



FRA Corridor Management Technical Assistance Webinar Series

Reliability and On-Time Performance



Photo credit: <http://www.raileurope.co.uk>





Overview

Purpose

- Support States with **technical assistance** in their new roles as **customers** of intercity passenger rail services.
- Provide **guidance** on how States can **measure reliability and on-time performance (OTP)** for corridor routes.
- Identify options for how **States can influence reliability and OTP** in order to meet **PRIIA section 207 standards**, and improve overall route performance.





Overview

Agenda

- Opening Poll Questions
- **Introduction to Reliability and On-Time Performance (OTP)**
Paul Nissenbaum
- **Reliability Data and Analysis Techniques**
Brandon White
- **How Can States Influence Reliability?**
Paul Nissenbaum
- **Questions & Answers**
- Feedback Poll Questions



Photo credit: <http://www.amtrak.com/>





Introduction to Reliability and OTP

Paul Nissenbaum

Associate Administrator for Railroad Policy
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Federal Railroad Administration





Introduction to Reliability and OTP

Reliability

- **Reliability is the quality and consistency of passenger rail service** over time, from season to season and year to year, regardless of the demand levels for freight and commuter service.
- **On-Time Performance (OTP)** is the primary performance measure for reliability of passenger rail service.
- **Delays** can cause problems with OTP and are an important source of reliability information for corridor managers.





Introduction to Reliability and OTP

Reliability Performance Measures and Standards

End-Point OTP

- # of trains arriving on time / total # of trains
- On-time windows vary based on route length
- Corridor route standard is 80% - rises to 90% on Oct. 1, 2013

All-Stations OTP

- Percentage of trains arriving within 15 minutes of scheduled time (includes initial departure as well)
- Same standard as End-Point OTP

Effective Speed

- $\text{Route mileage} / (\text{scheduled runtime} + \text{average lateness})$
- Effective speed must be maintained or improved

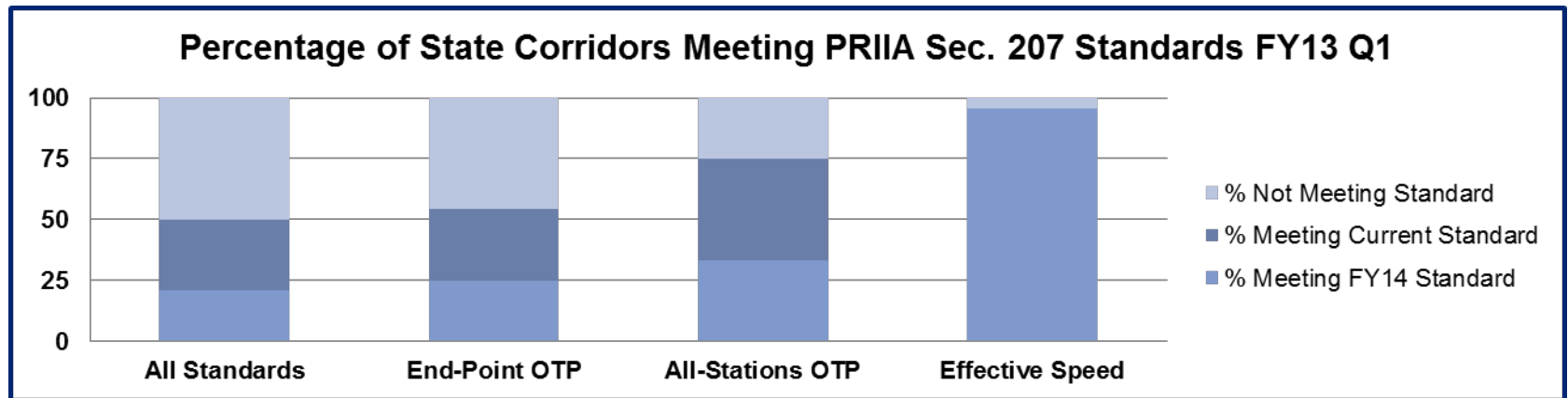




Introduction to Reliability and OTP

Importance of Measuring Reliability and OTP

- **PRIIA standards are a baseline minimum for reliable service**
- **Corridor routes not consistently meeting current standards**
 - 50% of corridor routes (12 of 24) failed to meet one or more standards in the first quarter of 2013.
- **OTP standards increasing on Oct. 1, 2013**
 - Only 21% (5 of 24) corridor routes would have met the higher standards had they been in effect.



