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## 1.0 PURPOSE AND NEED

### 1.1. Project History and Description

This document provides an evaluation of anticipated environmental impacts associated with the construction of a new Ohio River Bridge for highway vehicles located south of Wellsburg in Brooke County, West Virginia and in the proximity of the unincorporated area of Brilliant, Wells Township, in Jefferson County, Ohio. The level of environmental documentation presented herein is an Environmental Assessment (EA). Alternatives considered in this EA include: the No-Build, Transportation System Management (TSM) and Build. This EA evaluates the anticipated socioeconomic, cultural and natural environmental impacts of the proposed project in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended; follows U.S. Department of Transportation Federal Highway Administration (FHWA) guidelines (*Technical Advisory T 6640.8A, October 30, 1987 – Guidance For Preparing and Processing Environmental and Section 4(f) Documents*); and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)(Publication L. 109-59, August 10, 2005, 118 Stat. 1144) and related guidance.

#### ***Existing Regional Ohio River Bridge System***

The existing upper Ohio River bridge system in the Weirton, West Virginia and Steubenville, Ohio, metropolitan region consists of three highway bridges spanning the Ohio River. The three bridges from north to south are Fort Steuben Bridge, Veterans Memorial Bridge and Market Street Bridge. The Fort Steuben Bridge is closed to traffic and at the remaining two locations, the existing bridges act as the only connections for highway vehicle traffic between West Virginia and Ohio in the region. Furthermore, the Market Street Bridge is weight restricted and thus only passenger vehicles can use the span. The Veterans Memorial Bridge carries US 22 traffic and is the only bridge in the region which allows heavy industrial, commercial and emergency highway vehicles to cross the river. West Virginia Route 2 (WV 2) and Ohio State Route 7 (OH 7) are the major arterials running north and south parallel and adjacent to the Ohio River, while US 22 is the only major 4-lane east-west highway facility that connects Pennsylvania, West Virginia and Ohio in this metropolitan area. Within this region, OH 7 is primarily a 4-lane facility and WV 2 has both 2-lane and 4-lane sections. There are no other public vehicle river crossings for approximately 25 miles north or south of the Weirton/Steubenville vicinity. Refer to Exhibit 1-1 for the location of these existing transportation facilities.



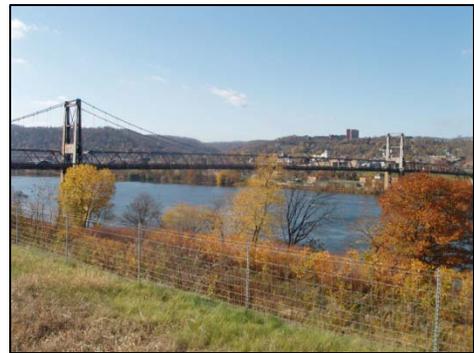
**Figure 1-1: Veterans Memorial Bridge**

The Fort Steuben Bridge, a narrow two-lane structure constructed in 1928, is owned by the Ohio Department of Transportation (ODOT). Due to deteriorating structural conditions of

this bridge, on January 15, 2009, ODOT announced the permanent closure of the span. Demolition occurred on February 21, 2012.

The US 22 Veterans Memorial Bridge opened to traffic in 1990 and is located just south of the Fort Steuben Bridge. Structural repairs were completed in spring 2009 on this single-tower cable-stayed structure. This bridge, which has an 820-foot forespan and 688-foot backspan, is the only highway bridge in the region operating without weight limitations. It carries four US 22 thru traffic lanes and two acceleration/deceleration lanes which connect to WV 2 and OH 7 access ramps. The West Virginia Department of Transportation (WVDOT) Division of Highways (WVDOH) and ODOT share ownership and maintenance costs for this bridge which carries more than 29,000 vehicles per day (vpd).

The Market Street Bridge, a narrow two-lane facility constructed in 1904, is owned by WVDOH and has a 5-ton weight restriction. On June 11, 2009, the WVDOT Secretary of Transportation officially announced WVDOH and FHWA will fund limited renovations to this bridge including repairs and painting. These repairs will only allow this bridge to remain open to traffic for an indefinite period of time and will still require a 5-ton weight restriction. This renovation was completed in 2011.



