Drawn to D.C. Bridges

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The bridges of D.C. serve the public’s daily transportation needs into and from the District. They are also sources of aesthetic pleasure and inspiration for artists and writers.

Contents of this guide examine infrastructure in dire need of repair, using the Memorial Bridge as the case study. From the discovery of repair needs to filing for funds, years passed and the need for action increased. Students consider the consequences of not repairing or replacing failing infrastructure.

In addition, students are encouraged to observe, write, photograph and draw the bridges of D.C. that cross the Potomac and Anacostia rivers, Rock Creek and its gorge. Some are grand and others are simple stone structures. All span divides.
Bridges of D.C.

The bridges of D.C. are elegant and utilitarian, symbolic and post cards of engineering. They appear to be carved in stone with statues and grand animals. They cross natural barriers, shorten travel time and unite areas. When you use a bridge, enjoy the scenery and the bridge’s design, but also consider how you would get to your destination without the bridge.

Test Your Bridge Knowledge

Before any research is done, can you answer these questions?

1. Why are the Taft Memorial Bridge lions named Roland and Reinaldo?
2. Equestrian statues are located at the eastern ends of Memorial Bridge. What are their names? Whose funeral cortege crossed Memorial Bridge in 1963?
3. The first bridges across the Potomac River were made of wood. Which bridge was burned in the War of 1812?
4. Which is D.C.’s oldest surviving bridge in use today?
5. What is the name of the bridge also known as the South Capitol Street Bridge?

Get to Know the Bridges

There are seven major bridges across the Potomac River, six across the Anacostia and more than twelve along Rock Creek. Some of them are listed below. After locating them on a map, select one of the following bridges to research its history. Include the materials used to construct it, any redecking or reconstruction done, influences on design and local perspectives on the bridge.

1. 11th Street Bridge
2. 14th Street Bridge
3. Chain Bridge
4. Duke Ellington Memorial Bridge
5. Frederick Douglass Memorial Bridge
6. Dumbarton Bridge
7. Key Bridge
8. Arlington Memorial Bridge
9. Theodore Roosevelt Bridge
10. John Philip Sousa Bridge
11. Ross Drive Bridge
12. William H. Taft Memorial Bridge
13. Whitney Young Memorial Bridge
14. Woodrow Wilson Bridge
TEACHER RESOURCE

Approaching Bridges of D.C. Research

As I have prepared this research project suggestion and pulled the online curriculum guide together to look at the bridges of D.C. from different perspectives and disciplines, I found some resources that I hope assist you in guiding your students.

NAMES

Some of the bridges have an official name and one or more additional ones used by locals. For example, the Q Street Bridge is also called the Dumbarton Bridge and the Buffalo Bridge. Connecticut Avenue Bridge is also the William Taft Memorial Bridge. Alert students so they do not get confused and to encourage their search using different names.

RELIABLE SOURCES

Teachers may wish to introduce students to the project by using Memorial Bridge as an example. Use the Library of Congress as a reliable source and a good beginning point.

Each year more materials from the Library’s millions of items (letters, diaries, photographs and maps, books and many other documents) are digitized and posted at www.loc.gov. These online resources help to bring American history to life and provide primary sources for researchers.

Do a search for “Bridges of D.C.” from the www.loc.gov homepage. Students will find many early drawings and photographs. Some will show the construction of a bridge — such as the many photographs of Memorial Bridge under construction (above).

Students may also find a personal website that uses documents from the LOC or National Archives website (www.archives.gov). For example, http://goodspeedupdate.com/2007/2130 provides renderings of the Taft Memorial Bridge that are from the LOC online American Memory vaults (illustrations above).

The National Park Service as well as The Washington Post will have coverage of different bridges. Teachers could use The Washington Post article about Memorial Bridge listed below to illustrate how historic events, data and previous attempts at repair can be woven into an article about current concerns and reasons for action.

14th Street Bridge
- http://www.roadstothefuture.com/14th_Street_Bridge.html

Memorial Bridge
- https://www.nps.gov/nr/travel/wash/dc69.htm
- https://www.washingtonpost.com/local/after-81-years-landmark-memorial-bridge-is-in-dire-need-of-renovation/2013/04/13/73eb8858-a3a6-11e2-be47-b44febad3a8_story.html

As students research the history of one of D.C.’s bridges, teachers should encourage students to consider the reasons for its placement as well as the benefits that occur daily from a bridge at that particular location.
After 81 years, landmark Memorial Bridge is in dire need of renovation

BY MICHAEL E. RUANE

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The main lever in the Memorial Bridge control room hasn’t opened the draw span in more than 50 years. The old bridge itself hasn’t had a serious repair job in almost 40 years. And it has never undergone a major overhaul.

