ENHANCING BRIDGES

Better Bridges for TN

On November 12, 2009, the Tennessee Department of Transportation (TDOT) launched the largest bridge replacement and rehabilitation program of its kind in state history. TDOT's Better Bridges Program is a four year program approved by the Tennessee General Assembly that utilizes bonds to pay for the repair, replacement or rehabilitation of more than 200 structurally deficient bridges in the state. The 111 bridge projects selected for the first year of the bonding program are spread evenly across the three grand divisions of the state, including one project costing more than $20 million and five projects costing more than $4 million each.

"The investments we are making today with the Better Bridges Program will serve the state for decades to come and will provide a lasting benefit to the many citizens who travel our roadways every day. Tennesseans deserve safe and efficient bridges and this program will bring much needed improvements to hundreds of communities across the state."

-TDOT Chief Engineer Paul Degges

"The bridge projects identified for the first year of this program will improve the safety and reliability of more than one hundred bridges in Tennessee," said then Governor Phil Bredesen. "Addressing these projects now rather than later allows us to take advantage of today's lower construction costs."

"Without this program much of this critical work on structurally deficient bridges would have to be deferred for years," said TDOT then Commissioner Gerald Nicely. "The bridges we rebuild today with this investment will serve the state for decades to come and provide a lasting benefit for future generations."

Gateway Bridge (now Korean War Veterans' Memorial Bridge) was painted according to NCDC's recommendations. Image source: NCDC

Promoting Beautiful Bridges for Nashville

Since its founding in 2001, the Nashville Civic Design Center (NCDC) has played a significant leadership role in shaping the form of Nashville's most significant bridges. One of our initial projects involved assisting Metro Public Works in the selection of a color scheme for six bridges that cross the Cumberland River. NCDC conducted exhaustive research on the history and past colors of local bridges, finding that there was no traditional color for painting bridges in Nashville. The study included constructing a model of the Cumberland River with scaled bridges, computer simulations, on-site investigations and research in various local archives. Interviews were conducted with people involved in the construction and maintenance of the bridges, paint manufacturer's representatives and a painting contractor. NCDC staff recommended the color scheme – silver on top, red on bottom – for the Jefferson Street Bridge, CSX Railroad Bridge, Victory Memorial Bridge, Woodland Street Bridge and the Gateway Bridge. We singled out the Shelby Street Bridge for special treatment due to its historic significance, proposing what would ultimately become its brilliantly lit, award-winning design.

In 2002, NCDC held meetings and produced a report to solicit feedback from East Nashville residents on ways to improve connectivity between the West Bank and historic East Nashville neighborhoods. Residents were concerned about how the new Gateway and Shelby Street Pedestrian Bridges could increase connectivity, and not simply serve as access corridors to the football stadium and interstates from the West side.

In 2004, NCDC became involved in the process of rebuilding the Demonbreun Street viaduct, after it was unexpectedly closed in July 2004, due to structural deficiencies. We hosted an Urban Design Forum entitled "A New Civic Bridge: the Demonbreun Street Viaduct," to ensure that public input and a high-level of design consideration would be given to the process. We viewed the rebuilding of Demonbreun as a precedent for future bridges over the railroad Gulch; a tremendous opportunity to build a visually appealing, pedestrian and bicycle friendly entrance into Downtown. Public Art also became a key factor in the final design.

Enhancing The Bridges is meant to elevate the conversation and consideration of innovative bridge designs for city and state officials when new projects emerge – offering alternatives to standard designs. It also explores the concept of "signature" bridges – highly visible gateways and entrances – and showcases potential future locations for these bridges in downtown Nashville.

Gary Gaston, NCDC Design Director

TYPE A: SHARED VEHICULAR + PEDESTRIAN

The majority of bridges and overpasses allow both vehicular and pedestrian traffic. These bridges can best accommodate all users when certain criteria are met.

Items to include:
— Accessible, separated pedestrian pathways
— Human-scaled street lighting for security + aesthetics
— Public Art incorporated into bridge details
— Decorative fencing + separations from vehicular traffic
— Marked, dedicated or shared bike lanes
— Landscaping to act as buffer for pedestrians
— Improved street signage

Replacement overpass, St. Louis, MO
Image source: NCDC

A

TYPE B: PEDESTRIAN-ONLY

Pedestrian bridges allow safe crossings for pedestrians and cycling traffic, connecting neighborhoods and greenways.

Items to include:
— Accessible pedestrian pathways
— Signature design component for new/replacement bridges
— Human-scaled street lighting for security + aesthetics
— Public Art incorporated into bridge details
— Decorative fencing
— Improved greenway + pedestrian path signage

B

Millennium Park pedestrian bridge, Chicago, IL
Image source: NCDC

TYPE C: VEHICULAR-ONLY

Nashville's extensive interstate system loops around the urban core, providing abundant opportunities as they cross entering roadways above and below.

Items to include:
— Minor aesthetic enhancements, painting etc.
— Lighting as component for security + aesthetics and art
— Public Art incorporated into bridge details
— Enhancements to spaces beneath, including active programming components
— Landscape features

Interstate overpass, 8th Ave S, Nashville, TN
Image source: NCDC

C

TYPE D: RAIL BRIDGE

Rail bridges are typically privately owned. Several of these bridges have a dramatic presence in the landscape, both in rural and downtown settings. Many could be added to the Historic Bridge Foundation for the preservation of their unique structures. Public-private partnerships have been effective in the past when replacing or enhancing privately owned rail corridors.

Items to include:
— Minor aesthetic enhancements, painting, etc.
— Community participation in structure beautification
— Public Art incorporated into bridge details
— Major aesthetic enhancements, lighting, etc.

D

Rail Bridge, Shelby Bottoms Park, Nashville, TN
Image source: Sitephocus

Top: Natchez Trace Parkway Arch Bridge, Franklin, TN.
Image source: Sitephocus
Bottom: Wolf River Greenway bridge, Memphis, TN.
Image source: Thomas R Machnitzki

Hernando de Soto Bridge, Memphis, TN. Image source: public domain

Top: Walnut Street Pedestrian Bridge, Chattanooga, TN.
Image source: Sitephocus
Bottom: Shelby Bottoms Park pedestrian bridge, Nashville, TN.
Image source: NCDC

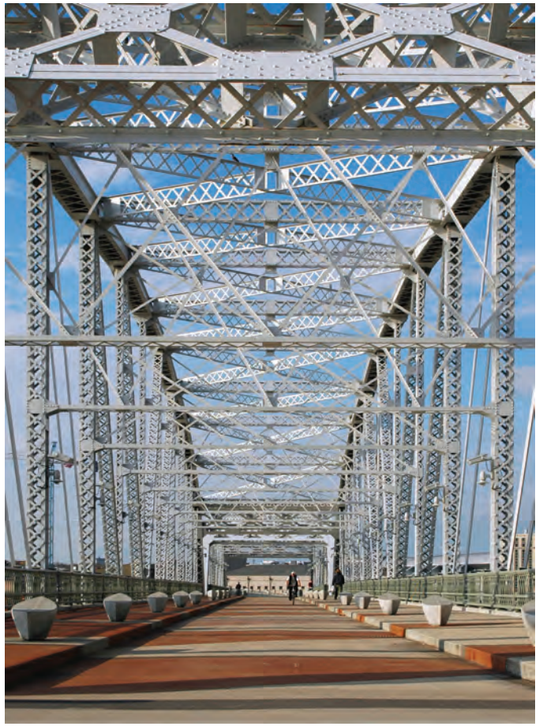
Tennessee Bridges

Tennessee is well-known for it diverse landscape of rivers, lakes, valleys, mountains and farmland. Dispersed throughout this varied terrain are masterpieces of innovative and awe-inspiring engineering that connect our communities, both rural and urban, and intensify our trades, commutes, networks, and sense of adventure and leisure. From Memphis to Nashville, Chattanooga and Knoxville, Tennessee's 19,000+ bridges range from ordinary to extraordinary, covering all typologies of structures and materials.

