2015 FRA
Rail Program Delivery

RAIL
Moving America Forward

Investment Pipeline Analysis

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Agenda

Measuring project outcomes and benefits - Wendy Messenger

- **Infrastructure Investment Factors**

- **Passenger Rail Investments**

- **Rail Project Outcomes that Drive Ridership Increases**

- **Benefits Associated with Building Rail**

Framework for planning and project development - David Valenstein

- **Passenger rail development pipeline**

- **Pipeline analysis findings and outcomes**

- **Readiness data overview**

Measuring Project Outcomes and Benefits

Infrastructure Investment Factors

DISTANCE

People choose rail when it offers a faster or more efficient option to other modes. The trip time matters and distances of 100-500 miles are prime for rail travel.

POPULATION

Rail works best around major population centers. Population size and density can help to estimate the demand. Growth can predict where emerging needs are greatest.

ECONOMY

Where business travel is high, demand for rail grows. Rail can help improve economic outcomes but existing demand based on productivity is a key success factor.

CONGESTION

Today's travel demand is overwhelming our current infrastructure. Transportation congestion costs the American economy $121 billion in lost time, productivity, and fuel every year. Rail lightens the load on road and air infrastructure.

TRANSIT CONNECTIONS

The ease with which people can connect with rail improves its popularity as a form of transportation. Intermodal hubs with seamless transit connections make rail travel an easy choice.

INTERCONNECTIVITY

Rail networks perform best along corridors that connect clusters of high-density population centers with shared economic activity.
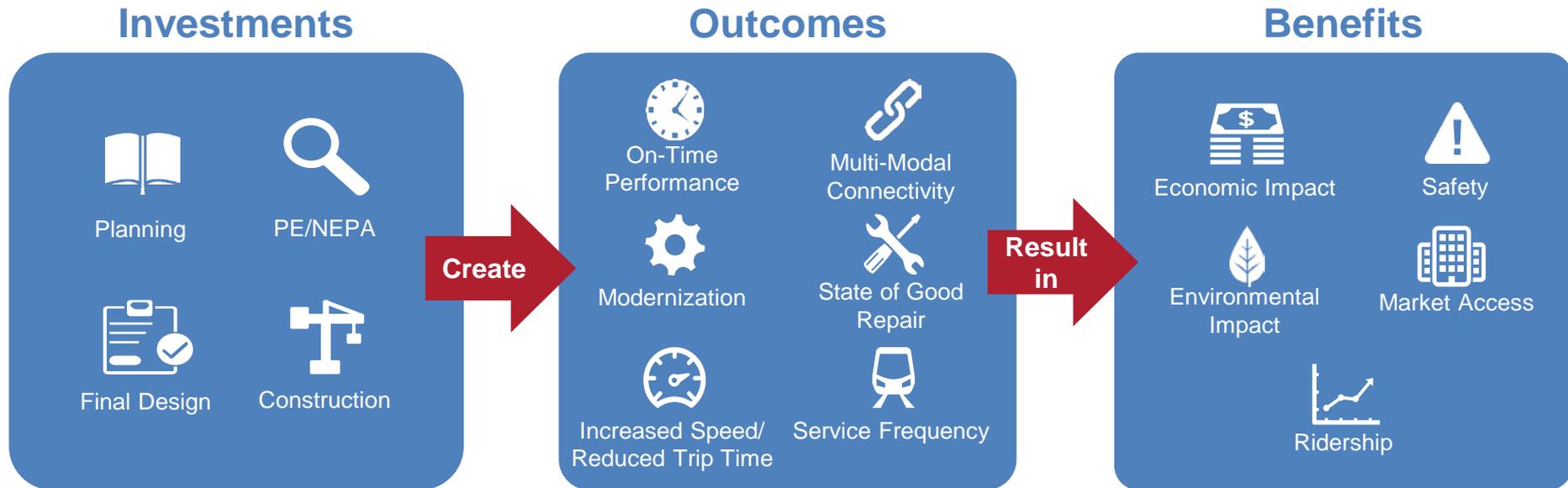
SAFETY

Safety always matters. Rail travel is safer than ever and continued investments in safety improvements will make it even safer.

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Investments, Outcomes, and Benefits: A Framework

The investments made by FRA and grantees in rail projects are positioned to provide outcomes that will drive ridership increases and result in substantial benefits

Investments

- Planning
- PE/NEPA
- Final Design
- Construction

Create →

Outcomes

- On-Time Performance
- Multi-Modal Connectivity
- Modernization
- State of Good Repair
- Increased Speed/ Reduced Trip Time
- Service Frequency

Result in →

Benefits

- Economic Impact
- Safety
- Environmental Impact
- Market Access
- Ridership

Passenger Rail Investments

FRA makes stepped, strategic investments in high-performance rail. From early planning to targeted construction for new service, these investments form a pipeline to achieve greater access to passenger rail.