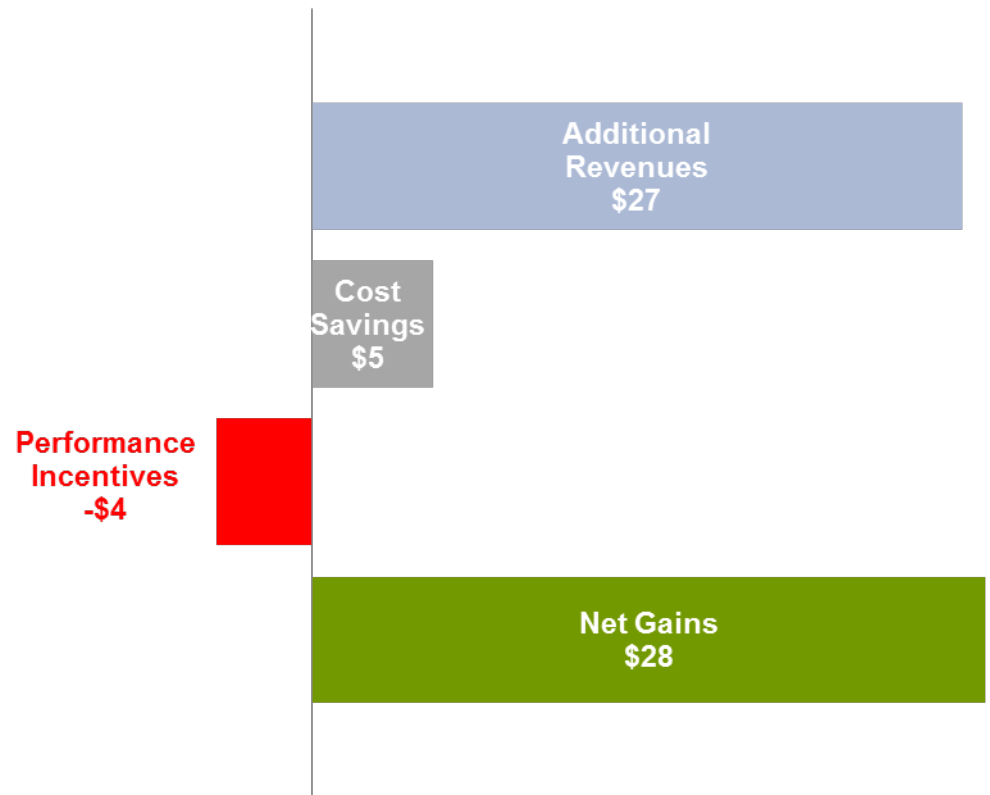


Introduction to Reliability and OTP

Benefits of Improved OTP

- **OTP is correlated with costs and revenues**
- **In FY06, increase to 85% OTP for State corridors may have reduced operating loss by \$28M (DOT IG Estimate)**
- **Result of increased ridership, lower labor and fuel costs**

Estimated Effects of Improvement to 85% OTP for Amtrak Corridor Routes in Fiscal Year 2006
(Source: DOT Inspector General)

