

# **Chicago to Iowa City Passenger Rail Project Financial Plan**

September 2009

**Illinois Department of Transportation**

**Iowa Department of Transportation**

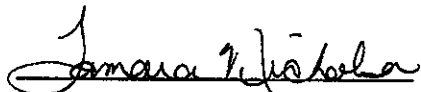
## Letter of Certification

The Iowa Department of Transportation and the Illinois Department of Transportation have developed a comprehensive Financial Plan for the Chicago to Iowa City Intercity Passenger Rail Project. The plan provides detailed cost estimates to complete this project and the estimates of financial resources to be used to fully finance the project. The plan covers the project from NEPA Tier2 environmental documentation, to final design, and through construction.

The cost data in the Financial Plan provides an accurate and realistic estimate of costs based on engineers' estimates and expected construction cost escalation factors. The financial resources represent the available federal and state monies to fully fund the entire project.

We believe the Financial Plan provides an accurate basis upon which to schedule and fund the identified segments of the Chicago to Iowa City Intercity Passenger Rail Project. Iowa DOT and Illinois DOT will review and update the financial plan on a regular basis.

To the best of our knowledge, this Financial Plan fairly and accurately presents the financial information for the Chicago to Iowa City Intercity Passenger Rail Project, cash flow, and expected conditions for the project's life cycle. The financial data in the Financial Plan are based on our judgment of the expected project conditions and our expected course of action. We believe that the assumptions underlying the Financial Plan are reasonable and appropriate. We have made available all significant information that we believe is relevant to the Financial Plan and, to the best of our knowledge, the documents and records supporting the assumptions are appropriate.

 10/2/09

Tamara Nicholson  
Office of Rail Transportation, Director  
Iowa Department of Transportation

 10/2/09

George Weber  
Bureau of Railroads, Director  
Illinois Department of Transportation

# 1. Introduction

The Chicago to Iowa City Intercity Passenger Rail Program (Program) is a joint undertaking of the Iowa Department of Transportation (Iowa DOT) and the Illinois Department of Transportation (Illinois DOT). The purpose of the Program is to re-establish passenger rail services from Chicago to Iowa City, independently and in concert with the MWRRI (Midwest Regional Rail Initiative). The Chicago to Iowa City Corridor is one part of the vision established by the MWRRI to expand existing and develop new regional passenger rail service to meet existing and future travel demands in the Midwest. This project will expand and create a rail transportation alternative to supplant private automobile, bus, and air travel between Chicago and Iowa City, and intermediate points, and to create new transportation opportunity and capability for people who cannot meet their transportation needs with private automobile, bus and air modes.

The need of the Program is the need for travelers to have improved transportation services consisting of reduced travel times, and costs, and improved travel convenience, reliability, connectivity, frequency, and safety.

The Program requires a comprehensive financial plan that includes Federal and non-Federal funding committed to the program. The Program area is shown below.



This Financial Plan addresses cost estimates, implementation plan, financing and revenues, cash flow, and risk identification and mitigation factors. The Financial Plan defines how the project will be implemented and financed. Contained in this document are the program cost estimates, funding, and schedule dates for the design, permitting, construction, and commissioning of the passenger service, and projects revenues, operation, and maintenance costs going forward. The Financial Plan will be updated on a regular basis.

## **2. Program Description**

The Program consists of a passenger-train service that provides twice-daily, round-trip, maximum 79-mph train service between Chicago Union Station and Iowa City, Iowa, a distance of 219.5 miles between station platforms. Each train would have a capacity of 240 coach seats and 20 business-class seats, offer food service, and operate on a 5-hour schedule between end points, for an average speed of approximately 44 mph including station stops. Intermediate stations include two Chicago suburban stops, La Grange Road and Naperville, the rural communities of Plano, Mendota, Princeton, and Geneseo, Illinois, and Moline, Illinois, serving the Quad Cities area of Illinois and Iowa, population 400,000. The nominal schedule between Moline and Chicago would be 3 hours, 20 minutes. Iowa City, Moline, and Geneseo at present do not have passenger-train service. The Program anticipates that Amtrak will be the passenger train operator under agreement with Illinois DOT and Iowa DOT. Host railroads are Amtrak, BNSF Railway and Iowa Interstate Railroad. An estimated 186,900 passengers per year would use the trains discussed in this SDP, with the preponderance traveling between two station pairs, Chicago and Iowa City, and Chicago and Moline. This is an average of 512 passengers per day, or 128 per train.

