

ES.6 Appendix C

**Economic Impact Analysis of the Iowa Portion of the
Chicago-Iowa City High Speed Intercity
Passenger Rail Program**

**IOWA DEPARTMENT OF TRANSPORTATION
CHICAGO-IOWA CITY
HIGH-SPEED INTERCITY PASSENGER RAIL (HSIPR) PROGRAM
ECONOMICS IMPACT ANALYSIS FOR THE IOWA
PORTION OF THE CHICAGO-IOWA CITY HIGH-SPEED
INTERCITY PASSENGER RAIL PROGRAM
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1 Passenger Rail Project – Economic Impact Results for Iowa

1.1 General Approach

Economic impacts of a project can be divided into two broad categories of impacts:

- 1) Jobs, income and related impacts of the project in question that are attributable to the project either directly, or indirectly through supplier-purchasing relationships and re-spending of employee wages and salaries, and
- 2) Economic development and other benefits and impacts of the project.

The first category of impacts represents the traditional metrics evaluated in economic impact studies that quantify the effects of the various rounds of expenditures and economic activities that are initiated throughout the economy as a result of an initial expenditure or business activity. These metrics are commonly referred to as “direct impacts,” “indirect impacts,” and “induced impacts” and can be defined as follows:

- Direct impacts are impacts directly attributable to the initial investment required for the project, or the expenditures required to start and complete the project. These are the immediate economic outcomes occurring as the result of activity related to the construction/ development and subsequently operations of the project being evaluated.
- Indirect impacts are the results of the spillover effects in the markets for intermediate goods, or economic activities that result from purchases of production inputs, goods and services throughout the production and distribution chain. These purchases allow for production activities and employment at the supplier firms generating further rounds of economic activity down the production chain.
- Induced impacts result from the spending and re-spending of dollars earned by individuals who become employed as a result of the direct and indirect impacts. Re-spending of employment wages and salaries on consumer goods and services results in further economic impacts throughout the economy.

The total economic impact is the sum of the direct, indirect and induced effects of the institution or the project being evaluated.

The above impacts are different from “user” impacts and benefits of a particular proposed facility or project typically included in a cost-benefit analysis, and treated separately as another aspect of the various impacts of the proposed project.

The second category of effects captures various other effects on local economies where the project will operate, frequently specific to the project and frequently difficult to quantify and convert into employment and business revenue terms. These benefits may include broader social impacts, quality of life improvements, or productivity improvements in the regional economy that are possible through the projects.

This assessment focuses and estimates only the first category of impacts, i.e., the direct, indirect, and induced effects of the proposed project – all in terms of business revenues, jobs, value added and employment income that would be generated as a result of the proposed project. Both the impacts of construction expenditures as well as the ongoing operation and maintenance expenditures once the project is completed are taken into account.

1.2 Implementation

Table 1 shows the estimated construction cost of the proposed project within the State of Iowa as well as operation and maintenance costs of the completed project (estimates as of August 2010). All costs have been classified by a broad type of costs. As the table shows, the total costs including construction as well as engineering and other related construction costs are estimated at \$80.6 million, and the operation and maintenance costs of the proposed facility are estimated at \$4.3 million.

In order to estimate the impact of construction activity, the expenditures shown in Table 1 were simulated with the IMPLAN economic impact software, an input-output economic impact assessment model. The model uses internal data files about the structure of the economy in question where the project is located (state, county, zip code area, etc.) and internally coded economic relationships (including internally generated multipliers) to derive the economic impacts of an initial “shock” to the economy, or incremental economic activity affecting directly one or more industrial sectors.

All impacts are estimated using the 2007 state totals data for the state of Iowa and as such, the reported results represent estimates of impacts generated in the state.

Table 1 also shows the classification of the project cost categories into IMPLAN industrial sectors. It can be seen that the majority of costs will fall into the equipment manufacturing industry and construction industry. A relatively smaller fraction of the costs is related to planning and engineering and was classified into the architectural, engineering, and planning services industry. The project costs also include costs related to the purchase or lease of real estate. The cost of purchase of real estate was excluded from the analysis as these costs are in its essence a transfer and do not re-circulate in the economy in the same manner as other project expenditures. Excluding the right-of-way acquisition costs, the total project costs amount to \$79.7 million.¹

Total construction costs and annual operation and maintenance costs were estimated separately to generate separate assessments of expenditures during the construction period and ongoing impact of the proposed project once it is completed and operational.

¹ All cost estimates include contingencies. Contingencies specific to a cost category were included in the total cost estimate. The general unallocated contingency was distributed proportionately across all cost categories.

