VDOT	-	-	N	N	N	7	Good	-	-
JCC	10524	608	Mount Laurel Road	France Swamp	1975	-	VDOT	-	-	N	N	N	6	Fair	-	-
JCC	10536	646	Newman Road	Skimino Creek	1976	-	VDOT	-	-	N	N	N	7	Good	-	-
JCC	10530	613	News Road	Powhatan Swamp Tributary	1974	-	VDOT	-	-	N	N	N	6	Fair	-	-
JCC	25206	658	Olde Towne Road	Route 199	1999	-	VDOT	-	-	6	7	6	N	Fair	-	-
JCC	10468	30	Route 30 NB	I-64	1971	-	VDOT	-	-	7	5	5	N	Fair	-	-
JCC	10470	30	Route 30 SB	I-64	1971	-	VDOT	-	-	6	5	5	N	Fair	-	-
JCC	10486	60	Route 60 EB	CSX R/R	1964	-	VDOT	-	FO	6	5	5	N	Fair	-	-
JCC	10487	60	Route 60 WB	CSX R/R	1968	-	VDOT	-	FO	6	5	5	N	Fair	-	-
JCC	12656	60	Route 60 EB	Diascund Creek	1947	1994	VDOT	-	-	7	7	6	N	Fair	-	-
JCC	12655	60	Route 60 WB	Diascund Creek	1978	-	VDOT	-	-	7	7	7	N	Good	-	-
JCC	25198	199	Route 199	Branch	1999	-	VDOT	-	-	N	N	N	6	Fair	-	-
JCC	25202	199	Route 199	Branch	1999	-	VDOT	-	-	N	N	N	6	Fair	-	-
JCC	25209	199	Route 199	Branch	1999	-	VDOT	-	-	N	N	N	5	Fair	-	-
JCC	27254	199	Route 199 EB	College Creek	2004	-	VDOT	-	-	6	7	7	N	Fair	-	-
JCC	10510	199	Route 199 WB	College Creek	1976	-	VDOT	-	-	6	6	6	N	Fair	-	-
JCC	24108	199	Route 199 EB	Colonial Pkwy	1976	-	VDOT	-	-	6	6	6	N	Fair	-	-

JAMES CITY COUNTY/WILLIAMSBURG BRIDGES

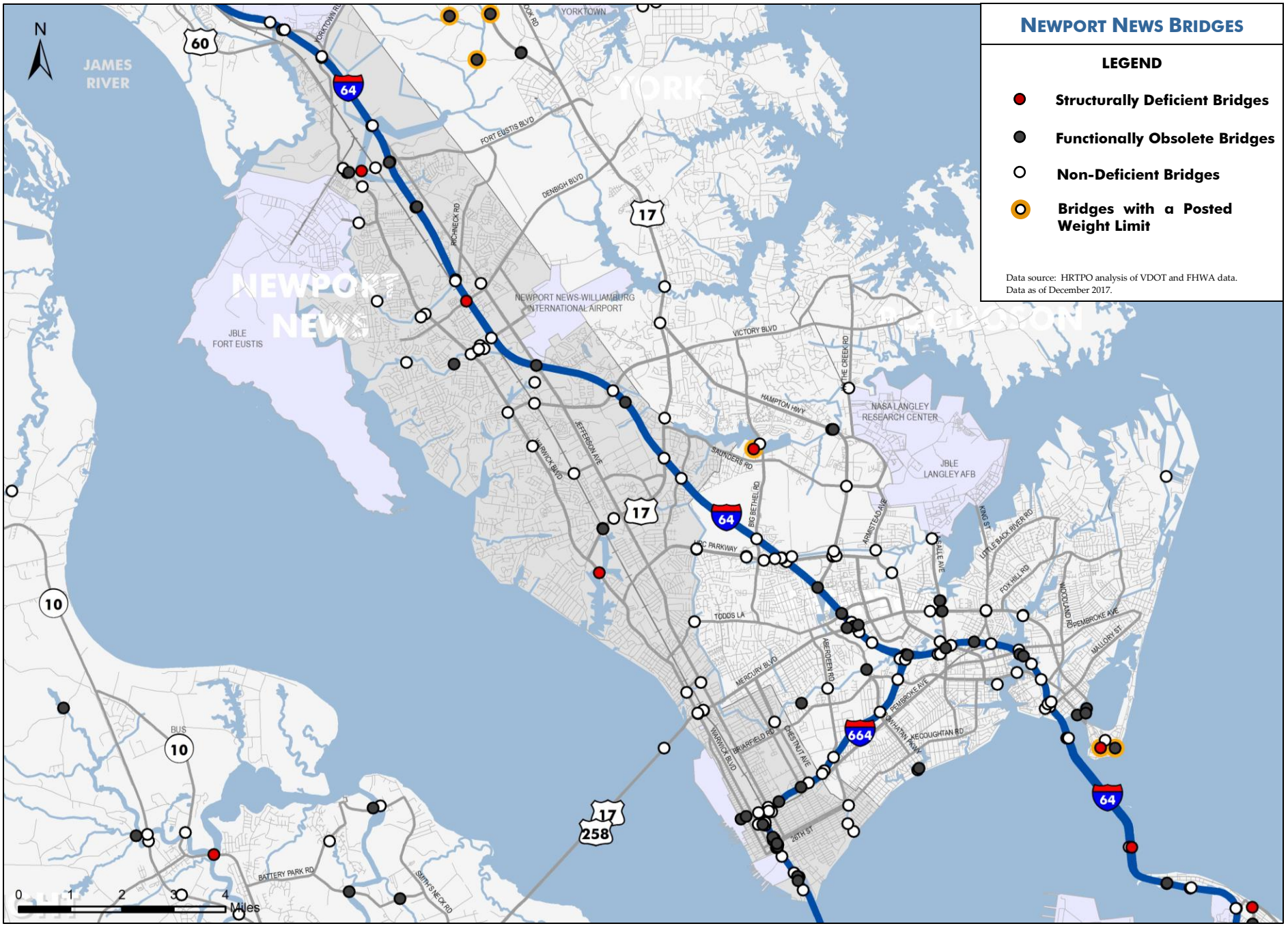
Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

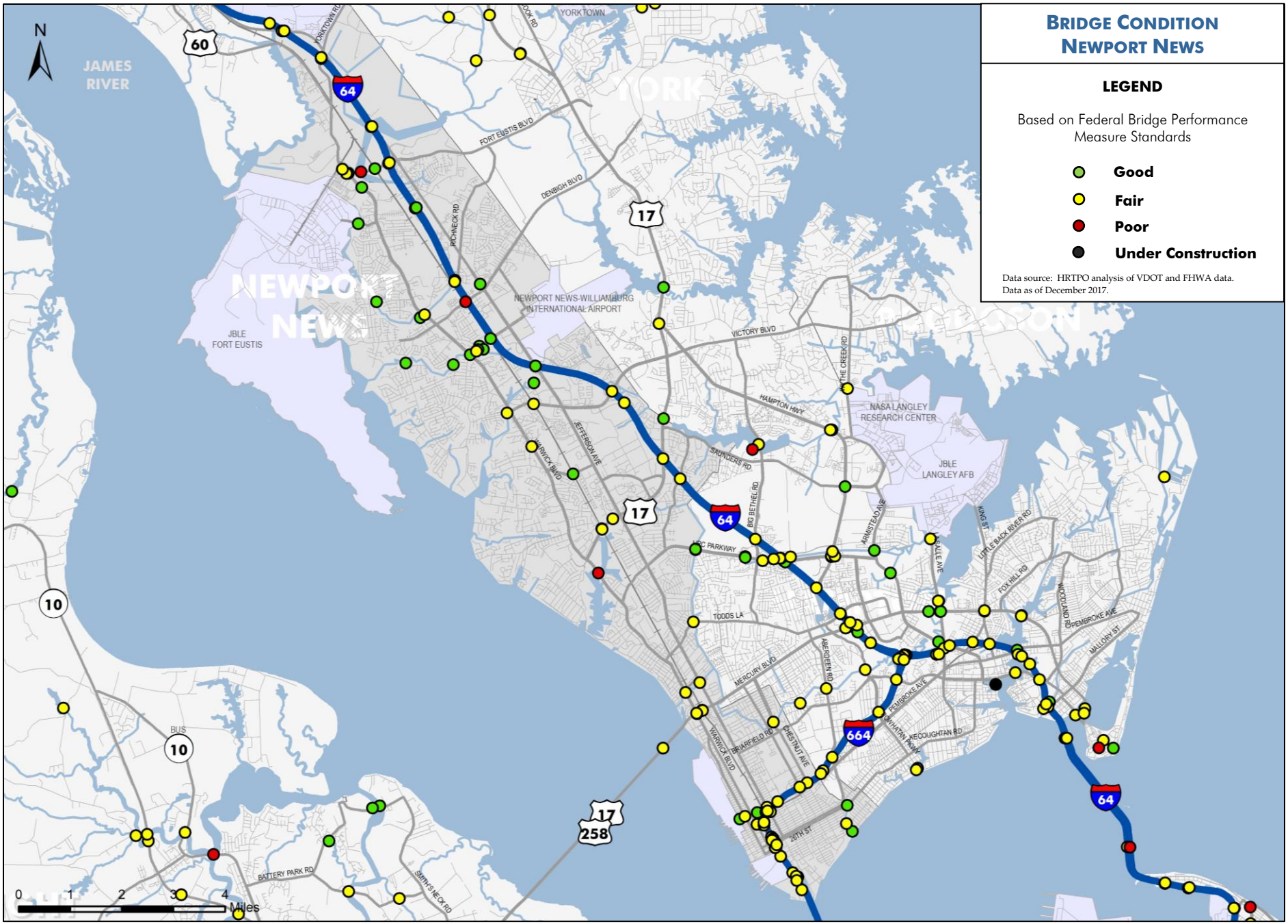
Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
JCC	10508	199	Route 199 WB	Colonial Pkwy	1976	-	VDOT	-	FO	6	6	6	N	Fair	-	-
JCC	25210	199	Route 199	Long Hill Swamp	1999	-	VDOT	-	-	N	N	N	5	Fair	-	-
JCC	25512	199	Route 199 NB	Monticello Avenue	1999	-	VDOT	-	-	7	7	7	N	Good	-	-
JCC	25513	199	Route 199 SB	Monticello Avenue	1999	-	VDOT	-	FO	7	7	7	N	Good	-	-
JCC	25201	199	Route 199	Over Branch	1999	-	VDOT	-	-	N	N	N	7	Good	-	-
JCC	24224	199	Route 199 NB	Routes 60 & 603 & CSX R/R	1995	-	VDOT	-	-	6	7	7	N	Fair	-	-
JCC	24228	199	Route 199 SB	Routes 60 & 603 & CSX R/R	1995	-	VDOT	-	FO	6	7	7	N	Fair	-	-
JCC	25208	199	Route 199	Stream	1999	-	VDOT	-	-	N	N	N	7	Good	-	-
JCC	10511	199	Route 199 EB	Tour Road	1976	-	VDOT	-	FO	7	7	7	N	Good	-	-
JCC	10513	199	Route 199 WB	Tour Road	1976	-	VDOT	-	FO	7	7	7	N	Good	-	-
JCC	10531	622	Stewarts Road	Branch Of Diascund Creek	1937	1997	VDOT	-	FO	6	7	7	N	Fair	-	-
JCC	10532	622	Stewarts Road	Diascund Creek	1937	1997	VDOT	-	FO	6	7	6	N	Fair	-	-

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
WMB	22335	60	Bypass Road	CSX R/R	1934	1981	City	-	-	7	7	7	N	Good	-	-
WMB	22328		Capitol Landing Road	CSX R/R	1977	-	City	-	FO	7	7	8	N	Good	-	-
WMB	4290040P		Colonial Parkway	Papermill Creek	2007	-	Federal	-	-	N	N	N	6	Fair	-	-
WMB	22337	132	Henry Street South	Papermill Creek	1976	-	City	-	-	N	N	N	7	Good	-	-
WMB	4290019P		Lafayette Street	Colonial Parkway	1936	-	Federal	-	FO	N	6	7	N	Fair	-	-
WMB	22338	143	Merrimac Trail	Colonial Parkway	1948	-	City	-	FO	7	7	7	N	Good	-	-
WMB	22342		Monticello Avenue	Stream	1963	-	VDOT	-	-	5	5	6	N	Fair	-	-
WMB	4290020P		Newport Avenue	Colonial Parkway	1957	-	Federal	-	FO	N	6	6	N	Fair	-	-
WMB	4290018P	60	Page Street	Colonial Parkway	1936	-	Federal	-	FO	N	6	7	N	Fair	-	-
WMB	22336	60	Page Street	CSX R/R	1935	1967	City	-	-	7	7	7	N	Good	-	-
WMB	4290016P		Parkway Drive	Colonial Parkway	1972	-	Federal	-	-	N	7	7	N	Good	-	-
WMB	23768		Quarterpath Road	Tutters Neck Pond	1993	-	City	-	FO	7	7	8	N	Good	-	-

JAMES CITY COUNTY/WILLIAMSBURG BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.


NEWPORT NEWS BRIDGES
LEGEND
Structurally Deficient Bridges
Functionally Obsolete Bridges
Non-Deficient Bridges
Bridges with a Posted Weight Limit
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
JAMES RIVER
YORKTOWN
YORK
NEWPORT NEWS
NEWPORT NEWS-WILLIAMSBURG INTERNATIONAL AIRPORT
JBLE FORT EUSTIS
JBLE LANGLEY AFB
NASA LANGLEY RESEARCH CENTER
HAMPTON
FORT EUSTIS BLVD
DENBIGH BLVD
RICHNECK RD
VICTORY BLVD
HAMPTON HWY
JEFFERSON AVE
WARWICK BLVD
SAUNDERS RD
BIG BETHEL RD
HRC PARKWAY
TODDS LA
MERCURY BLVD
BRIARFIELD RD
CHESTNUT AVE
ABERDEEN RD
WARWICK BLVD
26TH ST
PEMBROKE AVE
GWATHMEY MILL RD
MCCOUGHTAN RD
ARMISTEAD AVE
DESALLE AVE
KINGS ST
LITTLE BACK RIVER RD
FOX HILL RD
WOODLAND RD
MALLORY ST
BATTERY PARK RD
SMITHS NECK RD
BUS
60
64
17
10
664
258
0 1 2 3 4 Miles


BRIDGE CONDITION
NEWPORT NEWS
LEGEND
Based on Federal Bridge Performance Measure Standards
Good
Fair
Poor
Under Construction
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
JAMES RIVER
YORKTOWN
NEWPORT NEWS
NEWPORT NEWS-WILLIAMSBURG INTERNATIONAL AIRPORT
JBLE FORT EUSTIS
NASA LANGLEY RESEARCH CENTER
JBLE LANGLEY AFB
60
64
17
10
BUS 10
664
258
FORT EUSTIS BLVD
DENBIGH BLVD
RICHNECK RD
VICTORY BLVD
HAMPTON HWY
JEFFERSON AVE
WARWICK BLVD
SAUNDERS RD
BIG BETHEL RD
ARMISTEAD AVE
LASALLE AVE
KING ST
LITTLE BACK RIVER RD
FOX HILL RD
WOODLAND RD
PEMBROKE AVE
MALLORY ST
TODDS LA
MERCURY BLVD
ABERDEEN RD
BRAMPFIELD RD
CHESTNUT AVE
WYTHE CREEK RD
MOUNTAIN RD
MCCOUGHTAN RD
36TH ST
BATTERY PARK RD
SMITHS NECK RD
0 1 2 3 4 Miles

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
NN	23751		16th Street	Salters Creek	1993	-	City	-	-	7	7	7	N	Good	-	-
NN	25086		20th Street	Salters Creek	1997	-	City	-	-	7	7	5	N	Fair	-	-
NN	20653		23rd-25th Street	I-664/Warwick Blvd/CSX R/R	1988	-	VDOT	-	FO	6	6	6	N	Fair	-	-
NN	25396	60	25th Street	Salters Creek	1997	-	City	-	-	8	8	8	N	Good	-	-
NN	29307		26th Street	I-664	1988	-	VDOT	-	FO	7	7	6	N	Fair	-	-
NN	20651		26th Street	I-664 & CSX R/R	1987	-	VDOT	-	FO	7	6	5	N	Fair	-	-
NN	20663		28th Street	I-664/Warwick Blvd/CSX R/R	1980	-	VDOT	-	FO	6	6	6	N	Fair	-	-
NN	20647		34th Street EB	I-664/Warwick Blvd/CSX R/R	1988	-	VDOT	-	FO	6	7	6	N	Fair	-	-
NN	20649		34th Street WB	I-664/Warwick Blvd/CSX R/R	1988	-	VDOT	-	FO	6	7	6	N	Fair	-	-
NN	20732	351	39th Street	Jefferson Avenue	1984	-	City	-	-	7	6	6	N	Fair	-	-
NN	25650	351	39th Street	Warwick Blvd & CSX R/R	2001	-	City	-	-	7	7	7	N	Good	-	-
NN	30095		Aspen Meadow Lane	Lucas Creek	2007	-	City	-	-	8	7	7	N	Good	-	-
NN	23552		Beechmont Drive	Stoney Run	1992	-	City	-	-	7	7	7	N	Good	-	-
NN	20668		Bland Blvd	I-64 & CSX R/R	1991	-	City	-	-	7	7	7	N	Good	-	-
NN	20670		Bland Blvd	Lucas Creek	1991	-	City	-	-	N	N	N	7	Good	-	-
NN	20666		Boxley Blvd	Deep Creek Branch	1978	-	City	-	-	N	N	N	6	Fair	-	-
NN	20669		Campbell Road	Lucas Creek	1991	-	City	-	-	N	N	N	6	Fair	-	-
NN	20658		Chestnut Ave	Newmarket Creek	1960	2016	City	-	-	N	N	N	6	Fair	-	-
NN	29266		City Center Blvd	CSX Railroad	2014	-	City	-	-	8	7	8	N	Good	-	-
NN	20727	173	Denbigh Blvd	I-64 & CSX R/R	1965	1977	VDOT	SD	-	5	5	4	N	Poor	-	-
NN	30415	105	Fort Eustis Blvd	CSX R/R	2015	-	City	-	-	7	8	7	N	Good	-	-
NN	20720	105	Fort Eustis Blvd	Newport News Reservoir	1960	1985	City	SD	-	5	4	5	N	Poor	-	-
NN	30979		Freedom Way	Deep Creek	2017	-	City	-	-	9	9	9	N	Good	-	-
NN	30990		Gwynn Circle	Lucas Creek	2017	-	City	-	FO	N	N	N	7	Good	-	-
NN	26128		Hampton Roads Center Pkwy EB	Newmarket Creek	2003	-	City	-	-	7	7	7	N	Good	-	-
NN	26129		Hampton Roads Center Pkwy WB	Newmarket Creek	2003	-	City	-	-	7	7	7	N	Good	-	-
NN	20641		Harpersville Road	I-64	1960	2000	VDOT	-	-	7	7	6	N	Fair	-	-
NN	20661		Huntington Avenue	Former Shipyard R/R Spur	1899	-	City	-	FO	6	5	6	N	Fair	-	-
NN	20710	64	I-64 EB	Fort Eustis Blvd	1965	-	VDOT	-	FO	6	5	5	N	Fair	-	-
NN	20712	64	I-64 WB	Fort Eustis Blvd	1965	-	VDOT	-	-	6	5	5	N	Fair	-	-
NN	30639	64	I-64 EB	Industrial Park Drive & R/R	2017	-	VDOT	-	FO	8	8	8	N	Good	-	-
NN	30640	64	I-64 WB	Industrial Park Drive & R/R	2017	-	VDOT	-	FO	8	8	8	N	Good	-	-
NN	24246	64	I-64	J Clyde Morris Blvd	1996	-	VDOT	-	-	6	6	6	N	Fair	-	-
NN	20698	64	I-64 EB	Jefferson Avenue @ York CL	1965	1981	VDOT	-	-	5	5	5	N	Fair	-	-
NN	20700	64	I-64 WB	Jefferson Avenue @ York CL	1965	1981	VDOT	-	-	6	5	6	N	Fair	-	-
NN	20696	64	I-64 EB	Newport News Reservoir	1965	-	VDOT	-	-	6	6	6	N	Fair	-	-
NN	20697	64	I-64 WB	Newport News Reservoir	1965	-	VDOT	-	-	6	6	6	N	Fair	-	-
NN	20719	64	I-64 EB	Stoney Run	1965	-	VDOT	-	-	N	N	N	5	Fair	-	-
NN	20716	64	I-64 WB	Stoney Run	1965	-	VDOT	-	-	N	N	N	6	Fair	-	-
NN	20702	64	I-64 EB	Yorktown Road	1965	-	VDOT	-	-	6	6	6	N	Fair	-	-
NN	20704	64	I-64 WB	Yorktown Road	1965	-	VDOT	-	-	6	5	5	N	Fair	-	-
NN	20740	664	I-664	39th Street	1987	-	VDOT	-	FO	6	6	6	N	Fair	-	-
NN	20736	664	I-664	Chestnut Avenue	1983	-	VDOT	-	-	6	6	6	N	Fair	-	-
NN	20742	664	I-664	Jefferson Avenue & CSX R/R	1987	-	VDOT	-	-	6	7	6	N	Fair	-	-
NN	20738	664	I-664	Roanoke Avenue	1985	-	VDOT	-	FO	7	6	6	N	Fair	-	-
NN	20750	664	I-664	Terminal Avenue	1990	-	VDOT	-	-	6	5	5	N	Fair	Yes	-
NN	20746	664	I-664 SB On Ramp	CSX R/R	1988	-	VDOT	-	-	7	7	7	N	Good	-	-
NN	29306	664	I-664 SB Off Ramp	I-664 and Ramp E	1988	-	VDOT	-	-	7	7	6	N	Fair	-	-
NN	29305	664	I-664 SB Off Ramp	I-664 Ramp P & CSX R/R	1988	-	VDOT	-	-	7	7	6	N	Fair	-	-
NN	20744	664	I-664 NB On Ramp	Jefferson Avenue & CSX R/R	1987	-	VDOT	-	-	7	6	6	N	Fair	-	-