Internationally, Tennessee is known for many of its signature bridges. Perhaps the most famous lies not in a downtown setting, but in a rural landscape in Williamson county. The Natchez Trace Parkway Arch Bridge was the first of its kind, built from hollow segmented precast boxes, in the United States. Its award winning design inspires bridge enthusiasts and attracts many tourists to the Natchez Trace Park.

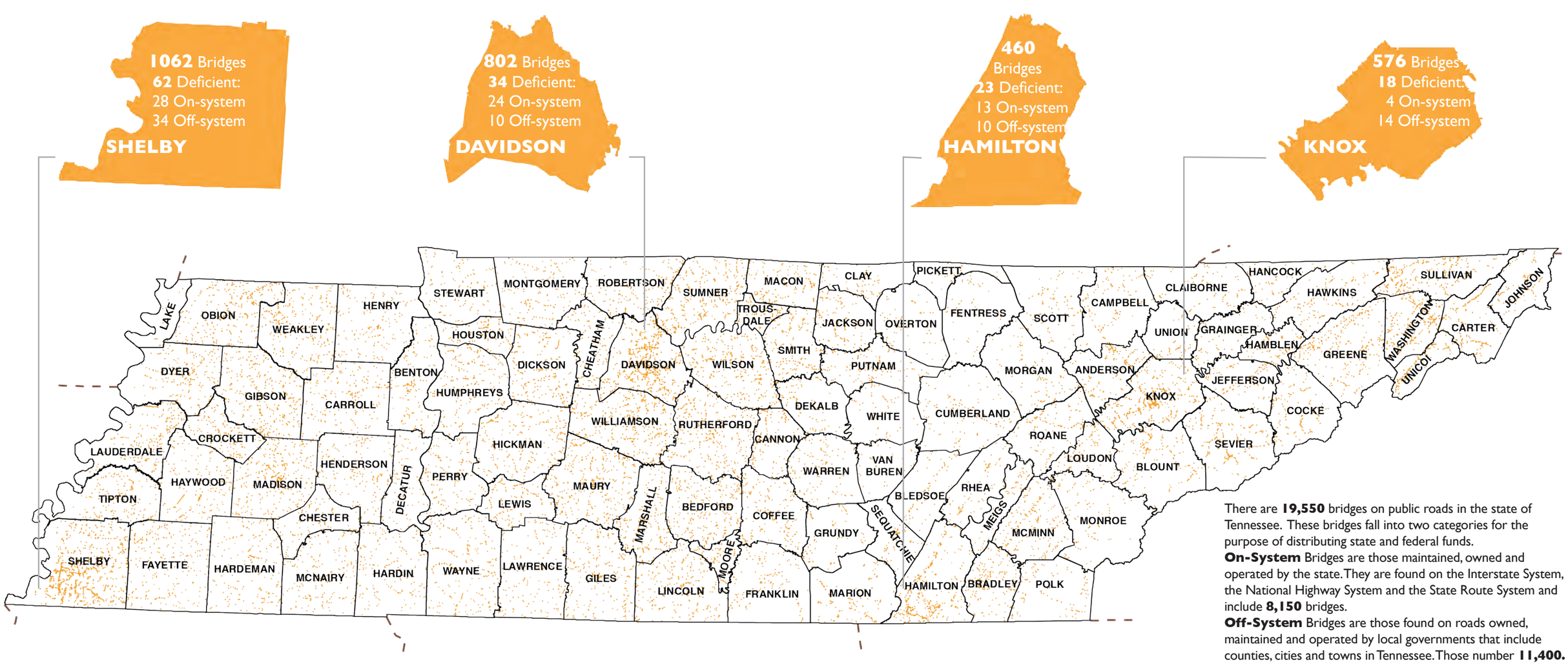
Top: Korean War Veterans Memorial Bridge, Nashville, TN.
Image source: NCDC
Bottom: Hall of Fame Drive overpass, Knoxville, TN. Image source: NCDC

Above: Henley Street Bridge, Knoxville, Tenn. Image source: Brian Stansberry



Top: Demonbreun Street Viaduct, Nashville, Tenn. Image credit: sitephocus
Bottom: Shelby Street bridge, Nashville, Tenn. Image credit: sitephocus

Top: John Ross bridge, Chattanooga, TN. Image source: NCDC
Bottom: Cumberland River Bicentennial Trail, Ashland City, TN.
Image source: Sitephocus