During development of the Tier 1 Service Level NEPA document, the 219.5 mile corridor was sub-divided into the following 9 study segments:

1. Railroad track in Illinois from Chicago to the Mississippi River Bridge;
2. Railroad track in Iowa from the Mississippi River Bridge to Iowa City;
3. Passenger rail station in Geneseo, Illinois;
4. Passenger rail station in Iowa City, Iowa;
5. Passenger rail station in Moline (Quad Cities), Illinois;
6. Train layover facility at or near Iowa City, Iowa;
7. BNSF crossing at Colona, Illinois;
8. Rail yard bypass at Rock Island, Illinois; and
9. BNSF and IAIS connection track near Wyanet, Illinois.

These segments will each require Tier 2 Project Level NEPA studies.

In addition, the Program was subdivided into 11 construction projects. These are:

1. Railroad track in Illinois from Chicago to the Mississippi River Bridge, including capacity improvements at Moline, Illinois;
2. Railroad track in Iowa from the Mississippi River Bridge to Iowa City, including capacity improvements at Walcott, American, and Iowa City, Iowa;
3. Passenger rail station in Geneseo, Illinois;
4. Passenger rail station in Iowa City, Iowa;
5. Passenger rail station in Moline (Quad Cities), Illinois;
6. Train layover facility in Iowa City, Iowa;
7. BNSF crossing in Colona, Illinois;
8. Rail yard bypass at Rock Island, Illinois;
9. BNSF and IAIS connection track near Wyanet, Illinois;
10. Train control and communications system in Illinois; and
11. Train control and communications system in Iowa.

Each construction project will require final design before construction.

The Tier 2 Project Level NEPA studies and construction projects combined with equipment acquisition and operation of the corridor make up the six project phases of the Program. The following table indicates the schedule summary for each phase. A complete schedule is provided in the Track 2 application.

Chicago to Iowa City Intercity Passenger Rail Program Schedule Summary						
PROJECT Phase	2010	2011	2012	2013		2014-2030
		Spr Fall	Spr Fall	Spr	Fall	
<b>Phase 1—Equipment (passenger cars and locomotives)*</b> Order new or refurbished passenger cars and locomotives						
<b>Phase 2—Tier 2 Project Level NEPA and Preliminary Engineering</b>						
<b>Phase 3 – Final Design construction projects</b>						
<b>Phase 4—Construction of:</b> <ol style="list-style-type: none"> <li>1. Passenger rail station in Geneseo, Illinois</li> <li>2. Passenger rail station in Iowa City, Iowa</li> <li>3. Passenger rail station in Moline (Quad Cities)</li> <li>4. Train layover facility in Iowa City, Iowa</li> <li>5. BNSF crossing in Colona, Illinois</li> <li>6. Rail yard bypass in Rock Island, Illinois</li> <li>7. BNSF and IAIS connection near Wyanet, Illinois</li> </ol>						
<b>Phase 5—Construction of:</b> <ol style="list-style-type: none"> <li>1. Railroad track in Illinois from Chicago to the Quad Cities, including reconfiguration of the 7<sup>th</sup> Street connection between IAIS, BNSF and CP in East Moline</li> <li>2. Railroad track in Iowa from the Quad Cities to Iowa City, including the siding extension at Walcott, passing track near Iowa City, and extension of south siding</li> <li>3. Train control and communications systems in Illinois</li> <li>4. Train control and communications systems in Iowa</li> </ol>						
<b>Operations of Passenger Rail Service Commence:</b> Combination of Iowa DOT and Illinois DOT funding sources						

\* Assumed equipment order is progressed under a Categorical Exclusion.

