

## INTRODUCTION

This report summarizes the findings and conclusions drawn from Phase I of the Upper Ohio Valley Bridge System Study. This Study has been commissioned by the Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ), which is the designated Metropolitan Planning Organization (MPO) for the Weirton/Steubenville metropolitan region. Funds for this Study have been provided by the Ohio Department of Transportation (ODOT) and the West Virginia Department of Transportation (WVDOT).

The purpose of the Phase I report is to analyze and determine the need for a new Ohio River bridge crossing within a defined study area, which extends from just north of the Fort Steuben Bridge at Steubenville, Ohio to a southern boundary delineated by the southern end of Brooke County, West Virginia. **Figure 1** illustrates the general location of the BHJ region. **Figure 2** illustrates the defined study area for this study.

This Study is an outgrowth of the BHJ *2020 Regional Transportation Plan* adopted in January of 1998. A new Ohio River crossing was identified as the top priority within the BHJ region in that Plan. Therefore, this Study was commissioned as a two-phase process, with Phase I directed towards confirming the purpose and need for a new river crossing. Assuming that a need can be confirmed, Phase II is to be directed towards identifying the best location for such a crossing. The appropriate location will be established through a process of technical analysis and consensus building among the various stakeholders in the region.

While a river crossing has been identified as the highest priority in the region, no funding for construction of such a crossing has yet been identified. This Study, once completed, will form a basis for pursuing project funding.

## DEFINITION OF UPPER OHIO VALLEY BRIDGE SYSTEM

For the purpose of this Study, the Upper Ohio Valley Bridge System is defined as the three existing bridges currently located in the area, the access ramps and streets connecting to those bridges, and the principal arterial highways that are tied to the existing bridges.

The three existing bridges from north to south are the Fort Steuben Bridge, the Veterans Memorial Bridge, and the Market Street Bridge, as shown in **Figure 3**. The principal arterials are Ohio Rt. 7 and US 22 in Ohio and WV 2 and US 22 in West Virginia.

Current traffic volumes on the three bridges are as follows:

- Fort Steuben Bridge 5,000 ADT\*
- Veterans Memorial Bridge 27,000 ADT
- Market Street Bridge 9,200 ADT

Traffic volumes on each of the three principal arterials peak in the general range of 21,000 to 23,000 vehicles per day, with volumes falling in the less urban areas. The volume on Ohio Rt. 7 is roughly

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\* Average Daily Traffic

It should be noted that the closest river crossing points beyond the study area are at Wheeling, 25 miles south of Steubenville, and at East Liverpool, Ohio, 25 miles north of Steubenville.

## **CONCLUSIONS AND DETERMINATION OF NEED**

Based on the foregoing technical analysis, as well as on the adopted goals established by the Advisory Committee for this project, the following conclusions have been reached. The conclusions and basis for a finding of need are delineated below and discussed in detail in the following text.

### **Conclusions**

- 1.The existing bridges can carry both current and projected traffic volumes.**
- 2.Two of the three existing bridges (Market Street & Fort Steuben) are beyond their design life.**
- 3.Both older bridges will require significant renovation to continue operating for any extended period of time.**
- 4.Even with renovation abrupt closure of one or both older bridges is possible, if key structural components fail.**
- 5.A situation with only one river crossing would create a major safety hazard.**
- 6.The concentration of all river crossing capacity in a small geographic area limits flexibility within the system.**

**7.The adopted Goals and Objectives are not satisfied with any bridge out of service.**

### **Basis for Finding of Need**

- 1.The Impending Closure of Existing Crossing Capacity Will Cause Failures in the System.**
- 2.The Existing System Lacks Flexibility and Redundancy in Travel Options.**

### **Discussion**

The current bridge system in the Upper Ohio Valley study area now has the roadway capacity to handle both present and projected future river-crossing traffic volume. This fact notwithstanding, the bridge system does have a number of significant deficiencies that must be addressed. Addressing those deficiencies will require a reconfiguration of the system including both the construction of new bridge capacity and the closure of old.