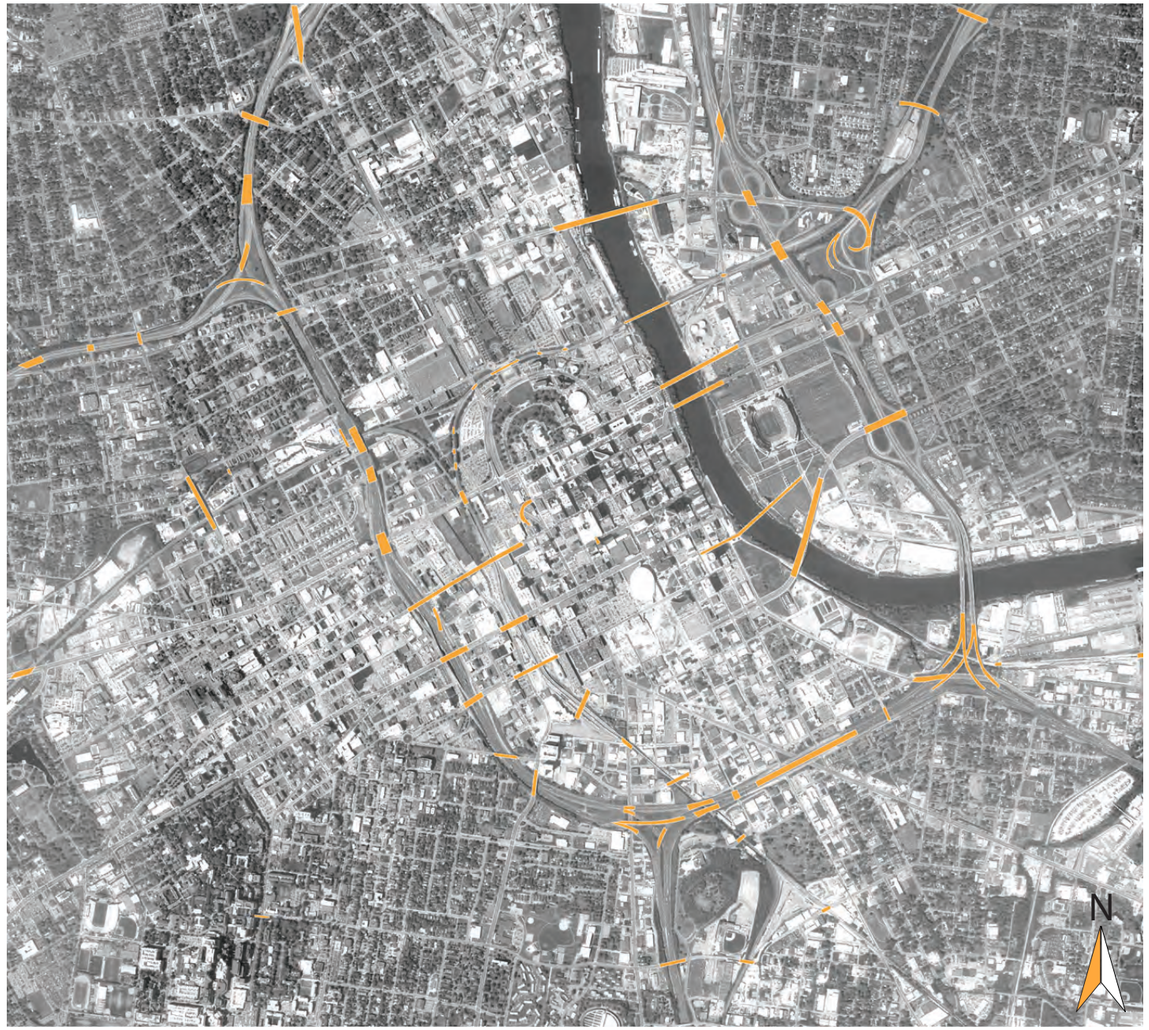


There are **19,550** bridges on public roads in the state of Tennessee. These bridges fall into two categories for the purpose of distributing state and federal funds.

On-System Bridges are those maintained, owned and operated by the state. They are found on the Interstate System, the National Highway System and the State Route System and include **8,150** bridges.

Off-System Bridges are those found on roads owned, maintained and operated by local governments that include counties, cities and towns in Tennessee. Those number **11,400.**

TN map of cities with priority for gateways + bridge enhancements. Four major counties shown with number of bridges to be enhanced or replaced.
Image source: Nashville Area MPO + NCDC



Map highlighting all bridges in downtown Nashville.
Image source: NCDC + © 2011 Google Earth

Gateways to the Capital city

Highlighting Nashville as an initial case study for many of TDOT's bridge enhancements can hopefully assist in creating standards to be used across the state. With a growing list of bridges needing repairs or complete replacement, careful attention must be given to these investments that will last over half a century. It is crucial to capitalize on these opportunities now.

Nashville already has many policies in place involving streetscaping, sustainability and accessability for all users– new and enhanced bridges become a unique component to remaking these roadways. The variety of bridge types is a strong characteristic evident in most Tennessee's cities. With its many overpasses, underpasses, viaducts, fly-overs, pedestrian bridges and river crossings, downtown Nashville can become an example and useful tool when implementing similar strategies in other key cities across Tennessee.

A SHARED ROADWAY BRIDGES

Many of the bridges in the downtown area cross over the interstate highways. These accomodate both vehicular and pedestrian traffic. With an aging infrastructure system in need of repairs, future enhancements can incorporate many components that create a "Complete Street" bridge – inviting and accessible for all user types. These may provide opportunities for signature designs and gateways into the city.

Aerial view with highlighted shared bridges to be considered.
Image source: NCDC + © 2011 Google Earth

B VEHICULAR-ONLY BRIDGES

Though many streets have been disconnected due to the construction of the interstate, some still pass underneath the freeway. Most of these situations share similar characteristics, and are usually viewed as unpleasant spaces of temporary experience. Many cities have begun to experiment with various transformations to activate and enhance these underutilized, dark spaces.

Aerial view with highlighted vehicular bridges to be considered.
Image source: NCDC + © 2011 Google Earth

C PEDESTRIAN BRIDGES

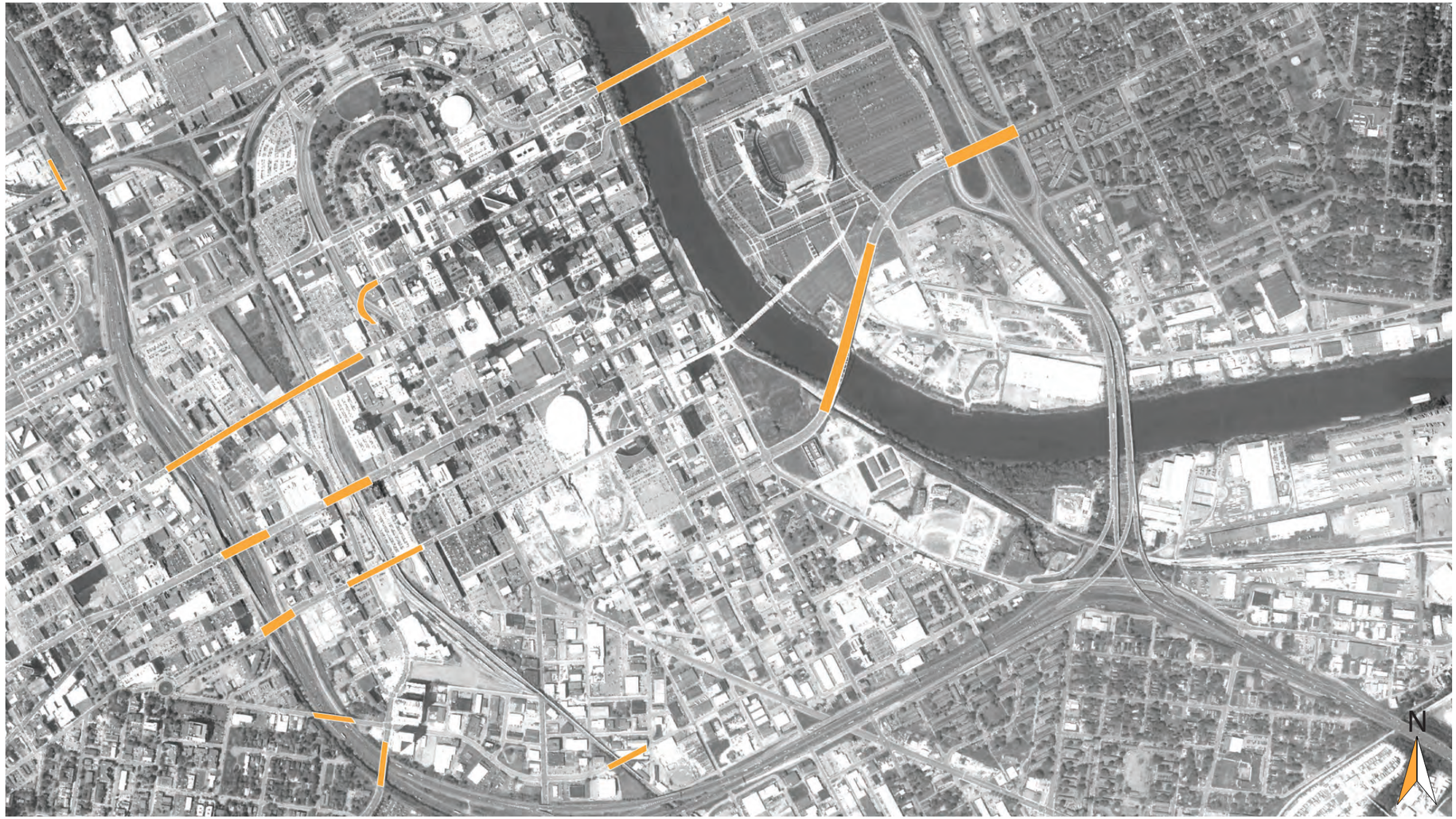
Two of the downtown pedestrian bridges were constructed across the interstate highways as a means to keep a physical connection between neighborhoods. These two aging bridges are located in metro public housing developments. Enhancements to these existing structures could also transform the public spaces on each end of the bridges – further improving the quality of the neighborhoods that these bridges connect.

