Coast-to-Coast Passenger Rail Ridership & Cost Estimate Study

EXECUTIVE SUMMARY

February 2016

STUDY OVERVIEW

This exploratory study provides a working understanding of the ridership potential and costs associated with operating passenger rail service between three of Michigan's major cities: Detroit, Lansing and Grand Rapids. Key findings:

- The results of the ridership and cost analyses support further study on Route 1 and Route 2 (see map below). Route 1 has the highest ridership, while Route 2 has the greatest return on investment.

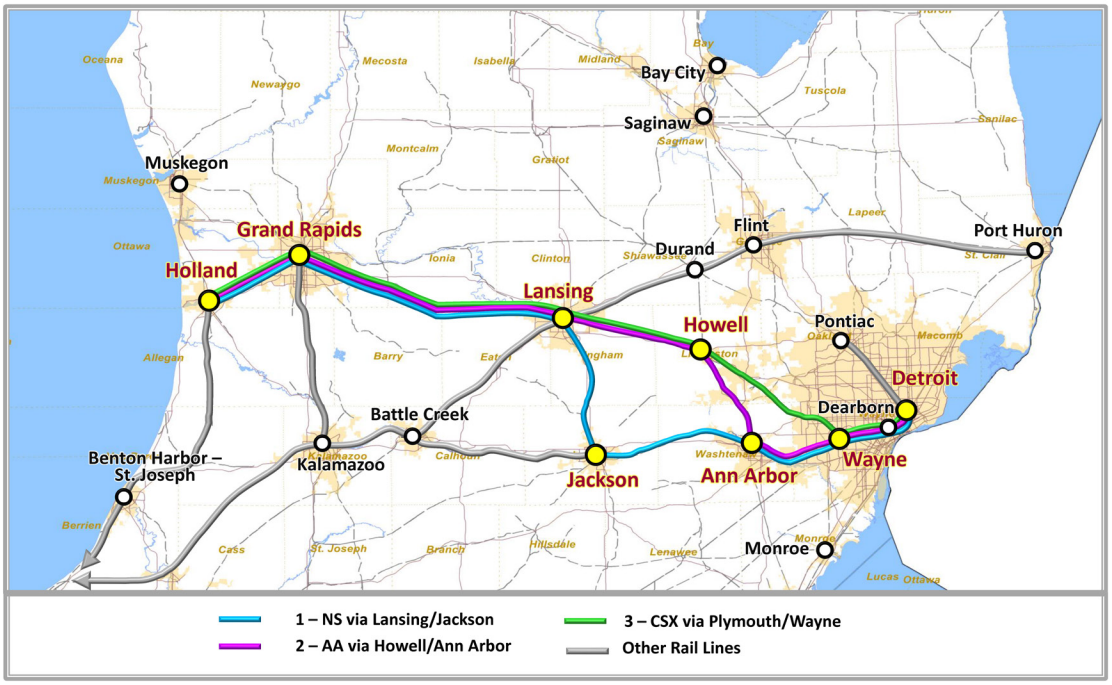
- Establishing basic 79-mph service on the 186-mile Route 2 would require an annual subsidy of approximately $3 million and an upfront capital investment of $130.9 million. While 110-mph service would require a greater capital investment, higher ridership would allow the service to recover its operating expenses, and in fact could generate more than $12 million in annual profits on Route 2.

- The next major step will be to complete a full feasibility study, which should include environmental impact analyses, an implementation plan and a review of public-private partnership options.

ROUTE OPTIONS

Early analysis and discussion prompted the study team to determine three routes for consideration:

Coast-to-Coast Route Options



This analysis in no way excludes any other route option from future analyses, nor does it identify a "preferred alternative" route. It does, however, seek to understand the strengths and weaknesses of Routes 1-3 for consideration in potential future studies. *Specific station locations along the routes have not been identified at this level and will need to be determined in a future study.*

TECHNOLOGY OPTIONS

Equipment options considered for this study include 79-mph conventional trains with one locomotive as are currently operated from Chicago to Grand Rapids; existing conventional trains with two locomotives as are currently operated at speeds of up to 110 mph from Chicago to Pontiac; and proposed 110-mph tilting trains with high-speed diesel engines along with tilting rail cars.

