

Executive Summary

The completion of this study is the result of a recommendation contained in The Brooke-Hancock-Jefferson Metropolitan Planning Commission 1997, 2020 Regional Transportation Plan. It began as a two-phase study with Phase I directed towards confirming the purpose and need for a new river crossing in the Upper Ohio Valley and Phase II directed towards identifying the best location for that crossing.

To complete this study various alternatives for bridge crossings were developed based on preliminary engineering. Locations were identified that could facilitate east-west movements or to serve population and employment centers on each side of the River. These include replacing the existing bridges in their current location as well as two options for a new bridge in the southern portion of the planning area. These options initially formed seven Scenarios including a “no-build” option. Four additional Scenarios were developed using a combination of bridges with northern and southern alternatives.

Evaluation Criteria

Goals and objectives based on input received at public meetings, interviews, and local knowledge of the Bridge Advisory Committee members were used to evaluate the alternate Scenarios. General goals such as, maintain and enhance transportation capacity, safety and reliability for existing business, their employees, and all residents, were further broken down in specific measurable objectives (criteria) explained in detail within this report. The criteria were grouped into categories, which include effectiveness in improving mobility, effectiveness in minimizing environmental impacts, cost effectiveness, effectiveness improving safety, and effectiveness in supporting regional economic growth. How each Scenario fared and the determination of a preferred alternative is the primary focus of this report.

Conclusions

After evaluation of the eleven Scenarios was completed it was found that there was no single preferred solution for addressing all the transportation needs of the BHJ region. This study concluded that a combination of Scenarios could be effective.

Based on the criteria used for evaluation in this study, the following elements were preferred:

- A new southern bridge should be constructed located in Wellsburg or an area south of Wellsburg;

- A new Washington Street Bridge, replacing the existing Market Street Bridge, should be constructed with high capacity connection to SR 7; and
- Traffic operations and safety improvements should be constructed on the Ohio and West Virginia ramp approaches/intersections for the Veterans Memorial Bridge.

The preferred Scenario 8 provides the benefits of both the preferred northern and southern Scenarios as well as maintaining a high benefits to cost ratio and the highest reduction of user costs. When Scenario 8 is reviewed in comparison to both the no-build and other alternatives, it is found to provide maximum benefit for minimum cost in all categories of mobility, environmental impacts, safety, cost effectiveness and regional economic growth.

In addition to the construction of two new bridges, this Study also concluded that roadway and intersection improvements should be implemented at the University/SR 7 intersection in Ohio, truck safety improvements on the Veterans Memorial Bridge ramps in Ohio, and Freedom Way / US 22 / WV 2 in West Virginia.

Project priorities for improvements are:

1. Construct roadway and intersection improvement son University/SR 7 and Veterans Memorial Bridge ramps in Ohio, and on Freedom Way and the intersection of Freedom Way/WV 2/US 22;
2. Construct a new Ohio river bridge south of Wellsburg; and
3. Construct a new Ohio River bridge to replace existing Market Street bridge at Washington Street in Steubenville.

Total cost of the above is estimated to be about \$102 million.

Introduction

Purpose of Report

This report summarizes the findings and conclusions drawn from Phase I and Phase II of the Upper Ohio Valley Bridge System Study and report documents the results of the two phase study. Phase I was directed towards assessing the existing bridge system and establishing the purpose and need for a new river crossing in the BHJ Region between Brooke County, West Virginia and Jefferson County, Ohio. The Phase I Report was completed in May 2000 with the conclusion that an additional Ohio River crossing was needed. A decision was made by the Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ) to obtain funding for a Phase II Study.

Purpose of Phase II Study

Phase II work began in February 2002. The purpose of the Study is to determine the most suitable system of bridges in the study area considering the regional benefits from, and the cost of providing such a system. Forecasts of traffic were based on the year 2025 as a planning horizon. In order to establish a rational evaluation process, eleven alternative Scenarios, including “no-build”, were established for review and to ensure mobility of people and goods for the BHJ region.

Origin of Study

This Study was commissioned by BHJ, as an outgrowth of the BHJ *2020 Regional Transportation Plan* adopted in January of 1998. Funds for this Study have been provided by the Ohio Department of Transportation (ODOT) and the West Virginia Department of Transportation (WVDOT).

In addition to the Phase I Report (May 2000), seven technical Memoranda were published describing the analytical process in Phase II. These are:

1. Evaluation Criteria Summary Memorandum;
2. Phase I Travel Demand Results Review Memorandum;
3. Baseline Determination Memorandum;
4. Travel Demand Modeling Process Summary Memorandum;
5. Traffic Operations Analysis Memorandum;
6. Alternatives Definition Memorandum; and
7. Alternatives Evaluation and Ranking Summary Memorandum.