Aerial view with highlighted existing and potential pedestrian bridges.
Image source: NCDC + © 2011 Google Earth

D CSX TRAIN BRIDGES

Railroad overpasses provide many with their first impression of downtown. Some, like the camelback "through truss" bridge over the Cumberland River, are signature structures in the urban landscape. There is great potential for these historic bridges to become recognized gateway structures to downtown Nashville, with enhancements to their rusty, aged appearance. A partnership with the Federal Railroad Administration (FRA) and CSX may be necessary for such improvements to be made.

Aerial view with highlighted train bridges to be considered.
Image source: NCDC + © 2011 Google Earth



Aerial view of Nashville, highlighted shared bridges in orange.
Image source: NCDC + © 2011 Google

Complete Bridges

In 2010, Mayor Karl Dean signed an executive order to create "Complete Streets" for new construction or enhancements to roadway projects. This policy could also be transferred to bridge projects, where users of all types are included in the design and implementation of new and enhanced bridges. These shared structures should be inviting and easily accessible, with accomodation for vehicles, non-motorized vehicles and pedestrians.

Too often our existing bridges do not offer the same components and features of their abutting streets – bike lanes disappear, sidewalks crumble and narrow, landscape features never realize, and lighting is installed as an after-thought.

When repairs and enhancements are made to existing bridges, those components must be planned and included in the redesign. Repeating these efforts across multiple projects in near proximity add to the effects of creating a cohesive, aesthetically pleasing environment. This, in turn, creates gateway corridors of consistent design characteristics with signature bridges placed at strategic entrances into the city.

Top: Gateway overpass, Columbus, IN. Image source: Brian Phelps
Middle: Kings Highway, Replacement overpass, St. Louis, MO. Image source: NCDC
Bottom: Interstate corridor improvements, Denver, CO. Image source: © 2011 Google

Top: McEwan Drive overpass, Franklin, TN. Image source: Sitephocus
Middle: Fort Washington Way, Cincinnati, OH. Image source: Sitephocus

Top: Gateway Bridge, Portland, OR. Image source: NCDC
Bottom: The Erasmusbrug, Rotterdam, Netherlands. Image source: NCDC

Interstate Corridor Gateways

In many cities, a bridge needing repairs becomes an opportunity for a new gateway, signaling the entrance into an urban area. Over the past decade, many US cities have rebuilt numerous overpasses. In St. Louis and Denver, the bridge replacement program succeeded in creating a new experience for motorists nearing the city, through the application of consistent design components for each bridge replaced. Repetition of concepts, materials and aesthetics over a series of overpasses creates a strong statement for those areas. A cohesive, enhanced corridor is commonly announced by one or more signature structures. In Cincinnati, the enhancements made to the Fort Washington Way freeway included two identical "gateway" overpasses framing the five-bridge corridor. Specialty lighting, decorative sound walls, separated pedestrian paths and landscaping elements have all been combined to create an overall enhanced experience of downtown and the connections made across a freeway.

Existing view of the Shelby Street overpass along I-24/65.
Image source: © 2011 Google

Scenario showing similar methods of enhancements in St. Louis applied to the Shelby Street overpass.
Image source: NCDC + © 2011 Google

Existing view of the I-24/40 corridor from the Broadway overpass.
Image source: © 2011 Google

View from the Broadway overpass showing enhancements made to the interstate corridor, including public art, decorative sound walls, special lighting, green walls and a signature design for the Church Street overpass. NCDC + Image source: © 2011 Google

Existing view down 12 Ave S, into the Gulch. Image source: NCDC

Scenario of 12 Ave S overpass with a signature design, announcing the entrance to the Gulch and downtown. This overpass is also the first of a series of five in the downtown interstate corridor. Image source: NCDC

Existing view of the Broadway bridge over the CSX rail yard and mid Gulch area.
Image source: NCDC

Scenario envisioning a gateway bridge to replace the Broadway bridge over the CSX rail yard. Other improvements show future development in the Gulch and a potential commuter rail station, identified in the *2035 Regional Transportation Plan* and *Connecting People to Places.* Image source: NCDC