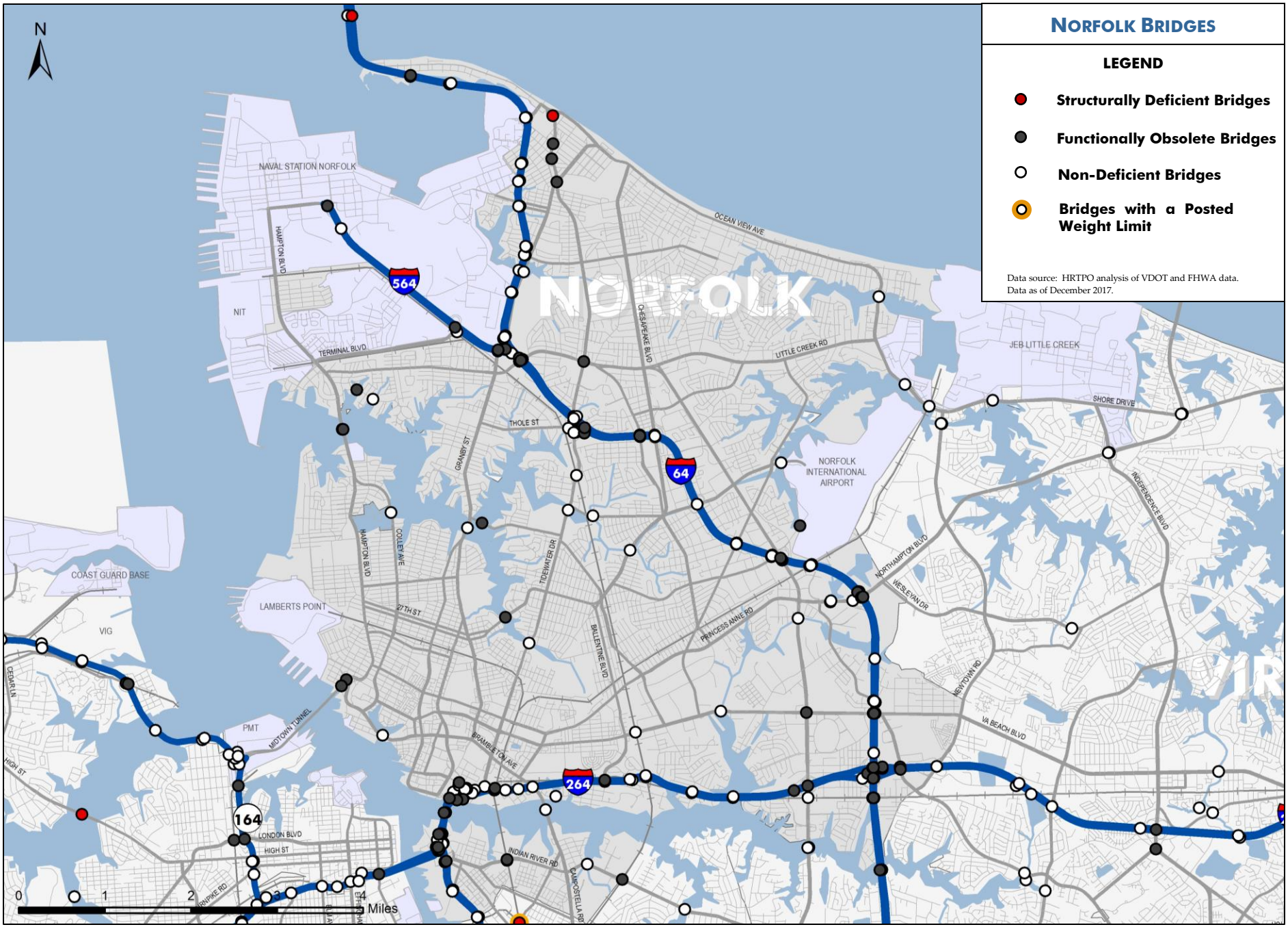
Newport News Bridges

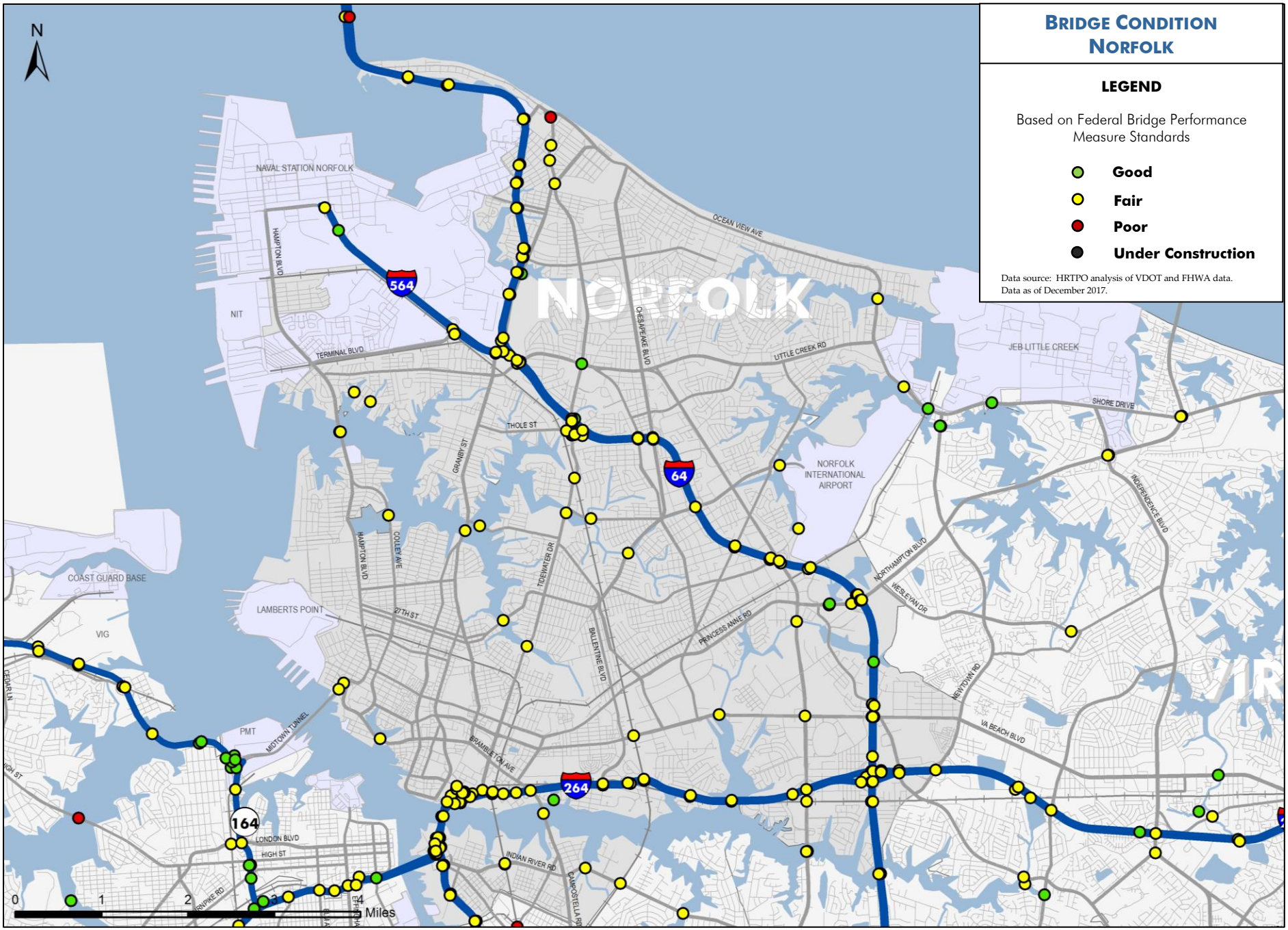
Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
NN	20748	664	I-664 SB Off Ramp	Jefferson Avenue & CSX R/R	1987	-	VDOT	-	-	6	7	6	N	Fair	-	-
NN	20759	664	I-664 Ramp	Ramp A	1990	-	VDOT	-	FO	6	6	6	N	Fair	-	-
NN	20756	664	I-664 Off Ramp	Ramp B	1990	-	VDOT	-	-	6	6	7	N	Fair	-	-
NN	20757	664	I-664 SB On Ramp	Ramp GH	1990	-	VDOT	-	-	6	6	7	N	Fair	-	-
NN	20761	664	I-664 Ramp	Terminal Avenue	1990	-	VDOT	-	FO	7	7	6	N	Fair	Yes	-
NN	20754	664	I-664 On Ramp	Terminal Avenue & CSX R/R	1990	-	VDOT	-	-	6	6	7	N	Fair	Yes	-
NN	20678	17	J Clyde Morris Blvd	Big Bethel Reservoir	1932	1949	City	-	-	N	N	N	7	Good	-	-
NN	20730	312	J Clyde Morris Blvd	Lake Maury Trib	1958	1975	City	-	-	N	N	N	6	Fair	-	-
NN	20731	312	J Clyde Morris Blvd NB	CSX R/R	1975	-	City	-	FO	5	5	6	N	Fair	-	-
NN	20729	312	J Clyde Morris Blvd SB	CSX R/R	1958	1975	City	-	FO	6	6	6	N	Fair	-	-
NN	20677	17	Jefferson Avenue	Government Ditch	1966	-	City	-	-	N	N	N	6	Fair	-	-
NN	25809	143	Jefferson Avenue	I-64	2000	-	VDOT	-	FO	7	7	7	N	Good	-	-
NN	25178	143	Jefferson Avenue	Trib Stoney Run	1997	-	City	-	-	N	N	N	7	Good	-	-
NN	30094		Knolls Drive	Lucas Creek	2007	-	City	-	-	8	8	7	N	Good	-	-
NN	26954		Lucas Creek Road	Lucas Creek	2001	-	City	-	-	7	7	7	N	Good	-	-
NN	20725	152	Main Street	Newmarket Creek	1968	-	City	-	-	N	N	N	6	Fair	-	-
NN	20671	17	Mercury Blvd EB	CSX R/R	1938	1992	City	-	-	6	6	7	N	Fair	-	-
NN	20672	17	Mercury Blvd WB	CSX R/R	1967	1992	City	-	-	7	7	7	N	Good	-	-
NN	20673	17	Mercury Blvd EB	Warwick Road	1967	1992	City	-	-	6	6	6	N	Fair	-	-
NN	20675	17	Mercury Blvd WB	Warwick Road	1967	1992	City	-	-	6	6	6	N	Fair	-	-
NN	20752	664	Monitor-Merrimac Bridge-Tunnel NB	Hampton Roads-James River	1990	-	VDOT	-	-	6	6	5	N	Fair	-	-
NN	20753	664	Monitor-Merrimac Bridge-Tunnel SB	Hampton Roads-James River	1990	-	VDOT	-	-	7	5	5	N	Fair	-	-
NN	24986		Old Courthouse Way	Stoney Run	1997	-	City	-	-	8	7	7	N	Good	-	-
NN	20643		Old Oyster Point Road	I-64	1991	-	VDOT	-	FO	6	7	6	N	Fair	-	-
NN	20667		Oyster Point Road	CSX R/R	1981	-	City	-	-	6	6	6	N	Fair	-	-
NN	20645	171	Oyster Point Road	I-64	1990	-	VDOT	-	-	7	7	6	N	Fair	-	-
NN	29405	664	Ramp E	I-664	1988	-	VDOT	-	-	5	6	6	N	Fair	-	-
NN	29406	664	Ramp H	CSX R/R & I-664 SB Ramp G	1988	-	VDOT	-	-	6	7	6	N	Fair	-	-
NN	29494	664	Ramp K	Ramp P	1996	-	VDOT	-	-	6	6	7	N	Fair	-	-
NN	29493	664	Ramp M	Ramp P	1996	-	VDOT	-	-	7	6	6	N	Fair	-	-
NN	29495	664	Ramp N	35th Street	1996	-	VDOT	-	-	7	6	6	N	Fair	-	-
NN	20747	664	Ramp To 35th Street	CSX R/R	1987	-	VDOT	-	-	6	7	6	N	Fair	-	-
NN	28191		Shellabarger Rd	Warwick River	2005	-	City	-	-	7	7	7	N	Good	-	-
NN	20685	60	Warwick Blvd	Br Deep Creek	1974	-	City	-	-	N	N	N	6	Fair	-	-
NN	20687	60	Warwick Blvd EB	Fort Eustis Blvd	1984	-	City	-	-	7	7	6	N	Fair	-	-
NN	20681	60	Warwick Blvd WB	Fort Eustis Blvd	1960	1985	City	-	FO	7	6	6	N	Fair	-	-
NN	20684	60	Warwick Blvd	Government Ditch	1931	-	City	-	-	N	N	N	5	Fair	-	-
NN	20679	60	Warwick Blvd	Lake Maury	1931	1960	City	SD	-	5	4	5	N	Poor	-	-
NN	20686	60	Warwick Blvd	Lucas Creek	1981	-	City	-	-	N	N	N	7	Good	-	-
NN	20683	60	Warwick Blvd	Stoney Run	1968	-	City	-	-	N	N	N	6	Fair	-	-
NN	20680	60	Warwick Blvd	Warwick River	1984	-	City	-	-	N	N	N	7	Good	-	-
NN	20689	60	Warwick Blvd EB	Warwick WB Ramp To Ft Eustis	1984	-	City	-	-	7	6	6	N	Fair	-	-
NN	20659		Washington Avenue	Former Shipyard R/R Spur	1946	-	City	-	FO	7	8	8	N	Good	-	-

Newport News Bridges

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.


NORFOLK BRIDGES
LEGEND
Structurally Deficient Bridges
Functionally Obsolete Bridges
Non-Deficient Bridges
Bridges with a Posted Weight Limit
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
NAVAL STATION NORFOLK
NIT
COAST GUARD BASE
LAMBERTS POINT
VIG
PMT
NORFOLK INTERNATIONAL AIRPORT
JEB LITTLE CREEK
564
64
264
164
HAMPTON BLVD
TERMINAL BLVD
OCEAN VIEW AVE
OKESAPEKE BLVD
LITTLE CREEK RD
SHORE DRIVE
THOLE ST
GRANBY ST
COLLEY AVE
TIDEWATER DR
BALLENTINE BLVD
PRINCESS ANNE RD
NORTHAMPTON BLVD
WESLEYAN DR
INDEPENDENCE BLVD
HENRYTOWN RD
VA BEACH BLVD
27TH ST
CEDAR LN
MIDTOWN TUNNEL
HIGH ST
BRAMBLETON AVE
LONDON BLVD
INDIAN RIVER RD
SAMPOSTELLA RD
0 1 2 4 Miles


BRIDGE CONDITION
NORFOLK
LEGEND
Based on Federal Bridge Performance Measure Standards
Good
Fair
Poor
Under Construction
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
NORFOLK
NAVAL STATION NORFOLK
NIT
COAST GUARD BASE
LAMBERTS POINT
VIG
PMT
JEB LITTLE CREEK
NORFOLK INTERNATIONAL AIRPORT
OCEAN VIEW AVE
LITTLE CREEK RD
SHORE DRIVE
INDEPENDENCE BLVD
NORTHAMPTON BLVD
WESLEYAN DR
NEWTOWN RD
VA BEACH BLVD
PRINCESS ANNE RD
BRAMBLETON AVE
INDIAN RIVER RD
CAMPOSTELLA RD
BALLENTINE BLVD
TIDEWATER DR
CHESAPEAKE BLVD
GRANBY ST
THOLE ST
TERMINAL BLVD
HAMPTON BLVD
COLLEY AVE
27TH ST
MIDTOWN TUNNEL
LONDON BLVD
HIGH ST
CEDAR LN
564
64
264
164
0 1 2 3 4 Miles

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
NOR	20943	247	26th Street	Lafayette River	1938	-	City	-	FO	5	6	6	N	Fair	-	-
NOR	21021	337	Admiral Taussig Blvd	I-564 Ramps	1977	-	VDOT	-	FO	5	5	5	N	Fair	-	-
NOR	20781	407	Berkley Avenue EB	Norfolk Southern R/R	1985	-	City	-	FO	6	6	7	N	Fair	-	-
NOR	20782		Berkley Avenue WB	Norfolk Southern R/R	1985	-	City	-	FO	6	6	7	N	Fair	-	-
NOR	20961	264	Berkley Avenue Ramp	Emergency Vehicle Ramp	1988	-	VDOT	-	FO	7	8	6	N	Fair	-	-
NOR	20805	58	Brambleton Avenue WB	Hampton Blvd	1962	-	Private	-	FO	6	6	6	N	Fair	-	-
NOR	20804	58	Brambleton Avenue	Smith Creek @ The Hague	1962	-	City	-	-	7	6	7	N	Fair	-	-
NOR	20936	460	Campostella Road	E Br Elizabeth River	1986	-	City	-	-	6	5	5	N	Fair	-	-
NOR	20944	247	Chesapeake Blvd	Wayne Creek	1978	-	City	-	-	N	N	N	6	Fair	-	-
NOR	20773		Colley Avenue	Lafayette River	1978	-	City	-	-	6	5	6	N	Fair	-	-
NOR	20768		First View Street	Tidewater Drive	1958	-	City	-	FO	6	6	6	N	Fair	-	-
NOR	20764		Frontage Road	I-264	1967	-	VDOT	-	FO	5	5	6	N	Fair	-	-
NOR	20770		Government Avenue	Tidewater Drive	1956	-	City	-	FO	6	6	7	N	Fair	-	-
NOR	21040	460	Granby Street	Lafayette River	1979	-	City	-	-	5	5	5	N	Fair	-	-
NOR	30075	460	Granby Street	Masons Creek	1936	2012	City	-	-	N	N	N	7	Good	-	-
NOR	21034	460	Granby Street	Tidewater Drive	1958	-	City	-	FO	5	6	6	N	Fair	-	-
NOR	21024	337	Hampton Blvd NB	Lafayette River	1970	-	City	-	FO	6	5	6	N	Fair	-	-
NOR	21023	337	Hampton Blvd SB	Lafayette River	1994	-	City	-	-	7	7	7	N	Good	-	-
NOR	21019	337	Hampton Blvd SB Ramp	Hampton Blvd NB	1962	-	Private	-	FO	6	6	5	N	Fair	-	-
NOR	20931	64	I-64 EB	4th View Street	1975	-	VDOT	-	-	6	5	6	N	Fair	-	-
NOR	20929	64	I-64 WB	4th View Street	1975	-	VDOT	-	-	7	5	6	N	Fair	-	-
NOR	20909	64	I-64 EB	13th View Street	1972	-	VDOT	-	FO	6	5	6	N	Fair	-	-
NOR	20911	64	I-64 WB	13th View Street	1972	-	VDOT	-	FO	5	5	5	N	Fair	-	-
NOR	20831	64	I-64 EB	Azalea Garden Road	1966	-	VDOT	-	-	6	5	5	N	Fair	-	-
NOR	20833	64	I-64 WB	Azalea Garden Road	1966	-	VDOT	-	-	7	5	5	N	Fair	-	-
NOR	23067	64	I-64 HOV Lanes	Azalea Garden Road	1992	-	VDOT	-	-	7	7	7	N	Good	-	-
NOR	20866	64	I-64 EB	Bay Coast Railroad	1967	-	VDOT	-	-	5	5	5	N	Fair	-	-
NOR	20867	64	I-64 WB	Bay Coast Railroad	1967	-	VDOT	-	-	5	5	5	N	Fair	-	-
NOR	23073	64	I-64 HOV Lanes	Bay Coast Railroad	1992	-	VDOT	-	-	7	7	7	N	Good	-	-
NOR	20921	64	I-64 EB	Bay View Blvd	1974	-	VDOT	-	-	6	7	6	N	Fair	-	-
NOR	20919	64	I-64 WB	Bay View Blvd	1974	-	VDOT	-	-	6	7	7	N	Fair	-	-
NOR	20819	64	I-64 EB	Chesapeake Blvd	1965	1977	VDOT	-	-	6	6	6	N	Fair	-	-
NOR	20821	64	I-64 WB	Chesapeake Blvd	1965	1977	VDOT	-	-	5	6	6	N	Fair	-	-
NOR	23134	64	I-64 HOV Lanes	Chesapeake Blvd	1992	-	VDOT	-	-	6	7	7	N	Fair	-	-
NOR	20887	64	I-64 EB	Curlew Dr & HRT Light R/R	1968	-	VDOT	-	-	6	6	5	N	Fair	-	-
NOR	20889	64	I-64 WB	Curlew Dr & HRT Light R/R	1968	1992	VDOT	-	-	7	6	5	N	Fair	-	-
NOR	23342	64	I-64 HOV Lanes	Curlew Dr & HRT Light R/R	1992	-	VDOT	-	FO	7	7	7	N	Good	-	-
NOR	20925	64	I-64 EB	Evans Street	1974	-	VDOT	-	-	6	5	5	N	Fair	-	-
NOR	20923	64	I-64 WB	Evans Street	1974	-	VDOT	-	-	6	5	5	N	Fair	-	-
NOR	20850	64	I-64 EB	First View Street	1975	-	VDOT	-	-	6	5	6	N	Fair	-	-
NOR	20839	64	I-64 WB	First View Street	1975	-	VDOT	-	-	7	5	5	N	Fair	-	-
NOR	20902	64	I-64 EB	Granby Street	1971	1991	VDOT	-	-	7	7	5	N	Fair	-	-
NOR	20904	64	I-64 WB	Granby Street	1971	-	VDOT	-	-	6	6	5	N	Fair	-	-
NOR	23133	64	I-64 HOV Lanes	Granby Street	1992	-	VDOT	-	-	7	7	7	N	Good	-	-
NOR	23191	64	I-64 HOV Lanes	I-64 WB	1992	-	VDOT	-	-	7	7	6	N	Fair	Yes	-
NOR	20883	64	I-64 EB	I-264 EB	1968	-	VDOT	-	-	6	6	6	N	Fair	-	-
NOR	20885	64	I-64 WB	I-264 EB	1968	1992	VDOT	-	-	6	6	7	N	Fair	-	-
NOR	23306	64	I-64 HOV Lanes	I-264 EB	1992	-	VDOT	-	FO	7	7	7	N	Good	-	-
NOR	20879	64	I-64 EB	I-264 WB	1968	1985	VDOT	-	FO	7	7	7	N	Good	-	-
NOR	20881	64	I-64 WB	I-264 WB	1968	1992	VDOT	-	FO	7	6	7	N	Fair	-	-