CONVENTIONAL TRAINS WITH ONE (79 MPH) OR TWO LOCOMOTIVES (110 MPH)

Photo by JLK Design

TILTING TRAINS WITH HIGH-SPEED DIESEL ENGINES (110 MPH)

RIDERSHIP DEMAND

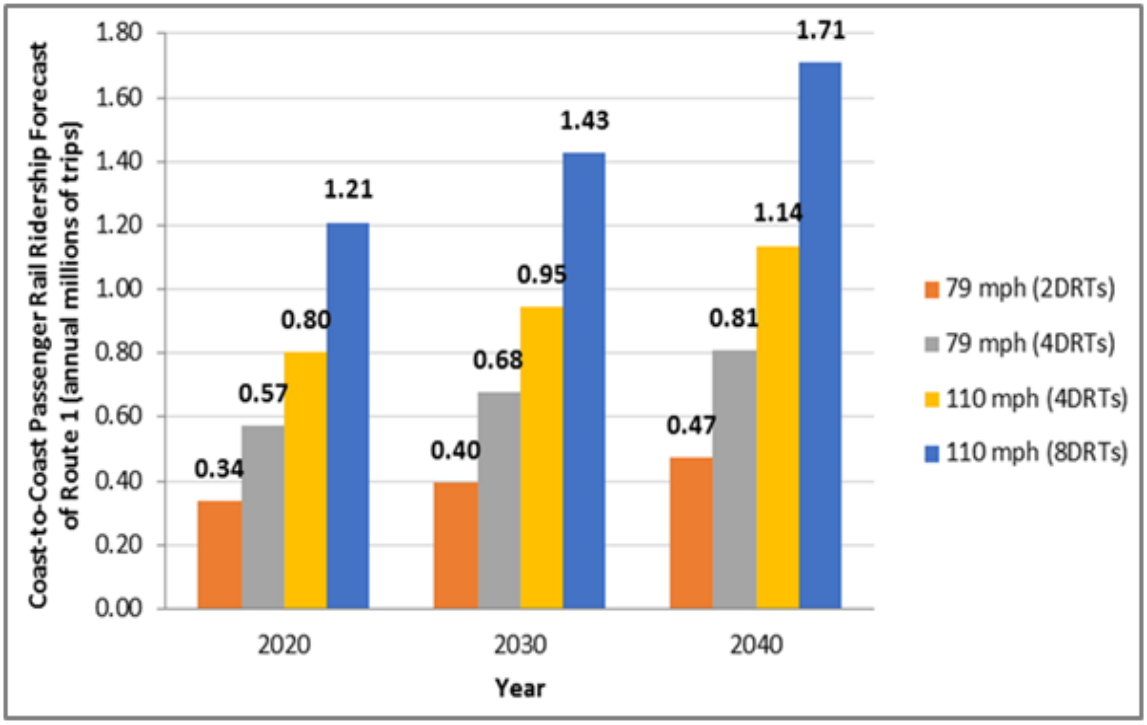
To estimate potential ridership, the following operating scenarios for each route and technology option are used in the report:

Route and Technology	2 DRTs	4 DRTs	8 DRTs
Route 1: 79 MPH Conventional Trains	✓	✓	
Route 1: 110 MPH Diesel Tilt Trains		✓	✓
Route 2: 79 MPH Conventional Trains	✓	✓	
Route 2: 110 MPH Diesel Tilt Trains		✓	✓
Route 3: 79 MPH Conventional Trains	✓	✓	
Route 3: 110 MPH Diesel Tilt Trains		✓	✓