Plan

Feasibility studies outline the best routes with the highest success probabilities. Public Involvement Plans make sure no voice goes unheard. **State Rail Plans** present priorities and strategies of proposed rail development focused on benefits and impacts to the region.

Planning

Analyze

Investments in the grantee planning process include: **Environmental reviews, Service Development Plans,** and **Preliminary Engineering.**

PE/NEPA

Build

With approved and comprehensive planning in place, government and private companies partner to build rail. **Final Design** work completes the blueprints needed before construction, and **Construction** comes only after feasibility is proven, expected outcomes are weighed, and the project is ready for more expensive capital investments.

Final Design   Construction
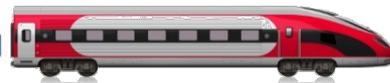
Rail Project Outcomes that Drive Ridership Increases

On-Time Performance ⏱

- Defined as % of trains arriving at final destination on time.
- Reported monthly by Amtrak and tracked by FRA

Average Speed/Trip Time ⏱

- Inferred from published Amtrak timetables, or proposed future timetables in planning documents.
- Tracked by FRA

Service Frequency 🚆

- Inferred from published Amtrak timetables, or proposed future timetables in planning documents.
- Tracked by FRA

State of Good Repair 🛠

- Extends the useful life of existing infrastructure
- Reduces delays and can contribute to improvement in On-Time Performance

Modernization ⚙

- Replaces existing infrastructure with new infrastructure
- Can be required to allow future increases in average speed/trip time and service frequency

Multi-Modal Connectivity 🔗

- Connects intercity passenger rail system to local transit networks
- Strong multi-modal connections expand the ridership shed of passenger rail systems

Benefits Associated with Building Rail

Economic

- Rail creates sustainable jobs
- Rail multiplies public investments and leverages private investment
- Rail brings higher land values and revenue

Environmental

- Rail is extremely fuel efficient
- Rail reduces emissions
- Rail helps address growing congestion on our roads and airports

Access

- Rail can help meet the needs of our growing population
- Rail can help meet travel demand across the nation

Safety

- Rail has never been safer
- Ensuring continuous safety improvement

Example: Downeaster Portland North

Investment	Outcome(s)	Benefit(s)
Construction	**State of Good Repair**	**Market Access**
Recipient: Northern New England Passenger Rail Auth.	Upgraded 30 miles of track using new, continuously-welded rails made of American steel that bring a smoother ride for passengers.	Extended passenger rail service to the approximately 174,000 residents of the Freeport and Brunswick areas.
Host: Pan Am Railway		
Corridor: Boston – Portland – Brunswick		**Ridership**
FRA Investment: $38.4m	Improved all 36 road-rail crossings between Portland and Brunswick.	Exceeded projected ridership by 50% in first year of operation, and has seen annual ridership over 500,000 every year since 2011.
Construction Began: Aug. 9, 2010		
Construction Completed: Nov. 23, 2012		

Example: CREATE P1 – Englewood Flyover

Investment

Construction

Recipient: Illinois DOT

Host: CSXT/NS/Metra

Corridor: Chicago – Detroit – Pontiac

FRA Investment: $126.0m

Recipient Match: $6.6m

Construction Began: Jan. 1, 2013

Ready for Service: Oct. 23, 2014

Outcome(s)

On-Time Performance

132 daily trains can now pass without interference, resulting in better on-time performance across the network.

Increased Speed/ Reduced Trip Time

The flyover allows trains to pass over each other instead of waiting for traffic at a four-way intersection, reducing trip times.

Benefit(s)

Economic Impact

Each year, traffic through the Englewood junction resulted in more than 7,500 hours of passenger delay. The flyover eliminates a major choke point and eliminates costly delays.

Example: Pacific Northwest Rail Corridor

Investment

PE/NEPA   Final Design   Construction

Recipient:
Washington State DOT

Host: BNSF Railway

Corridor: Portland – Seattle

FRA Investment: $751.6m

Recipient Match: $24.6m

Construction Began: Jul. 1, 2010

Anticipated Completion: Q2, FY 2017

Outcome(s)

Service Frequency

Two round trips between Seattle and Portland will be added for a total of seven daily.

Increased Speed/ Reduced Trip Time

The new Point Defiance Bypass will allow trains to take a more direct route, reducing travel time by ten minutes. Top speeds will eventually rise to 90mph.

Benefit(s)

Ridership

Construction of follow-on improvements is anticipated to result in annual ridership in excess of 1.3 million by 2030.