Two of the three bridges that make up the system are well past their design life. These are the Market Street and Fort Steuben Bridges. While the investment of funds in added maintenance may extend their useful life, neither bridge can be brought up to modern standards due to inherent design constraints.

Moreover, investment of added maintenance dollars does not preclude the possibility of failure of key structural features that could bring about an abrupt closure of either bridge at any time over the coming years. The time is approaching when continued investment of funds into substandard structures no longer makes sense.

Due to the nature of commerce in the BHJ region, heavy truck traffic, both in weight and volume, is a normal component of river-crossing traffic. The Market Street Bridge will never be capable of supporting commercial truck traffic, regardless of the level of maintenance or refurbishment it receives. Thus, closure of the Fort Steuben Bridge would leave the region with only one crossing capable of carrying commercial truck traffic. Should both of the older bridges within the system be forced out of service, the BHJ region could be left with only a single river crossing for all traffic, that being the Veterans Memorial Bridge.

The Veterans Memorial Bridge has ample traffic capacity on the bridge itself; however, the access system is vulnerable to blockage due to accidents. The bridge itself is periodically closed due to inspection requirements. On these occasions, the two older bridges are not adequate to handle existing or projected future traffic volumes.

The concentration of all river-crossing capacity within a small geographic area constrains the overall flexibility of the transportation system in the region. Lengthy work travel times resulting from this lack of flexibility are a significant economic burden and a deterrent to new economic development. A large portion of the industrial capacity of the BHJ region is located in the Ohio River Valley south of the current crossing locations. There appears to be some additional potential for industrial development in this area of the valley; however, successful development is clearly predicated on adequate transportation access.

The transportation system in the Ohio River Valley is heavily dependent on the two north/south Principal Arterials: WV 2 and Ohio Rt. 7. When either of these is closed due to accidents, flooding, or landslides, as does happen on occasion, few alternative routes are available. River crossings, by linking these two routes, significantly increase the transportation options available in the region for normal transportation purposes as well as the delivery of emergency services.

Two primary arguments speak to the need for added river-crossing capacity. First, the time period required to bring new river crossing capacity on line suggests that it is imperative that the process for doing so begin now, rather than waiting for key components of the present system to fail. A circumstance in which only one river-crossing point exists within the metropolitan area would create a hazard in relation to emergency situations that is unacceptable.

Secondly, the principles embodied in the goals of this Study call for expanded flexibility in the transportation system in the BHJ region. Added river-crossing capacity will be a key element in the achievement of these goals. Given the difficulty that the BHJ region has faced in remaining economically competitive over the last two decades, improving the infrastructure that supports economic development must be considered a top priority.

For these reasons it is recommended that this Study proceed to Phase II, the identification of an appropriate river crossing location(s).

## **PLANNING PROCESS**

The planning process utilized in this Study involves technical analysis performed by the consulting team in cooperation with the staff of BHJ, and a two-tiered public involvement process to obtain local input. The public involvement process is described in the following section, while the results of the technical analysis are described elsewhere in this report. Work on Phase I of this Study commenced in October 1999. Phase II, if undertaken, is expected to require approximately 10 months.

## **PUBLIC INVOLVEMENT**

Public involvement in this planning process has occurred on several levels. Most directly, it has occurred through a series of public meetings held during the process to explain the work program and solicit public input. The first of these was held at the Brooke County High School on November 17, 1999 to obtain initial public input on issues related to the Study. Participants were asked to identify and rank issues that they felt should be considered as part of this Study.

A second public meeting was held at the Jefferson Community College in Steubenville on March 15, 2000 to present the findings of the consultant's technical work and discuss preliminary conclusions. A third public meeting was held on May 3, 2000 at the Buckeye Local Middle School in Brilliant, Ohio to announce the final results of Phase I. Handouts used, tabulated results generated, and copies of sign in sheets from each of the public

meetings are included in the Appendix of this report.