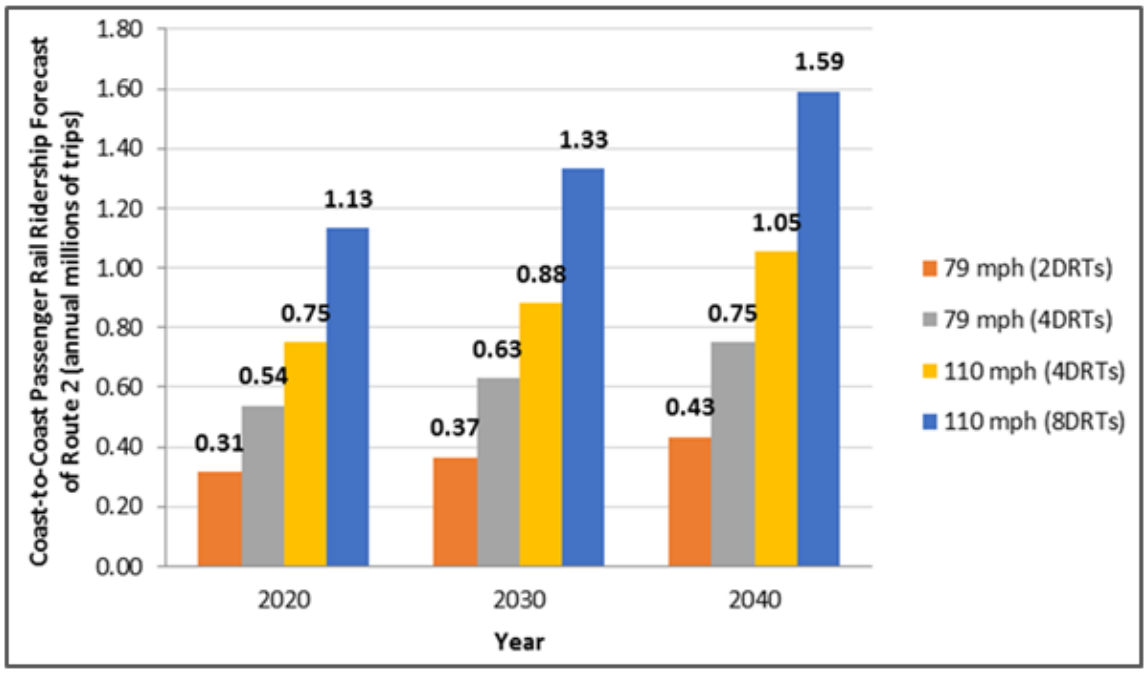
(DRT = Daily Round Trips)

Estimated ridership for each route increases substantially as frequency and speed increases with the potential for up to 1.71 million riders per year by 2040 on Route 1 with 8 daily round trips at 110 mph.

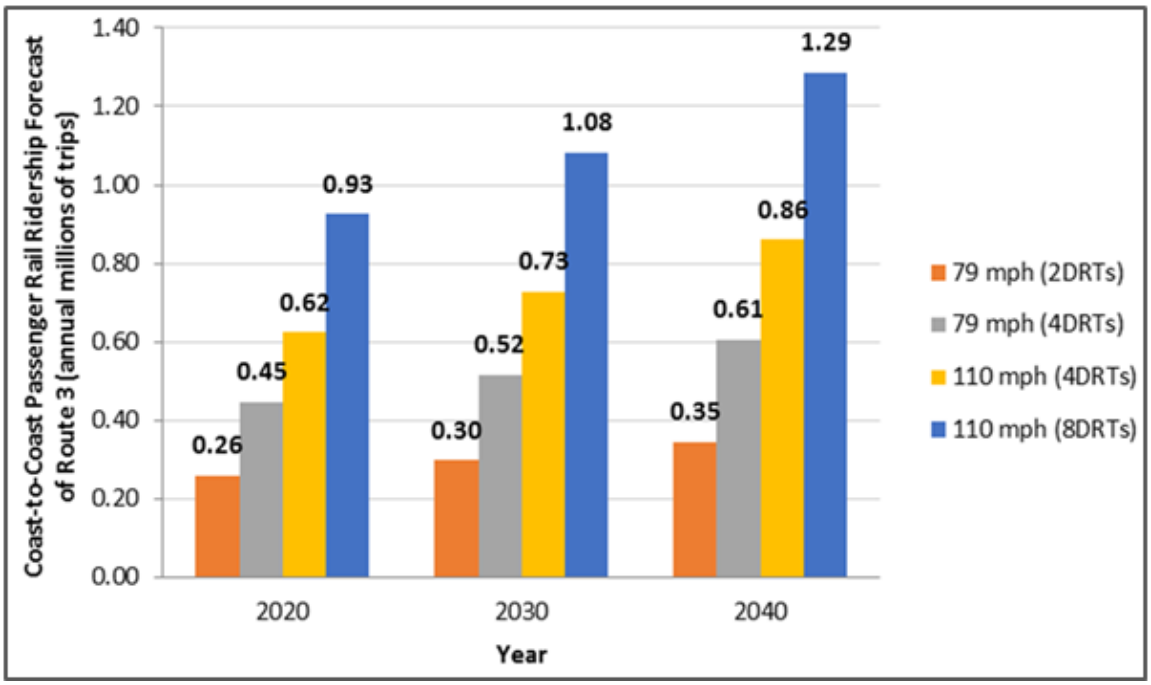
Coast-to-Coast Passenger Rail Ridership Forecast for Route 1 (annual millions of trips)