NORFOLK BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings				Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
										Deck	Super-Structure	Sub-Structure	Culvert			
NOR	23304	64	I-64 HOV Lanes	I-264 WB	1992	-	VDOT	-	FO	7	8	7	N	Good	-	-
NOR	20900	64	I-64 EB	I-564 NB	1971	-	VDOT	-	-	6	5	6	N	Fair	-	-
NOR	23214	64	I-64 HOV Lanes	I-564 & Little Creek Road	1992	-	VDOT	-	FO	6	6	7	N	Fair	Yes	-
NOR	20862	64	I-64 EB	Kempsville Road	1967	1986	VDOT	-	-	6	5	5	N	Fair	-	-
NOR	20864	64	I-64 WB	Kempsville Road	1967	1991	VDOT	-	-	7	6	5	N	Fair	-	-
NOR	23284	64	I-64 HOV Lanes	Kempsville Road	1992	-	VDOT	-	-	7	8	7	N	Good	-	-
NOR	20871	64	I-64	Lake Taylor	1966	-	VDOT	-	-	N	N	N	7	Good	-	-
NOR	20892	64	I-64 EB	Little Creek Road	1971	-	VDOT	-	-	6	6	5	N	Fair	-	-
NOR	20894	64	I-64 WB	Little Creek Road	1971	-	VDOT	-	-	6	5	6	N	Fair	-	-
NOR	20928	64	I-64 EB	Mason Creek	1974	-	VDOT	-	-	5	5	6	N	Fair	-	-
NOR	20927	64	I-64 WB	Mason Creek	1974	-	VDOT	-	-	5	5	6	N	Fair	-	-
NOR	20825	64	I-64 EB	Mason Creek Road	1975	-	VDOT	-	-	7	5	5	N	Fair	-	-
NOR	20823	64	I-64 WB	Mason Creek Road	1975	-	VDOT	-	-	7	5	5	N	Fair	-	-
NOR	20835	64	I-64 EB	Military Hwy	1966	-	VDOT	-	-	6	6	6	N	Fair	-	-
NOR	20837	64	I-64 WB	Military Hwy	1966	-	VDOT	-	FO	5	6	5	N	Fair	-	-
NOR	23068	64	I-64 HOV Lanes	Military Hwy	1992	-	VDOT	-	-	7	7	7	N	Good	-	-
NOR	20917	64	I-64 EB	New Gate Road	1974	-	VDOT	-	-	5	5	5	N	Fair	-	-
NOR	20915	64	I-64 WB	New Gate Road	1974	-	VDOT	-	-	6	5	5	N	Fair	-	-
NOR	20858	64	I-64 EB	Northampton Blvd	1967	1977	VDOT	-	FO	5	5	5	N	Fair	-	-
NOR	20860	64	I-64 WB	Northampton Blvd	1967	1977	VDOT	-	FO	5	5	5	N	Fair	-	-
NOR	23074	64	I-64 HOV Lanes	Northampton Blvd	1992	-	VDOT	-	-	7	7	7	N	Good	-	-
NOR	20873	64	I-64 EB	Oasts Creek & Bay Ave	1975	-	VDOT	-	-	5	5	6	N	Fair	-	-
NOR	20869	64	I-64 WB	Oasts Creek & Bay Ave	1975	-	VDOT	-	-	5	5	6	N	Fair	-	-
NOR	20852	64	I-64 EB	Ramp From Northampton Blvd	1967	1977	VDOT	-	FO	7	6	6	N	Fair	-	-
NOR	20854	64	I-64 WB	Ramp From Northampton Blvd	1964	1977	VDOT	-	-	5	6	6	N	Fair	-	-
NOR	23132	64	I-64 HOV Lanes	Ramp From Northampton Blvd	1992	-	VDOT	-	-	7	8	7	N	Good	-	-
NOR	20845	64	I-64 EB	Ramp From Tidewater Drive	1967	-	VDOT	-	FO	6	5	6	N	Fair	-	-
NOR	23302	64	I-64 HOV Lanes	Ramp From Tidewater Drive	1992	-	VDOT	-	FO	6	6	7	N	Fair	-	-
NOR	20827	64	I-64 EB	Robin Hood Road	1966	-	VDOT	-	-	6	6	5	N	Fair	-	-
NOR	20829	64	I-64 WB	Robin Hood Road	1966	-	VDOT	-	-	6	6	5	N	Fair	-	-
NOR	23061	64	I-64 HOV Lanes	Robin Hood Road	1992	-	VDOT	-	-	7	7	7	N	Good	-	-
NOR	20815	64	I-64 EB	Sewells Point Road	1965	1977	VDOT	-	FO	5	5	5	N	Fair	-	-
NOR	20817	64	I-64 WB	Sewells Point Road	1965	-	VDOT	-	-	5	5	5	N	Fair	-	-
NOR	23059	64	I-64 HOV Lanes	Sewells Point Road	1992	-	VDOT	-	FO	6	6	7	N	Fair	-	-
NOR	20841	64	I-64 EB	Tidewater Drive	1967	1977	VDOT	-	-	7	6	5	N	Fair	-	-
NOR	20843	64	I-64 WB	Tidewater Drive	1967	1985	VDOT	-	-	7	5	5	N	Fair	-	-
NOR	23217	64	I-64 HOV Lanes	Tidewater Drive	1992	-	VDOT	-	-	6	7	7	N	Fair	-	-
NOR	20875	64	I-64 EB	Va Beach Blvd	1968	1986	VDOT	-	FO	5	5	5	N	Fair	-	-
NOR	20877	64	I-64 WB	Va Beach Blvd	1968	1992	VDOT	-	FO	6	5	5	N	Fair	-	-
NOR	23272	64	I-64 HOV Lanes	Va Beach Blvd	1992	-	VDOT	-	FO	6	7	7	N	Fair	-	-
NOR	20913	64	I-64 EB	Willoughby Bay	1972	-	VDOT	-	-	5	5	5	N	Fair	-	-
NOR	20914	64	I-64 WB	Willoughby Bay	1972	-	VDOT	-	-	5	5	5	N	Fair	-	-
NOR	20898	64	I-64 EB Ramp	I-64 WB Ramp at Tidewater Dr	1971	-	VDOT	-	FO	7	6	7	N	Fair	-	-
NOR	23186	64	I-64 HOV Ramp	I-64 WB & I-264 & Ramps	1992	-	VDOT	-	-	6	6	6	N	Fair	Yes	-
NOR	20994	264	I-64 EB Ramp	I-264 EB	1968	-	VDOT	-	-	6	6	6	N	Fair	-	-
NOR	20996	264	I-64 WB Ramp	I-264 WB	1968	-	VDOT	-	FO	7	6	6	N	Fair	-	-
NOR	20856	64	I-64 EB Ramp	Northampton Blvd	1967	-	VDOT	-	-	5	5	6	N	Fair	-	-
NOR	20896	64	I-64 EB Ramp	Thole Street	1972	-	VDOT	-	-	7	7	6	N	Fair	-	-
NOR	20906	64	I-64 EB Ramp	Trib. Of Lafayette River	1967	-	VDOT	-	-	N	N	N	6	Fair	-	-
NOR	20847	64	I-64 WB Ramp	Trib. Of Lafayette River	1967	-	VDOT	-	-	N	N	N	7	Good	-	-

NORFOLK BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
NOR	21002	264	I-264 EB	Ballentine Avenue	1968	1998	VDOT	-	FO	6	6	5	N	Fair	-	-
NOR	21004	264	I-264 WB	Ballentine Avenue	1968	1998	VDOT	-	FO	6	6	5	N	Fair	-	-
NOR	20998	264	I-264	Brambleton Avenue	1968	1998	VDOT	-	-	6	6	6	N	Fair	-	-
NOR	20981	264	I-264 EB	Broad Creek	1967	1998	VDOT	-	-	6	6	5	N	Fair	-	-
NOR	20982	264	I-264 WB	Broad Creek	1967	2000	VDOT	-	-	6	6	5	N	Fair	-	-
NOR	20979	264	I-264 WB	City Hall Avenue	1991	-	VDOT	-	-	7	6	7	N	Fair	Yes	-
NOR	21011	264	I-264	Claiborne Avenue	1972	1998	VDOT	-	-	6	6	6	N	Fair	-	-
NOR	20962	264	I-264 EB	E Br Elizabeth River	1990	-	VDOT	-	-	6	6	6	N	Fair	Yes	-
NOR	20947	264	I-264 WB	E Br Elizabeth River	1952	1991	VDOT	-	FO	6	6	5	N	Fair	Yes	-
NOR	20992	264	I-264 EB	Holt Street & N/S R/R	1972	1990	VDOT	-	FO	5	6	6	N	Fair	-	-
NOR	21000	264	I-264 WB	Holt Street & N/S R/R	1972	1991	VDOT	-	FO	5	5	5	N	Fair	Yes	-
NOR	21008	264	I-264 EB	HRT Light R/R	1968	1998	VDOT	-	-	6	6	6	N	Fair	-	-
NOR	21009	264	I-264 WB	HRT Light R/R	1968	1998	VDOT	-	-	6	6	5	N	Fair	-	-
NOR	20971	264	I-264 EB	I-264 EB Ramp	1990	-	VDOT	-	FO	7	7	5	N	Fair	Yes	-
NOR	20955	264	I-264 WB	I-264 & I-464 Ramps	1988	-	Private	-	FO	7	8	6	N	Fair	-	-
NOR	20953	264	I-264 EB & I-464 NB	I-264 & I-464 Ramps	1986	-	Private	-	FO	7	8	6	N	Fair	-	-
NOR	20983	264	I-264 EB	Ingleside Road	1967	1998	VDOT	-	-	6	7	5	N	Fair	-	-
NOR	20985	264	I-264 WB	Ingleside Road	1967	1998	VDOT	-	-	7	7	5	N	Fair	-	-
NOR	20795	264	I-264 EB	Kempsville Road	1967	1983	VDOT	-	FO	7	5	6	N	Fair	-	-
NOR	20793	264	I-264 WB	Kempsville Road	1967	1992	VDOT	-	FO	6	6	6	N	Fair	-	-
NOR	20963	264	I-264 EB	Main Street	1990	-	VDOT	-	-	6	6	6	N	Fair	-	-
NOR	20797	264	I-264	Newtown Road	1967	1983	VDOT	-	-	6	6	6	N	Fair	-	-
NOR	21006	264	I-264 EB	Norfolk Southern R/R	1968	1998	VDOT	-	-	7	6	5	N	Fair	-	-
NOR	21007	264	I-264 WB	Norfolk Southern R/R	1968	1998	VDOT	-	-	7	6	5	N	Fair	-	-
NOR	21013	264	I-264	Park Avenue	1972	1998	VDOT	-	-	6	6	6	N	Fair	-	-
NOR	20975	264	I-264 WB	SR 337 SB	1972	1990	VDOT	-	-	7	6	6	N	Fair	-	-
NOR	20969	264	I-264 Ramp	City Hall Avenue	1990	-	VDOT	-	-	7	6	7	N	Fair	-	-
NOR	20977	264	I-264 Ramp	City Hall Avenue	1972	1990	VDOT	-	-	6	6	7	N	Fair	-	-
NOR	20978	264	I-264 WB Ramp	City Hall Avenue	1991	-	VDOT	-	-	7	6	7	N	Fair	-	-
NOR	23046	460	I-264 WB Ramp	City Hall Avenue	1952	1991	VDOT	-	FO	6	6	5	N	Fair	-	-
NOR	21032	460	I-264 EB Ramp	East Street	1990	-	VDOT	-	-	6	7	6	N	Fair	-	-
NOR	20973	264	I-264 Ramp	Holt Street & NS R/R	1990	-	VDOT	-	FO	7	6	7	N	Fair	-	-
NOR	20813	64	I-264 EB Ramp	I-264 WB & I-64	1985	-	VDOT	-	FO	5	6	6	N	Fair	-	-
NOR	20959	264	I-264 WB Ramp	I-264 WB	1988	-	VDOT	-	FO	6	8	6	N	Fair	-	-
NOR	21030	460	I-264 NB Ramp	I-264 WB & City Hall Avenue	1990	-	VDOT	-	-	7	7	6	N	Fair	-	-
NOR	20957	264	I-264 & I-464 Ramps	I-264 EB	1986	-	VDOT	-	FO	6	8	6	N	Fair	-	-
NOR	20967	264	I-264 EB Ramp	Main Street	1990	-	VDOT	-	-	7	6	6	N	Fair	-	-
NOR	21037	460	I-264 Ramp	Waterside Drive	1990	-	VDOT	-	FO	7	7	6	N	Fair	-	-
NOR	21053	464	I-464 NB	Berkley Avenue	1988	-	VDOT	-	FO	6	7	6	N	Fair	-	-
NOR	21055	464	I-464 SB	Berkley Avenue	1988	-	VDOT	-	-	6	7	5	N	Fair	-	-
NOR	21045	464	I-464 NB	Buchanan St & N&P R/R	1988	-	VDOT	-	-	6	6	6	N	Fair	-	-
NOR	21047	464	I-464 SB	Buchanan St & N&P R/R	1988	-	VDOT	-	-	7	7	6	N	Fair	-	-
NOR	21065	464	I-464 SB	Emergency Vehicle Ramp	1988	-	VDOT	-	FO	7	8	6	N	Fair	-	-
NOR	21057	464	I-464 SB	I-264 EB	1987	-	VDOT	-	FO	7	8	6	N	Fair	-	-
NOR	21061	464	I-464 SB	I-264 WB	1989	-	VDOT	-	-	7	7	6	N	Fair	-	-
NOR	21063	464	I-464 SB	I-264 WB Ramp	1988	-	VDOT	-	-	7	7	6	N	Fair	-	-
NOR	21051	464	I-464 SB	I-264 & I-464 Ramps	1988	-	VDOT	-	FO	7	8	7	N	Good	-	-
NOR	21059	464	I-464 NB	I-464 SB Ramp	1987	-	VDOT	-	-	6	8	5	N	Fair	-	-
NOR	21041	464	I-464 NB	South Main Street	1988	-	VDOT	-	-	7	7	6	N	Fair	-	-
NOR	21043	464	I-464 SB	South Main Street	1988	-	VDOT	-	-	7	7	5	N	Fair	-	-

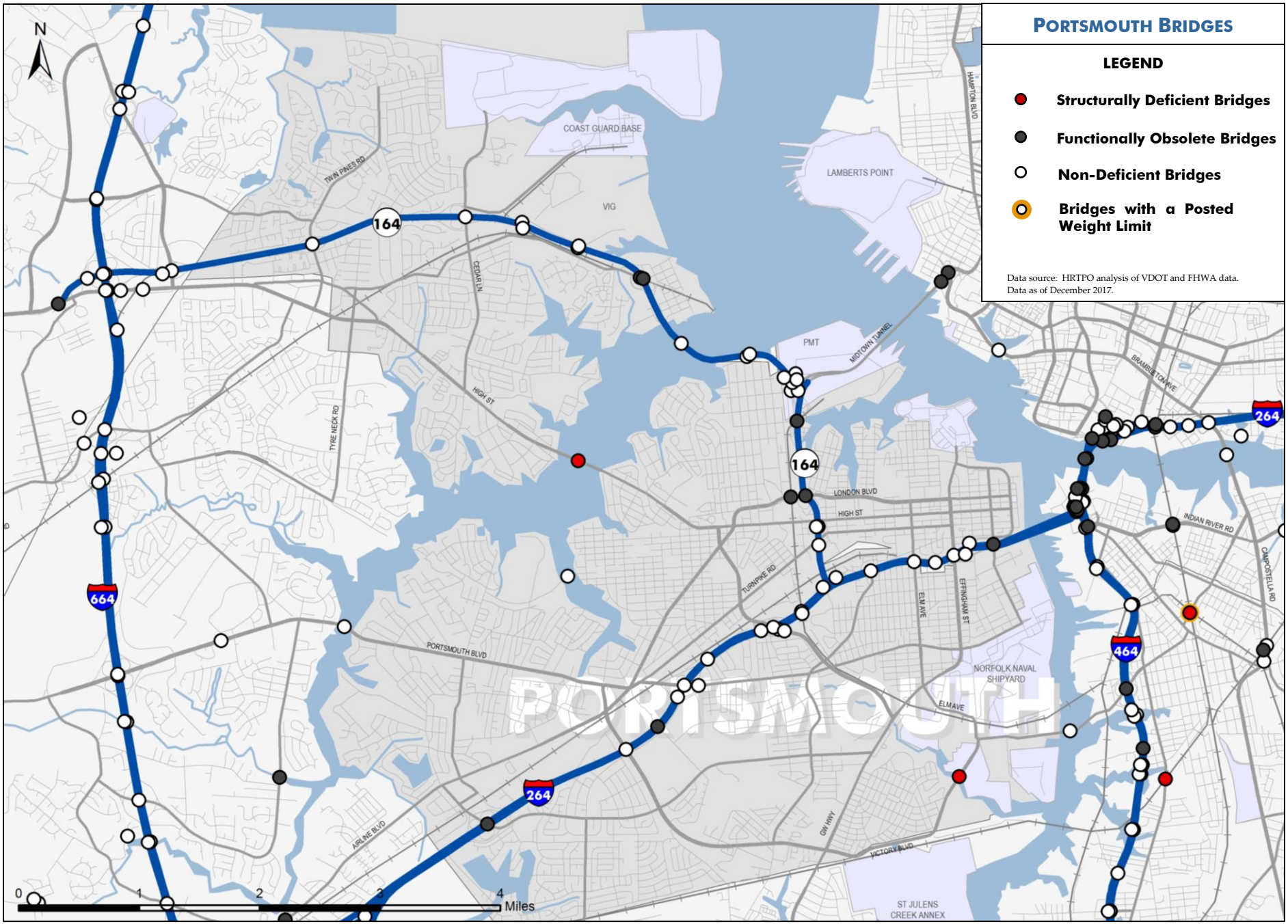
NORFOLK BRIDGES

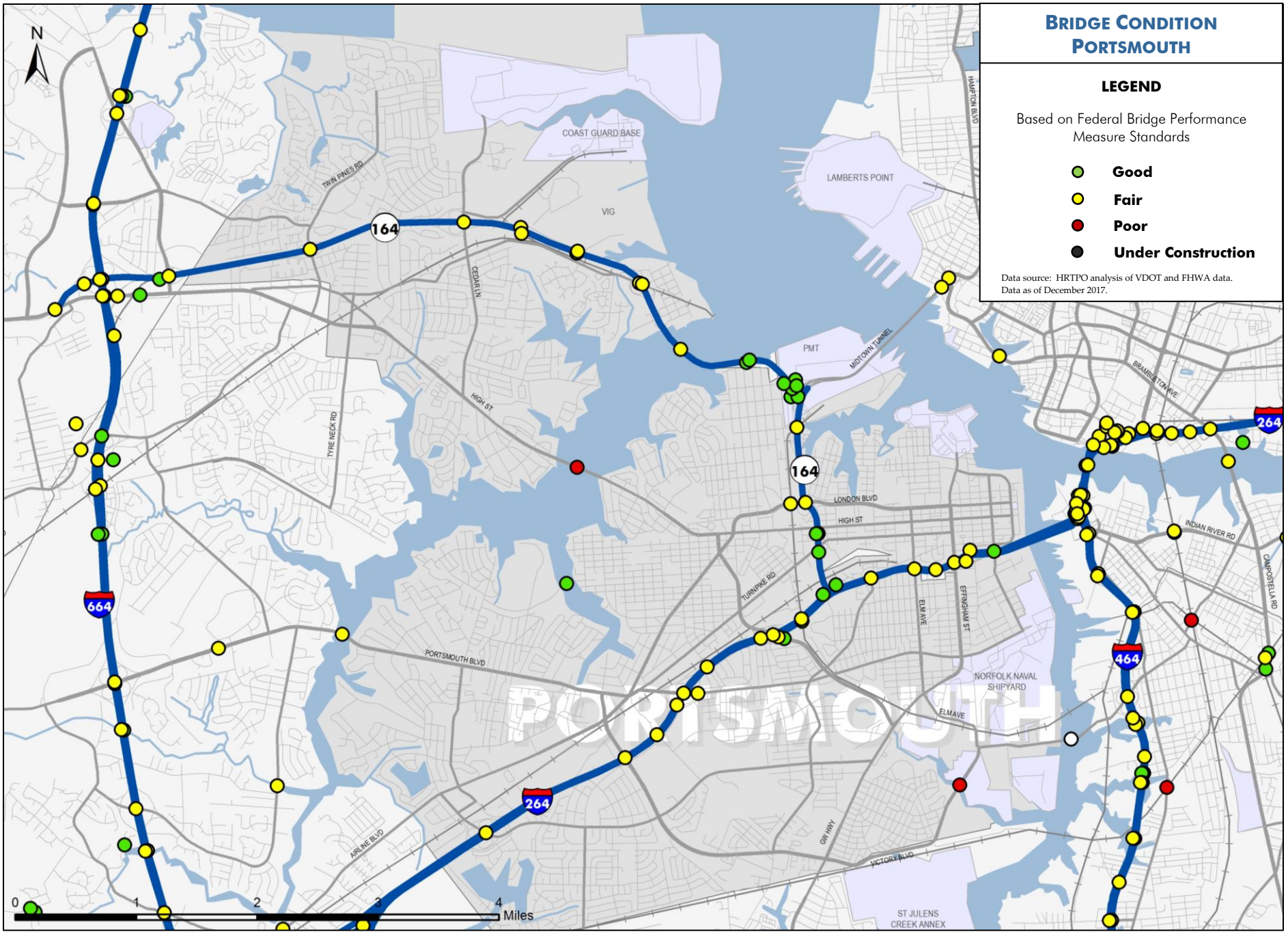
Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
NOR	21049	464	I-464 Ramp	I-464 SB Ramp	1989	-	Private	-	-	7	8	7	N	Good	-	-
NOR	21067	564	I-564	Boush Creek	1977	-	VDOT	-	-	N	N	N	7	Good	-	-
NOR	21074	564	I-564 NB	Granby Street	1972	-	VDOT	-	FO	5	5	5	N	Fair	-	-
NOR	21072	564	I-564 SB	Granby Street	1972	1991	VDOT	-	FO	7	6	5	N	Fair	-	-
NOR	21070	564	I-564 NB	Little Creek Road	1971	-	VDOT	-	-	6	5	6	N	Fair	-	-
NOR	23216	564	I-564 HOV Lanes	Little Creek Road	1992	-	VDOT	-	FO	7	7	7	N	Good	-	-
NOR	21068	564	I-564 Ramp	I-64 & I-564	1990	-	VDOT	-	FO	5	6	6	N	Fair	-	-
NOR	25187	407	Indian River Road	Steamboat Creek	1998	-	City	-	-	6	7	7	N	Fair	-	-
NOR	21028	406	Int Terminal Blvd EB	I-564 & N/S R/R	1975	-	VDOT	-	-	6	6	5	N	Fair	-	-
NOR	21026	406	Int Terminal Blvd WB	I-564 & N/S R/R	1975	-	VDOT	-	FO	5	5	5	N	Fair	-	-
NOR	30488		Kimball Terrace	Ohio Creek	2014	-	City	-	-	8	8	8	N	Good	-	-
NOR	20934	165	Little Creek Road	Tidewater Drive	1959	2014	City	-	FO	7	7	7	N	Good	-	-
NOR	20787	13	Military Highway	Branch of Broad Creek	1945	-	City	-	-	N	N	N	5	Fair	-	-
NOR	20790	13	Military Highway	Curlew Dr & HRT Light R/R	1943	1999	City	-	-	6	6	6	N	Fair	-	-
NOR	24817	13	Military Highway NB	E Br Elizabeth River	1996	-	City	-	-	6	7	6	N	Fair	-	-
NOR	24819	13	Military Highway SB	E Br Elizabeth River	1996	-	City	-	-	6	6	6	N	Fair	-	-
NOR	26334	13	Military Highway	I-264	2000	-	VDOT	-	FO	6	7	7	N	Fair	-	-
NOR	25327	13	Military Highway	Va Beach Blvd	1999	-	City	-	FO	6	6	6	N	Fair	-	-
NOR	20777		North Shore Road	Branch Of Lafayette River	1979	-	City	-	-	6	5	6	N	Fair	-	-
NOR	20778		North Shore Road	Branch Of Lafayette River	1979	-	City	-	FO	5	5	5	N	Fair	-	-
NOR	24432	13	Northampton Blvd NB	Lake Wright	1995	-	City	-	-	7	8	7	N	Good	-	-
NOR	24433	13	Northampton Blvd SB	Lake Wright	1995	-	City	-	-	7	8	7	N	Good	-	-
NOR	23313	247	Norview Avenue	I-64	1992	-	VDOT	-	-	6	7	6	N	Fair	-	-
NOR	20775		Norview Avenue	Lake Whitehurst	1975	-	City	-	-	6	6	6	N	Fair	-	-
NOR	26010		Norview Avenue	Rinda Creek	1999	-	City	-	-	5	6	7	N	Fair	-	-
NOR	20811	60	Ocean View Avenue EB	Tidewater Drive	1958	-	City	SD	-	4	5	5	N	Poor	-	-
NOR	20767		Robin Hood Road	Norfolk Water Supply Canal	1944	1987	City	-	FO	6	5	5	N	Fair	-	-
NOR	20809	60	Shore Drive	Lake Whitehurst	1984	-	City	-	-	N	N	N	6	Fair	-	-
NOR	26314	60	Shore Drive	Little Creek	2002	-	City	-	-	6	6	7	N	Fair	-	-
NOR	20774	337	SR 337 NB & Ramp	Adjacent To Structure #21000	1972	1990	VDOT	-	-	5	6	5	N	Fair	-	-
NOR	20766		Thole Street	Branch of Lafayette River	1967	-	City	-	-	N	N	N	6	Fair	-	-
NOR	20938	168	Tidewater Drive	Lafayette River	1985	2007	City	-	-	7	7	6	N	Fair	-	-
NOR	20939	168	Tidewater Drive	Norfolk Southern R/R	1960	-	City	-	-	5	5	5	N	Fair	-	-
NOR	20942	168	Tidewater Drive	Trib of Lafayette River	1967	-	VDOT	-	-	N	N	N	7	Good	-	-
NOR	20937	168	Tidewater Drive	Wayne Creek	1985	2003	City	-	-	6	7	7	N	Fair	-	-
NOR	24793	58	Va Beach Blvd	Broad Creek	1996	-	City	-	-	6	6	7	N	Fair	-	-
NOR	24148	58	Va Beach Blvd	Norfolk Southern R/R	1995	-	City	-	-	5	6	6	N	Fair	-	-
NOR	20949	337	Waterside Drive EB	East Main Street	1972	1990	VDOT	-	FO	7	6	6	N	Fair	-	-
NOR	20776		Willow Wood Drive	Branch of Lafayette River	1987	-	City	-	FO	6	6	5	N	Fair	-	-

NORFOLK BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.