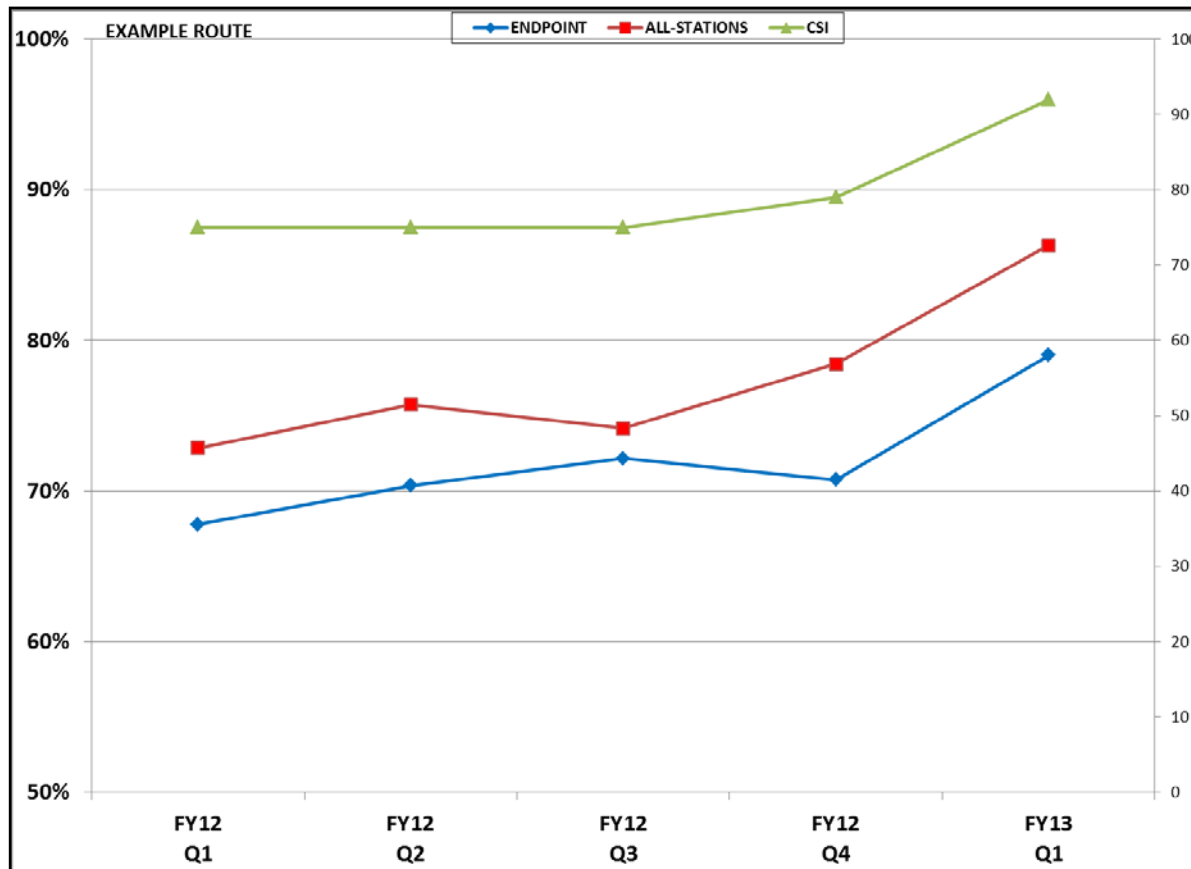




Introduction to Reliability and OTP

Benefits of Improved OTP

- OTP is correlated with customer satisfaction





Introduction to Reliability and OTP

Given the Benefits, why do Corridor Routes Struggle to Meet Minimum Standards?

- **Conflicting priorities between host railroads, operators and State customers result in delays**
- **Delays underlie problems with OTP**
 - Reported by operator conductors (in minutes, by location)
 - Attributed to one of three primary categories:
 - Host Railroad
 - Operator
 - Third Party
 - Coded based on immediately observable source of delay
- **PRIIA section 207 standard for host railroads is no more than 900 minutes of delay per 10,000 train miles**
 - Standard for Operators is 325 minutes