**Figure 1-2: Market Street Bridge**

### ***Past Regional Bridge System Studies***

This metropolitan region is composed of Brooke and Hancock Counties, West Virginia and Jefferson County, Ohio. The designated Metropolitan Planning Organization (MPO) for this region is the Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ). On May 31, 1994, the BHJ 2015 Regional Transportation Plan identified the construction of a new Ohio River bridge as its Number 1 regional transportation priority. In September 1997, BHJ released a report on the impact of closing the Fort Steuben Bridge and stated their travel demand model indicated the closure of this bridge will result in increased traffic flows and therefore, have a negative impact on regional transportation flow and air quality. In May 2000, BHJ formally adopted and submitted a detailed “statement of need” document to ODOT, WVDOH and FHWA. In May 2003, BHJ formally adopted and submitted a “location and priority” document to ODOT, WVDOH and FHWA which listed the need for access improvements to the Veterans Memorial Bridge as their top priority. Their second priority was to construct a new Ohio River bridge in the area between Wellsburg and Brilliant. Their third priority was to construct a new Ohio River bridge in Steubenville at Washington Street.

The two regional bridge system studies commissioned by BHJ and funded by WVDOH and ODOT are of particular significance to the current studies described in this document. In

June 2000, BHJ issued the *Upper Ohio Valley Bridge System Study Phase I Final Report* (BHJ, 2000). The purpose of this study was to analyze and determine the need for a new Ohio River bridge crossing within a defined study area which extended from just north of the Fort Steuben Bridge to the southern boundary of Brooke County. Public involvement in this planning process occurred on several levels and included a series of public meeting workshops beginning on November 17, 1999. A Bridge Advisory Committee of local officials and citizens and transportation officials from WVDOH and ODOT identified a new river crossing as the highest priority in the region.

According to the June 2000 BHJ study, the average daily traffic (ADT) on the Fort Steuben Bridge was 5,000 vpd, the Veterans Memorial Bridge carried 27,000 vpd and the Market Street Bridge carried 9,200 vpd. The study found that although the existing bridges can accommodate both current and projected 2030 traffic volumes, both the Fort Steuben and Market Street Bridges are beyond their design life and would require significant renovation to continue operating. The study states that with only one river crossing in the region, a major safety hazard would be created and the concentration of all bridge crossing capacity in a small area would limit flexibility within the system. As a basis for the need for a new crossing, the study predicts the impending closure of Market Street Bridge will cause failures in the transportation system at the US 22 with OH 7 interchange. Due to the limited bridge crossings, the existing regional transportation system lacks flexibility and redundancy in travel options, resulting in lengthy travel times. According to the study, this added travel time is a significant economic burden and a deterrent to new economic development. The study identified seven goals and objectives, which were adopted to guide the Phase I study and future work. These goals are listed below:

- Maintain and enhance transportation capacity, safety and reliability for existing businesses, their employees and all residents
- Provide enhanced access for expansion and retention of businesses and attraction of new businesses to the region
- Draw more traffic and commerce into the Upper Ohio Valley
- Develop linkages to high capacity inter-modal transportation by strengthening the connections to river ports and railroads
- Enhance emergency management options to provide alternative routes in case of flood, natural disaster, or accident
- Improve travel times throughout the region
- Ensure that the cross-river transport network from Wheeling north to Steubenville is sufficiently robust to carry all weights and sizes of commercial vehicles.

The Phase I study concluded that additional river crossing capacity would be key to solving the regional transportation issues and enhancing economic development, and Phase II of the study should begin to determine and evaluate potential locations for a new river crossing.

