

## 6 CONSUMER SURPLUS ANALYSIS AND RESULTS

**Introduction:** This analysis uses the same criteria and structure as the 1997 Federal Railroad Administration/U.S. Department of Transportation (FRA/USDOT) study, High-Speed Ground Transportation for America<sup>32</sup>. In that study, costs and benefits were quantified in terms of passenger rail system user benefits, other-mode user benefits, and resources benefits.

**User Benefits:** The expected user benefits will be derived from several sources. These include the following –

**Ohio Hub User Benefits:** The reduction in travel times that users of the Ohio Hub Passenger Rail System receive;

**Benefits to Users of Other Modes:** The reduction in travel times and costs that users of other modes receive as a result of lower congestion levels;

**Resource Benefits:** Savings in other mode costs and reductions (savings) in emissions as a result of travelers being diverted from air, bus and auto to the Ohio Hub.

Consumer Surplus analysis results for Ohio Hub 110-mph system are presented in Exhibit 6.1<sup>33</sup>. The positive net present value and ratio of benefits to costs indicate that the Ohio Hub Passenger Rail system will have a positive impact on the national economy, and an even stronger impact locally. The user benefits analysis estimates the implementation of Ohio Hub will generate at least \$5-\$9 billion in economic benefits to the region<sup>34</sup>.

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<sup>32</sup> High Speed Ground Transportation for America. US DOT FRA. September 1997, see: [www.fra.dot.gov/Downloads/RRDev/cfs0997all.pdf](http://www.fra.dot.gov/Downloads/RRDev/cfs0997all.pdf)

<sup>33</sup> This is an update to Exhibit 9-4, Option 1 from the original October 2004 Ohio Hub report. Cost Benefit ratios reported in the 2007 'Incremental Corridors' update, are based on a different implementation plan, which produces slightly different results. As compared to the original 2004 Ohio Hub Study, both revenues and costs are higher reflecting the changed assumptions of the 2006 Incremental Corridors update, for example the Ohio Hub now has all the cost and revenue of the Toledo-Cleveland segment rather than sharing these with the MWRRS.

<sup>34</sup> Difference in economic benefits primarily depends on NPV used for calculations. Please, refer to the discussion on discount rates in Chapter 3 of this Study.

# OHIO HUB PASSENGER RAIL ECONOMIC IMPACT STUDY

Exhibit 6.1: Ohio Hub Passenger Rail System (Assuming MWRI Connectivity).  
Costs and Benefits (Lifecycle Present Values in Billions of 2005\$, 30 years at 3.9% and 7.0%).

Benefit Cost Parameters	@3.9%	@7.0%
<b>Ohio Hub User Benefits:</b>		
Consumer Surplus	2.3	1.3
System Revenues	3.6	2.0
<b>Total Ohio Hub Use Benefits</b>	<b>\$5.9</b>	<b>\$3.3</b>
<b>Other Mode User Benefits &amp; Resource Benefits</b>	<b>\$3.0</b>	<b>\$1.7</b>
<b>Total Benefits</b>	<b>\$8.9</b>	<b>\$5.0</b>
<b>Costs:</b>		
Capital	2.9	2.4
Track Capital Maintenance <sup>35</sup>	0.1	0.1
Operating	1.9	1.1
<b>Total Costs</b>	<b>\$4.9</b>	<b>\$3.6</b>
<b>Net Present Value</b>	<b>\$4.0</b>	<b>\$1.4</b>
<b>Ratio of Benefits to Costs</b>	<b>1.8</b>	<b>1.4</b>

These results are very strong giving returns comparable to or stronger than results obtained in the above mentioned FRA USDOT Study for the Midwest, Florida, Texas, Pacific Northwest and Southeast corridors received.

Exhibit 6.2: Comparable Cost Benefit Results<sup>36</sup>

Region	Cost Benefit Result
Ohio	1.4
Midwest (MWRI)	1.4
Florida	1.2
Texas	1.4
Pacific Northwest	1.9
Southeast	1.1

<sup>35</sup> Track capital maintenance costs are an NPV. These costs are relatively low because the Ohio Hub would start with practically all-new infrastructure, so the need for any replacement capital maintenance is deferred until quite late in the project planning horizon.

<sup>36</sup> Evaluations use FRA methodology assuming 7% NPV. (See: [www.fra.dot.gov/Downloads/RRDev/cfs0997all.pdf](http://www.fra.dot.gov/Downloads/RRDev/cfs0997all.pdf)).