The bridge shudders now under the pounding delivered by the 55,000 vehicles that cross on a typical weekday. Last week, the National Park Service took the first steps in a proposed multiyear repair project that could cost as much as $250 million and, under some scenarios, close the 81-year-old span for three months.

This undertaking would affect traffic, the environment, and a historic structure that has served as a venue for funerals, protests and commemorations since it opened in 1932.

“The bridge … is really at the end of, and beyond, its life cycle,” Charles N. Borders II, a Park Service transportation branch chief, said Friday. With its nine graceful arches

Construction on the Memorial Bridge, near the Lincoln Memorial, is shown in this undated file photograph.
and its eagle and buffalo medallions, the low-slung neoclassical bridge has been etched to the memory of Washington and the nation.

But some of the drawbridge supports are heavily corroded. The elegant granite balustrades and benches are cracked and chipped. And the concrete and steel underpinnings of the bridge and sidewalks are severely deteriorated.

“The bridge is not unsafe, at all,” Borders said. “It’s stable now.”

But the Park Service has increased inspections, and if major repairs are not made, truck and bus traffic could be banned within five years.

Short-term repairs have been made twice on the bridge in the past two years. But Borders said that last year the Federal Highway Administration, which inspects the structure, reported that more drastic action was needed.

“It’s so old now that … piecemeal approaches” are not enough, said Jon James, deputy superintendent of the George Washington Memorial Parkway, whose headquarters administers the bridge. “You really have to do a major rehabilitation.”

Borders said that, with funding, construction could begin in 2016. The project could take two to four years.

The span, which is listed on the National Register of Historic Places, crosses the Potomac River between the Lincoln Memorial, in the District, and the approach to Arlington National Cemetery, in Virginia.

It is considered by many to be Washington’s most beautiful bridge, but few may remember it functioning as a drawbridge.

“...such as a memorial as it is a working bridge,” James said.

Designed in the 1920s by the architectural firm of McKim, Mead and White, the 2,100-foot-long bridge has a central draw span that, in its time, was the longest, heaviest and fastest-opening in the world. It took one minute to open, according to a Park Service historical study.

The drawbridge, or “bascule,” is 216 feet long. It’s the most complex part of the bridge and would be the most challenging part to fix, the Park Service said.

It has huge gears and motors, a bridge tender’s control room tucked underneath, and two stations, one on each side, that appear to be where a tender activated traffic bollards.
that rose up to halt cars before an opening.

Options for the drawbridge include replacement with a fixed span of concrete girders or steel girders, and several different levels of repair are being considered. In all cases, the drawbridge would remain fixed.

The drawbridge has been closed since 1961 because other low bridges on the river prevented navigation by taller ships.

“Given the static bridges that are downstream from it, there was no longer a need for its functional use,” said Thomas Sheffer, a planner on the GW Parkway staff.

Several repair options would require closing the bridge entirely for 40 to 100 days. Others would require partial closures over four years.

Thus far, there is no funding for the project, but the Park Service estimates that it could cost $125 million to $250 million.

Borders said that unlike most Park Service projects, repair of the bridge is a regional transportation issue that involves all the area’s transportation agencies. Closure would affect uses ranging from everyday commuter traffic to VIP motorcades and funeral processions.

James said the bridge is used for more than two dozen special events each year, and many tourists and other pedestrians take advantage of its two 17-foot-wide sidewalks.

“And anytime the president goes across to do a wreath-laying, for Memorial Day, Veterans Day, whatever, guess which route he uses,” James said.

If the bridge was closed, traffic would be diverted to other heavily traveled bridges across the Potomac River. “You’ve got limited capacity,” Borders said. “There’s no denying.”

The idea for a bridge in that location goes back to the 1830s. It underwent several designs — some quite grandiose — exalting various people or sentiments.

Over the years, suggested names included Grant Memorial Bridge, Lee Memorial Bridge and the Bridge of Lincoln and Lee, as well as the name it got: Arlington Memorial Bridge.

Borders said the name memorializes the reunion of North and South after the Civil War, just as the bridge connects the Lincoln Memorial and Arlington Cemetery, which occupies the site of Confederate Gen. Robert E. Lee’s former home.

The bridge has been crossed by countless funeral corteges — including that of Alexander M. Harvey, a Canadian World War I veteran who was borne to Arlington Cemetery two days after the bridge opened in January 1932, and that of Sen Edward M. Kennedy (D-Mass.) in 2009.

It has seen protest marches during the Vietnam War, commemorative walks to mark the Sept. 11, 2001, terrorist attacks, and the armies of motorcycle riders who turn out for Memorial Day’s annual Rolling Thunder rally.

Preliminary work on the bridge began in 1925. At least two workers were killed during its construction, one in 1928 and one in 1930. And fire destroyed part of the bridge in 1930, according to news accounts at the time.