Existing view from the Terrazzo building in the Gulch.
Image source: NCDC

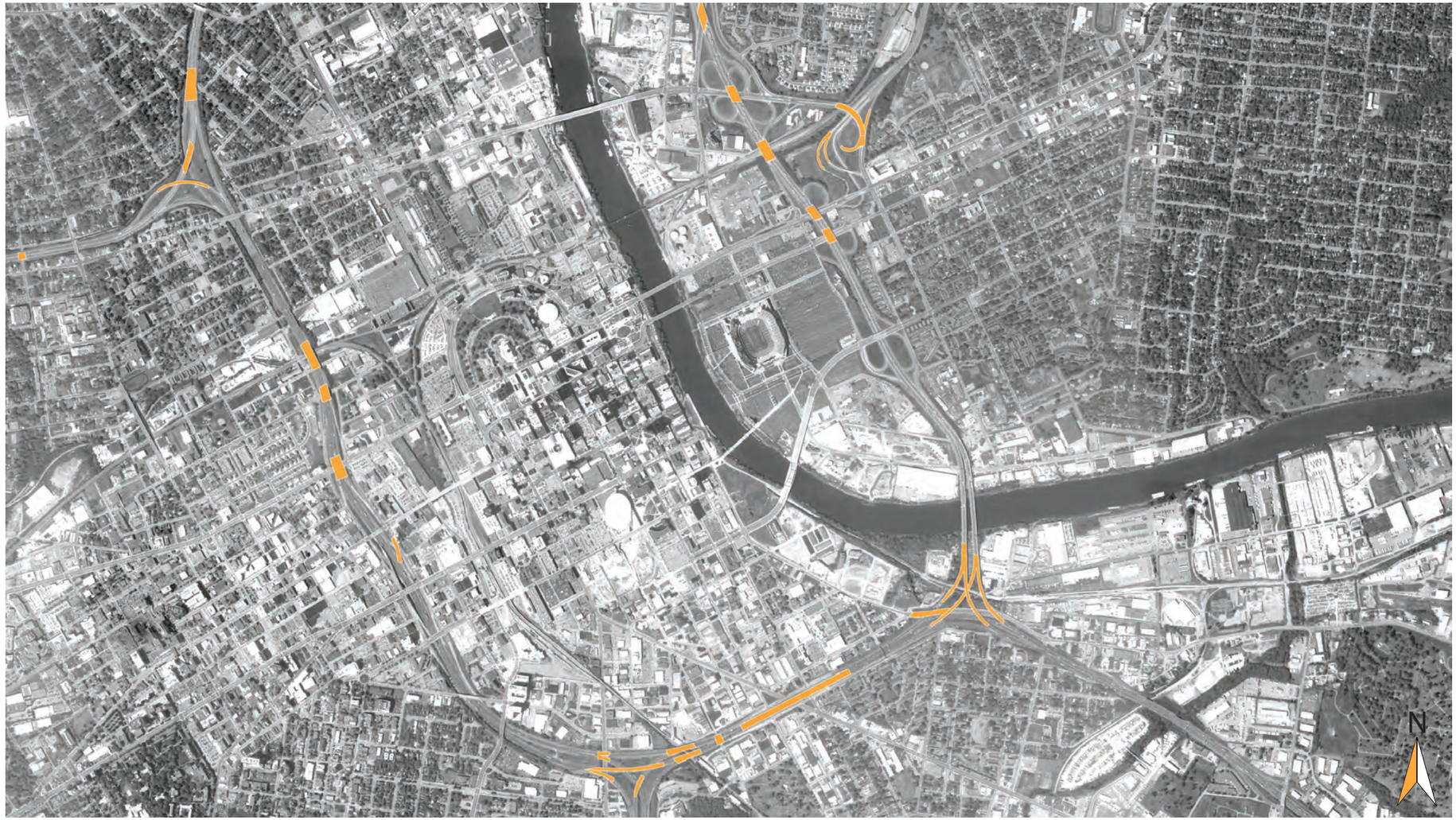
Scenario of potential enhancements to the downtown interstate corridor and overpasses.
Image source: NCDC

The convergeance of three interstates around Nashville's downtown core brought massive scars to many urban neighborhoods, as the interstates cut through and blocked streets, thus separating neighborhoods. The interstate loop around Nashville creates a physical barrier, limits adjacent land uses, impedes pedestrian access and the use of non motorized vehicles. Interstate highways through downtowns are often depressed below the surrounding roadways. This creates great opportunities for building land bridges – and new urban parks. Dallas is currently building this type of reconnection of a freeway scar by creating a park that "caps" the vehicular corridor. A similar situation exists in Nashville, between the 12th Ave S and Church St overpasses. Creating a land bridge is not new to Nashville, as one can be found on Brightwood Ave over I-440, and one has been proposed in new the Centennial Park Master Plan over 31st Ave N.

Rendering of "The Park" land bridge over a freeway in downtown Dallas, TX.
Image source: Woodall Rodgers Park Foundation

Proposed master plan of Centennial Park, including a land bridge over 31st Ave, Nashville, TN. Image source: Gustafson Guthrie Nichol

Scenario with a land bridge capping the downtown interstate corridor, providing a new layer of connectivity, while dramatically providing additional area to downtown open space and creating a bold statement for those entering Nashville's downtown core. Image source: NCDC

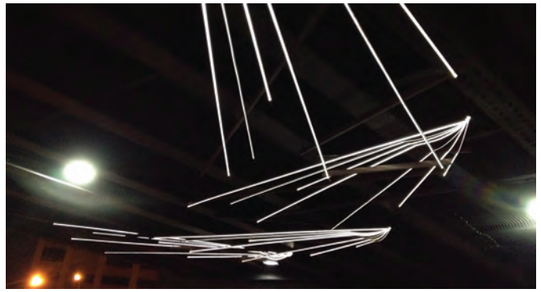


Aerial view of Nashville highlighting vehicular-only bridges for potential enhancements.
Image source: NCDC + © 2011 Google Earth

Interstate Overpasses

The arrival of interstates 40, 65 and 24 reshaped Nashville's urban core beginning 50 years ago. In *The Plan of Nashville: Avenues to a Great City,* one recommendation was to convert the interstate loop into an urban boulevard, reconnecting many streets cut off from the city's street grid, providing new opportunities for redevelopment along the existing road right-of-way. Though drastic and controversial, this concept brings into question the roles of interstates in cities that have experienced massive reinvestment in their urban centers over the past decade.

The interaction of infrastructure, connectivity and functionality becomes the center of conversation when considering enhancements and repairs to the aging freeway overpasses. There are a large number of interstate bridges and overpasses surrounding Nashville's urban core, all sharing similar characteristics of dark, dingy and unusable spaces beneath the heavy structures. Many view these areas as crime-ridden and graffiti defaced, and especially unattractive when experienced as a pedestrian on foot. Many cities around the world are looking at these abundant overpasses as opportunities for creating visually-pleasing, interactive public places.



Top: Art lighting installation, Brooklyn, NY. Image source: NCDC
Bottom: I-35 Reconnection Project, designed by Cotera + Reed Architects, Austin TX.
Image source: FODA studio

Top: transformation of underpass along river walk, Chattanooga,TN.
Image source: NCDC

Top: FDR Skate Park, Philadelphia, PA. Image source: Jeffrey Phillips Freeman
Bottom: Colonnade Park, Seattle, WA.
Image source: Pinbike.com user Mike Levy

Human Interaction with Vehicular Infrastructure

Around the globe—and especially in the US where our national highway system has penetrated nearly every major city—local governments, state departments of transportation, and even private organizations are experimenting with transforming the quality of space found beneath and near interstate overpasses. Areas typically designed for cars are receiving face-lifts, and occasionally, new programmatic uses. Enhancements to these types of bridges and overpasses range from minor treatments to intense renovation and reconstruction.

Public art can be used as a tool when conceptualizing these transformations, enhancing and highlighting existing structural details, and converting bare concrete walls into a palette of creativity. For these types of spaces, art can be incorporated in a new lighting component that not only provides a sense of security, but evokes emotional response and gains public interest.