In September 2003, the *Brooke-Hancock-Jefferson Regional Bridge System Study, Phase II Final Report* (BHJ, 2003) was published. According to this report, the BHJ 2020 and 2025 Regional Transportation Plans indicate that “promot[ing] a regional Ohio River bridge network that maintains and expands metropolitan activity” is a top priority. Using a best management approach to the region’s declining bridge infrastructure, BHJ and its consultant directed the study through a rigorous public involvement process and quantitative review. A 32-member regional task force reviewed the ongoing site location studies during numerous public meeting workshops. Ten alternate bridge locations were considered and when factors such as vehicular mobility, environmental impact, safety and benefit/cost were considered, the preferred general location just south of Wellsburg was selected for the next new river crossing.

For the Phase II study, it was assumed both the Market Street Bridge and the Fort Steuben Bridge would both be out of service by the year 2025. Evaluation criteria for the Phase II study included: 1) effectiveness in minimizing environmental impacts, 2) cost effectiveness, 3) effectiveness for improving safety, and 4) effectiveness in supporting regional economic growth. After ongoing Bridge Advisory Committee meetings and numerous public information meetings and workshops, BHJ made the following three priority recommendations in the Phase II study:

*“Priority # 1: Construct roadway and intersection capacity improvements to better access the region’s most modern bridge crossing, Veterans Memorial Bridge...*

*Priority # 2: Construct a new Ohio River bridge crossing south of Wellsburg to connect West Virginia State Route 2 and Ohio State Route 7.*

*Priority # 3: Construct a new Ohio River bridge crossing to connect West Virginia State Route 2 and Ohio State Route 7 in Steubenville at Washington Street.”*

For Priority # 1, WVDOH has made improvements for better access to the Veterans Memorial Bridge on the West Virginia side and ODOT is currently doing further studies for improvements on the Ohio side, including a possible realignment of OH 7 and its intersection with University Avenue and the bridge ramps located in Steubenville.

For Priority #2, the Phase II study further indicated a new Ohio River Bridge located south of Wellsburg and in the vicinity of Brilliant would meet the area’s transportation needs, bring about economic and industrial growth in the Ohio Valley Region and supply the area with a modern alternative route should an emergency situation arise.

### ***Environmental Study Area***

The environmental study area, as shown in Exhibit 1-2, is located along the Ohio River approximately six miles south of the existing Market Street Bridge. The study area's northern limit is Buffalo Creek in West Virginia located just south of Wellsburg at approximate River Milepost 74.8. The southern limit is just north of the Cardinal Power Plant in Brilliant at approximate River Milepost 76.2. The environmental study area includes approximately 1.4 miles of the Ohio River for the study of alternative bridge crossing locations; areas south of Wellsburg for improvements to WV 2 for its connection with the various river crossing locations; and various areas in and around Brilliant for connections to OH 7 and Brilliant's local street system.



**Figure 1-3: Cardinal Power Plant (Looking North)**

Within the study area, WV 2 is a two-lane highway with posted speeds of 55 mph. Due to topography, there is limited development south of Wellsburg on WV 2 with the exception of several commercial buildings located at Buffalo Creek. These include a barge washing facility, convenience store/gas station, among others. Also, the Brooke County School District Bus garage is located in this area. The Brooke-Pioneer Trail runs parallel to WV 2 on the former Pittsburgh, Cincinnati and St. Louis Railway. Between WV 2 and the Brooke-Pioneer Trail is a former trolley line which is now a utility corridor.

OH 7 is a controlled access four-lane divided highway within the study area. The posted speed is 55 mph. Brilliant is connected to the regional highway system through two interchanges with OH 7. The southern interchange, signed as Riddles Run, is located near the Cardinal Power Plant and connects with 3<sup>rd</sup> Street. To the north is a split-partial interchange, signed as Brilliant, with southbound entrance and exit ramps and a northbound entrance ramp. This interchange does not have a northbound exit ramp servicing the northern end of Brilliant. 3<sup>rd</sup> Street is the primary local road within Brilliant. Many residences, businesses, parks and schools are located along 3<sup>rd</sup> Street.