The bridge cost $21 million when it was finished. Old news accounts report that the day the bridge opened, it was tested by 30,000 cars.

On Friday, Borders showed some of the damage the bridge has suffered over 81 years, and he indicated an abandoned station, dusty and antiquated, where the bollards were apparently activated. From inside, the tender could monitor traffic through a street-level window and operate the mechanism from a now-rusted panel.
The D.C. government joined the National Park Service in a last-minute effort to help secure millions in federal funding to fix the crumbling Arlington Memorial Bridge.

Park Service officials and the city submitted an application just before Thursday night’s deadline seeking $150 million from the Transportation Department to repair the corroded bridge.

“A joint applicant is essential to secure grant funding to repair this iconic bridge and critical transportation link between Virginia and DC used by 68,000 vehicles daily,” the Park Service said in a statement announcing that the application was submitted.

In a letter Tuesday, members of Congress representing the Washington region urged the Park Service to apply to the FASTLANE grant program to secure funds needed for the critical repairs.

As of Thursday afternoon, however, it wasn’t clear whether the District would provide the required local sponsorship of the application. But Park Service officials worked behind the scenes to get the city on board and move the application forward.

D.C. officials had said Tuesday that the Park Service did not reach out to ask them to be a co-sponsor until last week and that given such short notice, and with many legal and other hurdles, they could not sponsor an application.

The Park Service has not said why it did not seek the local sponsorship early enough, risking missing the deadline. Spokesman Jeremy Barnum said the agency had just under a month to deliver the application.

“We knew it would be extremely difficult to secure a co-sponsor in the short time frame before the April 14 deadline,” he said, adding that the agency “quickly and in good faith worked to create a strong application and secure a co-sponsor.”

In the letter to Park Service Director Jonathan B. Jarvis, Sens. Mark R. Warner (D) and Timothy M. Kaine (D) of Virginia; Reps. Don Beyer (D) and Gerald E. Connolly (D) of Virginia; and Del. Eleanor Holmes Norton (D) of D.C. urged the agency to act to secure funds for the bridge rehabilitation, describing the span as “not only a national memorial, but a critical multimodal link in the national capital region’s transportation network.”

The bridge is structurally deficient and in poor condition. Recent inspections show decayed steel supports, corroded rivets, crumbling concrete and ancient, peeling paint.

The Park Service has been warning for years that the bridge is in desperate need of an overhaul that would cost about $250 million. The repairs contract has to be awarded in the next year or two to get the job done by 2021 to avoid a possible shutdown.

It could cost local governments as much as $168,000 per day in transportation outlays alone, according to a report by the Metropolitan Washington Council of Governments. It also would send traffic from the bridge to others already packed at rush hour, creating worse gridlock in the critical entry points from Northern Virginia.

The Memorial Bridge, located in the District, carries pedestrian and vehicular traffic between the Lincoln Memorial and Arlington National Cemetery. The historic span has undergone $10 million in repairs since 2010, according to officials.
Using Bridges in Landscape Painting

Spanning physical objects and connecting people and their goods to places they could otherwise not go, bridges may be over land, water or another road. People walk, ride horses, drive cars and goods-laden trucks and trains over bridges. Bridges are very functional as well as decorative inventions.

The bridge allows for passage to and from small towns, villages and cities. These spans cross borders of states and countries of the world. They are icons that symbolize cities such as the Golden Gate and Brooklyn Bridge. They connect cultures to create one city such as Buda and Pest in Hungary and the Mostar Bridge in Bosnia and Herzegovina.

Bridges may be as simple as a tree fallen across a creek or large stones in a stream. Or manmade constructions that are incredible engineering feats. Engineers who design them are very technically gifted and can be immensely innovative using six basic designs: Arch, Beam, Cable-stayed, Cantilever, Suspension and Truss.

Artists have used all kinds of bridges in their compositions as subjects or in backgrounds since the earliest of times. Artists have interpreted their images in paintings, engravings and photographs. They — our graffiti artists — have even painted decorations on the bridges themselves.

Writers for centuries have included bridges: As children we met Three Billy Goats Gruff and wondered what may lurk under bridges. As we grew older, we read The Bridge of San Luis Rey by Wilder, Across the River and Into the Trees by Hemingway and Bridges of Madison County by Robert Waller. We sing “Like a Bridge Over Troubled Waters” and read poems that span the emotions from “Composed Upon Westminster Bridge” by William Wordsworth to Spoon River Anthology by Edgar Lee Masters to “Night Journey” by Theodore Roethke.