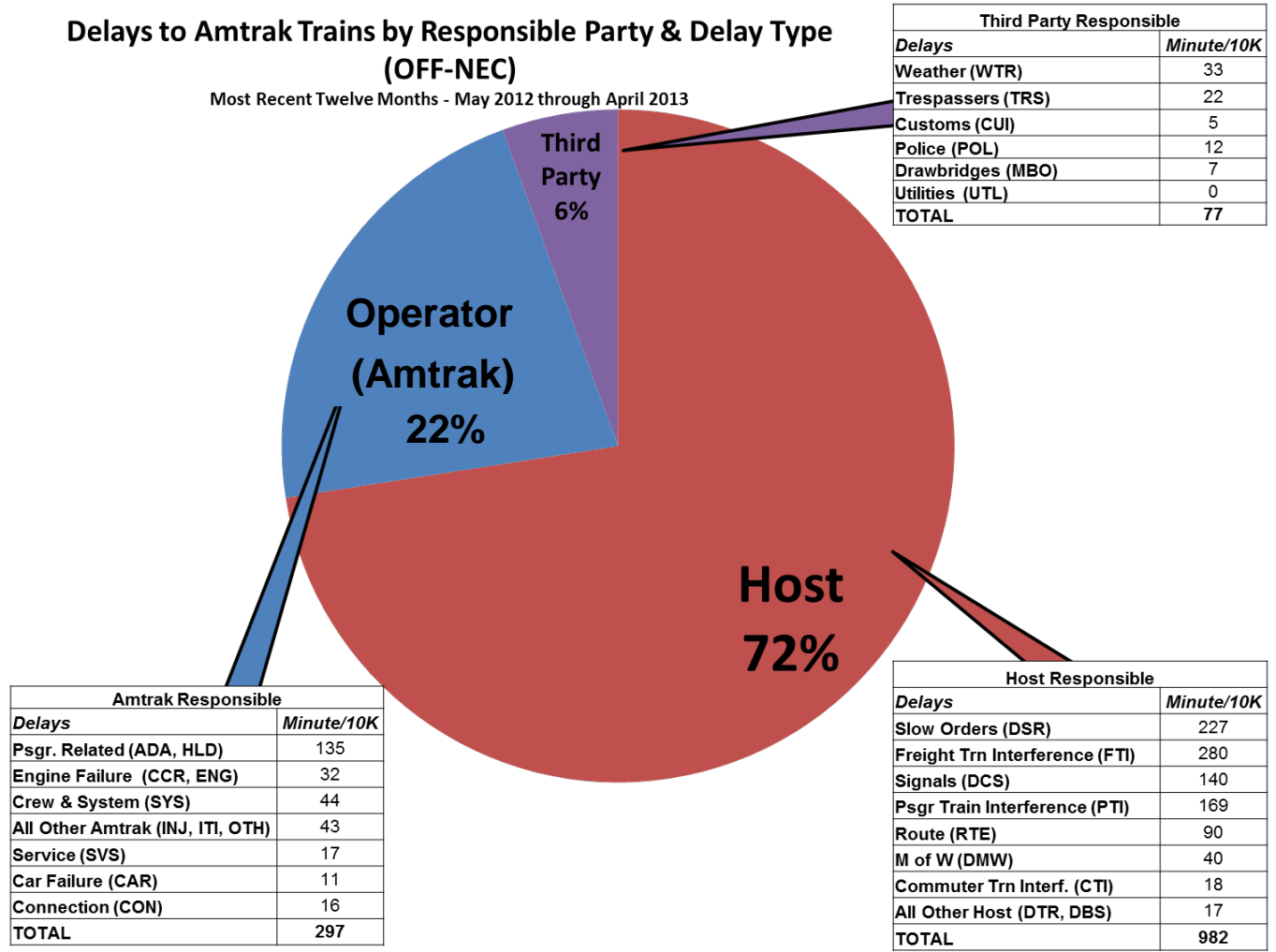


Introduction to Reliability and OTP

Delay Sources and Codes

Delays to Amtrak Trains by Responsible Party & Delay Type (OFF-NEC)

Most Recent Twelve Months - May 2012 through April 2013





Reliability Data and Analysis Techniques

Brandon White

Transportation Specialist

Federal Railroad Administration





Reliability Data and Analysis Techniques

Overview

Example OTP reports for FRA leadership

- Incorporate data from public sources as well as more detailed data from Amtrak
- Examine both End-Point and All-Stations OTP
- Focused on improvement over time and progress toward achieving PRIIA sec 207 standards