Table 1: Iowa Project Expenditures Classified by IMPLAN Industrial Classification

Cost Category	Category of Costs Description	Amount of Expenditure in Iowa	IMPLAN Industry No.	IMPLAN Industry Name
	Construction, Total	\$31,522,103	36	Construction of other new nonresidential structures
10	Track and Structures	\$23,364,810		
20	Stations and Terminals	\$2,657,130		
30	Support Facilities: Yards, Shops, Administration Buildings.	\$3,480,750		
40	Sitework and Existing Improvements (excluding right of way and land)	\$2,019,413		
40	Sitework Right-of-Way and Land (purchase or lease of real estate)	\$882,000	Not included in economic impact analysis	
50	Communications and Signaling Equipment	\$37,283,400	268	Switchgear and switchboard apparatus manufacturing
80	Professional Services	\$10,926,300	369	Architectural, engineering, and related services
TOTAL PROJECT CONSTRUCTION COST		\$80,613,803		
TOTAL CONSTRUCTION COSTS WITHOUT RIGHT OF WAY AND LAND		\$79,731,803		
	Annual Operating and Maintenance Cost of the completed Project	\$4,293,000	333	Transportation by rail

Table 2 shows the anticipated project schedule category of work or activity. The table shows that the project is expected to be completed over a period of 4 years beginning from the first quarter of 2011 and finalizing in the fourth quarter of 2014. The design and engineering work is expected to take place between the first quarter of 2011 and the second quarter of 2014. The construction itself is expected to start in the first quarter of 2013 and continue until the end of 2014.

Table 2: Anticipated Project Schedule

Activity Category	Begin	End
Engineering and design work	Q1 2012	Q2 2015
Construction (all other categories)	Q1 2014	Q4 2015

1.3 Results

1.3.1 Construction Period

Table 3 shows the results of economic impact simulations quantified as business output, employment, value added, and employment income, and in terms of direct, indirect, induced, and total impacts. All impacts presented in the table are cumulative impacts over the entire construction period (anticipated between 2011 and 2014).

Table 3: Economic Impacts of Proposed Project Construction; Cumulative over Construction Period

METRIC OF IMPACT	DIRECT	INDIRECT	INDUCED	TOTAL
Business Output, \$M	\$79.73	\$21.41	\$24.63	\$125.77
Employment (Jobs in Terms of Job-Years) ²	465.4	155.4	239.2	860.0
Value Added, \$M	\$33.33	\$11.03	\$13.55	\$57.91
Employment Income, \$M	\$27.34	\$7.27	\$7.57	\$42.17

NOTE: All monetary impacts are in terms of 2010 dollars.

Specifically, Table 3 shows that during the construction period the total employment impact of the proposed project within the State of Iowa amounts to 860 job-years. This includes 465.4 direct jobs, 155.4 indirect jobs, and 239.2 induced jobs.

Table 4 shows the quarterly distribution of job creation over the project construction period. The jobs created between the first quarter of 2011 and the second quarters of 2013 are jobs related to engineering and design work. Jobs created between the first quarter of 2013 and the second quarter of 2014 represent a combination of jobs related to engineering and design and jobs related to construction work. Finally, jobs created in the third and fourth quarters of 2014 are jobs related to construction work only (as engineering and design work would be completed at that time).

² A job year is a measure of impact that shows the number of jobs that last for one year. For example, 1 job-year is equivalent to 1 job that lasts for one year, or 2 jobs that last 6 months each.

Overall, the majority of jobs (95.5 jobs each quarter) will be created once the construction work commences in the first quarter of 2013.

Table 4: Distribution of Job Creation (Number of Job-Years Created), by Quarter

Effect Type	Q1 2012 - Q4 2013 (Each Quarter)	Q1 2014 - Q2 2015 (Each Quarter)	Q3 2015 and Q4 2015	Total Cumulative	Average Annual
Direct	7.0	51.5	44.5	453.6	113.4
Indirect	1.9	17.6	15.7	152.2	38.1
Induced	3.5	26.5	23.0	233.2	58.3
Total	12.4	95.5	83.1	839.0	209.8

1.3.2 Ongoing Operations

Table 5 shows the results of economic impact simulations resulting from the operation and maintenance of the passenger rail service within the State of Iowa, quantified as business output, employment, value added, and employment income, and in terms of direct, indirect, induced, and total impacts. All impacts presented in the table represent annual ongoing impacts once the project is fully operational.

Table 5: Economic Impacts of Proposed Project; Ongoing Annual Impacts after Project Completion

METRIC OF IMPACT	DIRECT	INDIRECT	INDUCED	TOTAL
Business Output, \$M	\$4.29	\$1.42	\$1.05	\$6.76
Employment (Jobs in Terms of Job-Years) ³	10.4	10.8	10.1	31.3
Value Added, \$M	\$1.94	\$0.70	\$0.58	\$3.22
Employment Income, \$M	\$1.01	\$0.48	\$0.32	\$1.81

Table 5 shows that during ongoing impacts of the proposed project include 31.3 jobs, \$6.76 million of business output, \$3.22 million of value added, and \$1.81 of employment income. In the total of 31.3 jobs, there are 10.4 direct jobs, 10.8 indirect jobs, and 10.1 induced jobs.

³ A job year is a measure of impact that shows the number of jobs that last for one year. For example, 1 job-year is equivalent to 1 job that lasts for one year, or 2 jobs that last 6 months each.