PORTSMOUTH BRIDGES
LEGEND
Structurally Deficient Bridges
Functionally Obsolete Bridges
Non-Deficient Bridges
Bridges with a Posted Weight Limit
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
COAST GUARD BASE
LAMBERTS POINT
VIG
TWIN PINES RD
CEDAR LN
TYRE NECK RD
HIGH ST
PMT
MIDTOWN TUNNEL
HAMPTON BLVD
BRAMBLETON AVE
LONDON BLVD
INDIAN RIVER RD
CAMPOSTELLA RD
TURNPIKE RD
EFFINGHAM ST
ELM AVE
PORTSMOUTH BLVD
NORFOLK NAVAL SHIPYARD
PORTSMOUTH
AIRLINE BLVD
GR HWY
VICTORY BLVD
ST JULENS CREEK ANNEX
164
664
264
464
0 1 2 3 4 Miles

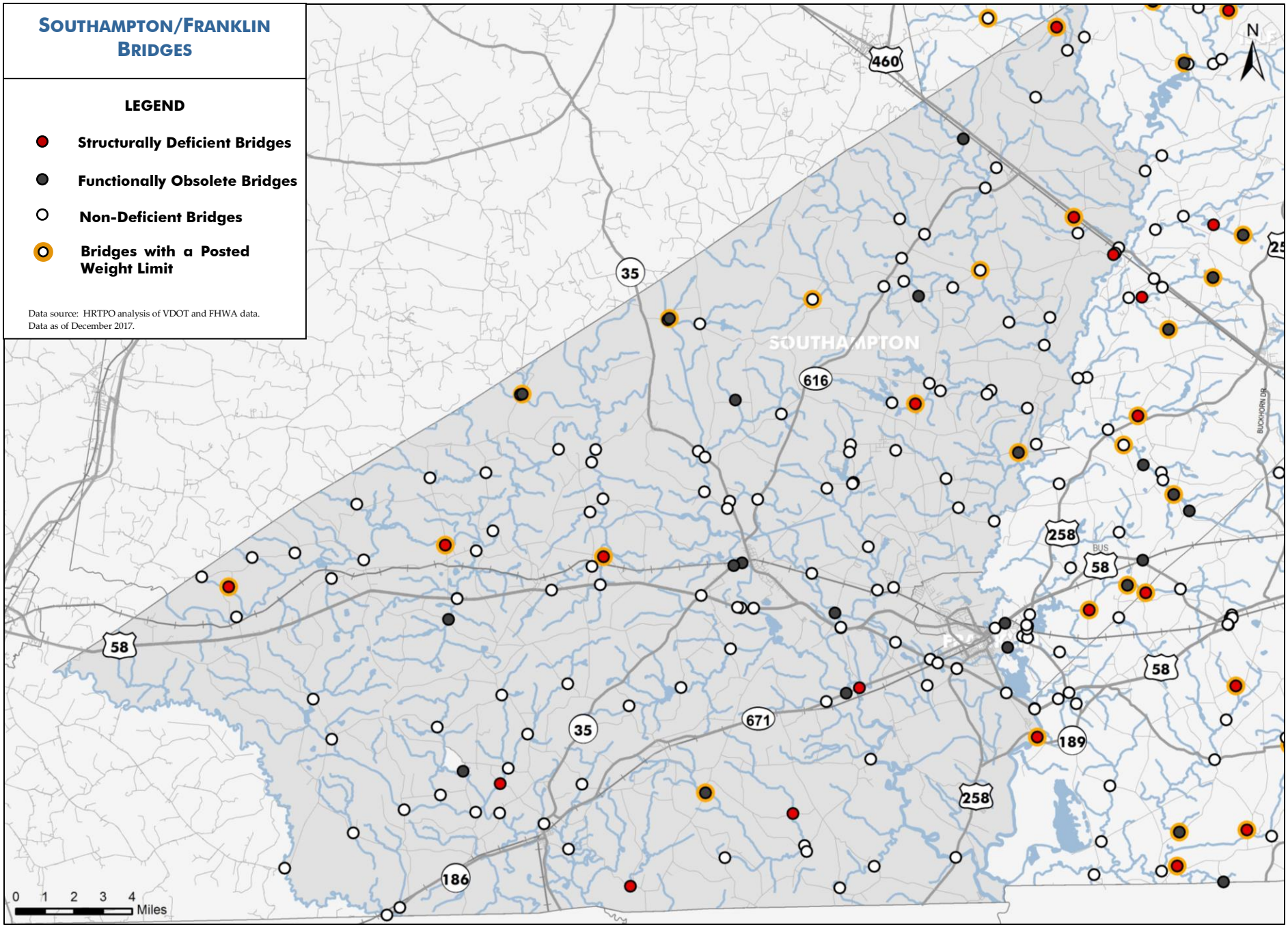

BRIDGE CONDITION
PORTSMOUTH
LEGEND
Based on Federal Bridge Performance Measure Standards
Good
Fair
Poor
Under Construction
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
COAST GUARD BASE
LAMBERTS POINT
VIG
TWIN PINES RD
CEDAR LN
HIGH ST
TYRE NECK RD
PMT
MIDTOWN TUNNEL
HAMPTON BLVD
BRAMBLETON AVE
LONDON BLVD
INDIAN RIVER RD
CAMPOSTELLA RD
TURNPIKE RD
ELM AVE
EFFINGHAM ST
PORTSMOUTH BLVD
NORFOLK NAVAL SHIPYARD
PORTSMOUTH
AIRLINE BLVD
GW HWY
VICTORY BLVD
ST JULENS CREEK ANNEX
164
664
264
464
0 1 2 3 4 Miles

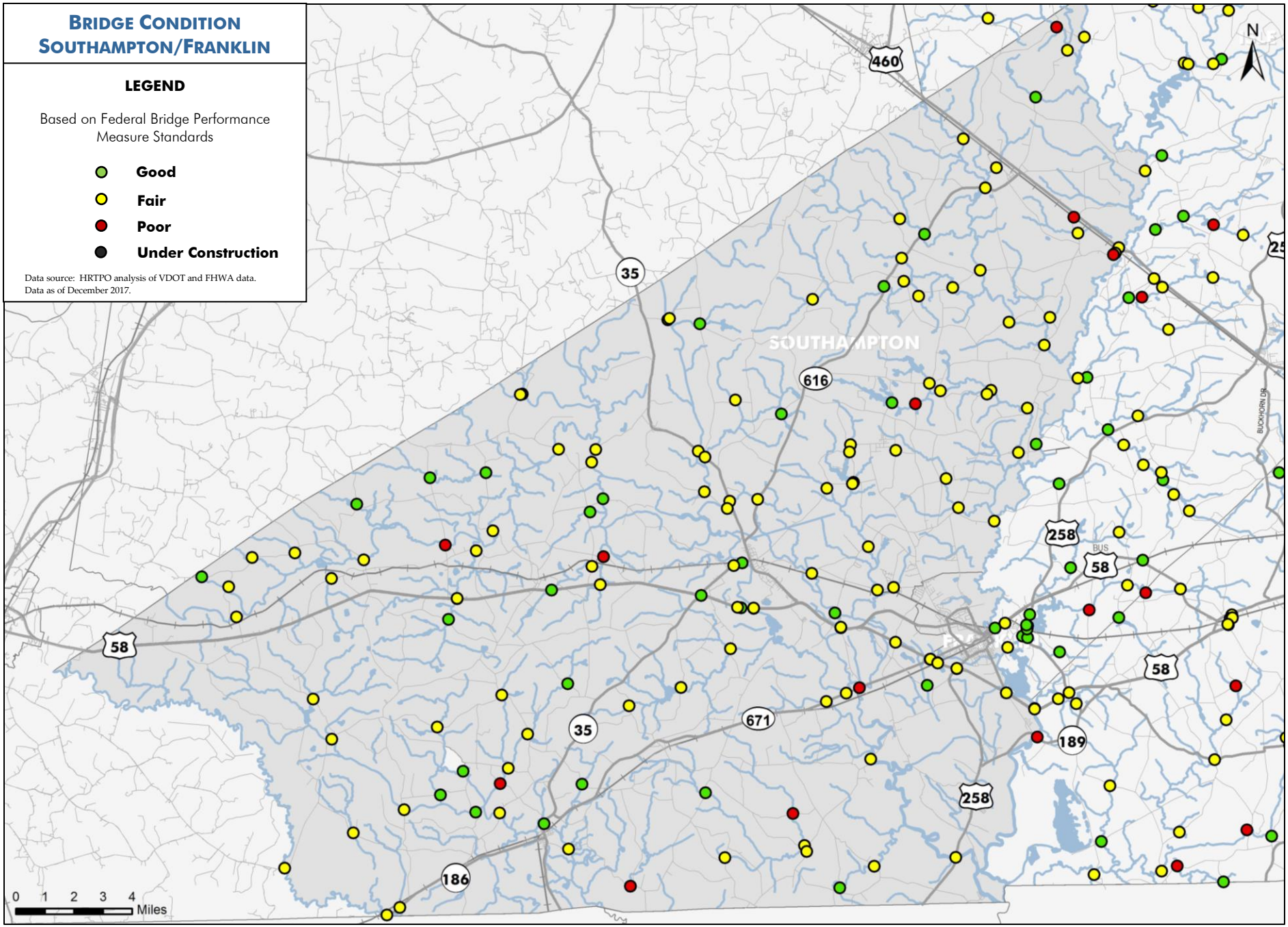
Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
PORT	21197		Cedar Lane	Route 164	1989	-	VDOT	-	-	6	7	7	N	Fair	-	-
PORT	26832		Clifford Street	Baines Creek	2005	-	City	-	-	8	8	7	N	Good	-	-
PORT	21193		Court Street	I-264 WB	1951	1990	VDOT	-	FO	7	7	7	N	Good	-	-
PORT	21190		Greenwood Drive	I-264	1976	-	VDOT	-	FO	6	6	6	N	Fair	-	-
PORT	21199	17	High Street	W Br Elizabeth River	1951	1975	City	SD	-	5	5	4	N	Poor	-	-
PORT	21233	264	I-264	Des Moines Avenue	1964	2016	Private	-	-	5	6	5	N	Fair	-	-
PORT	21240	264	I-264	Effingham Street	1966	1985	Private	-	-	6	6	6	N	Fair	-	-
PORT	21244	264	I-264	Elm Avenue	1966	1985	Private	-	-	6	5	5	N	Fair	-	-
PORT	21229	264	I-264	Frederick Blvd	1964	1979	VDOT	-	-	6	5	5	N	Fair	-	-
PORT	21220	264	I-264	Mclean Avenue	1964	1979	VDOT	-	FO	6	6	6	N	Fair	-	-
PORT	21224	264	I-264	Norfolk & Portsmouth R/R	1964	2016	VDOT	-	-	5	5	5	N	Fair	Yes	-
PORT	21225	264	I-264	Portsmouth Blvd	1964	1991	VDOT	-	-	6	5	5	N	Fair	-	-
PORT	21231	264	I-264	Portsmouth Blvd Ramp	1964	1979	VDOT	-	-	6	5	5	N	Fair	-	-
PORT	21235	264	I-264	Ramp From Frederick Blvd	1964	1979	VDOT	-	-	6	5	6	N	Fair	-	-
PORT	21218	264	I-264	Rodman Avenue	1964	-	VDOT	-	-	6	6	6	N	Fair	-	-
PORT	21237	264	I-264	Victory Blvd	1963	1979	VDOT	-	-	6	5	6	N	Fair	-	-
PORT	21242	264	I-264	WB Ramp From Effingham Street	1966	1985	Private	-	-	5	5	5	N	Fair	Yes	-
PORT	21248	264	I-264 EB Off Ramp	Ramp To EB Downtown Tunnel	1985	-	Private	-	-	7	6	6	N	Fair	-	-
PORT	21222	264	I-264 EB Ramp	Frederick Blvd	1964	-	VDOT	-	-	6	6	5	N	Fair	-	-
PORT	21227	264	I-264 EB Ramp	Portsmouth Blvd	1964	-	VDOT	-	-	6	6	6	N	Fair	-	-
PORT	21246	264	I-264 WB On Ramp	Ramp From I-264 WB	1985	-	Private	-	-	6	7	6	N	Fair	-	-
PORT	21202	58	London Boulevard	MLK Freeway	1971	-	City	-	FO	7	6	7	N	Fair	-	-
PORT	21200	58	London Boulevard	N&P R/R & Virginia Ave	1971	-	City	-	FO	7	6	8	N	Fair	-	-
PORT	26653	58	MLK Freeway	Cleveland Street & CSX R/R	2005	-	Private	-	FO	6	7	6	N	Fair	-	-
PORT	30133	164	MLK Fwy - Mainline	I-264, Columbus, High, R/R	2016	-	Private	-	-	7	7	8	N	Good	-	-
PORT	30136	164	MLK Fwy - Ramp EN	Frederick Blvd	2016	-	Private	-	-	8	7	8	N	Good	-	-
PORT	30137	164	MLK Fwy - Ramp EN	Norfolk & Portsmouth R/R	2016	-	Private	-	-	8	7	8	N	Good	-	-
PORT	30134		MLK Fwy - Ramp N	Pond	2016	-	Private	-	-	7	8	8	N	Good	-	-
PORT	30135	16	MLK Fwy - Ramp S	Pond	2016	-	Private	-	-	8	8	8	N	Good	-	-
PORT	30139		MLK Fwy - Ramp SW	Unknown	2016	-	Private	-	-	7	7	8	N	Good	-	-
PORT	30138	164	MLK Fwy - Ramp WN	Unknown	2016	-	Private	-	-	7	7	7	N	Good	-	-
PORT	21208	164	Route 164 EB	Former Coast Guard Blvd	1991	-	VDOT	-	-	6	6	6	N	Fair	Yes	-
PORT	21206	164	Route 164 WB	Former Coast Guard Blvd	1991	-	VDOT	-	-	6	5	6	N	Fair	Yes	-
PORT	28376	164	Route 164 WB	MLK Fwy & Western Freeway & PMT	2006	-	Private	-	-	7	7	7	N	Good	-	-
PORT	28384	164	Route 164 EB	Portsmouth Marine Terminal	2006	-	Private	-	-	7	7	7	N	Good	-	-
PORT	28239	164	Route 164 EB	VIG Blvd	2006	-	VDOT	-	-	6	7	7	N	Fair	-	-
PORT	28241	164	Route 164 WB	VIG Blvd	2006	-	VDOT	-	-	6	8	7	N	Fair	-	-
PORT	21215	164	Route 164	W Br Elizabeth River	1978	-	VDOT	-	-	6	5	6	N	Fair	-	-
PORT	27133	164	Route 164 EB	W Br Elizabeth River	2006	-	VDOT	-	-	7	7	7	N	Good	-	-
PORT	28217	164	Route 164 WB	W Br Elizabeth River	2006	-	VDOT	-	-	7	7	7	N	Good	-	-
PORT	21210	164	Route 164 EB	West Norfolk Road & N/S R/R	1991	-	VDOT	-	FO	6	6	7	N	Fair	-	-
PORT	21212	164	Route 164 WB	West Norfolk Road & N/S R/R	1991	-	VDOT	-	FO	6	7	7	N	Fair	-	-
PORT	28396	164	Route 164 EB Ramp to Midtown Tunnel	MLK Freeway WB & PMT	2006	-	Private	-	-	7	7	7	N	Good	-	-
PORT	28350	164	Route 164 WB Ramp from Cleveland St	MLK Freeway & PMT	2006	-	Private	-	-	7	7	7	N	Good	-	-
PORT	28349	164	Route 164 EB Ramp to Cleveland St	Portsmouth Marine Terminal	2006	-	Private	-	-	7	7	7	N	Good	-	-
PORT	28348	164	Route 164 Ramp from WB Route 58	Portsmouth Marine Terminal	2006	-	Private	-	-	7	7	7	N	Good	-	-
PORT	21195		Town Point Road	Route 164	1989	-	VDOT	-	-	6	7	7	N	Fair	-	-
PORT	21217	239	Victory Blvd	Paradise Creek	1944	-	City	SD	-	5	5	4	N	Poor	-	-

PORTSMOUTH BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

SOUTHAMPTON/FRANKLIN BRIDGES




BRIDGE CONDITION
SOUTHAMPTON/FRANKLIN
LEGEND
Based on Federal Bridge Performance Measure Standards
Good
Fair
Poor
Under Construction
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
460
35
SOUTHAMPTON
616
258
58
671
189
186
0 1 2 3 4
Miles

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings				Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
										Deck	Super-Structure	Sub-Structure	Culvert			
SH	17785	615	Adams Grove Road	Browns Branch	1932	-	VDOT	SD	-	8	5	6	N	Fair	-	10/-/-
SH	17786	615	Adams Grove Road	Three Creek	1957	-	VDOT	-	-	6	7	6	N	Fair	-	-
SH	17804	626	Appleton Road	Round Hill Swamp	1978	-	VDOT	-	-	N	N	N	6	Fair	-	-
SH	17835	652	Barhams Hill Road	Angelico Creek	1932	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	17877	677	Barns Church Cir	Branch	1932	-	VDOT	-	-	7	5	6	N	Fair	-	-
SH	17801	622	Bell Road	Seacock Swamp	1963	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	17821	640	Berea Church Road	Branch	1932	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	17815	635	Black Creek Road	Black Creek	1956	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	17816	635	Black Creek Road	Branch	1983	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	17847	658	Blackhead Signpost Road	Mill Swamp	1965	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	25493	655	Brandy Pond Road	Hornet Swamp	1998	-	VDOT	-	-	N	N	N	7	Good	-	-
SH	17843	655	Brandy Pond Road	Three Creek	1973	-	VDOT	-	-	6	7	6	N	Fair	-	-
SH	17838	652	Buckhorn Quarter Road	Buckhorn Swamp	1963	-	VDOT	SD	-	7	4	6	N	Poor	-	18/-/-
SH	17797	619	Burdette Road	Black Creek	1932	1983	VDOT	-	FO	7	5	5	N	Fair	-	14/-/-
SH	17798	619	Burdette Road	Blackwater River	1983	-	VDOT	-	-	7	7	7	N	Good	-	-
SH	17901	743	Burnt Reed Road	Tarrara Creek	1932	1997	VDOT	SD	-	7	4	6	N	Poor	-	-
SH	26227	606	Cabin Point Road	Branch	2000	-	VDOT	-	-	N	N	N	7	Good	-	-
SH	17892	702	Cabin Pond Road	Branch Rosa Swamp	1972	-	VDOT	-	-	N	N	N	6	Fair	-	-
SH	29234	58	Camp Parkway	Blackwater River	2009	-	VDOT	-	-	7	7	7	N	Good	-	-
SH	17841	653	Carys Bridge Road	Nottoway River	1954	-	VDOT	-	-	5	5	5	N	Fair	-	-
SH	17839	653	Carys Bridge Road	Overflow Nottoway River	1969	-	VDOT	-	-	N	N	N	6	Fair	-	-
SH	17846	658	Cedar View Road	Angelico Creek	1932	2010	VDOT	-	FO	7	7	7	N	Good	-	-
SH	17862	668	Clarksbury Road	Rosa Swamp	1973	-	VDOT	-	-	N	N	N	5	Fair	-	-
SH	17861	668	Clarksbury Road	Tarrara Creek	1969	2008	VDOT	-	-	7	7	5	N	Fair	-	-
SH	17802	623	Clayton Road	Seacock Swamp	1968	-	VDOT	-	-	6	5	7	N	Fair	-	-
SH	17823	642	Cobb Road	Branch	1978	-	VDOT	-	-	N	N	N	5	Fair	-	-
SH	17831	649	Country Club Road	Branch	1976	-	VDOT	-	-	N	N	N	6	Fair	-	-
SH	17832	649	Country Club Road	Nottoway Swamp	1965	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	17854	665	Cross Keys Road	Deal Swamp	1975	2013	VDOT	-	-	N	N	N	7	Good	-	-
SH	17796	618	Crumpler Road	Terrapin Swamp	1962	-	VDOT	SD	-	7	4	7	N	Poor	-	24/-/-
SH	17824	643	Darden Scout Road	Branch	1974	-	VDOT	-	-	N	N	N	6	Fair	-	-
SH	17825	643	Darden Scout Road	Branch	1975	-	VDOT	-	-	N	N	N	5	Fair	-	-
SH	17856	665	Davis Lane	Vicks Creek	1987	-	VDOT	-	-	7	7	7	N	Good	-	-
SH	17889	687	Delaware Road	Route 58	1979	-	VDOT	-	-	7	5	6	N	Fair	-	-
SH	24615	600	Doles Road	Branch	1996	-	VDOT	-	-	N	N	N	6	Fair	-	-
SH	17820	638	Drake Road	Johnsons Mill	1961	-	VDOT	SD	-	6	4	6	N	Poor	-	14/-/-
SH	29357	607	Farmers Bridge Road	Assamoosic Swamp	2009	-	VDOT	-	-	N	N	N	7	Good	-	-
SH	17767	607	Farmers Bridge Road	Assamoosic Swamp	1932	-	VDOT	-	FO	7	5	5	N	Fair	-	10/-/-
SH	17776	611	Flaggy Run Road	Flaggy Run	1967	-	VDOT	-	-	7	8	6	N	Fair	-	-
SH	17780	612	Fortsville Road	Apple White Swamp	1975	-	VDOT	-	-	N	N	N	5	Fair	-	-
SH	26570	612	Fortsville Road	Browns Branch	2000	-	VDOT	-	-	N	N	N	7	Good	-	-
SH	24456	612	Fortsville Road	Rawlings Swamp	1996	-	VDOT	-	-	N	N	N	6	Fair	-	-
SH	17851	659	Fortsville Road	Three Creek	1967	-	VDOT	-	-	6	6	7	N	Fair	-	-
SH	17864	671	General Thomas Hwy	Branch	1977	-	VDOT	-	-	N	N	N	5	Fair	-	-
SH	17865	671	General Thomas Hwy	Nottoway River	1960	-	VDOT	SD	-	5	4	5	N	Poor	-	-
SH	17866	671	General Thomas Hwy	Nottoway River Overflow	1960	-	VDOT	-	FO	5	5	5	N	Fair	-	-
SH	17827	646	Governor Darden Road	Branch Nottoway River	1972	-	VDOT	-	-	N	N	N	6	Fair	-	-
SH	17828	646	Governor Darden Road	Darden Mill Pond	1968	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	17872	673	Gray's Shop Road	Stream	1932	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	17754	186	Hugo Road	Meherrin River	1936	-	VDOT	-	-	6	6	5	N	Fair	-	-