One popular enhancement is to create skate parks or bike skills courses, like the Colonnade Park under I-5 in Seattle, Washington. Introducing day and nighttime activities provides a new layer of security, discouraging crime and illegal activities.

Existing view down 6th Ave S, Nashville, TN.
Image source: © 2011 Google

Existing view of I-24/40 overpass at Lafayette + 2nd Ave, Nashville, TN.
Image source: NCDC

Scenario of enhancements made to an interstate overpass and creating an active, more attractive space below.
Image source: NCDC

Existing view of I-24/40W overpass along Woodland Street, Nashville, TN.
Image source: © 2011 Google

Existing view down 8th Ave S, Nashville, TN. Image source: © 2011 Google

Scenario of enhancements made to an interstate overpass, including public art and special lighting features.
Image source: NCDC + © 2011 Google

Aerial view of Nashville highlighting new and existing pedestrian bridges.
Image source: NCDC + © 2011 Google Earth

PedXing

With 46 miles of dedicated, paved trails, Nashville's Parks Department maintains one of the largest pedestrian-only, paved trail systems in the southeast. Over 22 pedestrian bridges provide crucial connections throughout this growing network of greenways. Recent achievements include the completion of two bridges crossing the Cumberland River, connecting over 20 miles of continuous pathways. The Shelby Street Bridge rehabilitation was completed in 2003 and reopened as one of the world's longest pedestrian bridges. Originally constructed in 1909, it was the first bridge in North America to have concrete arch trusses.

A smaller portion of Nashville's pedestrian bridges is maintained by TDOT. These few examples allow safe crossings over the interstate highways, primarily connecting lower income and public housing neighborhoods. Rehabilitation is needed on some, due to aging infrastructure and decay. This could provide new opportunities for creating new gateways into the city, highlighting existing structural features and adding various components for visual enhancements and improved safety and security measures.

Top: Ponte della Costituzione, Venice, Italy. Image source: Timothy Brown
Middle: A Rails-To-Trails project, converted railroad to pedestrian bridge, Ohiopyle State Park, PA. Image source: Frank Kovalchek
Bottom: I-5 Gateway Pedestrian Bridge, Eugene, OR. Image source: OBEC consulting engineers

Top: I-44 Pedestrian Bridge, St. Louis, MO. Image source: NCDC
Middle: Walnut Street Pedestrian Bridge, Chattanooga, TN. Image source: Sitephocus
Bottom: Holmberg Walking Bridge, Chattanooga, TN. Image source: NCDC

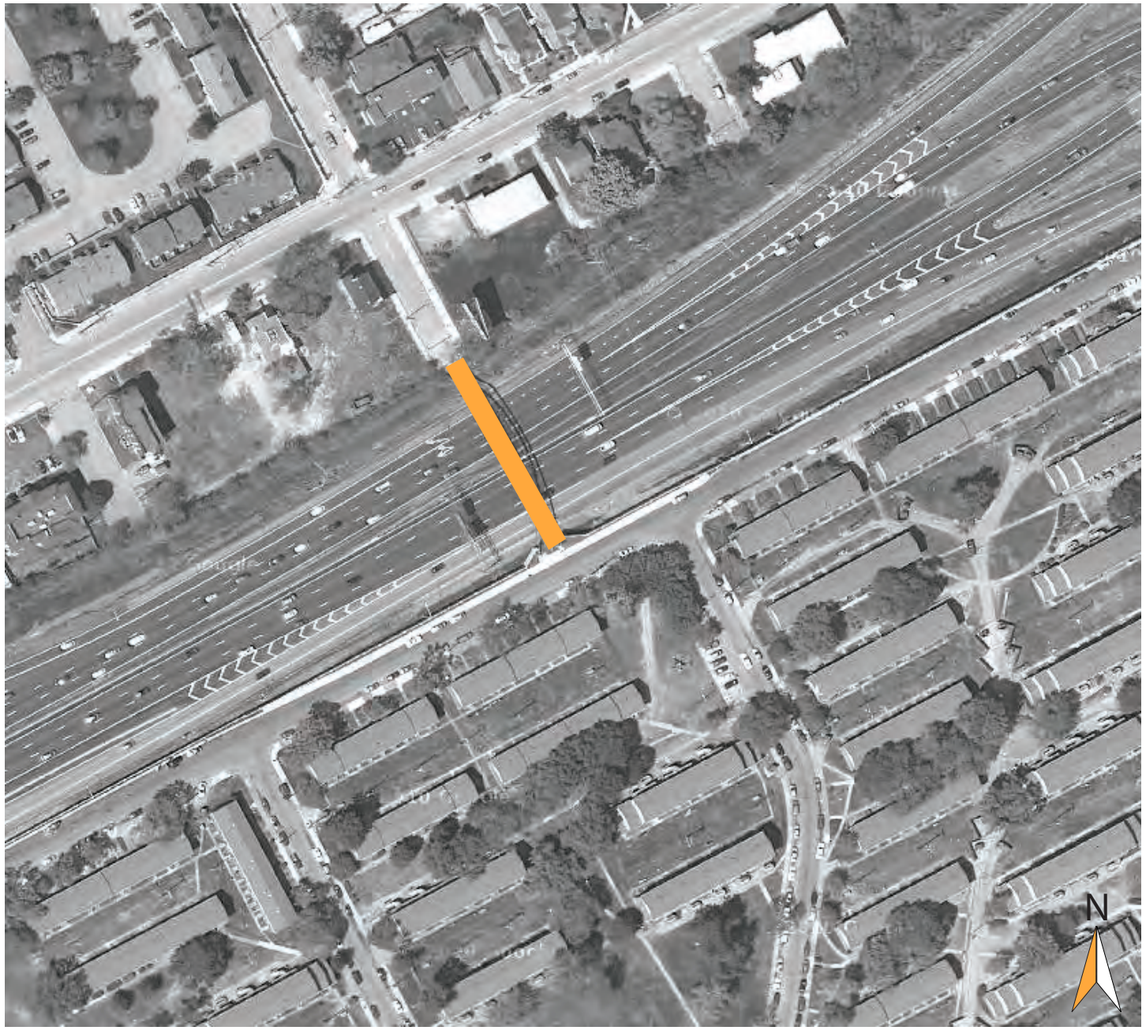
Top: TriMet's MAX Light Rail "Fishbird" pedestrian bridge at Rosebank station, Portland, OR. Image source: NCDC
Bottom: Union Station Pedestrian Bridge + plaza, Portland, OR. Image source: NCDC

Opportunities for Creativity

Not only do new and rehabilitated pedestrian bridges provide people with safer, easier and more pleasant experiences to access places to work, live, shop and play, but simultaneously act as signature design features within a city. Many places around the world use pedestrian bridges to create unique landmarks as gateways into the community.