### 3. Capital Cost Estimate Structure

Cost estimates were prepared for each of the project phases of the Program. All design and construction costs for the Program were developed utilizing a base year of 2010. Due to the scope of the Program, final design is anticipated to take several years, concluding at the end of 2013. Construction is anticipated to begin in 2012 and conclude in 2014 with operations beginning in 2014. In order to more accurately capture the design and construction costs for the Program, the costs associated with individual activities were escalated by 4.5% per year to account for inflation between the base

year (2010) and the year when the costs are anticipated to be incurred (year of expenditure). An annual inflation rate was not applied to equipment acquisition.

A summary of the total Program cost is shown in the following table for base year and YOE for Phase 1 through Phase 5. The costs in the table include a contingency applied based on FRA Standard Cost Categories for Capital Projects/Programs, described under Cost Estimate Overview, and an unallocated contingency of 5% for each project.

More details about the cost estimate methodology are described in the Preliminary Engineering Report attached to the Track 2 application.

<b>Project Phase</b>	<b>Completion Date</b>	<b>Total Cost (Base/YOE) in thousands</b>
<u><b>PHASE 1</b></u> Order new passenger cars and locomotives	Spring 2014	\$59,378 / \$59,378
<u><b>PHASE 2</b></u> Tier 2 Project Level NEPA and Preliminary Engineering	Spring 2011	\$4,369 / \$4,424
<u><b>PHASE 3</b></u> Final Design for Construction Projects	Spring 2013	\$11,214 / \$12,133
<u><b>PHASE 4</b></u> Construction of: <ul style="list-style-type: none"> <li>1. Passenger rail station in Geneseo, Illinois</li> <li>2. Passenger rail station in Iowa City, Iowa</li> <li>3. Passenger rail station in Moline (Quad Cities)</li> <li>4. Train layover facility in Iowa City, Iowa</li> <li>5. BNSF crossing in Colona, Illinois</li> <li>6. Rail yard bypass in Rock Island, Illinois</li> <li>7. BNSF and IAIS connection near Wyanet, Illinois</li> </ul>	Spring 2013	\$29,448 / \$33,668
<u><b>PHASE 5</b></u> Construction of: <ul style="list-style-type: none"> <li>1. Railroad track in Illinois from Chicago to the Quad Cities, including reconfiguration of the 7<sup>th</sup> Street connection between IAIS, BNSF and CP in East Moline</li> <li>2. Railroad track in Iowa from the Quad Cities to Iowa City, including the siding extension at Walcott, passing track near Iowa City, and extension of south siding</li> <li>3. Train control and communications systems in Illinois</li> <li>4. Train control and communications systems in Iowa</li> </ul>	Spring 2014	\$128,660 / \$147,092
<b>Total Capital Cost</b>		\$233,069 / \$256,695



#### 4. Cost Estimate Detail

The Program cost estimating process includes development of cost estimates at each stage of the development process. Each cost model was structured to be consistent with the level of engineering definition available at a specific stage of the process.

Cost estimates for the Tier 2 Project Level NEPA studies to be awarded in the Spring of 2010 are based on actual costs for comparable NEPA studies recently completed. A five percent contingency factor is included for these studies.

The final design cost is based on preliminary engineering studies, and assessments of comparable and recent rail design projects. A five percent contingency factor was applied to the final design cost.

The current cost estimates for the construction projects were established based on detailed engineering calculations. A range between 20 % and 30% contingency factor was applied based on FRA Standard Cost Categories for Capital Projects/Programs for construction project costs.

This Financial Plan includes project funding and expenditures from 2010 through 2014, which is the scheduled end of construction for Phase 4 and Phase 5. The following tables include detailed project costs for each of these five implementation phases, by State, in Base Year dollars, including unallocated contingency.

<b>PHASE 1—Order New Equipment (Locomotives and Passenger Cars)</b>		
<b>Costs Reflect Two Operating Train-sets</b>	<b>Total Number of Cars</b>	<b>Total Cost (Base Year) in thousands</b>
Coaches (3 per train set) plus spare	7	\$28,255
Locomotives (1 per train set) plus spare	3	\$15,561
Food Service car (1 per train set) plus spare	3	\$9,419
Non-Powered Locomotives (1 per train set) plus spare	3	\$6,143
	<b>TOTAL COST</b>	<b>\$59,378*</b>

\*Costs will be 100% covered by the HSIPR Program funds.