SOUTHAMPTON COUNTY/FRANKLIN BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
SH	17752	186	Hugo Road	Overflow Meherrin River	1937	1993	VDOT	-	-	7	7	5	N	Fair	-	-
SH	17812	634	Indian Branch Lane	Indian Branch	1932	2016	VDOT	-	FO	8	8	6	N	Fair	-	-
SH	17834	651	Indian Town Road	Buckhorn Swamp	1986	-	VDOT	-	-	7	7	7	N	Good	-	-
SH	17788	616	Ivor Road	Barlow Mill Run	1973	-	VDOT	-	-	N	N	N	7	Good	-	-
SH	17792	616	Ivor Road	Br Round Hill Swamp	1975	-	VDOT	-	-	N	N	N	5	Fair	-	-
SH	17791	616	Ivor Road	Branch	1976	-	VDOT	-	-	N	N	N	5	Fair	-	-
SH	17789	616	Ivor Road	Lightwood Swamp	1976	-	VDOT	-	-	N	N	N	7	Good	-	-
SH	17793	616	Ivor Road	Seacock Swamp	1960	-	VDOT	-	-	5	5	5	N	Fair	-	-
SH	17822	641	Johnson's Mill Road	Johnsons Mill	1989	-	VDOT	-	-	7	7	7	N	Good	-	-
SH	17763	601	Kellos Mill Road	Lightwood Swamp	1963	-	VDOT	-	-	7	7	5	N	Fair	-	-
SH	17840	653	Little Texas Road	Flat Swamp	1971	2006	VDOT	-	-	7	7	5	N	Fair	-	-
SH	9139	730	Little Texas Road	Meherrin River	1953	-	VDOT	-	-	6	5	6	N	Fair	-	-
SH	17882	683	Mary Hunt Road	Cokemoke Creek	1981	-	VDOT	-	-	6	6	6	N	Fair	-	-
SH	29902	35	Meherrin Road	Nottoway River	2015	-	VDOT	-	FO	8	8	8	N	Good	-	-
SH	17728	35	Meherrin Road	Overflow, Nottoway River	1979	-	VDOT	-	FO	N	N	N	5	Fair	-	-
SH	24961	35	Meherrin Road	Route 58	1997	-	VDOT	-	-	7	7	7	N	Good	-	-
SH	17768	608	Mill Neck Road	Racoon Swamp	1932	-	VDOT	-	FO	6	5	5	N	Fair	-	9/-/-
SH	17769	608	Mill Neck Road	Racoon Swamp	1932	1985	VDOT	-	-	5	5	5	N	Fair	-	-
SH	17809	631	Mission Church Road	Black Creek	1962	2017	VDOT	-	-	7	7	5	N	Fair	-	-
SH	17885	684	Monroe Road	Darden Mill Run	1982	-	VDOT	-	-	7	6	7	N	Fair	-	-
SH	25627	684	Monroe Road	Nottoway River	1999	-	VDOT	-	-	6	7	7	N	Fair	-	-
SH	17863	670	Number 8 School House Road	Tarrara Creek	1956	-	VDOT	-	-	6	6	5	N	Fair	-	-
SH	26226	652	Old Belfield Road	Pleasant Creek	2000	-	VDOT	-	-	N	N	N	6	Fair	-	-
SH	17800	621	Old Blackwater Road	Blackwater River	1963	-	VDOT	-	-	6	6	5	N	Fair	-	-
SH	17857	666	Old Branchville Road	Tarrara Creek	1969	-	VDOT	-	-	6	6	6	N	Fair	-	-
SH	17852	661	Old Church Road	Bellyache Swamp	1964	-	VDOT	-	-	N	N	N	6	Fair	-	-
SH	30763	657	Old Place Road	Tarrara Creek	1988	2015	VDOT	-	-	N	N	N	8	Good	-	-
SH	17721	35	Plank Road	Assamoosick Creek	1980	-	VDOT	-	-	6	5	6	N	Fair	-	-
SH	17726	35	Plank Road	Branch	1932	1971	VDOT	-	-	6	6	5	N	Fair	-	-
SH	17722	35	Plank Road	Mill Run	1921	1998	VDOT	-	-	6	7	7	N	Fair	-	-
SH	17773	609	Popes Station Road	Branch	1979	2013	VDOT	-	-	N	N	N	7	Good	-	-
SH	17772	609	Popes Station Road	Buckhorn Swamp	1978	-	VDOT	-	-	7	5	7	N	Fair	-	-
SH	17774	609	Popes Station Road	Three Creek	1965	-	VDOT	-	-	7	6	7	N	Fair	-	-
SH	17895	714	Pretlow Road	Route 58	1980	-	VDOT	-	-	7	5	5	N	Fair	-	-
SH	17790	616	Proctors Bridge Road	Hickaneck Swamp	1990	-	VDOT	-	-	N	N	N	8	Good	-	-
SH	17787	616	Proctors Bridge Road	Proctor Swamp	1987	-	VDOT	-	-	N	N	N	6	Fair	-	-
SH	17899	731	Ridley Road	Mill Swamp	1968	-	VDOT	-	-	N	N	N	6	Fair	-	-
SH	17829	647	River Road	Assamoosick Swamp	1971	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	17830	647	River Road	Cuscora Branch	1972	-	VDOT	-	-	N	N	N	5	Fair	-	-
SH	17779	612	River's Mill Road	Rivers Mill	1971	2012	VDOT	-	-	7	7	7	N	Good	-	-
SH	29358	688	Rose Valley Road	Branch	2010	-	VDOT	-	-	N	N	N	7	Good	-	-
SH	29862	35	Route 35	Tarrara Creek	2017	-	VDOT	-	-	8	8	8	N	Good	-	-
SH	17731	58	Route 58 EB	Angelico Creek	1990	-	VDOT	-	-	7	7	7	N	Good	-	-
SH	17730	58	Route 58 WB	Angelico Creek	1948	1981	VDOT	-	-	7	5	5	N	Fair	-	-
SH	23647	58	Route 58 EB	Armory Drive	1993	-	VDOT	-	-	7	7	7	N	Good	-	-
SH	17740	58	Route 58 WB	Armory Drive	1979	-	VDOT	-	-	7	6	5	N	Fair	-	-
SH	17732	58	Route 58	Branch	1988	-	VDOT	-	-	N	N	N	6	Fair	-	-
SH	17733	58	Route 58	Branch	1988	-	VDOT	-	-	N	N	N	7	Good	-	-
SH	23715	58	Route 58 EB	CSX R/R	1993	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	17742	58	Route 58 WB	CSX R/R	1979	-	VDOT	-	-	6	5	5	N	Fair	-	-

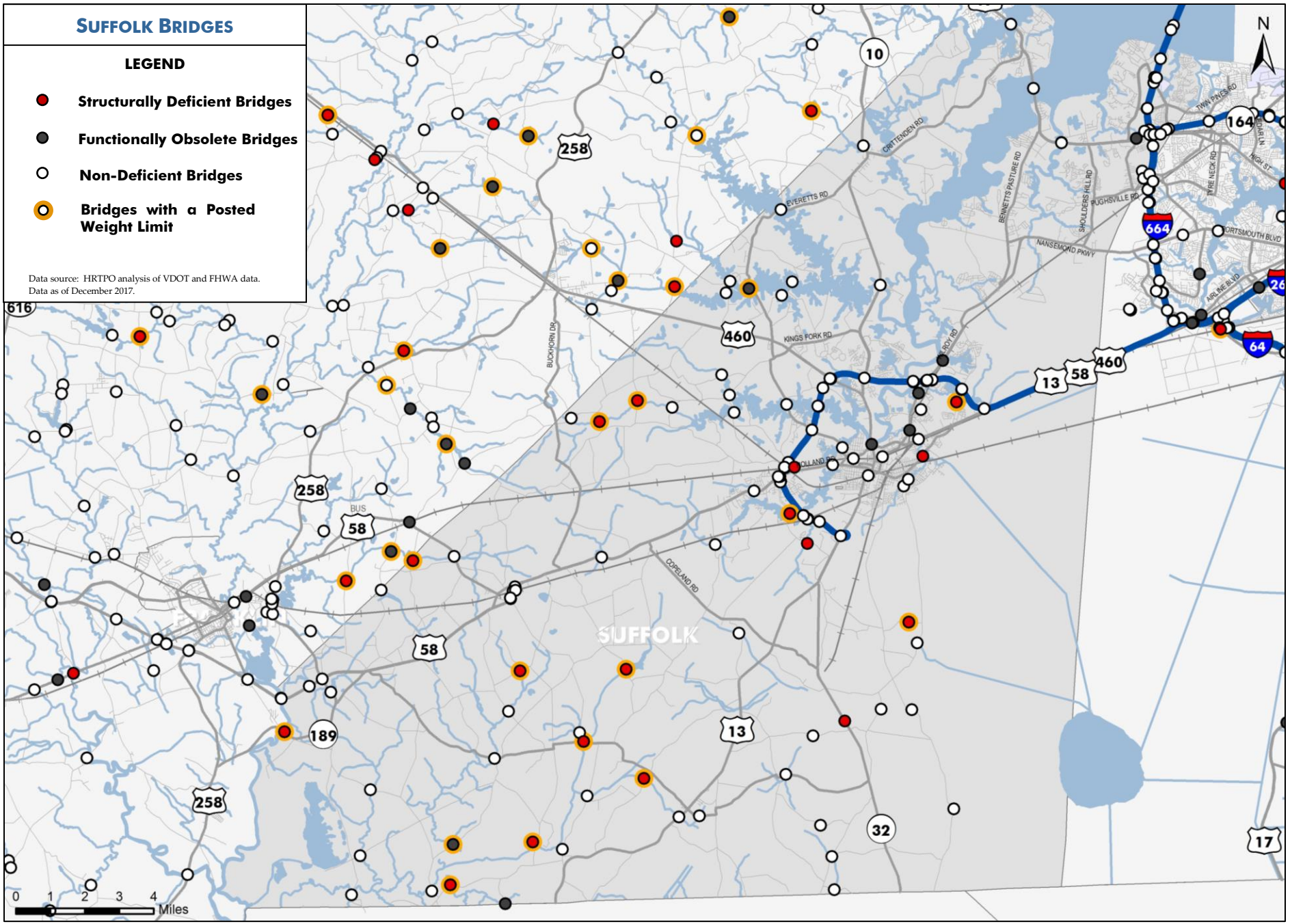
SOUTHAMPTON COUNTY/FRANKLIN BRIDGES

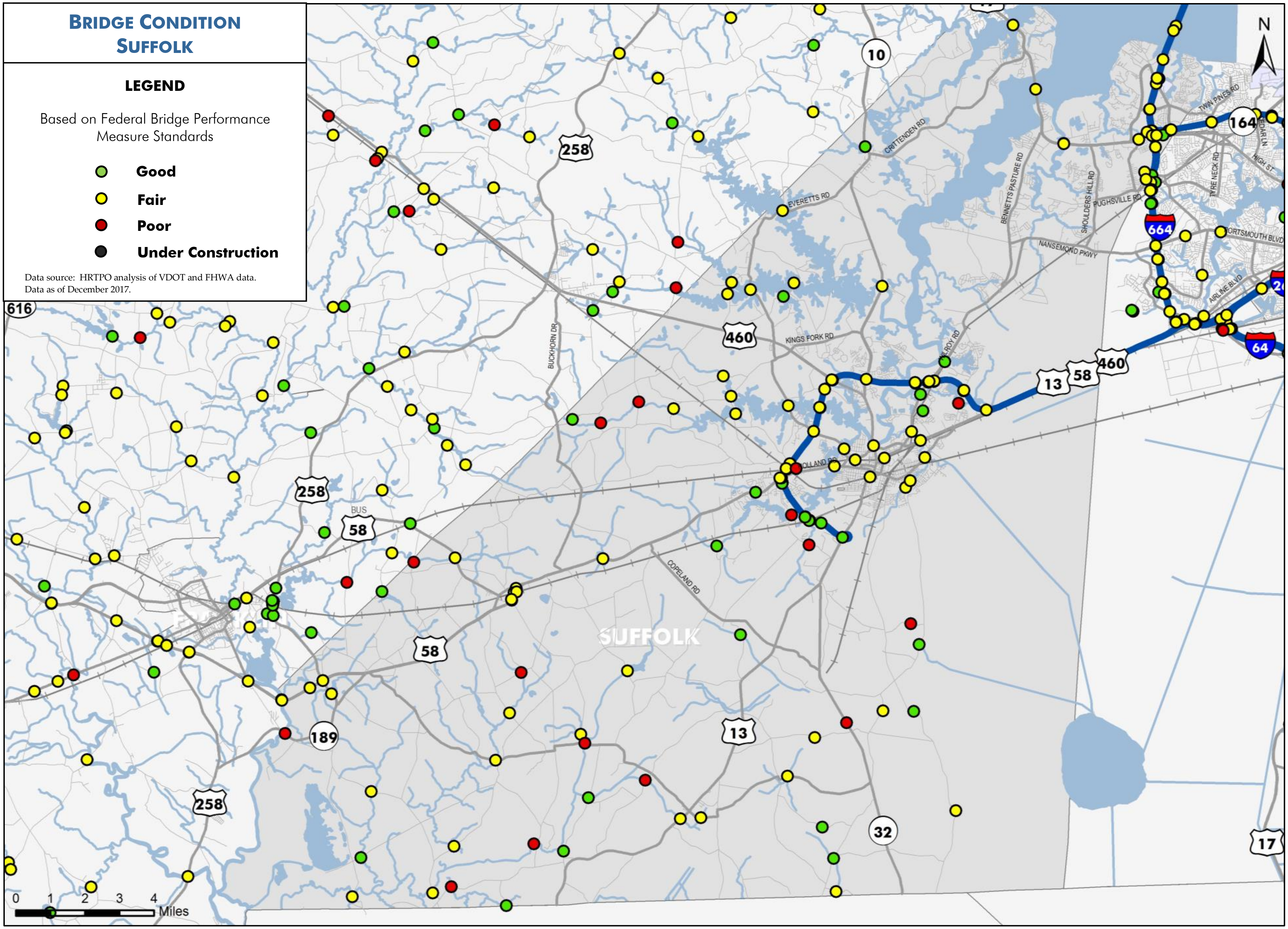
Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
SH	17749	58	Route 58 EB	Nottoway River	1984	-	VDOT	-	-	7	6	6	N	Fair	-	-
SH	23609	58	Route 58 WB	Nottoway River	1993	-	VDOT	-	-	7	6	5	N	Fair	-	-
SH	17729	58	Route 58 EB	Nottoway Swamp	1930	1978	VDOT	-	-	6	5	5	N	Fair	-	-
SH	17739	58	Route 58 WB	Nottoway Swamp	1966	-	VDOT	-	-	7	7	5	N	Fair	-	-
SH	17750	58	Route 58	Overflow Nottoway River	1984	-	VDOT	-	-	7	7	7	N	Good	-	-
SH	23630	58	Route 58	Overflow Nottoway River	1993	-	VDOT	-	-	6	7	5	N	Fair	-	-
SH	23648	58	Route 58 EB	Route 258	1993	-	VDOT	-	-	7	7	7	N	Good	-	-
SH	17744	58	Route 58 WB	Route 258	1980	-	VDOT	-	-	7	6	6	N	Fair	-	-
SH	17795	618	Sadler Road	Bar B Q Run	1932	-	VDOT	-	FO	7	7	6	N	Fair	-	-
SH	17811	633	Saint Lukes Road	Horse Pen Run	1962	-	VDOT	-	-	7	5	5	N	Fair	-	21/-/-
SH	17874	674	Sands Road	Darden Mill Run	1932	2000	VDOT	-	FO	7	7	7	N	Good	-	24/-/-
SH	17887	686	Sandy Ridge Road	Mill Creek	1970	-	VDOT	-	-	6	7	6	N	Fair	-	-
SH	17784	614	Seacock Chapel Road	Blackwater River	1971	-	VDOT	SD	-	7	7	4	N	Poor	-	-
SH	17782	614	Seacock Chapel Road	Branch	1932	2015	VDOT	-	FO	8	8	5	N	Fair	-	-
SH	17783	614	Seacock Chapel Road	Round Hill Swamp	1967	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	17781	614	Seacock Chapel Road	Seacock Swamp	1953	-	VDOT	-	-	5	5	6	N	Fair	-	27/-/-
SH	17756	258	Smiths Ferry Road	Nottoway River	1960	-	VDOT	-	-	5	5	6	N	Fair	-	-
SH	17755	189	South Quay Road	Blackwater River	1940	1962	VDOT	SD	-	5	3	4	N	Poor	Yes	9/-/-
SH	17833	611	Storys Station Road	Flaggy Run	1932	-	VDOT	-	FO	7	7	7	N	Good	-	-
SH	17775	611	Storys Station Road	Nottoway Swamp	1966	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	26972	680	Sunbeam Road	Cokemoke Mill	2002	-	VDOT	-	-	7	7	7	N	Good	Yes	-
SH	17810	632	Sycamore Avenue	Branch	1974	-	VDOT	-	-	N	N	N	5	Fair	-	-
SH	17859	667	Sykes Farm Road	Tarrara Creek	1972	-	VDOT	SD	-	7	4	6	N	Poor	-	-
SH	17853	663	The Hall Road	Flat Swamp	1968	-	VDOT	-	-	7	7	5	N	Fair	-	-
SH	17900	735	Three Creek Road	Hornet Swamp	1985	-	VDOT	-	-	7	7	7	N	Good	-	-
SH	17757	308	Three Creek Road	Three Creek	1948	-	VDOT	SD	-	4	4	4	N	Poor	-	-/27/40
SH	17826	645	Trinity Church Road	Indian Branch	1932	-	VDOT	-	-	8	8	8	N	Good	-	-
SH	17817	635	Tucker Swamp Road	Branch	1960	-	VDOT	-	-	7	7	5	N	Fair	-	-
SH	17813	635	Tucker Swamp Road	Norfolk Southern R/R	1915	-	VDOT	SD	-	4	4	5	N	Poor	Yes	11/-/-
SH	17814	635	Tucker Swamp Road	Seacock Swamp	1956	-	VDOT	-	-	6	5	6	N	Fair	-	-
SH	17764	603	Unity Road	Whitefield Mill	1966	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	30444	659	Vicks Millpond Road	Flat Swamp	2016	-	VDOT	-	-	8	8	8	N	Good	-	-
SH	17848	659	Vicks Millpond Road	Vicks Creek	1932	-	VDOT	-	FO	7	7	7	N	Good	-	-
SH	17855	665	White Meadow Road	Tarrara Creek	1974	-	VDOT	-	-	7	7	6	N	Fair	-	-
SH	17898	730	Whitehead Road	Flat Swamp	1988	-	VDOT	-	-	6	7	6	N	Fair	-	-
SH	17805	626	Womble Mill Road	Wade Branch	1999	-	VDOT	-	-	N	N	N	5	Fair	-	-
SH	17806	626	Womble Mill Road	Wade Mill Pond	1968	-	VDOT	-	-	N	N	N	5	Fair	-	-
SH	17881	682	Woodland Road	Br Darden Mill Run	1932	-	VDOT	SD	-	7	4	5	N	Poor	-	-

SOUTHAMPTON COUNTY/FRANKLIN BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.


SUFFOLK BRIDGES
LEGEND
Structurally Deficient Bridges
Functionally Obsolete Bridges
Non-Deficient Bridges
Bridges with a Posted Weight Limit
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
SUFFOLK
0 1 2 3 4 Miles
10
258
460
58
13
32
17
189
616
664
64
164
EVERETTS RD
CRITTENDEN RD
BENNETTS PASTURE RD
SHOULDERS HILL RD
PUGHSVILLE RD
NANSEMOND PKWY
PORTSMOUTH BLVD
AIRLINE BLVD
TWIN PINES RD
MAR LN
HIGH ST
TYRE NECK RD
BUCKHORN DR
KINGS FORK RD
ROY RD
HOLLAND RD
COPELAND RD
BUS


BRIDGE CONDITION
SUFFOLK
LEGEND
Based on Federal Bridge Performance Measure Standards
Good
Fair
Poor
Under Construction
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
SUFFOLK
N
0 1 2 3 4 Miles
10
258
460
58
13
32
189
17
164
664
64
616
BUS
KINGS FORK RD
EVERETTS RD
CRITTENDEN RD
BENNETTS PASTURE RD
SHOULDERS HILL RD
PUGHSVILLE RD
NANSEMOND PKWY
TYRE NECK RD
PORTSMOUTH BLVD
AIRLINE BLVD
TWIN PINES RD
HIGH ST
BUCKHORN DR
COPELAND RD

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
SUF	22123		Adams Swamp Road	Adams Swamp	1970	-	City	-	-	N	N	N	7	Good	-	-
SUF	21996		Armistead Road	I-664	1988	-	VDOT	-	-	6	6	7	N	Fair	-	-
SUF	30827		Arthur Drive	Langston Swamp	2017	-	City	-	-	7	7	8	N	Good	-	-
SUF	30826		Arthur Drive	Spivey Swamp	2017	-	City	-	-	7	7	8	N	Good	-	-
SUF	22154		Badger Road	Washington Ditch	1945	-	City	SD	-	5	5	4	N	Poor	-	8/-/-
SUF	22139		Box Elder Road	Norfleets Swamp	1958	1994	City	SD	-	7	5	5	N	Fair	-	13/-/-
SUF	22023	17	Bridge Road EB	Bennetts Creek	1969	-	City	-	-	5	7	6	N	Fair	-	-
SUF	22025	17	Bridge Road WB	Bennetts Creek	1969	-	City	-	-	5	7	6	N	Fair	-	-
SUF	28594	17	Bridge Road	Commonwealth Railway	2009	-	City	-	-	7	8	8	N	Good	-	-
SUF	22024	17	Bridge Road	Nansemond River	1981	-	City	-	-	6	5	5	N	Fair	-	-
SUF	24841		Broad Street	SBD & N/S R/R	1997	-	City	-	-	6	6	7	N	Fair	-	-
SUF	22161		Camp Pond Road	Somerton Creek	1988	-	City	-	-	6	6	7	N	Fair	-	-
SUF	22027	32	Carolina Road	Cypress Swamp	1924	1972	City	SD	-	5	4	5	N	Poor	-	-
SUF	22026	17	Carrollton Blvd	Chuckatuck Creek	1988	-	VDOT	-	-	6	6	6	N	Fair	-	-
SUF	22157		Cherry Grove Road	Stream	1971	-	City	-	-	N	N	N	7	Good	-	-
SUF	22082	135	College Drive	I-664	1991	-	VDOT	-	-	6	7	6	N	Fair	-	-
SUF	22080	135	College Drive	Route 164	1991	-	VDOT	-	-	6	6	6	N	Fair	-	-
SUF	29441		Corinth Chapel Road	March Swamp	2010	-	City	-	-	N	N	N	8	Good	-	-
SUF	22155		Cypress Chapel Road	Trib To Cypress Swamp	1991	-	City	-	-	N	N	N	5	Fair	-	-
SUF	22096		Desert Road	Cypress Swamp	1981	-	City	-	-	7	7	7	N	Good	-	-
SUF	22095		Desert Road	Moss Swamp	1975	-	City	-	-	N	N	N	6	Fair	-	-
SUF	22110		Elwood Road	Kingsale Swamp	1962	-	City	SD	-	4	4	5	N	Poor	-	6/-/-
SUF	22093		Everetts Road	W Br Nansemond River	1963	-	City	-	-	6	6	5	N	Fair	-	-
SUF	22104		Exeter Drive	Lake Prince	1967	-	City	-	-	7	7	6	N	Fair	-	-
SUF	22148		Freeman Mill Road	Spivey Swamp	1954	1976	City	SD	-	5	4	6	N	Poor	-	10/-/-
SUF	22108		Gardner Lane	Lake Prince	1967	-	City	-	-	5	5	6	N	Fair	-	-
SUF	24215		Gates Road	March Swamp	1995	-	City	-	-	N	N	N	5	Fair	-	-
SUF	22162		Gates Road	Somerton Creek	1985	-	City	-	-	5	7	7	N	Fair	-	-
SUF	22153		Gates Run Road	Adams Swamp	1970	-	City	-	-	5	5	5	N	Fair	-	-
SUF	22103		Girl Scout Road	Br Lake Prince	1990	-	City	-	-	7	8	7	N	Good	-	-
SUF	22102		Girl Scout Road	Exchange Creek	1962	-	City	-	-	5	5	7	N	Fair	-	-
SUF	26220	10	Godwin Blvd	Chuckatuck Creek	1999	-	City	-	-	7	7	7	N	Good	-	-
SUF	22004	10	Godwin Blvd	Suffolk Bypass	1973	-	City	-	-	6	6	6	N	Fair	-	-
SUF	22001	10	Godwin Blvd	W Br Nansemond River	1984	-	City	-	-	6	6	6	N	Fair	-	-
SUF	29212		Harvest Drive	Kingsale Swamp	2009	-	City	-	-	N	N	N	7	Good	-	-
SUF	22136		Holland Corner Road	Stream	1987	-	City	-	-	N	N	N	6	Fair	-	-
SUF	22030	58	Holland Road	Lake Meade	1942	1958	City	-	-	5	5	5	N	Fair	-	-
SUF	22112		Holy Neck Road	Chapel Swamp	1967	-	City	-	-	N	N	N	5	Fair	-	-
SUF	23099	664	I-664 NB	Commonwealth Railway	1991	-	VDOT	-	-	6	7	6	N	Fair	-	-
SUF	23095	664	I-664 NB	Routes 17 & 164 EB Ramp	1991	-	VDOT	-	-	6	6	6	N	Fair	-	-
SUF	23096	664	I-664 SB	Routes 17 & 164 EB Ramp	1991	-	VDOT	-	-	6	6	6	N	Fair	-	-
SUF	23091	664	I-664 NB	Route 164	1991	-	VDOT	-	-	7	6	6	N	Fair	-	-
SUF	23092	664	I-664 SB	Route 164	1991	-	VDOT	-	-	7	6	6	N	Fair	-	-
SUF	22142	664	I-664	Streeter Creek	1990	-	VDOT	-	-	N	N	N	6	Fair	-	-
SUF	23097	664	I-664 Ramp	Route 17	1991	-	VDOT	-	-	6	6	6	N	Fair	-	-
SUF	23093	664	I-664 Ramp	Route 164	1991	-	VDOT	-	-	6	6	5	N	Fair	-	-
SUF	22144	664	I-664 Ramp	Streeter Creek	1990	-	VDOT	-	-	N	N	N	7	Good	-	-
SUF	22160		Joshua Lane	Lake Cahoon	1967	-	City	-	-	N	N	N	5	Fair	-	-
SUF	22117		Kings Fork Road	Cohoon Creek	1968	-	City	-	-	7	6	7	N	Fair	-	-
SUF	22116		Kings Fork Road	Lake Cohoon	1961	-	City	-	-	5	5	6	N	Fair	-	-