In many cases, a deteriorated vehicular bridge may be converted for pedestrian-only access, flanked by new pedestrian plazas and parks. TDOT first experimented with this concept in Chattanooga, when the Walnut Street Bridge was refurbished and reopened for pedestrian use in 1993. Rails-to-Trails is a non-profit group using a similar model to transform abandoned rail viaducts into usable walking and biking pathways, such as the railroad bridge in Ohiopyle State Park, Pennsylvania.

In cities like Portland, St. Louis and Denver, bridges are commonly found crossing the interstate highway to connect residential neighborhoods to light rail transit stations. TriMet saw the opportunity to incorporate functional public artwork and commissioned an artist to design the pedestrian bridge at the MAX Rosebank light rail station in Portland, Oregon.



Aerial view of the Sudekum/Academy Place pedestrian bridge highlighted.
Image source: NCDC + © 2011 Google Earth

Existing view of the Sudekum/Academy Place pedestrian bridge crossing I-24/40.
Image source: © 2011 Google Earth

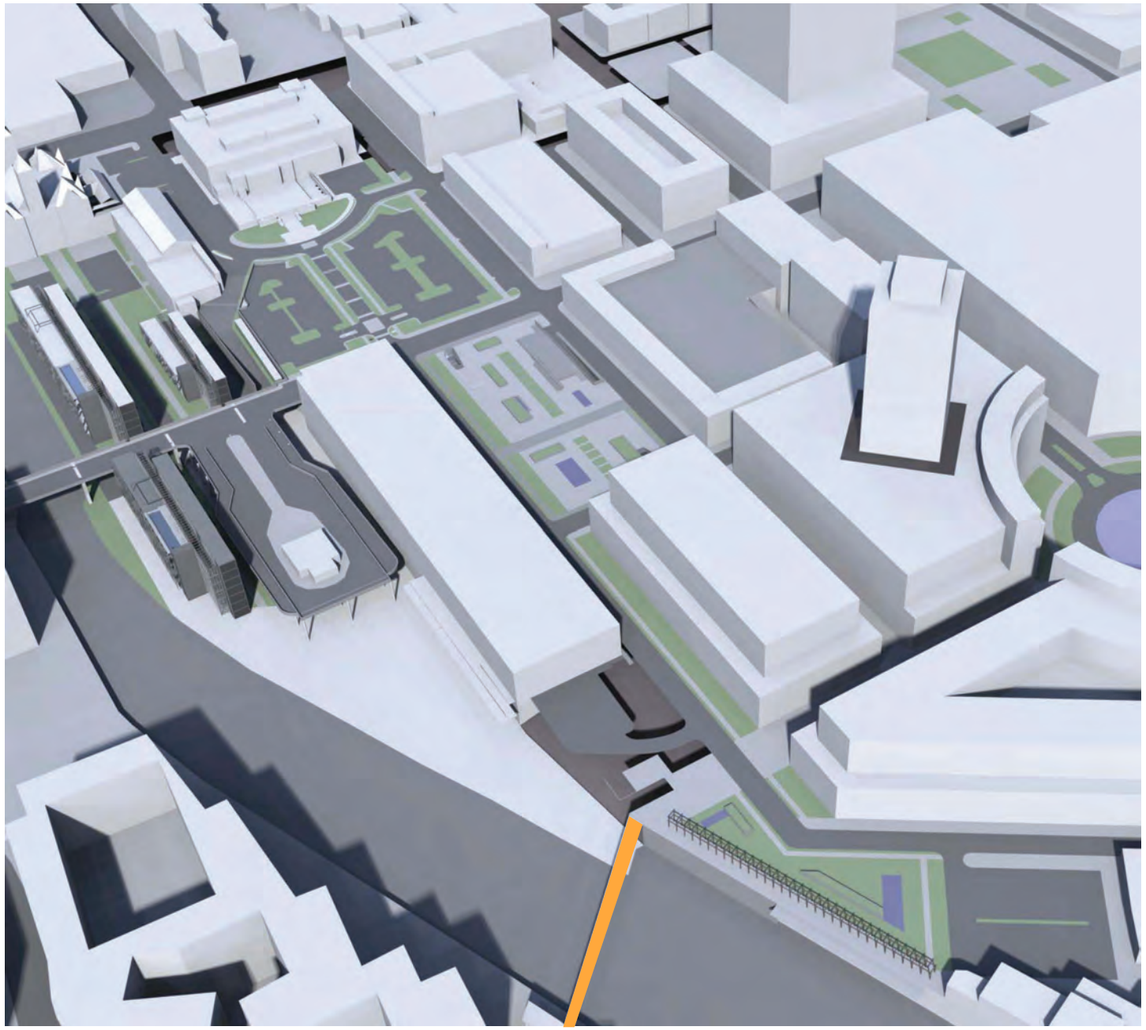
Scenario of the Sudekum/Academy Place pedestrian bridge with minor modifications and aesthetic enhancements.
Image source: NCDC + © 2011 Google Earth

Existing view of the Sudekum/Academy Place pedestrian bridge from the public housing entrance.
Image source: NCDC

Scenario showing improvements to the Sudekum/Academy Place pedestrian bridge and enhancements made to the public space surrounding the entrance.
Image source: NCDC

Existing view of the Sudekum/Academy Place pedestrian bridge from the Academy Place entrance, which terminates at the intersection across from the new developments at Rolling Mill Hill. Image source: NCDC

Scenario of the Sudekum/Academy Place pedestrian bridge from the Academy Place entrance, transforming the dead-end street into a pedestrian plaza and pocket park. Image source: NCDC



Birds eye view of a 3D model of SoBro, highlighting a potential pedestrian bridge over the CSX rail yard connecting the Gulch to Cummins Station, SoBro and the new Music City Center convention center. Image source: UT CoAD

Existing view from the Gulch towards SoBro and the CSX rail yard.
Image source: NCDC

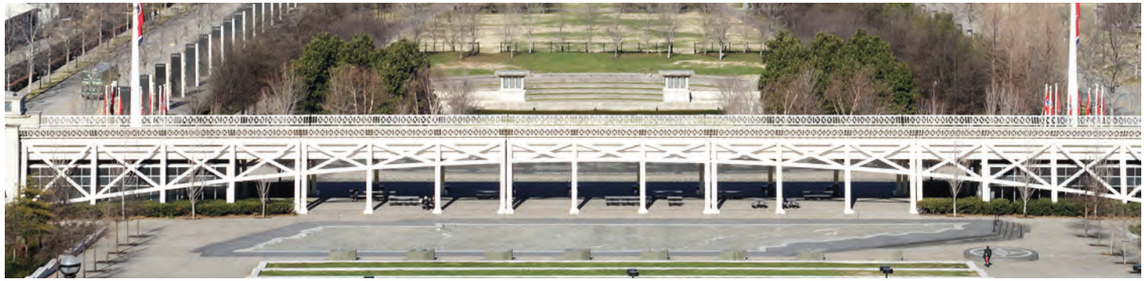
Scenario with a pedestrian bridge connecting SoBro to the Gulch. Other improvements include a new platform for a potential commuter/passenger rail line.
Image source: NCDC

Aerial view of Nashville, highlighting rail bridges for potential enhancements.
Image source: NCDC + © 2011 Google Earth

Train crossings

Another type of bridge included in this report is the rail bridge. Though not owned and operated by TDOT, many of these bridges have considerable impact in the urban areas, which both affect the interaction of vehicular roadways and potentially hinder development patterns. The rail network within Nashville is an ever-present, growing method of transportation, both cargo and passenger rail. Much of the rail system is aged beyond the roadway infrastructure, and in many cases unutilized for years. Many of the existing rail bridges crossing the Cumberland River are historic structures, ones to suggest protection and rehabilitation. These infrastructure elements perform on a daily basis, some with a moveable apparatus to allow efficient crossings with barge traffic below.

