

Executive Summary

The Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ), in both their 2020 and 2025 Regional Transportation Plan, states their #1 priority as “promote a regional Ohio River bridge network that maintains and expands metropolitan activity.”

This precedent created funding and this BHJ Regional Bridge System Study. The study, through a rigorous public involvement process and strong quantitative review, provides a best management approach to the region’s declining bridge infrastructure (i.e., two of the three bridge crossings in the 18 mile river corridor are near 100 years of age and are rapidly approaching the end of their life cycle).

The following study is Phase II of a two part study. Phase I, submitted in May 2000, initiated answers to the purpose and need for a new river crossing. The Phase I study provided the following facts.

- The Fort Steuben Bridge and Market Street Bridge are past their design life.
- A circumstance in which only one river crossing exists within the metropolitan area would create an unacceptable emergency response time situation.
- Due to inherent design characteristics, neither the Fort Steuben Bridge nor Market Street Bridge can be updated to modern standards.
- Due to weight limits on the Market Street Bridge, the closing of the Fort Steuben Bridge would leave the region with only one crossing capable of carrying commercial truck traffic.
- Access to and from the Veterans Memorial Bridge is vulnerable to accident blockage and deficient intersection design.
- The concentration of all river crossing capacity within a small geographic area constrains the overall flexibility of the regional transportation system.

Phase II, through a publicly-approved quantitative matrix, walked the community through logical constraints and benefits. It concludes with a consensus priority statement for bridge location and access improvements. In May 2003, the priority statement was formally adopted by the Brooke-Hancock-Jefferson Metropolitan Planning Commission, the federally recognized council for regional transportation.

To validate the quantitative decision matrix, key regional goals and objectives were agreed to through public meetings and interviews. General goals include the following items.

- Maintain and enhance transportation capacity.
- Safety and reliability for existing businesses, their employees and all residents.

Evaluation criteria specific to these goals include the following measurable factors.

- Effectiveness in minimizing environmental impacts
- Cost effectiveness
- Effectiveness for improving safety
- Effectiveness in supporting regional economic growth.

To complete this Phase II study, various alternatives for bridge crossings were developed based on preliminary engineering analysis. 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 Baseline, or “no-build,” option. Four additional Scenarios were developed using a combination of bridge locations with northern and southern alternatives.

More detailed engineering and environmental studies will be needed in the next Phase to satisfy the National Environmental Policy Act (NEPA). These studies will establish a specific location and configuration for the new bridge.

The preferred Scenario 8, described later in this report, 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 Baseline Scenario 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.

The recommendations of the Consultant Team are premised upon the assumption that two of the three bridge crossings (i.e., the Fort Steuben Bridge and Market Street Bridge) will not be in service for the planning year 2025.

After sixteen (16) Bridge Advisory Committee meetings and five (5) public information meetings, the Brooke-Hancock-Jefferson Metropolitan Planning Commission made a three-point priority recommendation. The Phase II study was the guide document for their recommendation. Total cost for these recommendations is estimated at about \$102 million in FY 2003 dollars.

Priority #1: Construct roadway and intersection capacity improvements to better access the region's most modern bridge crossing, Veterans Memorial Bridge. These improvements are as follows.

- Realign and improve the Freedom Way and Birch Drive intersection in Weirton.
- Improve the alignment and widen the intersection of Freedom Way and West Virginia Route 2 in Weirton.
- Upgrade and improve the existing three lanes on Freedom Way in Weirton.
- Improve access to Veterans Memorial Bridge at Steubenville through the realignment and widening of adjacent connecting thoroughfares State Route 7 (Dean Martin Boulevard) and University Boulevard.

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.

Bridge Advisory Committee Membership

The Bridge Advisory Committee (BAC) was responsible for overall review and approval of the engineering and planning analysis work in the Study. The BAC met regularly during Phase II. Members of the BAC represent a broad cross section of private and public interest groups. Discussion and review during BAC meetings gave guidance to the Consultant Team. Decisions were based on consensus of the group.