SUFFOLK BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
SUF	22121		Lake Cahoon Road	SBD Sys & N/S R/R	1962	1974	City	SD	-	4	5	6	N	Poor	-	-
SUF	22118		Lake Meade Drive	Lake Cohoon	1961	-	City	-	-	5	5	6	N	Fair	-	-
SUF	22099		Lake Prince Drive	Lake Prince	1954	-	City	-	FO	5	5	6	N	Fair	-	18/-/-
SUF	22152		Liberty Spring Road	Cypress Swamp	1970	-	City	-	-	N	N	N	7	Good	-	-
SUF	22137		Longstreet Lane	Somerton Creek	1968	-	City	SD	-	6	4	4	N	Poor	-	18/-/-
SUF	22018		Main Street	Hall Ave, Poplar Ave, & N/S R/R	1978	-	City	-	-	5	6	5	N	Fair	-	-
SUF	22002	10	Main Street	Nansemond River	1935	1987	City	-	FO	5	7	5	N	Fair	-	-
SUF	30517		Manning Bridge Road	Speights Run	2014	-	City	-	-	7	7	7	N	Good	-	-
SUF	22111		Mineral Springs Road	Jones Swamp	1955	1977	City	SD	-	5	4	5	N	Poor	-	-/13/18
SUF	22114		Mineral Springs Road	Spivey Swamp	1975	-	City	-	-	N	N	N	5	Fair	-	-
SUF	22119		Murphy's Mill Road	Suffolk Bypass	1974	-	City	-	-	5	5	6	N	Fair	-	-
SUF	22091	337	Nansemond Parkway	Beamons Mill Pond	1920	-	City	SD	-	5	4	5	N	Poor	-	-/23/30
SUF	22109		O'Kelly Drive	Chapel Swamp	1989	-	City	-	-	N	N	N	6	Fair	-	-
SUF	22105		Old Mill Road	Cohoon Creek	1955	1981	City	SD	-	4	4	6	N	Poor	-	27/-/-
SUF	22115		Old Myrtle Road	Cohoon Creek	1949	1980	City	-	-	8	7	7	N	Good	-	-
SUF	22163		Pineview Road	Chapel Swamp	1949	-	City	-	FO	5	5	5	N	Fair	-	-/27/38
SUF	21998		Pinner Street	N/S, SBD, & CNW R/R	1984	-	City	-	-	6	6	5	N	Fair	-	-
SUF	22097		Pitchkettle Road	Lake Meade	1973	-	City	-	-	6	6	5	N	Fair	-	-
SUF	22098		Pitchkettle Road	Lake Meade	1969	-	City	-	-	5	5	5	N	Fair	-	-
SUF	22100		Pitchkettle Road	Suffolk Bypass	1974	-	City	-	-	5	6	6	N	Fair	-	-
SUF	22150		Pittmantown Road	Mill Swamp	1950	-	City	SD	-	5	4	5	N	Poor	-	8/-/-
SUF	22012	13	Portsmouth Blvd	Shingle Creek	1963	1976	City	-	-	6	6	6	N	Fair	-	-
SUF	22143	664	Ramp To SB I-664	Streeter Creek	1990	-	VDOT	-	-	N	N	N	5	Fair	-	-
SUF	30570		Redgate Drive	Br Nansemond River	2006	-	City	-	-	7	7	7	N	Good	-	-
SUF	30571		Robbie Road	Mill Swamp	2015	-	City	-	FO	7	7	7	N	Good	-	-
SUF	22113		Rountree Crescent	Cypress Swamp	1980	-	City	-	-	N	N	N	5	Fair	-	-
SUF	23301	58	Route 58 EB	Blackwater River	1992	-	VDOT	-	-	6	6	7	N	Fair	-	-
SUF	22029	58	Route 58 WB	Blackwater River	1981	-	VDOT	-	-	6	5	6	N	Fair	-	-
SUF	22068	58	Route 58 WB	Bus Route 58 EB	1976	-	City	-	-	6	5	6	N	Fair	-	-
SUF	22032	58	Route 58	Lake Kilby	1932	-	City	-	-	N	N	N	7	Good	-	-
SUF	22071	58	Route 58 EB	Norfolk Southern R/R	1976	-	City	-	-	6	6	6	N	Fair	-	-
SUF	22070	58	Route 58 WB	Norfolk Southern R/R	1976	-	City	-	-	6	6	6	N	Fair	-	-
SUF	22072	58	Route 58 EB	Old Dutch Road	1976	-	City	-	-	6	6	6	N	Fair	-	-
SUF	22074	58	Route 58 WB	Old Dutch Road	1976	-	City	-	-	6	6	6	N	Fair	-	-
SUF	22034	58	Route 58 EB	Quaker Swamp	1939	1976	City	-	-	5	5	5	N	Fair	-	-
SUF	22077	58	Route 58	Trib Blackwater River	1981	-	City	-	-	N	N	N	6	Fair	-	-
SUF	23094	164	Route 164 EB	Commonwealth Railway	1991	-	VDOT	-	-	7	7	7	N	Good	-	-
SUF	23098	164	Route 164 EB	Route 17	1991	-	VDOT	-	FO	6	6	6	N	Fair	-	-
SUF	22085	189	Route 189	Ducks Creek	1986	-	City	-	-	N	N	N	6	Fair	-	-
SUF	23300	189	Route 189	Route 58	1992	-	City	-	-	6	7	6	N	Fair	-	-
SUF	22037	58	Ruritan Blvd	Kingsale Swamp	1923	1975	City	-	-	6	5	5	N	Fair	-	-
SUF	22107		Simons Drive	Cohoon Creek	1945	-	City	SD	-	6	4	4	N	Poor	-	6/-/-
SUF	22166		South 6th Street	Shingle Creek	1960	-	City	-	-	N	N	N	5	Fair	-	-
SUF	25658	13	Southwest Suffolk Bypass NB	Carolina Road	2002	-	City	-	-	7	8	7	N	Good	-	-
SUF	25663	13	Southwest Suffolk Bypass NB	Lake Kilby	2002	-	City	-	-	7	7	7	N	Good	-	-
SUF	25664	13	Southwest Suffolk Bypass SB	Lake Kilby	2002	-	City	-	-	7	7	7	N	Good	-	-
SUF	25661	13	Southwest Suffolk Bypass NB	Norfolk Southern R/R	2002	-	City	-	-	7	8	7	N	Good	-	-
SUF	25662	13	Southwest Suffolk Bypass SB	Norfolk Southern R/R	2002	-	City	-	-	7	8	7	N	Good	-	-
SUF	25667	13	Southwest Suffolk Bypass SB	Route 58	2002	-	City	-	-	7	7	7	N	Good	-	-
SUF	27252	13	Southwest Suffolk Bypass	Stream	2002	-	City	-	-	N	N	N	7	Good	-	-

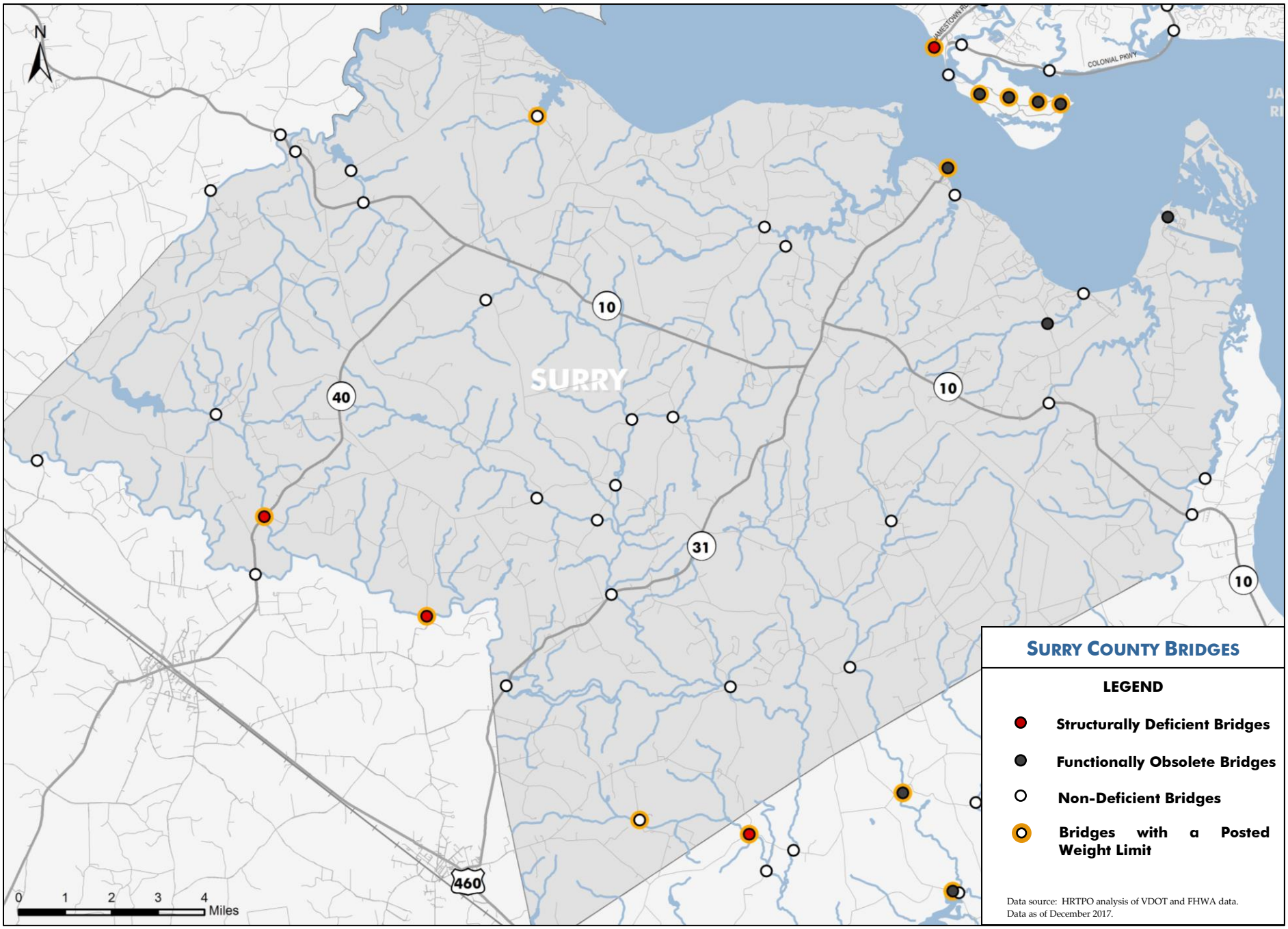
SUFFOLK BRIDGES

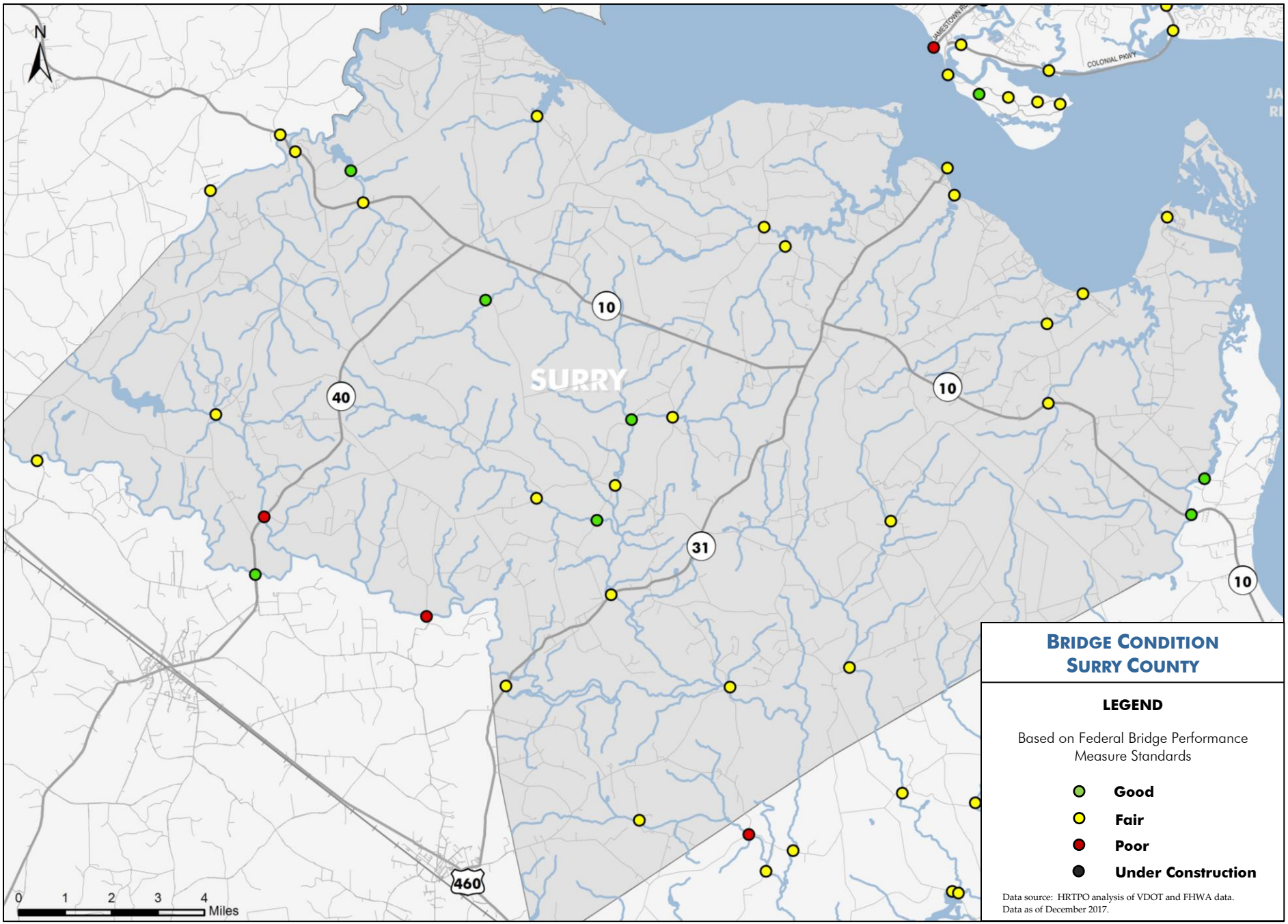
Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings				Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
										Deck	Super-Structure	Sub-Structure	Culvert			
SUF	25668	13	Southwest Suffolk Bypass NB	Turlington Road	2002	-	City	-	-	7	7	7	N	Good	-	-
SUF	25669	13	Southwest Suffolk Bypass SB	Turlington Road	2002	-	City	-	-	7	7	7	N	Good	-	-
SUF	25671	13	Southwest Suffolk Bypass Ramp	Holland Road	2002	-	City	-	-	7	7	7	N	Good	-	-
SUF	27256	13	Southwest Suffolk Bypass Ramp	Route 58	2002	-	City	-	-	6	7	7	N	Fair	-	-
SUF	25670	13	Southwest Suffolk Bypass Ramp	Turlington Road	2002	-	City	-	-	7	7	7	N	Good	-	-
SUF	22138		Southwestern Blvd	Chapel Swamp	1956	-	City	SD	-	5	4	4	N	Poor	-	9/-/-
SUF	22055	13	Suffolk Bypass EB	Lake Cohoon Road	1974	-	City	-	-	6	5	6	N	Fair	-	-
SUF	22057	13	Suffolk Bypass WB	Lake Cohoon Road	1974	-	City	-	-	6	6	5	N	Fair	-	-
SUF	22059	13	Suffolk Bypass EB	Lake Meade	1974	-	City	-	-	6	6	6	N	Fair	-	-
SUF	22060	13	Suffolk Bypass WB	Lake Meade	1974	-	City	-	-	6	6	6	N	Fair	-	-
SUF	22047	13	Suffolk Bypass EB	N.F.& D. R/R	1974	-	City	-	-	6	6	5	N	Fair	-	-
SUF	22048	13	Suffolk Bypass WB	N.F.& D. R/R	1973	-	City	-	-	6	5	5	N	Fair	-	-
SUF	22043	13	Suffolk Bypass EB	Nansemond Pkwy	1973	-	City	-	-	6	5	5	N	Fair	-	-
SUF	22045	13	Suffolk Bypass WB	Nansemond Pkwy	1973	-	City	-	-	6	5	5	N	Fair	-	-
SUF	22039	13	Suffolk Bypass EB	Nansemond River	1972	-	City	-	-	6	5	6	N	Fair	-	-
SUF	22040	13	Suffolk Bypass WB	Nansemond River	1972	-	City	-	-	6	5	5	N	Fair	-	-
SUF	22061	13	Suffolk Bypass EB	Norfolk Southern R/R	1974	2002	City	-	-	6	5	7	N	Fair	-	-
SUF	22062	13	Suffolk Bypass WB	Norfolk Southern R/R	1974	2002	City	-	-	6	6	6	N	Fair	-	-
SUF	22053	13	Suffolk Bypass EB	Pruden Blvd	1973	-	City	-	-	6	5	5	N	Fair	-	-
SUF	22063	13	Suffolk Bypass WB	Pruden Blvd	1974	-	City	-	-	6	6	6	N	Fair	-	-
SUF	22049	13	Suffolk Bypass EB	Wilroy Road	1973	-	City	-	-	5	5	5	N	Fair	-	-
SUF	22051	13	Suffolk Bypass WB	Wilroy Road	1973	-	City	-	-	5	5	5	N	Fair	-	-
SUF	22016	13	Suffolk Byp Ramp To Portsmouth Blvd	Suffolk Bypass	1973	-	City	-	-	5	5	6	N	Fair	-	-
SUF	23086		Town Point Road EB	I-664	1991	-	VDOT	-	-	6	6	6	N	Fair	-	-
SUF	23087		Town Point Road WB	I-664	1991	-	VDOT	-	-	6	6	6	N	Fair	-	-
SUF	22159		Turlington Road	Br Kilby Creek-Spillway	1957	-	City	SD	-	5	4	5	N	Poor	-	19/-/-
SUF	22158		Turlington Road	Kilby Creek	1973	-	City	SD	-	N	N	N	4	Poor	-	-
SUF	22088	337	Washington Street	Jericho Canal	1932	-	City	SD	-	6	5	6	N	Fair	-	-
SUF	22008	13	Whaleyville Blvd	Spivey Swamp	1945	1975	City	-	-	7	7	6	N	Fair	-	-
SUF	22128		White Marsh Road	Cypress Swamp	1959	-	City	-	-	7	7	6	N	Fair	-	-
SUF	22129		White Marsh Road	Shingle Creek	1972	1984	City	-	-	N	N	N	5	Fair	-	-
SUF	23524		White Marsh Road	Washington Ditch	1992	-	City	-	-	7	8	7	N	Good	-	-
SUF	27625		Wilroy Road	Burnetts Mill Creek	2003	-	City	-	FO	7	7	8	N	Good	-	-
SUF	30980		Wilroy Road	Magnolia Creek	2017	-	City	-	FO	N	N	N	7	Good	-	-
SUF	22125		Wilroy Road	Shingle Creek	1958	-	City	-	FO	7	7	6	N	Fair	-	-

SUFFOLK BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

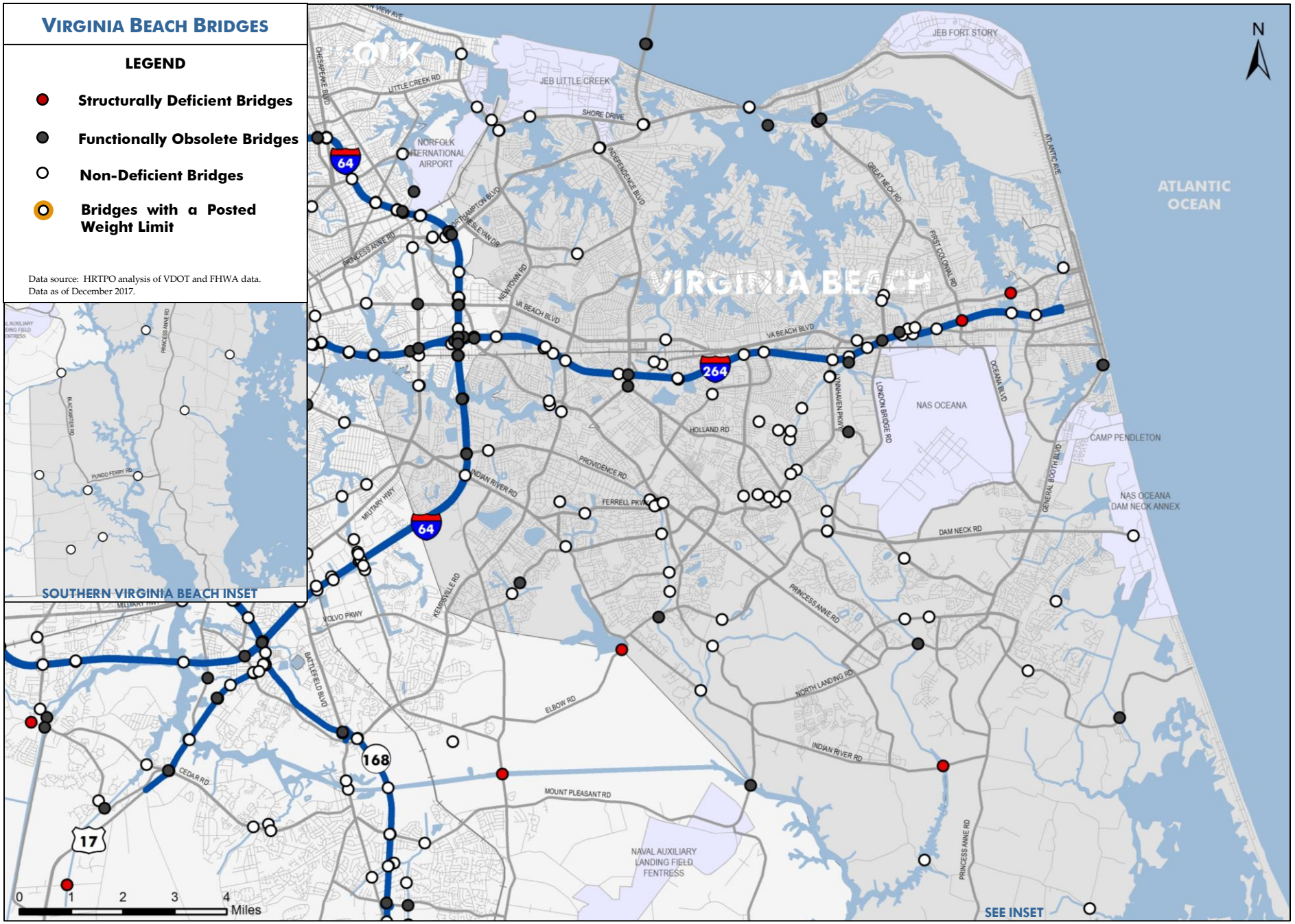

N
SURRY
10
40
31
460
COLONIAL PKWY
0 1 2 3 4 Miles
SURRY COUNTY BRIDGES
LEGEND
Structurally Deficient Bridges
Functionally Obsolete Bridges
Non-Deficient Bridges
Bridges with a Posted Weight Limit
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.