## **1.2. Purpose and Need Statement**

A new Ohio River crossing, connecting WV 2 to OH 7, in this region would serve many purposes, but would most importantly provide a sustainable and flexible transportation system that will support the possibility of growth in the surrounding area and also increase safety and mobility to the travelling public by providing additional routes within the existing highway system. The Purpose and Need for this project is to improve access and flexibility of the regional transportation system, enhance regional safety and stimulate

economic growth and development. As a result of economic growth with new and expanded development, the project may grow the employment base of the region. By facilitating traffic movements throughout the study area and the region, these goals can be accomplished.

***Improve Access and Flexibility of Regional Transportation System***

The purpose of an additional river crossing in the Upper Ohio Valley would be to improve access and increase overall flexibility of the existing transportation system by providing an additional connection from WV 2 to OH 7, thereby stimulating local industrial and economic growth while enhancing public safety. The proposed Ohio River crossing will provide a connection from WV 2 to OH 7 utilizing new ramps, connectors, or the existing local street system with existing connections to OH 7. It would also help facilitate the movement of industrial, commercial and commuter traffic throughout the region with decreased travel times and would give the region a competitive edge of an improved infrastructure system.

The one-way trip distance over the existing highway system between Wellsburg and Brilliant is approximately 20 miles. With average travel speeds less than 40 mph during normal dry weather travel conditions, trips between the two locations normally take approximately 30 minutes. In poor weather or hazardous road conditions, trip lengths can be considerably longer. In events when travel on WV 2 or OH 7 is restricted, travel times become extreme. With the addition of a new river crossing between these two locations, highway vehicle trips could be made in less than 5 minutes. This would allow efficient inter-state travel between Wellsburg and Brilliant for recreation, shopping and job opportunities.

Over the years, the industrial regions on both sides of the river have created opportunities for expansion, redevelopment and diversification of businesses within the region, but within the study area, travel options are currently very limited to only north and south movements along the river within each state. The proposed river crossing will play a major role in attracting, retaining and serving the needs of these businesses by allowing east-west travel between the two states, thus providing a flexible highway vehicular access system.

With the addition of a new river crossing in the Brilliant area, there would be access to a controlled access north-south four-lane facility (OH 7) which would enhance regional travel. With an increase in transportation flexibility and reduced travel times, it is also likely the proposed crossing will enhance community cohesion between Wellsburg and Brilliant. Through improved safety and increased accessibility between these and other communities, particularly those that lie on opposite sides of the river, personal, commercial and industrial travel needs will be served and enhanced.

Should the Market Street Bridge close to traffic prior to the construction of a new crossing, as is currently proposed, there would remain only one river crossing for highway vehicles

within approximately 50 miles. The closest highway vehicle river crossings beyond the regional bridges discussed previously are located approximately 25 miles to the south at Wheeling, West Virginia and approximately 25 miles to the north at East Liverpool, Ohio. With only the US 22 Veterans Memorial Bridge remaining, the transportation system in this region would be severely limited and would offer no flexibility in routes for highway passenger, commercial, industrial and emergency vehicular travel between the two states. If an unforeseen event were to close the Veterans Memorial Bridge, highway travel between communities located in both states would be severed and long detours would need to be posted. Even if the Market Street Bridge were to remain open to passenger vehicles during a temporary closure of the Veterans Memorial Bridge, travel would still be severely restricted for all commercial, industrial and emergency vehicles.

***Enhance Regional Safety (Mobility)***

The highways, city streets and local rural roads which make up the regional transportation system rely heavily on WV 2 and OH 7 to connect the communities along the Ohio River in this region. When these routes are closed due to crashes, flooding, or landslides, few alternate routes are available. By providing a second link between these two routes with a new river crossing, additional transportation options become available for normal transportation purposes, as well as for the passage of emergency vehicles and delivery of emergency services.

Several recent landslide events along WV 2 and OH 7 required the need for lengthy detours for passage of emergency and other vehicles serve as examples for the need of an improved transportation system in the region. As a result of heavy rains and flooding conditions of the Ohio River due to Hurricane Ivan, in September 2004, President Bush approved a request from West Virginia Governor Bob Wise for a Federal disaster declaration for Brooke, Hancock, Ohio and other West Virginia counties. A portion of the City of Wellsburg was flooded by rising waters of the Ohio River and sections of WV 2 were closed. Northbound lanes of OH 7 were also closed, but southbound lanes remained open. Events such as this highlight the need for the ability to safely escape hazardous conditions and provide aid to those in disaster areas.