**PHASE 2—Tier 2 Project Level NEPA Environmental Studies  
and Preliminary Engineering**

<b>Project Segment</b>	<b>State DOT Responsible for Project Completion</b>	<b>Total Cost (Base Year) in thousands</b>
Railroad track in Illinois from Chicago to the Mississippi River Bridge	Illinois	\$1,075
Railroad track in Iowa from the Mississippi River Bridge to Iowa City	Iowa	\$1,281
Passenger rail station in Geneseo, Illinois	Illinois	\$237
Passenger rail station in Iowa City, Iowa	Iowa	\$360
Passenger rail station in Moline (Quad Cities)	Illinois	\$458
Train layover facility in Iowa City, Iowa	Iowa	\$269
BNSF crossing in Colona, Illinois	Illinois	\$70
Rail yard bypass in Rock Island, Illinois	Illinois	\$238
BNSF and IAIS connection near Wyanet, Illinois	Illinois	\$381
	<b>TOTAL COST</b>	<b>\$4,369*</b>

\*Costs will be 100% covered by the HSIPR Program funds.

**PHASE 3—Final Design for Construction Projects**

<b>Project Segment</b>	<b>State DOT Responsible for Project Completion</b>	<b>Total Cost (Base Year) in thousands</b>
Railroad track in Illinois, including additional capacity at Moline	Illinois	\$1,207
Railroad track in Iowa, including additional capacity at Walcott, American, and Iowa City	Iowa	\$1,580
Passenger rail station in Geneseo, Illinois	Illinois	\$108
Passenger rail station in Iowa City, Iowa	Iowa	\$209
Passenger rail station in Moline (Quad Cities)	Illinois	\$356
Train layover facility in Iowa City, Iowa	Iowa	\$140
BNSF crossing in Colona, Illinois	Illinois	\$74
Rail yard bypass in Rock Island, Illinois	Illinois	\$145
BNSF and IAIS connection near Wyanet, Illinois	Illinois	\$322
Train-control and communications systems in Illinois	Illinois	\$3,619
Train-control and communications systems in Iowa	Iowa	\$3,454
	<b>TOTAL COST</b>	<b>\$11,214*</b>

\* Costs will be 100% covered by the HSIPR Program funds.

<b>PHASE 4—Construction of Seven Projects</b>		
<b>Project Segment</b>	<b>State DOT Responsible for Project Completion</b>	<b>Total Cost (Base Year) in thousands</b>
Passenger rail station in Geneseo, Illinois	Illinois	\$1,872
Passenger rail station in Iowa City, Iowa	Iowa	\$3,635
Passenger rail station in Moline (Quad Cities)	Illinois	\$6,183
Train layover facility in Iowa City, Iowa	Iowa	\$3,660
BNSF crossing in Colona, Illinois	Illinois	\$1,931
Rail yard bypass in Rock Island, Illinois	Illinois	\$3,789
BNSF and IAIS connection near Wyanet, Illinois	Illinois	\$8,378
	<b>TOTAL COST</b>	<b>\$29,448*</b>

\* Costs will be 100% covered by the HSIPR Program funds.

<b>PHASE 5—Construction of Four Projects</b>		
<b>Project Segment</b>	<b>State DOT Responsible for Project Completion</b>	<b>Total Cost (Base Year) in thousands</b>
Railroad track in Illinois, including additional capacity at Moline	Illinois	\$30,155
Railroad track in Iowa, including additional capacity at Walcott, American, and Iowa City	Iowa	\$39,554
Train-control and communications systems	Iowa and Illinois	\$58,951
	<b>TOTAL COST</b>	<b>\$128,660 *</b>

\* Costs will be 100% covered by the HSIPR Program funds.

### **State Agreements**

The State responsible for completing each segment of the Program is listed in the tables above. An agreement is in place which has been approved by Iowa DOT and Illinois DOT.

Construction estimates include all costs associated with utilities, aesthetics, construction engineering, change orders, environmental mitigation, and construction. Design estimates include all costs associated with in-house design, consultant management, and consultant design.

## 5. Financing and Revenues

The Program will be financed through a combination of federal and state funding.

Currently for Iowa, the Program has \$3 million of annual committed revenue sources for equipment purchases, studies, construction costs, and operating subsidies for the Program.