BHJ Commission	Norm Schwertfeger
Brooke County Board of Education.....	Ron Ujcick
BDC of the Northern Panhandle	John Murry
Brooke County Commission.....	Paul Phillips Bill Schaefer
Brooke-Hancock County Assessors Office.....	Dan Tassej
Citizen at Large.....	Russ Irvin Helen Mayle
Follansbee, City of.....	Tony Paesano (Delegate) Kevin Diserio (Alternate)
Hancock County Commission	Will Allison Chuck Svokas
Jefferson County Commission.....	Jim Branagan Richard Delatore
Mingo Junction, Village of.....	John Fabian (Delegate) Keith Murtland (Alternate)
Ohio Department of Transportation.....	Greg Gurney (Delegate) David Speer (Alternate)
Progress Alliance	Holly Childs
Steel Valley Regional Transit Authority.....	Frank Bovina
Steubenville, City of	Domenick Mucci (Delegate) Dave Snelting (Delegate) Fred Hays (Alternate)
Toronto, City of	George Cattrell (Delegate) Vacant (Alternate)
Weir Cove Moving & Storage	Romie Castelli
Weirton Steel Corporation	Andy Kowalo Virgil Thompson
Weirton Transit Corporation.....	Curt Hinchee
Wellsburg, City of.....	Wayne Campbell (Delegate) Margaret Metzger (Alternate)
Wheeling-Pittsburgh Steel Corp	Mark Morelli John Sneddon
Wintersville, Village of.....	Bob Laukert (Delegate) Gary Folden (Alternate)
Weirton, City of.....	Joe Cicchirillo Bob Riccelli
West Virginia Department of Transportation	Don Bailey (Delegate) Richard Warner (Alternate)

Introduction

Purpose of Report

This report summarizes the findings and conclusions drawn from Phase I and Phase II of the Brooke-Hancock-Jefferson Regional Bridge System Study and 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 warranted based on preliminary analysis. A decision was made by the Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ) to obtain funding for a Phase II Study.

The next phase of this study will include a more detailed analysis of issues related to purpose and need as related to Federal funding requirements.

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 three county 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 Federal Highway Administration (FHWA) and administered 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 FHWA guidelines related to “purpose and need” assessment. The following statements highlight key items and related findings that can be used in the development of the “needs” statement.

The proposed improvements will serve the Ohio River crossing 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 (constructed in 1904) and the Fort Steuben Bridge (constructed in 1928).

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. The Market Street Bridge and the Fort Steuben Bridge are well past their design lives. 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 and Fort Steuben Bridges both serve local traffic that primarily originates within the Weirton, West Virginia and Steubenville, Ohio (BHJ metropolitan area). The Market Street Bridge provides for trips from the Weirton and the Follansbee area to access the central business district of Steubenville. The Fort Steuben Bridge serves the Half-Moon Industrial Park and the City of Weirton and is an important facility for the movement of goods to and from destinations outside of the community. About 17 percent of the daily vehicle traffic is commercial truck traffic.

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. A 5-ton weight limit is presently in place on the Market Street Bridge. Closure of the Fort Steuben Bridge would leave the region with only one river crossing (Veterans Memorial Bridge) 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 Liverpool, Ohio, 25 miles north of Steubenville. The proposed recommendations described in this report will provide for more efficient system-wide travel throughout the region.

Safety Issues

A single river crossing for the region is not acceptable in terms of overall safety needs.

The Veterans Memorial Bridge has ample traffic capacity itself; but access to the bridge is vulnerable to blockage due to accidents. The Bridge is closed once a year for four hours to meet 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 a new alternative river crossing, 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 recommendations in this report, analysis shows that a reduction of about 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 area's industrial capacity is located in the Ohio River Valley south of the current crossing locations. There is 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 is a priority.

It is a well understood principle that flexibility in the transportation system is important for economic growth.

System Linkage

A major criterion used during the evaluation of alternatives in 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 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 for all trips from West Virginia gateways to Ohio River and rail ports could be significantly reduced.

Modal Interrelationships

Within the BHJ region two public transportation agencies serve the area. The Weirton Transit Corporation serves the Weirton area and the Steel Valley Regional Transit Authority serves Mingo Junction and Steubenville. Both of these public transit systems cross the Ohio River and provide for transfers 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.

Goals and Objectives

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 Ohio River bridge system for the defined study area. The results of this analysis show a clear need for the preferred system. The purpose of the 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;
- ensure that at least two Ohio River crossings are available in emergency situations;
- result in a more balanced use of the region's transportation infrastructure; and
- serve both local and regional trips, including business trips, 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 Phase II study recommendations have been selected based on public input, technical analysis, and engineering/environmental feasibility issues.