Coast-to-Coast Passenger Rail Ridership Forecast for Route 2 (annual millions of trips)



Coast-to-Coast Passenger Rail Ridership Forecast for Route 3 (annual millions of trips)



In terms of technology, higher frequency and higher speeds generated the greatest ridership and revenue. At 79 mph, increasing train frequency from 2 to 4 trains per day in each direction almost doubles ridership, while at 110 mph, increasing train frequency from 4 to 8 trains per day in each direction increases demand by 30-40 percent. The impact of higher speed is to double ridership as the train service becomes more and more competitive with the automobile.

Grand Rapids, Lansing and Ann Arbor have the greatest anticipated station volumes of close to 0.5 million (on and offs) passengers per year at 110 mph and 8 trains per day.

Holland Amtrak Station | Photo by JLK Design

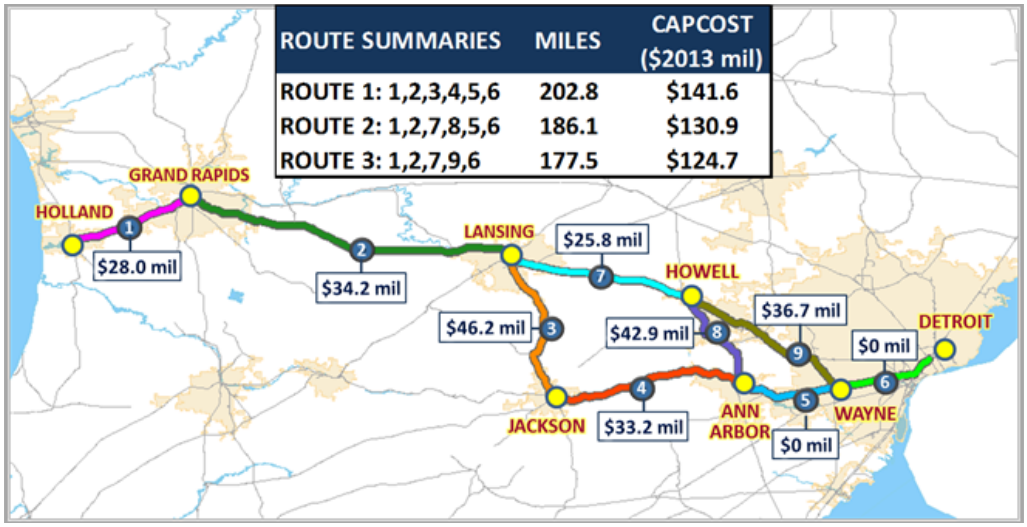
Rail line near Williamston | Photo by JLK Design

COST ESTIMATES

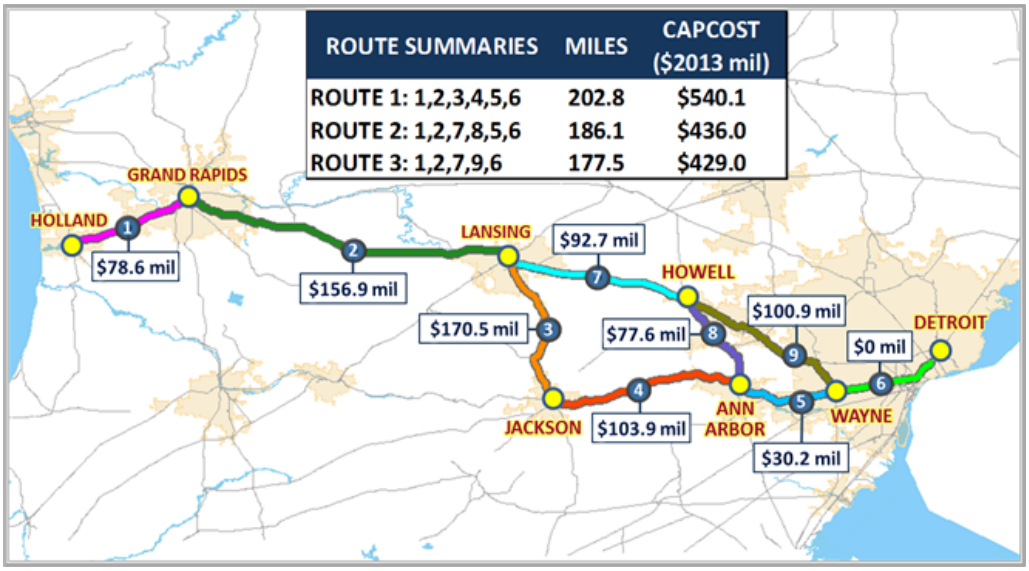
Infrastructure costs were developed for each track segment (at both 79 and 110 mph speed options) that make up the Coast-to-Coast route options. Cost estimates range from $124.7 million for Route 3 at 79 mph to $540.1 million for Route 1 at 110 mph.