Anticipating Future Rail Project Benefits

- Grantees and partners are already achieving important outcomes with measurable benefits

- Investments in Planning and PE/NEPA have created conditions to build upon existing projects and achieve greater benefits

- Evaluation of project benefits can help prioritize future investments

Framework for Planning and Project Development

Tracking Rail Investments

By continually tracking a list of investments in a state or corridor, officials can better prioritize their time, effort, and spending on projects where their strategic goals and objectives are being met.

Best Practices

- Develop a consistent data collection process to ensure timely relevant data is available for decision-making
- Use an established and standardized method for synthesizing and prioritizing based on investment and service outcome data

Sample Data

- Readiness Schedules
- Cost Data
- Geographic Data
- Interdependencies
- Project Relationships
- Estimated Outcomes and Benefits

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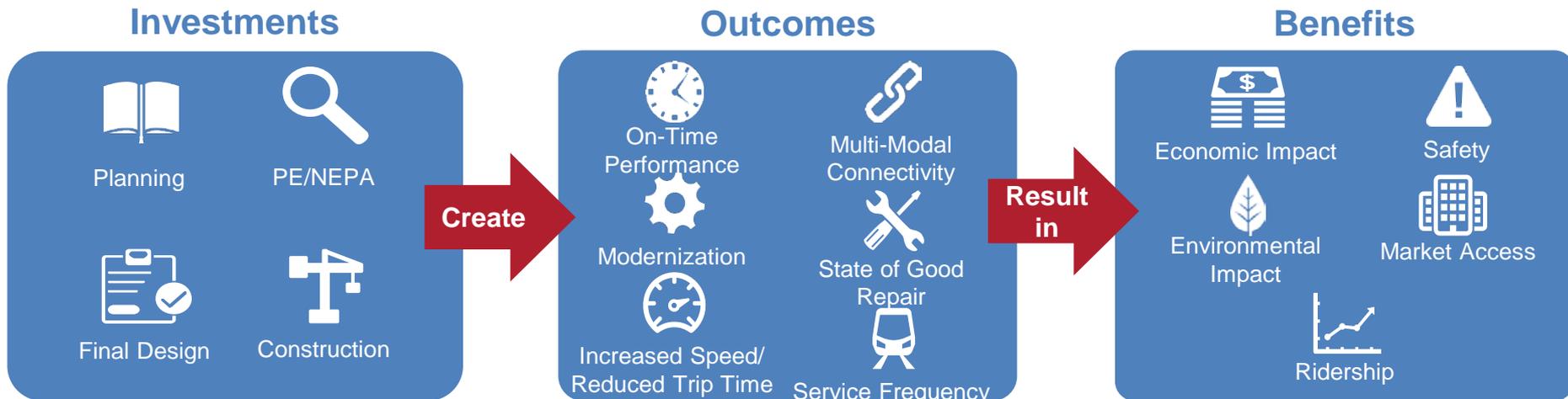
Project Development Framework

	Activities	**Project Examples**
Planning	Perform comprehensive state- or region-wide analyses of passenger and freight networks, or detailed analyses of specific corridors	*Nevada State Rail Plan*
Preliminary Engineering & Project NEPA	Conduct initial site surveying and needs assessment; develop initial site plans and track alignment alternatives; prepare comprehensive analysis of environmental impacts	*MD – Baltimore-Washington International Airport Station Improvements*
Final Design	Complete engineering specifications and detailed plans; obtain necessary permits and documentation for construction	*NJ – Portal Bridge*
Construction	Construct improvements to track, stations, grade crossings, signaling systems and other railroad infrastructure	*CA - Capital Corridor: South Terminal Station Improvement*
Operations	Operate intercity passenger trains	*Amtrak direct operating grants*

FRA's Passenger Rail Development Pipeline

Since 2009, $371M in combined Federal and additional State/private funds have been building a "pipeline" of future projects.

- Prepare for future funding availability – *what are the best market-based investments?*

- Determine priorities for next round of planning – *what potential markets are still "missing"?*

- Identify national vision – *where is rail heading in the U.S.?*

FRA Pipeline Analysis Findings and Outcomes

Phase One of the pipeline analysis was implemented to provide input into FRA communication materials. The effort resulted in a logical, excel-based dataset and analysis method that enabled FRA to develop Readiness Factsheets.

Phase One Outcomes	
Readiness Dataset	▪ Collected point-in-time readiness data spanning 77 projects in six regions that can be aggregated at the corridor and regional level ▪ Gained understanding of how data would need to be sourced and structured for a long term technical solution
Readiness Analysis	▪ Developed a mechanism that facilitates regional analysis of current and future investments and project outcomes ▪ Set the foundation for developing an in depth forecasting tool that can aid future HSIPR planning and decision making
FRA Readiness Methodology	▪ Established a standard method for synthesizing investment and service outcome data for use in program messaging and communications
Readiness Fact Sheets	▪ Developed six regional and one national Readiness Factsheet that capture at the corridor and regional level, (1) when projects will be ready for construction and/or additional investments, and (2) the planned service outcomes for each corridor and region

Readiness Data Overview: Current State

The current dataset consists of four main categories that together inform current and future rail investments reporting.