Illinois has up to \$5 million of annual committed revenue sources for equipment purchases, studies, construction costs, and operating subsidies for the Program.

Neither state plans to use debt financing for the projects but rather meet annual cash flow needs through Legislative appropriations.

Remaining funding beyond the \$8 million (\$3 million from Iowa and \$5million from Illinois) will come from the Track 2 High-Speed Intercity Passenger Rail Program.

<b>Chicago to Iowa City Intercity Passenger Rail Program Revenue Sources (in thousands)</b>				
	<b>Funding Source</b>	<b>Operating Subsidy</b>	<b>Equipment, Studies, and Construction</b>	<b>Total</b>
Iowa DOT	Legislative Appropriation	See Discussion	\$1,300	\$1,300 plus operating subsidy
Illinois DOT	Legislative Appropriation	See Discussion	\$500	\$500 plus operating subsidy
Federal Railroad Administration	HSIPR Program	\$0	\$256,695	\$256,695
Total		See Discussion	\$258,495	\$258,495

**From Public Act 96-0039**

Section 10. The sum of \$400,000,000, or so much thereof as may be necessary, is appropriated from the Transportation Bond Series B Fund to the Department of Transportation to leverage federal funding in accordance with the Department of Transportation Federal Railroad Administration's Capital Assistance for High Speed Rail Corridors and Intercity Passenger Rail Service Program and any other federal grant programs made available for capital and operating improvements for intercity passenger rail.

**From Public Act 96-0035**

Section 83. The sum of \$150,000,000, or so much thereof as may be necessary, is appropriated from the Transportation Bond Series B Fund to the Department of Transportation for track and signal improvements, AMTRAK station improvements, rail passenger equipment, and rail freight facility improvements.

## 6. Key Assumptions, Risks, and Mitigation

The following table summarizes the assumptions and risks associated with each of the revenue sources associated with the Program.

<b>Revenue Source</b>	<b>Assumptions and Justification</b>	<b>Discussion/Potential Risks</b>	<b>Risk Mitigation</b>
Iowa Legislative Appropriations	Assumes continued average commitment of funds	Revisions and/or changes required by unforeseen situations, Congressional or legislative action, or by general economic conditions.	Adjustment of the project schedule
Illinois Legislative Appropriations	Assumes continued average commitment of funds	Revisions and/or changes required by unforeseen situations, Congressional or legislative action, or by general economic conditions.	Adjustment of the project schedule
FRA's HSIPR Program	Assumes funding available through the HSIPR Program	Special federal funding is not released by the federal government in a timely manner	Adjustment of the project schedule

## 7. Cash Flow of Capital Expenditures

Based on the implementation plan for the Program, the projected costs through project completion for each of the 6 phases are outlined in the following table.

**Chi-IC Intercity Passenger Rail Project—Costs and Revenues**  
**(YOE dollars in thousands)**

<b>Development Costs and Revenues</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2014—2044 (Operation)</b>	<b>Total</b>
<u>PHASE 1</u> Order new or refurbished rolling stock	\$11,310	\$11,310	\$11,310	\$11,310	\$11,310		\$56,550
<u>PHASE 2</u> Tier 2 Project Level NEPA and Preliminary Engineering	\$3,121	\$1,087					\$4,208
<u>PHASE 3</u> Final Design for Construction Projects		\$4,185	\$5,831	\$1,524			\$11,540
<u>PHASE 4 and Phase 5</u> Construction Projects			\$41,109	\$85,918	\$44,893		\$171,920
Unallocated Contingency	\$722	\$855	\$2,964	\$5,017	\$2,919		\$12,477
<b>Total Development Costs</b>	<b>\$15,153</b>	<b>\$17,437</b>	<b>\$61,214</b>	<b>\$103,769</b>	<b>\$59,122</b>	<b>\$0</b>	<b>\$256,695</b>



## **8. Risk Identification and Mitigation Factors**

### **Impact of Future Cost Changes**

Each state is responsible for cost increases based upon their participation percentage and contractual responsibility. Potential unforeseen events that may occur throughout the life of a project of this magnitude include, but are not limited to:

- Acts of God
- Changed environmental and track conditions
- Changes in design concepts
- Changes in design specifications
- Changes in government rules and regulations
- Increased scope of mitigation
- Litigation
- Major shift in inflation, cost increase factor, and bid costs
- Material delays, labor disputes, and material costs
- New technology
- Unanticipated federal or state budget changes
- Weather delays

### **Impact to State Budgets**

Both Iowa DOT and Illinois DOT are intending to complete their respective portions of this Program on time and within budget.