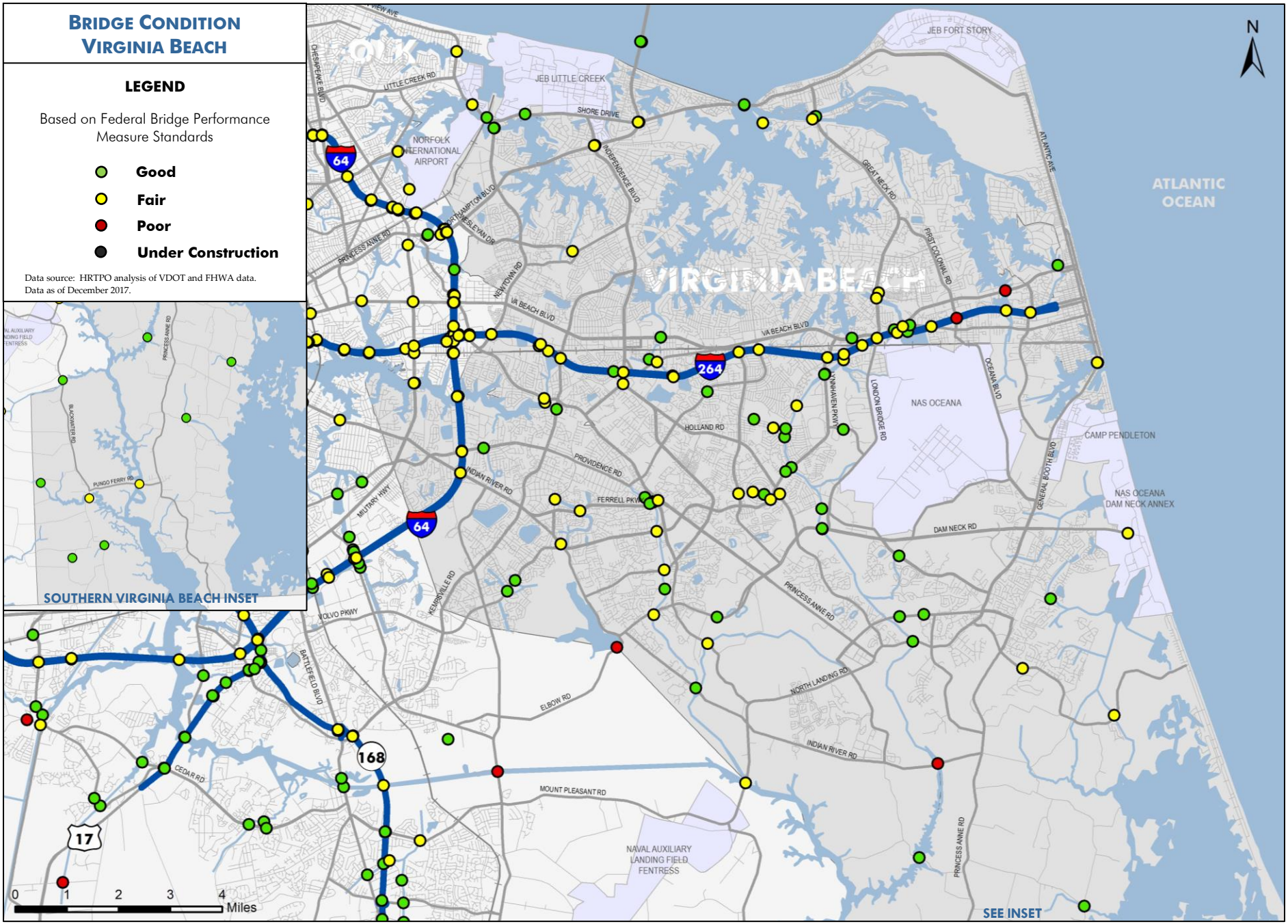

N
SURRY
10
40
31
460
COLONIAL PKWY
0 1 2 3 4 Miles
BRIDGE CONDITION
SURRY COUNTY
LEGEND
Based on Federal Bridge Performance Measure Standards
Good
Fair
Poor
Under Construction
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings				Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
										Deck	Super-Structure	Sub-Structure	Culvert			
SUR	18216	634	Alliance Road	College Run	1932	2003	VDOT	-	FO	7	8	5	N	Fair	-	-
SUR	18206	626	Beaverdam Road	Sunken Meadow Creek	1932	-	VDOT	-	-	6	7	5	N	Fair	-	15/-/-
SUR	18208	626	Beechland Road	Trib. Moores Swamp	1956	-	VDOT	-	-	6	6	5	N	Fair	-	-
SUR	23585	613	Cabin Point Road	Upper Chippokes Creek	1993	-	VDOT	-	-	N	N	N	7	Good	-	-
SUR	18221	783	Chippokes Park Road	College Run Creek	1982	-	VDOT	-	-	6	5	6	N	Fair	-	-
SUR	18179	10	Colonial Trail	Lower Chippokes Creek	1932	1951	VDOT	-	-	6	6	5	N	Fair	-	-
SUR	18173	10	Colonial Trail	Mill Run	1920	1971	VDOT	-	-	5	5	6	N	Fair	-	-
SUR	18178	10	Colonial Trail	Trib Chippokes Creek	1932	1971	VDOT	-	-	6	6	6	N	Fair	-	-
SUR	18181	10	Colonial Trail	Upper Chippokes Creek	1932	1971	VDOT	-	-	6	6	7	N	Fair	-	-
SUR	26713	647	Cypress Swamp Lane	Cypress Swamp	2001	-	VDOT	-	-	N	N	N	7	Good	-	-
SUR	18187	604	Goodrich Fork Road	Terrapin Swamp	1932	-	VDOT	-	-	7	5	5	N	Fair	-	21/-/-
SUR	18220	650	Hog Island Road	Vepco Discharge Canal	1969	-	VDOT	-	FO	6	6	6	N	Fair	-	-
SUR	18205	618	Holly Bush Road	Br Cypress Swamp	1974	-	VDOT	-	-	N	N	N	6	Fair	-	-
SUR	18189	607	Huntington Road	Otterdam Swamp	1953	-	VDOT	-	-	6	6	5	N	Fair	-	-
SUR	18301	602	Laurel Springs Road	Blackwater River	1974	-	VDOT	-	-	7	6	5	N	Fair	-	-
SUR	18212	628	Lawnes Drive	Lawnes Creek	1975	-	VDOT	-	-	7	7	7	N	Good	-	-
SUR	18209	626	Lebanon Road	Grays Creek	1954	-	VDOT	-	-	N	N	N	6	Fair	-	-
SUR	29857	630	Loafers Oak Road	Cypress Swamp	2014	-	VDOT	-	-	8	8	8	N	Good	-	-
SUR	28616	40	MLK Hwy	Blackwater River	2008	-	VDOT	-	-	7	8	8	N	Good	-	-
SUR	18185	40	MLK Hwy	Otterdam Swamp	1954	-	VDOT	SD	-	5	4	5	N	Poor	-	-/27/40
SUR	14080	600	Montpelier Road	Upper Chippokes Creek	1977	-	VDOT	-	-	N	N	N	5	Fair	-	-
SUR	18199	616	New Design Road	Cypress Swamp	1965	-	VDOT	-	-	6	6	6	N	Fair	-	-
SUR	18197	616	New Design Road	Johnchecohunk Creek	1968	-	VDOT	-	-	N	N	N	6	Fair	-	-
SUR	18218	637	Pleasant Point Road	Crouches Creek	1964	-	VDOT	-	-	6	6	6	N	Fair	-	-
SUR	18182	31	Rolfe Highway	Blackwater River	1958	-	VDOT	-	-	5	5	5	N	Fair	-	-
SUR	18184	31	Rolfe Highway	Cypress Swamp	1969	-	VDOT	-	-	6	6	7	N	Fair	-	-
SUR	23137	31	Scotland Wharf	James River	1991	1995	VDOT	-	FO	5	5	5	N	Fair	Yes	-/16/28
SUR	18204	618	Southwark Road	Grays Creek	1954	-	VDOT	-	-	5	5	5	N	Fair	-	-
SUR	18214	630	Sprately Mill Road	Johnchecohunk Swamp	1970	2007	VDOT	-	-	8	7	8	N	Good	-	-
SUR	18304	603	Three Bridges Road	Blackwater River	1932	-	VDOT	SD	-	5	4	5	N	Poor	-	8/-/-
SUR	18200	617	White Marsh Road	Blackwater River	1979	-	VDOT	-	-	6	5	6	N	Fair	-	-
SUR	18201	617	White Marsh Road	Mill Swamp	1959	-	VDOT	-	-	6	6	5	N	Fair	-	-

Surry County Bridges

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.


VIRGINIA BEACH BRIDGES
LEGEND
Structurally Deficient Bridges
Functionally Obsolete Bridges
Non-Deficient Bridges
Bridges with a Posted Weight Limit
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
SOUTHERN VIRGINIA BEACH INSET
SEE INSET
N
0 1 2 3 4 Miles
NORFOLK
VIRGINIA BEACH
ATLANTIC OCEAN
JEB FORT STORY
JEB LITTLE CREEK
NORFOLK INTERNATIONAL AIRPORT
NAS OCEANA
CAMP PENDLETON
NAS OCEANA DAM NECK ANNEX
NAVAL AUXILIARY LANDING FIELD FENTRESS
64
264
168
17
VA BEACH BLVD
PRINCESS ANNE RD
INDIAN RIVER RD
MILITARY HWY
HOLLAND RD
PROVIDENCE RD
FERRELL PKWY
DAM NECK RD
NORTH LANDING RD
ELBOW RD
MOUNT PLEASANT RD
CEDAR RD
VOLVO PKWY
BATTLEFIELD BLVD
KEMPSVILLE RD
NEWTOWN RD
INDEPENDENCE BLVD
GREAT NECK RD
PRINCESS ANNE RD
OCEANA BLVD
LYNNHAVEN PKWY
LONDON BRIDGE RD
GENERAL BOOTH BLVD
ATLANTIC AVE
FIRST COLONIAL RD
SHORE DRIVE
LITTLE CREEK RD
CHESAPEAKE BLVD
PUNGO FERRY RD
BLACKWATER RD


BRIDGE CONDITION
VIRGINIA BEACH
LEGEND
Based on Federal Bridge Performance Measure Standards
Good
Fair
Poor
Under Construction
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
SOUTHERN VIRGINIA BEACH INSET
N
ATLANTIC OCEAN
VIRGINIA BEACH
JEB FORT STORY
JEB LITTLE CREEK
NORFOLK INTERNATIONAL AIRPORT
NAS OCEANA
CAMP PENDLETON
NAS OCEANA DAM NECK ANNEX
NAVAL AUXILIARY LANDING FIELD FENTRESS
LITTLE CREEK RD
SHORE DRIVE
INDEPENDENCE BLVD
GREAT NECK RD
ATLANTIC AVE
PRINCESS ANNE RD
NEWTOWN RD
VA BEACH BLVD
FIRST COLONIAL RD
OCEANA BLVD
LYNNHAVEN PKWY
LONDON BRIDGE RD
HOLLAND RD
PROVIDENCE RD
INDIAN RIVER RD
FERRELL PKWY
MILITARY HWY
DAM NECK RD
GENERAL BOOTH BLVD
KEMPSVILLE RD
VOLVO PKWY
BATTLEFIELD BLVD
ELBOW RD
NORTH LANDING RD
MOUNT PLEASANT RD
CEDAR RD
BLACKWATER RD
PUNGO FERRY RD
64
264
168
17
0 1 2 3 4 Miles
SEE INSET

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
VB	22178		Blackwater Road	Blackwater Creek	1975	-	City	-	-	6	6	7	N	Fair	-	-
VB	23523		Blackwater Road	Milldam Creek	1992	-	City	-	-	8	8	7	N	Good	-	-
VB	22189		Bonney Road	Thalia Creek	1982	-	City	-	-	N	N	N	6	Fair	-	-
VB	28047		Bow Creek Blvd	Drainage Canal	2000	-	City	-	-	N	N	N	7	Good	-	-
VB	28049		Bow Creek Blvd	Drainage Canal	2000	-	City	-	-	N	N	N	6	Fair	-	-
VB	24508		Bow Creek Blvd	London Bridge Creek	1996	-	City	-	-	7	7	7	N	Good	-	-
VB	12750	13	CBBT NB	Chesapeake Bay	1964	-	CBBT	-	FO	7	7	7	N	Good	-	-
VB	26075	13	CBBT SB	Chesapeake Bay	1998	-	CBBT	-	-	7	8	8	N	Good	-	-
VB	12755	13	CBBT NB	Chesapeake Bay	1964	-	CBBT	-	FO	7	7	7	N	Good	-	-
VB	26628	13	CBBT SB	Chesapeake Bay	1998	-	CBBT	-	-	8	7	8	N	Good	-	-
VB	12752	13	CBBT NB	Chesapeake Bay	1964	-	CBBT	-	FO	8	7	7	N	Good	Yes	-
VB	26721	13	CBBT SB	Chesapeake Bay	1999	-	CBBT	-	FO	8	8	8	N	Good	-	-
VB	12754	13	CBBT NB	Chesapeake Bay	1964	-	CBBT	-	FO	8	7	8	N	Good	-	-
VB	26630	13	CBBT SB	Chesapeake Bay	1998	-	CBBT	-	FO	7	8	8	N	Good	-	-
VB	12747	13	CBBT NB	Chesapeake Bay & Lookout Rd	1964	-	CBBT	-	FO	7	7	7	N	Good	-	-
VB	26056	13	CBBT SB	Chesapeake Bay & Lookout Rd	1998	-	CBBT	-	FO	8	8	8	N	Good	-	-
VB	26631	13	CBBT NB	Fisherman's Inlet	1998	-	CBBT	-	-	8	8	8	N	Good	-	-
VB	12753	13	CBBT SB	Fisherman's Inlet	1964	-	CBBT	-	FO	8	7	7	N	Good	-	-
VB	28045		Club House Road	Drainage Canal	2000	-	City	-	-	N	N	N	7	Good	-	-
VB	29370		Constitution Drive	Thalia Creek	2010	-	City	-	-	7	7	7	N	Good	-	-
VB	30676		Crags Causeway	Mill Dam Creek	2015	-	City	-	-	N	N	N	8	Good	-	-
VB	28050		Culver Lane	Drainage Canal	1989	-	City	-	-	N	7	7	N	Good	-	-
VB	28472		Dam Neck Road	Canal 4	2006	-	City	-	-	N	8	8	N	Good	-	-
VB	22167		Dam Neck Road	Drainage Canal	1991	-	City	-	-	6	6	6	N	Fair	-	-
VB	23548		Dam Neck Road EB	West Neck Creek	1992	-	City	-	-	7	7	7	N	Good	-	-
VB	23549		Dam Neck Road WB	West Neck Creek	1992	-	City	-	-	7	7	7	N	Good	-	-
VB	29371	166	Diamond Springs Road NB	Waterworks Canal	2009	-	City	-	-	7	7	8	N	Good	-	-
VB	29367	166	Diamond Springs Road SB	Waterworks Canal	2010	-	City	-	-	7	7	8	N	Good	-	-
VB	22210		Dorchester Lane	Drainage Canal	1986	-	City	-	-	7	7	7	N	Good	-	-
VB	22202		E Green Garden Cir	Sunset Canal	1973	-	City	-	-	7	7	7	N	Good	-	-
VB	22176		Elbow Road	North Landing River	1960	-	City	-	FO	8	8	6	N	Fair	-	-
VB	22211		Ferrell Parkway	Drainage Canal	1976	1989	City	-	-	N	N	N	6	Fair	-	-
VB	23668		Ferrell Parkway	Drainage Canal	1993	-	City	-	-	7	7	7	N	Good	-	-
VB	23694		Ferrell Parkway	Princess Anne Road	1993	-	City	-	-	7	7	6	N	Fair	-	-
VB	23667		Ferrell Parkway EB	Salem Road	1993	-	City	-	-	7	7	7	N	Good	-	-
VB	23666		Ferrell Parkway WB	Salem Road	1993	-	City	-	-	7	7	7	N	Good	-	-
VB	24173		General Booth Blvd NB	Rudee Inlet	1995	-	City	-	FO	7	7	7	N	Good	-	-
VB	22191		General Booth Blvd SB	Rudee Inlet	1968	-	City	-	FO	5	6	6	N	Fair	-	-
VB	22280	279	Great Neck Road NB	Broad Bay Road & Long Creek	1988	-	City	-	FO	7	7	7	N	Good	-	-
VB	22278	279	Great Neck Road SB	Broad Bay Road & Long Creek	1988	-	City	-	FO	7	7	7	N	Good	-	-
VB	22282	279	Great Neck Road	Wolfsnare Creek	1979	-	City	-	-	N	N	N	6	Fair	-	-
VB	22196		Greenwich Road	Drainage Canal	1932	-	City	-	-	N	N	N	5	Fair	-	-
VB	22177		Head Of River Road	Blackwater River	1979	-	City	-	-	N	N	N	7	Good	-	-
VB	22169		Holland Road	Drainage Canal	1985	-	City	-	-	N	N	N	6	Fair	-	-
VB	22267	64	I-64 EB	E Br Elizabeth River	1967	1992	VDOT	-	FO	6	6	5	N	Fair	-	-
VB	22265	64	I-64 WB	E Br Elizabeth River	1967	1992	VDOT	-	FO	6	6	5	N	Fair	-	-
VB	22243	264	I-264	Birdneck Road	1967	1996	VDOT	-	-	6	5	5	N	Fair	-	-
VB	22239	264	I-264	First Colonial Road	1967	1986	VDOT	SD	-	7	4	5	N	Poor	-	-
VB	22242	264	I-264	Great Neck Creek	1967	1982	VDOT	-	-	6	6	6	N	Fair	-	-
VB	22222	264	I-264	Independence Blvd	1967	1992	VDOT	-	FO	6	5	5	N	Fair	-	-

VIRGINIA BEACH BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
VB	22230	264	I-264	London Bridge Creek	1967	2012	VDOT	-	-	6	6	6	N	Fair	-	-
VB	22232	264	I-264	London Bridge Road	1967	1982	VDOT	-	FO	6	5	5	N	Fair	-	-
VB	22228	264	I-264	Lynnhaven Parkway	1967	1986	VDOT	-	-	7	5	5	N	Fair	-	-
VB	22219	264	I-264	Norfolk Southern R/R	1967	1992	VDOT	-	-	6	5	5	N	Fair	-	-
VB	22231	264	I-264	Norfolk Southern R/R	1967	1982	VDOT	-	-	7	6	6	N	Fair	-	-
VB	22226	264	I-264	Plaza Trail	1967	1977	VDOT	-	-	6	5	6	N	Fair	-	-
VB	22224	264	I-264	Rosemont Road	1967	1977	VDOT	-	-	6	5	6	N	Fair	-	-
VB	22241	264	I-264	Thalia Creek	1967	-	VDOT	-	-	N	N	N	7	Good	-	-
VB	22249	264	I-264	Trib E Br Elizabeth River	1967	1985	VDOT	-	-	N	N	N	6	Fair	-	-
VB	22251	264	I-264	Trib Thalia Creek	1967	-	VDOT	-	-	N	N	N	7	Good	-	-
VB	22236	264	I-264	Trib Wolfsnare Creek	1967	1967	VDOT	-	-	N	N	N	7	Good	-	-
VB	22237	264	I-264	Va Beach Blvd	1967	1982	VDOT	-	-	7	7	5	N	Fair	-	-
VB	22220	264	I-264	Witchduck Road	1967	1992	VDOT	-	-	7	5	5	N	Fair	-	-
VB	22217	264	I-264 EB Ramp	Baxter Road	1990	-	VDOT	-	FO	6	6	6	N	Fair	-	-
VB	22234	264	I-264 EB Ramp To Laskin Road	I-264	1967	-	VDOT	-	-	7	6	6	N	Fair	-	-
VB	22194		Independence Blvd	Drainage Canal	1990	-	City	-	-	6	6	7	N	Fair	-	-
VB	22274	225	Independence Blvd NB	Northampton Blvd	1969	-	City	-	-	6	7	7	N	Fair	-	-
VB	22276	225	Independence Blvd SB	Northampton Blvd	1969	-	City	-	-	6	7	7	N	Fair	-	-
VB	22209		Indian Lakes Blvd	Drainage Canal	1974	-	City	-	-	N	N	N	6	Fair	-	-
VB	22172		Indian River Road	Drainage Canal	1987	-	City	-	-	N	N	N	6	Fair	-	-
VB	23579	407	Indian River Road	I-64	1993	-	VDOT	-	-	6	7	5	N	Fair	-	-
VB	25101		Indian River Road	North Landing River	1997	-	City	-	-	7	8	7	N	Good	-	-
VB	22170		Indian River Road	West Neck Creek	1975	-	City	SD	-	4	5	5	N	Poor	-	-
VB	25480		Inlet Road	Inlet Of Lynnhaven River	1982	-	City	-	FO	6	5	5	N	Fair	-	-
VB	22212		International Parkway EB	Drainage Canal #2	1987	-	City	-	FO	7	7	7	N	Good	-	-
VB	26138		International Parkway WB	Drainage Canal #2	1997	-	City	-	FO	7	7	7	N	Good	-	-
VB	29394	190	Kempsville Road	Fox Run	2014	-	City	-	-	8	8	8	N	Good	-	-
VB	22252	58	Laskin Road	Linkhorn Bay	1938	1956	City	SD	-	5	4	4	N	Poor	-	-
VB	25189		London Bridge Road	Drainage Canal	1996	-	City	-	-	N	N	N	7	Good	-	-
VB	22206		Lord Dunmore Drive	Drainage Ditch	1932	-	City	-	-	N	N	N	6	Fair	-	-
VB	30128		Lynnhaven Parkway	Charlestwn Lakes N Canal	2016	-	City	-	FO	8	8	8	N	Good	-	-
VB	28706		Lynnhaven Parkway	Drainage Canal	2010	-	City	-	-	7	7	7	N	Good	-	-
VB	22203		Lynnhaven Parkway	Drainage Canal	1989	-	City	-	-	7	7	6	N	Fair	-	-
VB	29369		Lynnhaven Parkway	Drainage Canal	2010	-	City	-	-	N	N	N	7	Good	-	-
VB	22195		Lynnhaven Parkway	Green Run Drainage Canal	1982	-	City	-	-	N	N	N	6	Fair	-	-
VB	22198		Lynnhaven Parkway NB	London Bridge Creek	1974	1982	City	-	-	7	7	7	N	Good	-	-
VB	22199		Lynnhaven Parkway SB	London Bridge Creek	1974	1982	City	-	-	7	7	7	N	Good	-	-
VB	30326		Lynnhaven Parkway	Stream	2016	-	City	-	-	N	N	N	8	Good	-	-
VB	22174		Muddy Creek Road	Branch North Bay	1985	-	City	-	-	7	7	7	N	Good	-	-
VB	22171		Nanneys Creek Road	Nanney Creek	1982	-	City	-	-	7	7	7	N	Good	-	-
VB	27513	165	Nimmo Pkwy	Hunt Club Trib	2014	-	City	-	-	8	8	8	N	Good	-	-
VB	27067	165	Nimmo Pkwy	West Neck Creek	2014	-	City	-	-	7	8	7	N	Good	-	-
VB	22213	13	Northampton Blvd NB	Shore Drive	1963	-	City	-	-	6	7	6	N	Fair	-	-
VB	22215	13	Northampton Blvd SB	Shore Drive	1963	-	City	-	-	6	7	6	N	Fair	-	-
VB	30052		Pinewood Road	Little Neck Creek	2013	-	City	-	-	8	8	8	N	Good	-	-
VB	22186		Potters Road	London Bridge Creek	1977	-	City	-	FO	7	6	7	N	Fair	-	-
VB	22270	165	Princess Anne Road	Tidal Stream	1969	-	City	-	-	N	N	N	6	Fair	-	-
VB	24949	149	Princess Anne Road	West Neck Creek	1997	-	City	-	FO	7	7	7	N	Good	-	-
VB	30816	409	Providence Road	Cedar Hill Canal	2016	-	City	-	-	N	N	N	7	Good	-	-
VB	22287	409	Providence Road EB	I-64	1967	-	VDOT	-	FO	6	6	6	N	Fair	-	-