From late February 2011 through early March 2011, the region experienced multiple land and rockslides. Each separate event resulted in partial or complete closures of the regions most relied upon routes, WV 2 and OH 7. Some closures lasted a matter of days and others lasted a number of weeks. The closure of these routes illustrates the necessity of an improved transportation system in the region for access and emergency management purposes. The National Weather Service (NWS) reports that parts of the Upper Ohio River Valley have received nearly 200% of normal precipitation in February 2011. This precipitation, in excess of normal amounts, saturated the soil which contributed to the recent landslides. In its National Hydrologic Assessment, NWS describes the region's flood risk in Spring 2011 to be "Above Average". Additional wet weather will likely intensify the

existing potential for slides in the area, thus emphasizing the need for another means to safely divert traffic.

For regional travel movements, a new river crossing located in the study area would serve as an additional and alternate route as emergency situations arise. This new bridge could be used for ambulance service located in many regional West Virginia, Ohio and Pennsylvania communities, as well as for their fire fighting equipment movements should a significant event occur which requires more than local emergency providers. For situations such as these, response times would be significantly reduced for ambulance service and fire fighting equipment movements in and around the Wellsburg and Brilliant areas, as well as for the adjacent communities and neighborhoods. Emergency action plans needed for any events occurring at local and regional industrial complexes, including the Cardinal Power Plant, would be enhanced with the flexibility the new routes would offer. Emergency service response times would be enhanced for highway accidents, natural hazards, or man-made disruptions along WV 2 and OH 7.

In addition, when annual safety inspections take place on the Veterans Memorial Bridge and lane capacity is reduced, the additional routes created by the addition of a new bridge would be utilized. As noted earlier, with the Fort Steuben Bridge out of service and the 5-ton weight limit imposed on the Market Street Bridge, these old, deteriorated structures can not share the traffic responsibility with the Veterans Memorial Bridge of providing a major link for emergency vehicles.

### ***Economic Growth and Development***

This region has always been an area of industrial, manufacturing and coal mining activities. This area has seen an increase in older populations and a decrease in basic industry (BHJ, 2003). Employment has been leaving this region, thus spreading out the communities, weakening the region's structure and forcing longer commutes for residents. As a result, the industry and economics of the area have changed. The population of the BHJ area is projected to decline by as much as 18% by 2030, two-thirds of a percent annual decrease over the next 30 years (BHJ, 2008). As a reflection of this population trend, the study also predicts a decline in employment opportunities. It is estimated that although some economic areas show small growth trends, the decline in manufacturing employment is so extreme that overall employment numbers resulted in a decline of 12.79% from 2000 to 2030.

For the existing steel mills and other industries located in Ohio and West Virginia near the study area, the proposed bridge would provide a direct connection into various areas of West Virginia's northern panhandle, Eastern Ohio and Western Pennsylvania. The bridge would also reveal access from OH 7 to several existing industrial parks and developable land sites which are currently only accessible through narrow sections of WV 2, forcing travel times to be extensive. Within 2 miles south of the study area examples of currently underutilized regional development sites can be found in Brooke County and neighboring Ohio County along WV 2. Although level, developable land is readily available at these

sites, little development has taken place over the last few decades. Similar sites are also found north and south of the study area in Ohio along OH 7. A new bridge spanning the Ohio River and ultimately reconnecting small communities into the region could help restore stability and provide access to promote growth to the area's economic and population base.

As an example of population decline in the region, the population in the City of Wellsburg in 2000 was 2,891 (United State Census Bureau (USCB), 2000). Between 1990 and 2000, the City of Wellsburg experienced a decrease in population of -14.6%. Brooke County also experienced a decrease in population of 5.7% from 1990 to 2000 to a population of 25,447 in 2000. In comparison, the state of West Virginia experienced a slight increase of 0.8% between 1990 and 2000 to a population of 1,808,344.