Project Characteristics	Readiness Information	Service Outcomes and Project Benefits	Project Costs
Description: Geographical and descriptive traits that make-up the core composition of a project	**Description:** Milestone information that enables tracking of a project along its development lifecycle	**Description:** Operational outputs that are contractually negotiated between transit parties and benefits that result from completion of a project	**Description:** Financial costs and funding associated with implementing a project
Examples: ▪ Project Type ▪ Project Name ▪ Corridor Name ▪ Child Corridor Segment ▪ Region ▪ Length	**Examples:** ▪ Tier I Review Date ▪ Service Development Plan Date ▪ Construction Readiness Year ▪ Service Initiation Year	**Examples:** ▪ Intercity Frequency ▪ Average Speed ▪ Maximum Authorized Speed ▪ Ridership Increase ▪ Time Savings	**Examples:** ▪ Current Funding FRA ▪ Current Funding Total ▪ Planning Project Cost Estimate ▪ Cost Estimate Year ▪ Adjusted Cost Estimate

Readiness Data Overview: Categories

Corridors are categorized according to their readiness for new funding. "Ready" means having completed planning and environmental prerequisites necessary for construction.

Category	Initial Phases Receiving Capital Funding?	Planning/Environmental Complete for Future Phases?	Number of Corridors*
I	Yes	Yes	9
II	No	Yes	12
III	No	Under Development	34

* Corridors may be double-counted if they are the subject of multiple corridor planning studies.

Existing State-Supported Rail Corridor

Existing Long-Distance Rail

Vancouver, BC
Seattle
Portland
Eugene

Montreal
St. Albans
Brunswick

Duluth

Minneapolis/St. Paul
Rochester

Milwaukee
Madison

Grand Rapids
Port Huron
Pontiac
Detroit

Toronto
Niagara Falls
Buffalo

Albany
Rutland
Boston
Springfield

Salt Lake City

Rockford
Iowa City
Chicago
Kalamazoo

New York
New Haven

San Francisco
Auburn
Sacramento
Stockton

Omaha

Quincy
Indianapolis
Pittsburgh
Harrisburg

Philadelphia

San Jose

Denver

Kansas City

St. Louis
Carbondale

Washington, D.C.

Richmond
Newport News
Roanoke

San Luis Obispo
Fresno
Bakersfield

Las Vegas

Charlotte
Raleigh

Los Angeles
Indio

Oklahoma City
Tulsa

Memphis
Chattanooga

San Diego
Phoenix

Atlanta

Dallas/Fort Worth
Shreveport

Jacksonville

San Antonio
Houston
New Orleans

Laredo

Miami

Brownsville

Receiving Capital Funding

Existing State-Supported Rail Corridor

Existing Long-Distance Rail

Vancouver, BC
Seattle
Portland
Eugene

Montreal
St. Albans
Brunswick
Rutland
Duluth
Toronto
Albany
Boston
Minneapolis/St. Paul
Niagara Falls
Springfield
Milwaukee
Grand Rapids
Buffalo
Rochester
Madison
Port Huron
New York
Rockford
Pontiac
Detroit
New Haven
Salt Lake City
Iowa City
Kalamazoo
Harrisburg
San Francisco
Auburn
Sacramento
Omaha
Chicago
Pittsburgh
Philadelphia
Stockton
Quincy
Indianapolis
Washington, D.C.
San Jose
Fresno
Denver
Kansas City
Richmond
St. Louis
Carbondale
Roanoke
Newport News
San Luis Obispo
Bakersfield
Las Vegas
Charlotte
Raleigh
Los Angeles
Indio
Oklahoma City
Tulsa
San Diego
Phoenix
Memphis
Chattanooga
Atlanta
Dallas/Fort Worth
Shreveport
Jacksonville
San Antonio
New Orleans
Houston
Laredo
Miami
Brownsville

Receiving Capital Funding

Planning Complete

Existing State-Supported Rail Corridor

Existing Long-Distance Rail

Legend:
- Receiving Capital Funding
- Planning Complete
- Planning Underway
- Existing State-Supported Rail Corridor
- Existing Long-Distance Rail

195 current | 642 future daily round trips

3.3x increase in daily round trips

28 Corridors with dramatic service improvements

25 Corridors with new service

5,694 improved miles | 6,266 new miles

11,960 total new or improved route miles (may vary by alternative)

Open Discussion