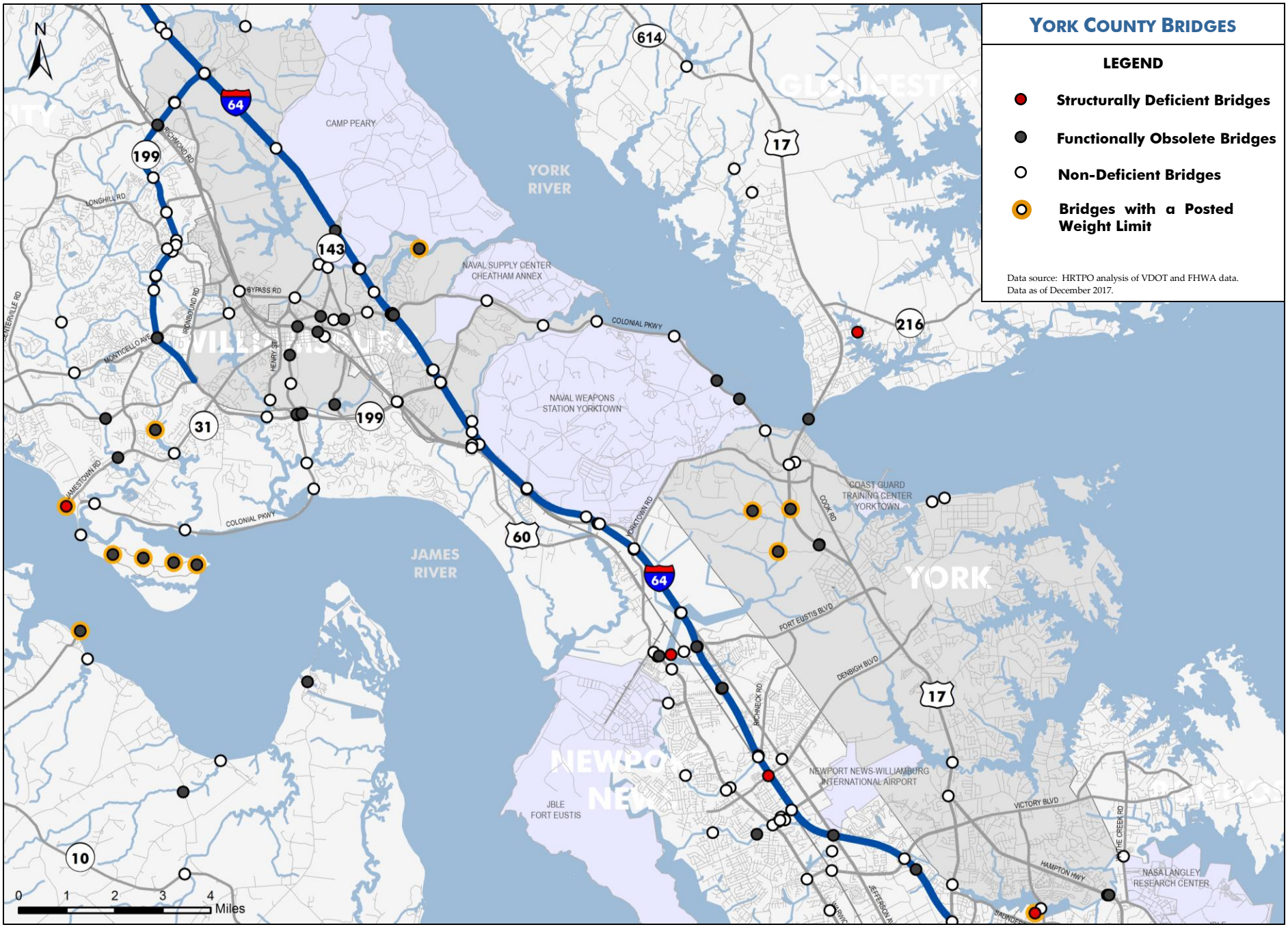
VIRGINIA BEACH BRIDGES

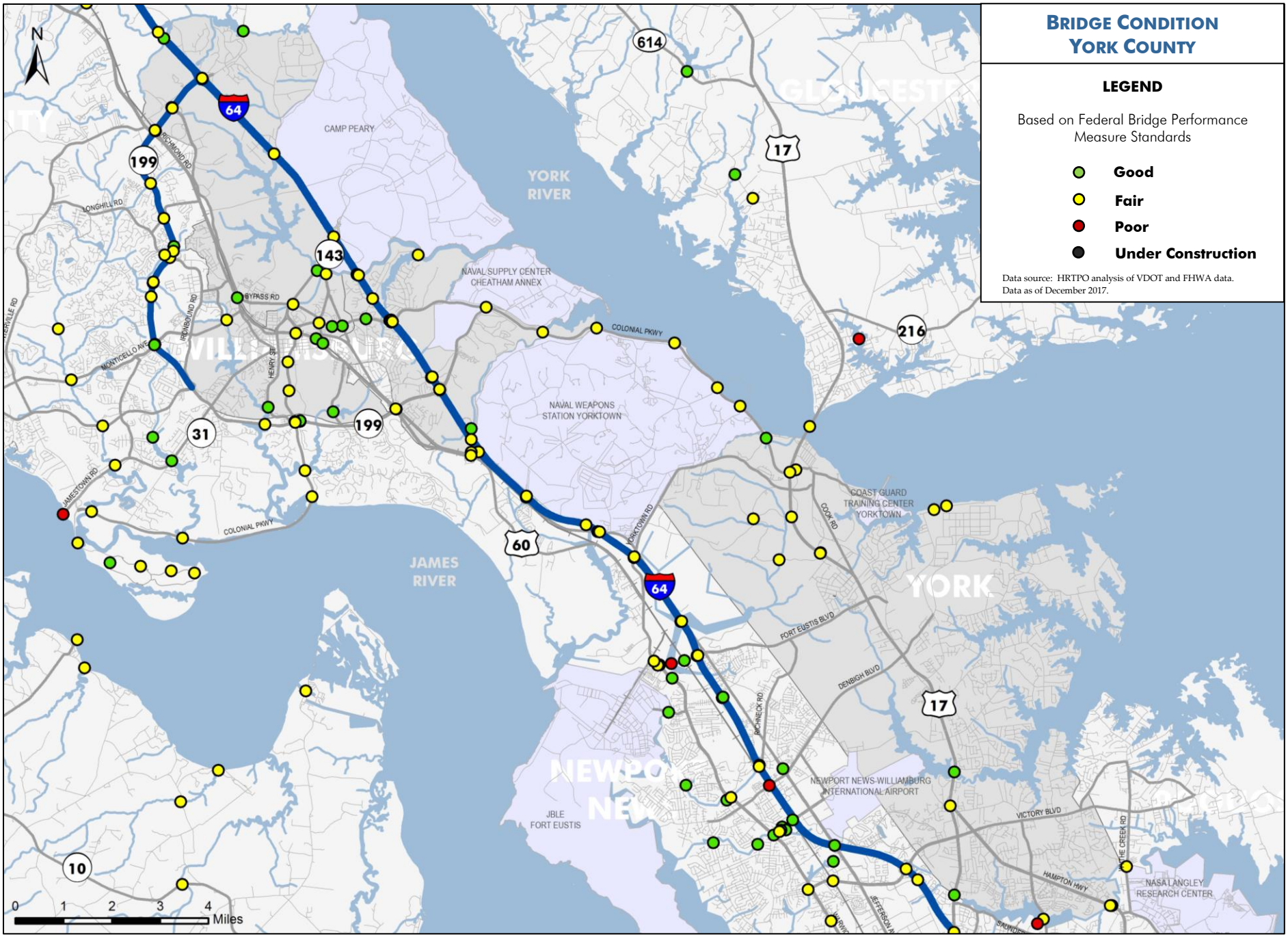
Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
VB	22285	409	Providence Road WB	I-64	1967	-	VDOT	-	FO	6	6	6	N	Fair	-	-
VB	22190		Pungo Ferry Road	North Landing River	1991	-	City	-	-	6	6	7	N	Fair	-	-
VB	22256	58	Ramp To Laskin Road	Va Beach Blvd	1967	-	VDOT	-	-	6	6	7	N	Fair	-	-
VB	22200		Rosemont Road	Sunset Canal	1975	1989	City	-	-	7	7	6	N	Fair	-	-
VB	22185		Salem Road	Drainage Canal	1980	-	City	-	-	N	N	N	6	Fair	-	-
VB	22208		Sandbridge Road	Drainage Ditch	1984	-	City	-	-	N	N	N	6	Fair	-	-
VB	22183		Sandbridge Road	Hells Point Creek	1961	-	City	-	FO	5	5	7	N	Fair	-	-
VB	28622		Ships Corner Road	Drainage Lynnhaven Inlet	2006	-	City	-	-	N	7	7	N	Good	-	-
VB	22262	60	Shore Drive	Bay Coast Railroad	1986	-	City	-	-	7	7	7	N	Good	-	-
VB	22261	60	Shore Drive	Lake Smith Spillway	1987	-	City	-	-	N	N	N	7	Good	-	-
VB	22260	60	Shore Drive EB	Lynnhaven Inlet	2018	-	City	-	-	N/A	N/A	N/A	N/A	N/A	-	-
VB	30155	60	Shore Drive WB	Lynnhaven Inlet	2016	2016	City	-	-	7	7	7	N	Good	-	-
VB	22173		South Boulevard	Thalia Creek	1985	-	City	-	-	N	N	N	6	Fair	-	-
VB	22187		South Lynnhaven Road	London Bridge Creek	1966	-	City	-	-	6	6	5	N	Fair	-	-
VB	23693		South Plaza Trail	Drainage Canal	1992	-	City	-	-	7	7	7	N	Good	-	-
VB	22255	58	Va Beach Blvd	I-264 WB Ramp	1967	-	VDOT	-	FO	7	7	7	N	Good	-	-
VB	22253	58	Va Beach Blvd	Lynnhaven River	1989	-	City	-	-	7	7	7	N	Good	-	-
VB	22254	58	Va Beach Blvd	Thalia Creek	1987	-	City	-	-	7	7	7	N	Good	-	-
VB	22258	58	Va Beach Blvd	Trib Wolfsnare Creek	1967	-	VDOT	-	-	N	N	N	7	Good	-	-
VB	22180		W Great Neck Road	Long Creek & Broad Bay Road	1961	-	City	-	FO	6	6	6	N	Fair	-	-
VB	22201		W Green Garden Cir	Sunset Canal	1973	-	City	-	-	6	7	7	N	Fair	-	-
VB	22168		Ware Neck Drive	North Landing River	1988	-	City	-	-	N	N	N	7	Good	-	-
VB	22197		Wesleyan Drive	Drainage Canal	1985	-	City	-	-	N	N	N	6	Fair	-	-
VB	23664		West Neck Road	West Neck Creek	1993	-	City	-	-	7	7	7	N	Good	-	-
VB	22204		Wolfsnare Road	Wolfsnare Creek	1979	-	City	-	-	N	N	N	6	Fair	-	-

VIRGINIA BEACH BRIDGES

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.


YORK COUNTY BRIDGES
LEGEND
Structurally Deficient Bridges
Functionally Obsolete Bridges
Non-Deficient Bridges
Bridges with a Posted Weight Limit
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
CAMP PEARY
YORK RIVER
NAVAL SUPPLY CENTER CHEATHAM ANNEX
NAVAL WEAPONS STATION YORKTOWN
COAST GUARD TRAINING CENTER YORKTOWN
JAMES RIVER
JBLE FORT EUSTIS
NEWPORT NEWS-WILLIAMSBURG INTERNATIONAL AIRPORT
NASA LANGLEY RESEARCH CENTER
COLONIAL PKWY
YORKTOWN RD
FORT EUSTIS BLVD
DENBIGH BLVD
VICTORY BLVD
HAMPTON HWY
JAMESTOWN RD
LONGHILL RD
BYPASS RD
COOK RD
64
199
143
60
31
17
614
216
10
0 1 2 3 4 Miles


BRIDGE CONDITION
YORK COUNTY
LEGEND
Based on Federal Bridge Performance Measure Standards
Good
Fair
Poor
Under Construction
Data source: HRTPO analysis of VDOT and FHWA data.
Data as of December 2017.
N
CAMP PEARY
YORK RIVER
NAVAL SUPPLY CENTER CHEATHAM ANNEX
NAVAL WEAPONS STATION YORKTOWN
COAST GUARD TRAINING CENTER YORKTOWN
JAMES RIVER
JBLE FORT EUSTIS
NEWPORT NEWS-WILLIAMSBURG INTERNATIONAL AIRPORT
NASA LANGLEY RESEARCH CENTER
YORK
COLONIAL PKWY
YORKTOWN RD
FORT EUSTIS BLVD
DENBIGH BLVD
VICTORY BLVD
HAMPTON HWY
COOK RD
RICHNECK RD
THE CREEK RD
LONGHILL RD
BYPASS RD
JAMESTOWN RD
614
17
216
143
199
64
60
31
10
0 1 2 3 4 Miles

Juris	Federal Bridge #	Route	Facility	Crossing	Year Built	Year Recnst	Ownership	SD	FO	Bridge Condition Ratings: Deck	Super-Structure	Sub-Structure	Culvert	Federal PM Bridge Condition	Fracture Critical	Posted Weight Limit (tons)
YC	19871	604	Barlow Road	I-64	1979	-	VDOT	-	-	6	6	6	N	Fair	-	-
YC	19870	600	Big Bethel Road	Big Bethel Reservoir	1931	1986	VDOT	-	-	6	6	5	N	Fair	-	-
YC	19826	60	Bypass Road	Trib Queens Creek	1968	-	VDOT	-	-	N	N	N	6	Fair	-	-
YC	19824	17	Coleman Bridge	York River	1952	1996	VDOT	-	FO	6	6	5	N	Fair	Yes	-
YC	4290011P		Colonial Parkway	Felgate's Creek	1981	-	Federal	-	-	6	7	5	N	Fair	-	-
YC	4290014P		Colonial Parkway	Hubbard's Lane	1964	-	Federal	-	-	7	7	7	N	Good	-	-
YC	4290010P		Colonial Parkway	Indian Field Creek	1933	-	Federal	-	-	6	5	5	N	Fair	-	-
YC	4290012P		Colonial Parkway	Kings Creek	1933	-	Federal	-	-	6	6	5	N	Fair	-	-
YC	4290009P		Colonial Parkway	Naval Weapons Road	1931	-	Federal	-	FO	6	6	7	N	Fair	-	-
YC	4290008P		Colonial Parkway	North Pier Access Road	1962	-	Federal	-	FO	6	6	7	N	Fair	-	-
YC	4290013P		Colonial Parkway	Penniman Road	1964	-	Federal	-	-	6	6	6	N	Fair	-	-
YC	4290006P		Colonial Parkway	Route 17	1956	-	Federal	-	-	6	6	7	N	Fair	-	-
YC	4290005P		Colonial Parkway	Yorktown Creek	1955	-	Federal	-	-	6	7	6	N	Fair	-	-
YC	19883	716	East Queens Drive	Queens Creek - Spillway	1932	1997	VDOT	-	FO	6	7	6	N	Fair	-	11/-/-
YC	27508	17	George Washington Hwy	Poquoson River	2015	-	VDOT	-	-	8	8	8	N	Good	-	-
YC	19820	17	George Washington Hwy NB	Yorktown Battlefield Tour Road	1968	-	VDOT	-	FO	7	6	6	N	Fair	-	-
YC	19822	17	George Washington Hwy SB	Yorktown Battlefield Tour Road	1968	-	VDOT	-	FO	6	6	6	N	Fair	-	-
YC	25281	64	Grove Interchange	I-64	2002	-	VDOT	-	-	6	7	7	N	Fair	-	-
YC	25282	64	Grove Interchange	I-64 Ramp	2002	-	VDOT	-	-	7	7	6	N	Fair	-	-
YC	25283	64	Grove Interchange	Routes 60 & 143 and CSX R/R	2002	-	VDOT	-	-	6	7	7	N	Fair	-	-
YC	30641	64	I-64 WB	Branch Of King Creek	2002	-	VDOT	-	-	N	N	N	7	Good	-	-
YC	19838	64	I-64 EB	Colonial Pkwy	1965	-	VDOT	-	FO	6	6	7	N	Fair	-	-
YC	19840	64	I-64 WB	Colonial Pkwy	1965	-	VDOT	-	FO	6	6	7	N	Fair	-	-
YC	19834	64	I-64 EB	Lakes Head Drive	1965	-	VDOT	-	-	6	5	6	N	Fair	-	-
YC	19836	64	I-64 WB	Lakes Head Drive	1965	-	VDOT	-	-	6	6	6	N	Fair	-	-
YC	19828	64	I-64 EB	Penniman Road	1965	1977	VDOT	-	-	6	5	5	N	Fair	-	-
YC	19830	64	I-64 WB	Penniman Road	1965	1977	VDOT	-	-	6	5	5	N	Fair	-	-
YC	19842	64	I-64 EB	Queens Creek	1965	-	VDOT	-	-	5	5	5	N	Fair	-	-
YC	19843	64	I-64 WB	Queens Creek	1965	-	VDOT	-	-	5	5	5	N	Fair	-	-
YC	19827	64	I-64	Skimino Creek	1956	1979	VDOT	-	-	N	N	N	7	Good	-	-
YC	19832	64	I-64 EB	WB Ramp to Route 143	1965	1982	VDOT	-	-	7	7	6	N	Fair	-	-
YC	19856	134	Magruder Blvd EB	Brick Kiln Creek	1973	-	VDOT	-	-	6	6	6	N	Fair	-	-
YC	19855	134	Magruder Blvd WB	Brick Kiln Creek	1930	-	VDOT	-	FO	5	5	5	N	Fair	-	-
YC	19853	134	Magruder Blvd	Route 17	1965	-	VDOT	-	-	5	5	5	N	Fair	-	-
YC	4290007P		Old Williamsburg Road	Colonial Parkway	1956	-	Federal	-	-	N	7	7	N	Good	-	-
YC	19851	132	Route 132	Queens Creek	1996	-	VDOT	-	-	7	7	7	N	Good	-	-
YC	19857	143	Route 143	I-64	1965	-	VDOT	-	FO	5	5	5	N	Fair	-	-
YC	19860	143	Route 143	Queens Creek	1941	1944	VDOT	-	-	5	5	5	N	Fair	-	-
YC	19866	199	Route 199 EB	I-64	1977	-	VDOT	-	-	6	6	5	N	Fair	-	-
YC	19868	199	Route 199 WB	I-64	1977	-	VDOT	-	-	7	7	5	N	Fair	-	-
YC	25213	199	Route 199 NB	Mooretown Road	1999	-	VDOT	-	-	6	7	7	N	Fair	-	-
YC	25212	199	Route 199 SB	Mooretown Road	1999	-	VDOT	-	-	6	7	6	N	Fair	-	-
YC	19862	199	Route 199 NB	Routes 60 & 143 & CSX R/R	1977	-	VDOT	-	-	6	5	6	N	Fair	-	-
YC	19864	199	Route 199 SB	Routes 60 & 143 & CSX R/R	1977	-	VDOT	-	-	7	6	6	N	Fair	-	-
YC	19877	646	Route 199/Newman Road EB	I-64	1979	-	VDOT	-	-	6	6	6	N	Fair	-	-
YC	19879	646	Route 199/Newman Road WB	I-64	1979	-	VDOT	-	-	6	6	6	N	Fair	-	-
YC	19874	631	Waterview Road	Vepco Discharge Canal	1955	-	Private	-	-	N	N	N	6	Fair	-	-
YC	19875	631	Waterview Road	Vepco Intake Canal	1955	1974	Private	-	-	7	6	7	N	Fair	-	-
YC	19884	716	West Queens Drive	I-64	1965	-	VDOT	-	-	6	7	6	N	Fair	-	-
YC	4290002P		Yorktown Battlefield Tour Road	Beaverdam Creek	1975	-	Federal	-	FO	6	6	6	N	Fair	-	Posted
YC	4290003P		Yorktown Battlefield Tour Road	Crawford Road	1956	-	Federal	-	FO	6	6	7	N	Fair	-	Posted
YC	4290004P		Yorktown Battlefield Tour Road	Route 17	1959	-	Federal	-	FO	6	6	7	N	Fair	-	Posted

York County Bridges

Source: HRTPO analysis of VDOT and FHWA data. Data as of December 2017. A description of codes used in this table is included on page 82.

PUBLIC REVIEW AND COMMENTS

As part of the Hampton Roads Transportation Planning Organization's (HRTPO) efforts to provide opportunities for the public and stakeholders to review and comment on this draft report prior to the final product being published, a public review period was conducted from April 3, 2018, through April 20, 2018. No public comments were received.