The study area on the west side of the Ohio River experienced population changes similar to those on the east side of the river. The population of Jefferson County experienced decreases in population between 1990 and 2000 of 8.0% to a total population of 73,894 in 2000 (USCB, 2000). The demographic data for zip code 43913 (unincorporated town of Brilliant and surrounding area), shows this area underwent an increase in population of 3.3% between 1990 and 2000, while the state of Ohio grew 4.7% between 1990 and 2000.

The December 5, 2007 report entitled *A Socioeconomic Profile – Brooke County, West Virginia* (Headwaters Economics, 2007) documented the long-term trends in demographics, employment and income of Brooke County. This report is based on the 2007 version of the Economic Profile System which uses databases from the Bureau of the Census including County Business Patterns; Bureau of Labor Statistics; and the Regional Economic Information System of the Bureau of Economic Analysis, U.S. Department of Commerce. This report shows a population decline from 1970 to 2005 of 19%. At an annual rate, this represents a decline of 0.6%. According to this report, over the last 35 years population growth in Brooke County has been slower than the state and the nation. Furthermore, the population has gotten older since 1990 (the median age in 2000 was 41.2 years, up from 37.3 years in 1990). Over the last 35 years, job growth in Brooke County has been slower than the state and the nation. Income growth in Brooke County has been slower over the last 35 years than the state and nation. The report's commuting data also suggests Brooke County is a bedroom community (income derived from people commuting out of the county to work exceeds the income from people commuting into the county).

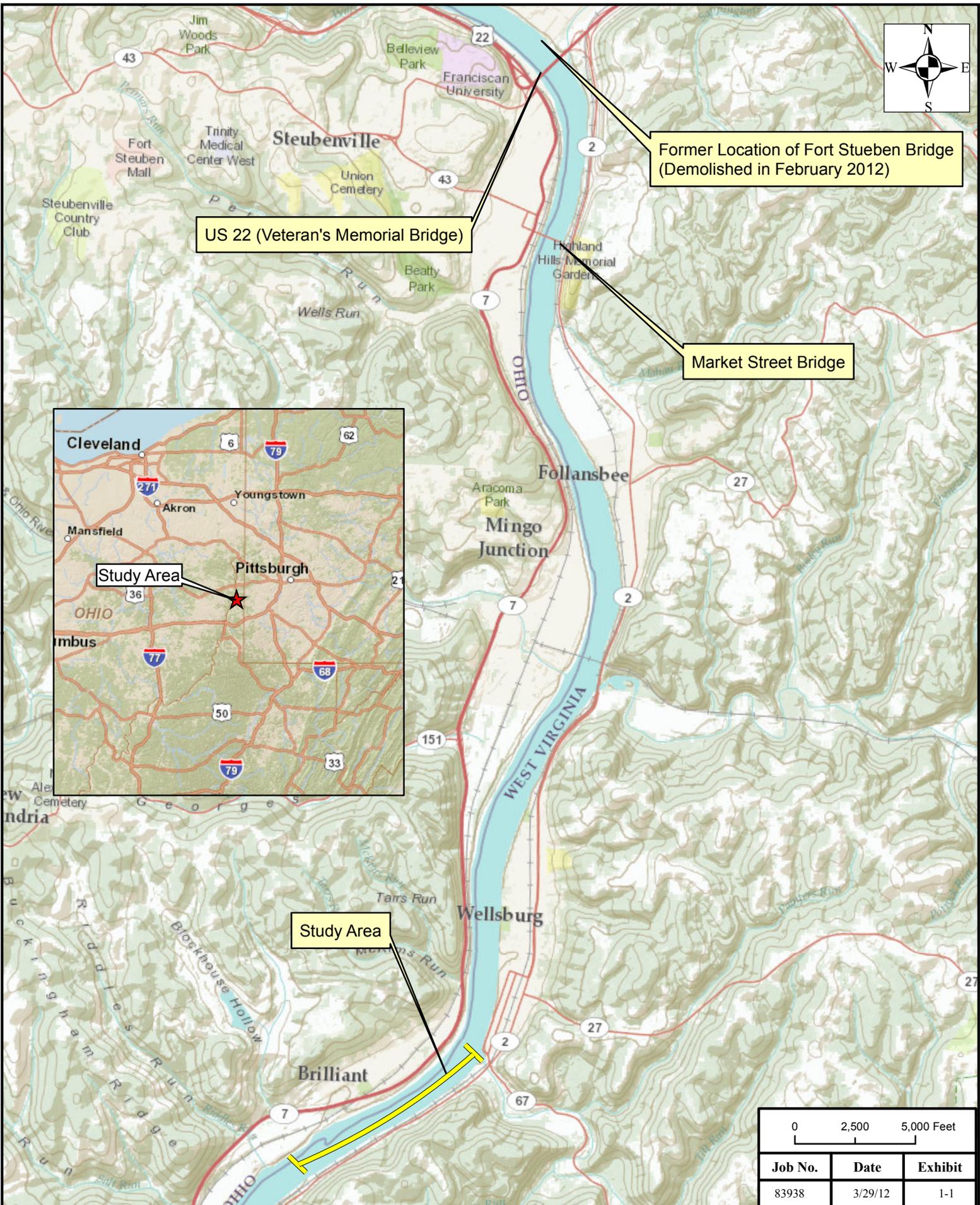
To create employment opportunities and reverse the trend of population decline, there is a strong demonstrated need for the stimulation of economic development in the region. By facilitating traffic movements throughout the study area, as well as the region as a whole, development opportunities should be enhanced resulting in job creation.