The seven Memoranda were assembled in a single document, dated May 2003. The reader is referred to that document for detailed information.

Need Assessment

One of the primary objectives of this study was to prepare a report that can serve as the basis for Federally-mandated “purpose and need” assessment. The following highlights key items and related findings that can be used in the development of the “needs” statement.

The proposed improvements will serve the travel desires for the BHJ region over the next 25 years. They prepare the community for the eventual end of the service life for both the Market Street Bridge and Fort Steuben Bridge.

Transportation Demand

During the development of the 2020 Regional Transportation Plan, a new Ohio River crossing was identified as the top priority within the BHJ region. This study and the recommendations have been prepared in response to these concerns. These bridges are well past their design life and 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.

The Market Street Bridge and Fort Steuben Bridges both serve traffic that originates within the BHJ metropolitan area. The Market Street Bridge provides for local trips from the Weirton, Follansbee area to access the central business district of Steubenville, approximately 9,200 vehicles per day use this connection. The Fort Steuben Bridge serves the Half-Moon Industrial Park and the City of Weirton and is the origin for many internal-external trips to move goods to destinations outside of the community. Approximately 5,900 vehicles per day cross this facility. Due to the nature of commerce in the BHJ region, heavy truck traffic is a normal component of river-crossing traffic. The Market Street Bridge is not 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.

From a transportation system perspective 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 Liverpoole, Ohio, 25 miles north of Steubenville. The proposed recommendations documented in this report will allow for shorter trips between both local suburban areas and throughout the region. System-wide vehicle miles traveled (VMT) will decrease by 29,000 per day over the no-build alternative and overall travel times will decrease by 2,100 hours per day in the year 2025.

Safety Issues

Should both 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 itself; but access to the bridge is vulnerable to blockage due to accidents. The Bridge 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. This highlights the need for redundancy in the system with adequate capacity to provide for the movement of traffic as well as providing access to the region for emergency vehicles.

Additionally, the transportation system in the Ohio River Valley is heavily dependent on the two north/south arterial roadways: WV 2 and SR 7. When either of these is closed due to accidents, flooding, or landslides, as does happen on occasion, few alternative routes are available. By linking these two routes with river crossings, a significant increase is realized in the transportation options available in the region for normal transportation purposes as well as the delivery of emergency services. With implementation of the above recommendations analysis showed that a reduction of 55 accidents per year could be expected.

Economic Development

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 is 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. 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 priority.

System Linkage

A major criterion used during the evaluation of alternatives during the study centered on accessibility from selected gateways to selected river and rail ports. Travel times from West Virginia gateways into the planning area to Ohio River and rail ports and from Ohio gateways to West Virginia River and rail ports were analyzed. The time saving created by the improving the efficiency of travel throughout the region can equate to a significant monetary saving for the traveling public and industry and can enhance economic development. The study found that by implementing the recommended improvements travel times from West Virginia gateways to Ohio River and rail ports could be cut in half.

Modal Interrelationships

Within the BHJ region two public transportation agencies serve the area. The Weirton Transit Corporation for the Weirton area and the Steel Valley Regional Transit Authority, which serves Mingo Junction and Steubenville. Both of these public transit systems cross the river and transfer riders between each other. With the addition of a bridge in the southern portion of the planning area it is assumed that system routes may be modified, thus enhancing accessibility to communities such as Brilliant and Wellsburg and potentially resulting in increased ridership.

The goal of this study was to analyze, from a transportation planning perspective, a series of reasonably viable alternatives at a level of detail sufficient to provide state and local transportation decision makers a basis to identify a preferred alternative(s) bridge system for the defined study area. The results of this analysis show a clear need for the preferred alternative(s) identified. The purpose for this Upper Ohio Valley Bridge System Study is to improve the overall flexibility of the BHJ regional transportation system. Implementation of the recommendations could:

- relieve the economic burden and deterrent to new economic development by reducing the lengthy work travel times and improving access to industry resulting from the lack of alternatives that serve the entire region;
- eliminate a circumstance in which only one river crossing point exists within the metropolitan area that could create a hazard in relation to emergency situations;
- result in a more balanced use of the regions transportation infrastructure; and
- serve both local trips and regional trips including business trip originating within or outside the metropolitan or passing through.

This document sets the stage for further study following the requirements of the NEPA process. The Upper Ohio Valley Bridge System Study recommendations have been selected based on public input and engineering/environmental feasibility.