Artists who have captured bridges in their paintings include
- Canaletto: The Rialto Bridge, Venice, Italy
- Hiroshige: Various Bridges in Japan
- Hokusai: Japanese color print series
- Leonardo da Vinci: Mona Lisa or La Gioconda, Florence, Italy
  (Look for the arched bridge in the background.)
- Monet: Waterloo Bridge, London; Waterlilies in Giverny, France
- Van Gogh: The Seine Bridge at Asnieres, Paris, France
- Whistler: Old Battersea Bridge, London, England
- LeRoy Nieman: Brooklyn Bridge, NYC, New York

Local artists in the Washington area paint bridges as subjects. Take a look at the work of Jack Hannula, Michelle Cobb, Eric Westbrook and Carol Porter. Each artist gives a short background on their work: Why they chose the bridge, where it is, the colors they decided to use, what time of year, their feelings about the work and the medium they used.
Local Artists Capture Local Bridges

▲ Key Bridge at Georgetown, oils  
JACK HANNULA ©2007

I painted the Key Bridge for its simple beauty, the way it gracefully arches across the Potomac River, the way it reflects its beauty in the shimmering water — and the way it bridges the historic communities of Georgetown and Rosslyn, Virginia.

— John Karl Hannula

▲ Rush Hour Ride, oil on canvas  
ERIC WESTBROOK ©2015

This painting shows Chain Bridge where it crosses the C&O canal. It was around 6:00 p.m. on a beautiful fall day, and cars were jammed trying to get home to Virginia. The sense of fun and freedom expressed by the bicycle was in stark contrast to the halting, agitated traffic. If the cyclist had experienced any rush hour stress earlier in the day, it had certainly by that time been forgotten.

— Eric Westbrook

▲ Duke Ellington Memorial Bridge, oils  
MICHELLE RENE COBB ©

This plein air painting (painted on location) was originally called the “Calvert Street Bridge.” It was rededicated as the Duke Ellington Bridge following the death of the Washington native, in 1974. Painting the Duke Ellington Bridge was so inspiring that I painted it for over 3 months, capturing the colors of the changing season from late summer to late fall.

— Michelle René Cobb

▲ Boulder Bridge over Rock Creek, watercolor  
CAROL PORTER ©2016

I am always looking for unusual shapes, colors, lines, textures, angles and vantage points. In Washington, D.C., there are bridges that are stately and traditional to maintain Neo-Classical architecture. For me, all bridges are engineering marvels, ever since Roman times. But I like the more quaint structures because of their charm.

— Carol Porter
Observe, Then Act

Observation is considered an essential skill for writers, photographers and artists. In reality observation helps us all better navigate our daily experiences. While observation is thought of as using your sense of sight, observation should engage all of your senses.

PART 1
With paper and pen or tablet, go to a location to observe. Do not interact with people who are at the scene. You are there to be an observer. Take notes:
1. What do you see?
   Do not directly state the name of the building or person. Use descriptions so the building or person unfolds through your details.
2. What do you hear?
   Do your best to capture the tones and volume. You may record snatches of conversations overheard.
3. What do you smell?
   You may directly state that onions are simmering on the stove or that exhaust from a Circulator bus chokes away the floral aroma of the young woman walking past you teetering on her three-inch high heels.
   Are you seated on the grass or a wooden bench? Is it rough or smooth? Do you see the glossy leaves of an artificial plant inside the window across the street? Feel the concrete column: Is it cool to the touch? Smooth or cracked?
5. What do you taste?
   You may combine with smell if these are aromas of food items.

PART 2
You have your notes and your memory of your observation. Review them and highlight the most distinct of the impressions, the details that help to define this space, and the descriptions that activate the five senses.

Write a narrative of what you observed.

Read the narrative aloud. Is there an organization to the details? Or do you have your reader looking left then right, near then far and back to the front? Just a jumble of details or an organized sequence?

Revise the narrative to gain more control of how the place unfolds. Do you want your reader to begin the scene from the furthest aromas and move forward until seated beside you? Or do you want to begin with a small nearby texture and sight, then move away from right to left? Almost think of your description as a videographer’s presentation of a scene to open a film.
PART 3
Return to the place of your original observation with a camera.
What has changed since your first recording of the place?
How does the time of day, the weather, the people who are present change the scene?
What details remain the same?

Record the scene with a variety of shots. Here are some perspectives to consider.

- Close-up
- Medium range
- Wide range
- Vertical composition
- Horizon composition
- Low angle
- High angle (bird’s eye or ladder view)
- Foreground element
- Patterns
- Leading Lines
- Texture
- Contrast

- Stationary
- Movement
Can You Identify These Basic Bridge Types?

Have you seen any of these bridge types in your area? Look around the Potomac River and Anacostia River crossings. They don’t have to be grand bridges. They may be found in parks or over streams. 
*Name them and where they are located.*

**Simple Beam**
1. 

**Arch**
2. 

**Cantiliver**
3. 

**Cable**
4. 

**Suspension**
5. 

*SOURCE: The Severn Bridges Trust*