### 1.3. Consistency with Other Plans

The proposed project is consistent with the transportation planning process at the state and regional levels. The project is included in the BHJ Plan as BR-2 under planned projects for FY 2010-2018 (R/W Acquisition) and FY 2019-2024 (Construction) (BHJ, 2008). For FY 2019-2024, \$58,858,000 is included in the Fiscally Constraint List of Transportation Projects Planned for Brooke/Hancock County, West Virginia. The BHJ MPO Transportation Improvement Program (TIP) for Federal-Aid Projects 2012 through 2015 Four-Year Short Range Program, adopted May 25, 2011 (most recent update is Revision 4 dated March 28, 2012) also allocates \$6,400,000 for engineering and \$7,200,000 for right-of-way acquisitions. A portion of this allocation is funded by the SAFETEA-LU Earmark.

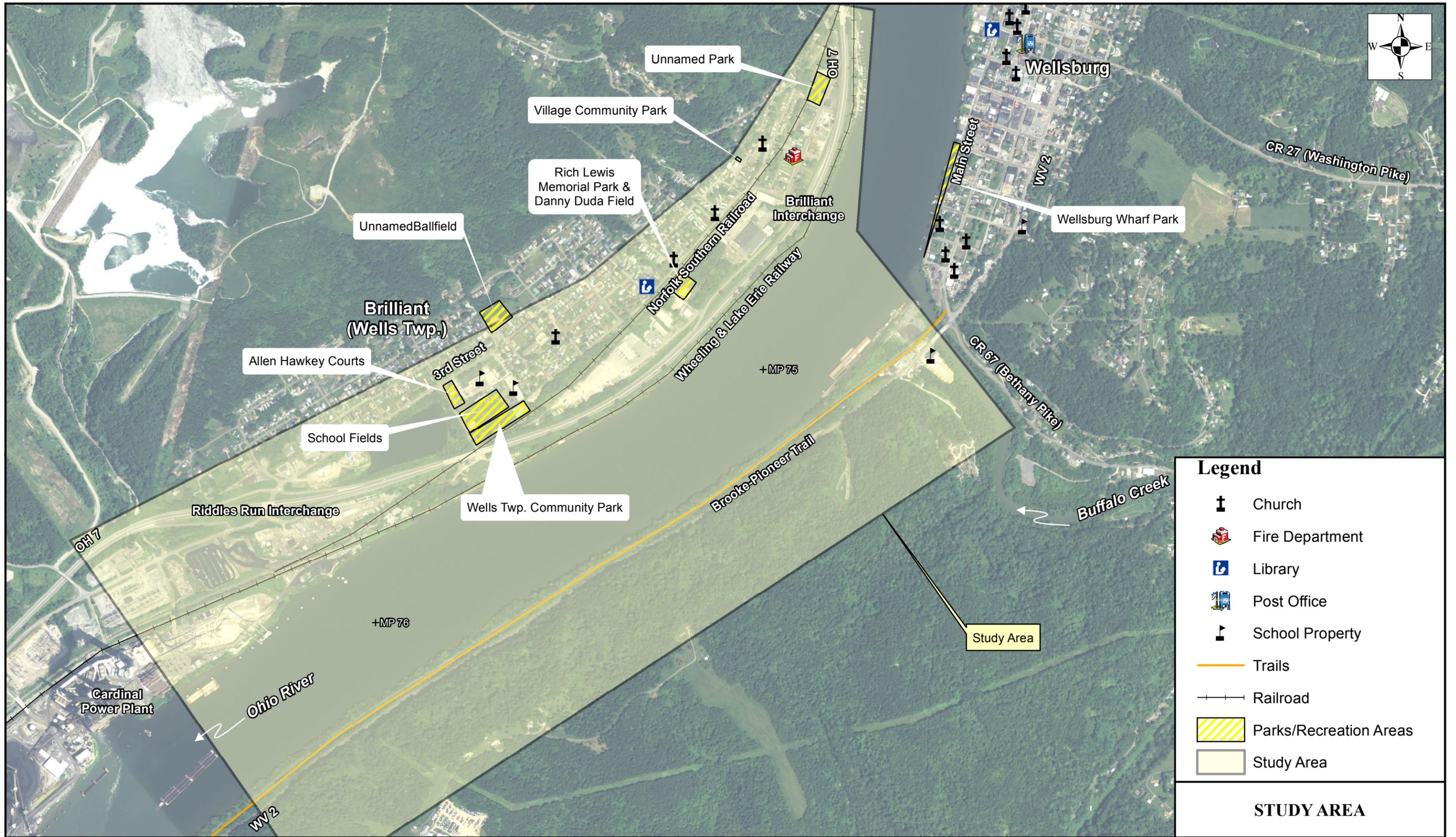
The WVDOT Statewide Transportation Improvement Program (STIP) for Federal Fiscal Years 2012-2017, approved November 7, 2011, includes this project. In Section 9 Financial Tables and Information, the Ohio River Bridge, South of Wellsburg in Brooke County is listed as Demo ID WV070, Section 1702 with unobligated funds of \$24,346,600.