Another consideration to be made is the opportunity for grade separation of vehicular and rail traffic. Same-grade, multi-modal crossings are not only an annoyance but also a dangerous hazard. According to the Federal Railroad Administration, 90 percent of rail related deaths are due to same-grade highway and rail crossings. Eliminating these crossings with an over/under pass alleviates traffic congestion while enhancing safety conditions.



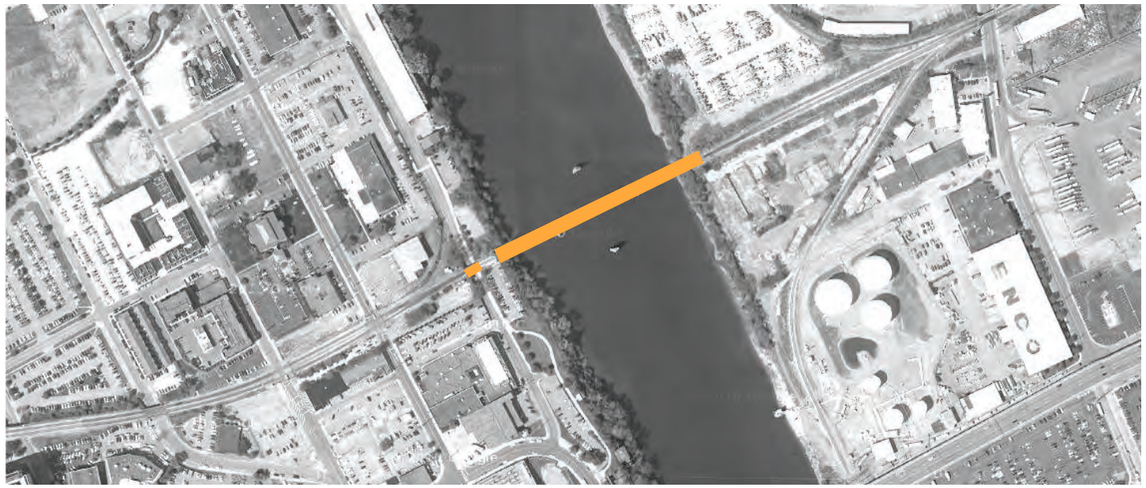
Top: Rail replacement bridge, Bicentennial Mall, Nashville, TN.
Image source: Wikimedia Commons user Thegreenj
Bottoom: Rail overpass enhancement sculpture "Water Music" by David Teeple, Northhampton, MA. Image source: David Teeple

Top: Rail viaduct market infill project, Zurich, CH. Image source: NCDC
Bottom: Norwottuck Rail Trail bridge, Northampton, MA.
Image source: John Phelan

Rail Bridge Enhancements

Examples from across the US show how improvements can be obtained through public-private partnerships. In many situations, rail bridges are privately owned and yet through public initiatives, minor cost effective enhancements can be done with minimal effort. Public art is a repeated method used for these enhancements, which also allow community participation and expression. Some cities, like Northhampton, Massachusetts, have explored local design competitions to spur creativity and new concepts for aesthetic enhancements.

Existing view of second rail overpass along 1st Ave N, Nashville, TN.
Image source: NCDC



Aerial view of CSX bridge over the Cumberland River.
Image source: NCDC

Existing view of CSX rail bridge over the Cumberland River, Nashville, TN.
Image source: NCDC

CSX rail bridge with minor enhancements made.
Image source: NCDC

Gateways at Night

Nashville has a recent history of creating and branding its skyline in both day and night. Incorporating special lighting into the design as a prominent feature transforms these functional, highly-engineered structures into works of art, highlighting the details and creating a dominant presence in the landscape and urban environment. New enhancements to existing bridges may include special lighting to not only increase security and create safe environments for pedestrians, but also to effectively and affordably create new gateways at night. The Sudekum/Academy Place pedestrian bridge's current deterioration and aged appearance convey signs of poverty and abandonment, however this structure contains ideal framework for transformation into a signature gateway bridge with minimal effort. Enhancements like these not only improve perspectives of motorists entering the city, but also the experience for the community using this public infrastructure, gaining a sense of pride and ownership of a unique structure and asset to their neighborhoods.

The Shelby Street bridge was rehabilitated and converted to pedestrian-only in 2003, attracting locals and tourists alike. It has quickly become an iconic gateway structure for Nashville and Tennessee, activated at night with its dramatic up-lit components. Image source: Sitephocus

Scenario at night with new and existing design features up-lit, providing extra security for its users while creating a spectacular first impression as one of the first sights one experiences as a motorist entering the city. Image source: NCDC

The John Ross bridge creates a lit gateway into Chattanooga over the Tennessee River. Image source: Sitephocus

DECORATIVE CASTINGS

DETAILED FENCING

SEPARATED SIDEWALK

LANDSCAPING

LIGHTING

SIGNATURE DESIGN

CORRIDOR IMPROVEMENTS

ACCESSIBILITY

Top: Demonbreun Street viaduct, Nashville, TN.
Middle: 2nd to 3rd street, Cincinnati, OH.
Bottom: Fort Washington Way improvements, Cincinnati, OH.
Images above by: Sitephocus

Top: Nichols Bridgeway, Chicago, IL. Image source: Sitephocus
Middle: John Ross Bridge, Chattanooga, TN. Image source: Sitephocus
Bottom: Walnut Street Pedestrian Bridge, Chattanooga, TN.
Image source: NCDC

Top: Fort Washington Way overpass, Cincinnati, OH. Image source: Sitephocus
Bottom: Millennium Bridge, Denver, CO. Image source: Sitephocus

Enhancing Bridges

When considering enhancements to bridges and the spaces surrounding them, it is crucial to incorporate the right tools and components that help provide new opportunities and create high-quality projects. Where pedestrians are allowed to utilize the bridge's paths, confirm accessibility, safety and ease with buffers between vehicular traffic and foot traffic. Landscaping elements can also be used as buffers, meanwhile enhancing its aesthetics and experiential quality. Special attention should be made to material selection, considering its potential functions. Enhancing a bridge may only go so far as the enhancements made to its immediate context. In some cases an enhanced corridor produces comparative results to a signature bridge. Unique bridge designs should be placed along strategic corridors, where its striking features will have the strongest impact on creating new gateways into a city.