In addition to the public meetings, public input was solicited through a project web site that allowed direct communication with the consulting team. The web site included maps, meeting minutes, data, and key findings available for review by anyone who was interested. The web site address was widely distributed at public meetings and through newspaper articles to encourage use by the public.

To assist in identifying important local issues that should be considered in the Study, members of the consulting team conducted series of key person interviews at the outset of the planning process.

Most importantly, the consulting team met on a regular basis with a local Advisory Committee made up of representatives of local government, transportation users, local employers, and interested citizen groups. The Advisory Committee established and adopted goals for this planning effort, has reviewed the work product generated as the process has moved along, and generally provided the local touchstone that ensures that the results reflect local interests and perceptions.

## **PLANNING CONTEXT**

Over the last thirty years, the BHJ region has been passing through a significant era of change; change tied to national economic trends. For many years, this area has been included as an important part of the nation's industrial heartland. Coal mining, electric power generation, various types of manufacturing, including steel

making, formed the core of the area's economy.

Throughout the United States, all of these industries have encountered changed circumstances. Coal mining declined in northern West Virginia, eastern Ohio, and western Pennsylvania as coalfields played out and clean air regulations reduced the market for the type of coal found in the region. Steel making and other types of manufacturing have increasingly faced stiff competition from overseas. Power generation, which also had been based on the supply of locally mined coal, has also suffered from changed circumstances due to the passage of clean air legislation.

Consequently, the economic core of the region has eroded over time. Employers, in an effort to remain competitive, have tended to replace labor force with technological improvements designed to increase productivity. Nevertheless, the manufacturing sector remains the heart of the economic base of the BHJ region.

While employment is lower than it once was, these jobs tend to pay high wages and remain a very important piece of the regional economy. Currently, the manufacturing base of the BHJ region is concentrated in the Ohio River Valley in a linear pattern extending south from the Weirton-Steubenville area. **Figure 4** indicates the location of manufacturing employment in the study area.

While manufacturing employment has declined, service and commercial employment in the region has increased, again reflecting the overall trend at the national level. These jobs have different geographic distribution, tending not to be located in the Ohio Valley. Rather they are

found in growing retail areas on ridgetops, east of Weirton and west of Steubenville. **Figure 5** indicates the current distribution of commercial employment in the BHJ region.

As employment has decreased in basic industries, the population characteristics of the region have changed as well. It is estimated that within the three-county BHJ region, population has declined by more than 30,000 persons since 1970, equivalent to roughly 18% of the area's 1970 population. The estimated population of the three-county BHJ region in the year 2000 was 135,966. **Figure 6** illustrates the current population distribution in the BHJ region.

The decline in population in the BHJ region has occurred disproportionately among younger age groups, meaning that over time, the region's population has grown older. While the trend towards an older population is prevalent throughout the United States, it has occurred more rapidly in the BHJ region. For these reasons, there is a very strong and understandable desire in the BHJ region to find ways to counter these trends and restore stability and even growth to the area's economic and population base.

Population and employment projections for the region tend to suggest, as projections usually do, the continuation of past trends. Projections should be seen as what they are, reliance on the past to predict the future. Planning, by its nature, is an effort to influence the course of events. As will be seen shortly, this planning effort is no different.

A prime example of this effort is the planning now underway by the State of West Virginia to improve WV 2, the principal arterial running north/south on the West Virginia side of the Ohio River Valley. This road is now a two-lane highway through much of its length.

Currently there are two major construction projects underway to widen sections of this route to four lanes, with plans in the works to widen the remaining sections in the future. The primary reasons for this project is need to correct safety problems caused by both roadway geometrics and landslides as well as the desire to improve the competitive position of towns along the West Virginia side of the Ohio River, including Follansbee, Wellsburg, Beech Bottom and others. In fact, this effort to improve WV 2 extends as far down river as the City of Parkersburg, more than 80 miles from Weirton.