The ODOT STIP for Fiscal Years 2012-2015, dated July 2011, includes this project. According to the ODOT STIP, the project is identified as PID 79353 *JEF New Ohio River Bridge* and lists the preliminary engineering (PE) and R/W Acquisition phases. PE includes planning, environmental documentation and 30% design. ODOT's Transportation Review Advisory Council (TRAC) Draft 2013-2016 Major New Program List, dated January 31, 2012, identifies the committed funding for the PE and detailed design (DD) phases of this project (ODOT, 2012).

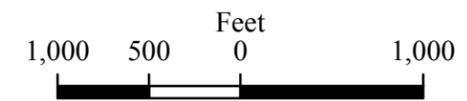


**PROPOSED OHIO RIVER BRIDGE**  
 BROOKE COUNTY, WV AND JEFFERSON COUNTY, OH  
 STATE PROJECT: S205-2/23-0.00 00; FEDERAL PROJECT: HPP-0223(003)D;  
 PID:79353

**REGIONAL BRIDGE SYSTEM**



**PROPOSED OHIO RIVER BRIDGE**  
**BROOKE COUNTY, WV AND JEFFERSON COUNTY, OH**  
 STATE PROJECT: S205-2/23-0.00 00; FEDERAL PROJECT: HPP-0223(003)D; PID:79353



<b>STUDY AREA</b>		
Job No.	Date	Exhibit
83938	05/13/11	1-2