Rail infrastructure already exists throughout the corridor; however, upgrades for safety, speed and comfort are required to equip freight rail for passenger service. These requirements increase for accelerated rail service at 110 mph.

79-mph Capital Costs by Segment



110-mph Capital Costs by Segment



Note: A 30 percent level of accuracy is associated with the evaluation of project feasibility at this level. More details about costs (including detailed capital costs, equipment and operating expense estimates) can be found in Chapter 4 of the report.

FINANCIAL AND ECONOMIC IMPACTS

To better understand the feasibility of a passenger rail service, it is important to look at the system revenues, operating costs and operating surplus. The operating surplus, which is defined as revenues minus operating cost, makes an important contribution to the overall business case for building the system:

If the operating surplus is positive, the system will not require any operating subsidy, and will even generate a profit to offset capital cost.

If the operating surplus is negative, the system will require a grant of capital to build the system and an ongoing operating subsidy.

As is usually the case with transit and rail projects, the study finds that the higher-frequency, faster-service options provide an operating surplus, while more basic, lower-frequency service would require an operating subsidy.

The graph below represents the operating subsidy or surplus estimated for each route option:

2030 Subsidy / Surplus by Option

PUBLIC ENGAGEMENT

Public engagement was an important element of the Coast-to-Coast Passenger Rail Ridership & Cost Estimate Study. The Michigan By Rail (MBR) team, an informal coalition that works to advance passenger rail in Michigan (led by Michigan Environmental Council and the Michigan Association of Railroad Passengers), managed the public engagement portion of this study.

11 town-hall style meetings

5 campus meetings

1 online engagement platform

feedback collected from

575

Michigan residents

PUBLIC ENGAGEMENT FEEDBACK (sample)

QUESTION: What potential positive and negative impacts do you think the Coast-to-Coast service would have on your community?

SAMPLE ANECDOTAL RESPONSES:

"Safer commute = less stress = healthier people"

"Difficult to travel if not in city center with lack of public transportation options"

"Increased fun and spontaneity! Would be more likely to hop on a train to Detroit for a concert or game if didn't have to deal with parking"

"Trains are safer, quieter, less stressful, and more productive but they do not usually pay for themselves"

Public engagement meeting in Grand Rapids

NEXT STEPS

The report provides the following recommendations for next steps in the development of a Coast-to-Coast passenger rail service:

- Complete a comprehensive environmental study of the corridor. In some areas only a categorical exclusion may be needed rather than a full environmental impact statement, since the work would be accomplished within existing rail rights-of-way.

- Develop a technical assessment of positive train control options for future Michigan passenger rail projects for better compatibility with freight rail systems and reduced cost.

- Consider the potential for a public-private-partnership or franchise in order to attract private capital to the project.

- Develop a detailed implementation plan, outlining the short- and long-term actions that might be taken to initiate service at 79 mph and, over time, upgrade that service to the level proposed at 110 mph.

- Work closely with the Chicago-Detroit/Pontiac corridor and North-South Commuter Rail teams to identify the additional infrastructure and facilities they might need or could be mutually beneficial if the Coast-to-Coast project moves forward. For example, one question to consider may be whether Coast-to-Coast trains ought to terminate in downtown Detroit, or if some of them should be extended through to Pontiac or even points north, such as Flint or Saginaw.

- Complete a statewide study to assess the future development options for passenger rail services for connecting Lansing, Saginaw, Flint, Port Huron, Cadillac, Muskegon and Grand Rapids to both Chicago and Detroit. As part of this study, also assess potential synergies between intercity and commuter rail corridor development needs.

Photo by JLK Design

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- Holland Convention & Visitors Bureau
- Ingham County Economic Development Corporation
- Livonia Chamber of Commerce
- Macatawa Area Coordinating Council
- Michigan West Coast Chamber of Commerce
- Plymouth Area Chamber of Commerce

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