### **Cost Containment Strategies**

All project costs through the construction phase will be tracked through the project scheduling system and documented on a regular basis. Adjustments in estimated project costs during the development phases of the project in excess of two percent of the total project cost or estimates changed due to a significant concept change will be documented with a cost estimate change form and included in updates to the Financial Plan. The Project Co-Managers, in coordination with the Project Engineer, will be responsible for updating the data for the Financial Plan updates including any contract modifications that affect cost for the projects in construction.

### **Risk Mitigation**

During the summer of 2009, Iowa DOT, Illinois DOT, and HDR Consultants conducted a cost and schedule validation and risk assessment for the Program. The risk

management session looked at the treatment of various risks (in an attempt to better control cost and schedule or other important performance measures) through some cost-effective combination of the following:

- a. Avoidance—changing the plan to eliminate the risk or its impacts to the project
- b. Mitigation/reduction—changing the plan to reduce the likelihood and/or consequences of the risk
- c. Transference/allocation—allocating the financial impact of the risk to the party best able to manage it (e.g. via risk-allocation matrix), or sharing when appropriate
- d. Acceptance—recognizing and absorbing the risk (i.e. because it's beyond control of the team)

For the Program, relatively few risk-management actions were identified during the session. This was likely because:

- a. Much of the risk identified is design uncertainty, which cannot be mitigated (rather, it will simply be resolved over time, either favorably or unfavorably, as the design matures; and/or
- b. Much of the risk for this project is beyond the team's control or is already being mitigated by the team.

Risk mitigation strategies will continue to be looked at and analyzed for the Program.

## **9. Operating and Maintenance Costs, Compared to Revenue**

Operating and maintenance cost estimates were estimated on a conservative basis, as aspects of the operating costs are subject to commercial negotiations with the host railroads (Amtrak, BNSF, and IAIS), the operating railroad (Amtrak), and potential third-party maintenance contractors. Operating and maintenance costs were developed using a base year of 2010, and inflated at 4.5 percent in subsequent years. Passenger ridership was increased at 1.65% per year, and passenger ticket revenue was inflated at 4.5 percent per year. All inflation rates are compound. Because the operating and maintenance costs are inflated on a larger base than the revenue, the operating subsidy requirement increases going forward.

The net operating and maintenance subsidy cost may be substantially less than estimated. However, the benefit-cost analysis was performed using the estimates below.

Operating and maintenance costs are frequently estimated on a train-mile basis. The train miles are 4 trains \* 219.5 miles \* 365 days = 320,470 train-miles per year. Operating costs are estimated at \$10,800,000 per year.  $\$10,800,000 / 320,470$  train-miles = \$33.70 per train-mile. This has similarity to operating and maintenance costs in other rail corridors with relatively low passenger train-miles per route-mile (fixed costs have few train-miles over which to be allocated). Actual operating and maintenance costs will be subject to negotiations with host railroads and Amtrak.

<u>Ongoing Operations and Maintenance Costs</u> <u>(2010 dollars unless noted otherwise)</u>	
Operations of Passenger Rail Service, related to annual funding need (source of ongoing funding is Iowa DOT and Illinois DOT funds)	
Track, Communication, Signal, and Station Infrastructure Maintenance	\$5,100,000
Locomotive and Passenger Car Maintenance Cost	\$3,400,000
Amtrak Direct Train Operation Cost	\$2,300,000
Total Operating Costs	\$10,800,000
Estimated Revenue (Amtrak Feasibility Study), Year 1	\$4,800,000
Net Required Operating & Maintenance Subsidy, Year 1 (YOE)	\$7,477,000
Net Required Operating & Maintenance Subsidy, Year 5 (YOE)	\$8,683,000
Net Required Operating & Maintenance Subsidy, Year 10 (YOE)	\$9,961,000