Data and analysis techniques

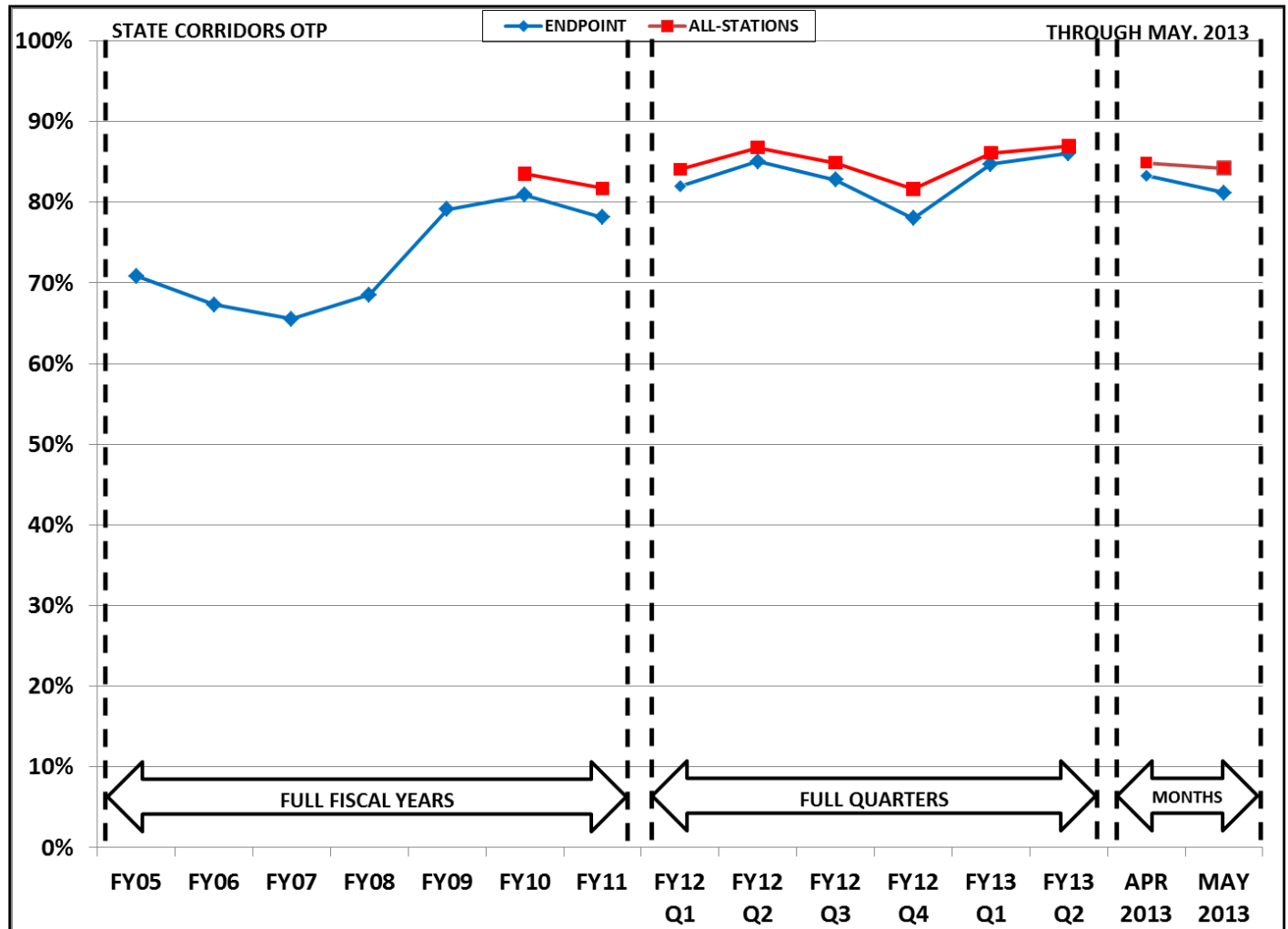
- Data sources
- What types of trends indicate a problem?
- Analysis using Operator delay reports





Reliability Data and Analysis Techniques

State Corridor Routes (average)





Reliability Data and Analysis Techniques

Data Sources

FRA Quarterly Metrics and Performance Report

- Information by corridor and train
- End-Point and All-Stations OTP + effective speed
- Top sources of delay from host and Amtrak
- <http://www.fra.dot.gov/Page/P0532>

Amtrak Monthly Performance Report

- Available before FRA quarterly reports
- Information available by corridor only
- Endpoint OTP and top sources of delay only
- <http://www.amtrak.com/reports-documents>

Operator service contracts

- Can be structured to provide more frequent or detailed data if desired





Reliability Data and Analysis Techniques

FRA Quarterly Metrics and Performance Report:

<http://www.fra.dot.gov/Page/P0532>

TABLE 6:
ON-TIME PERFORMANCE (OTP)

Service ^a	Test #1	Test #2	Test #3
	Change in Effective Speed from FY 2008 Baseline (mph)	Endpoint OTP ^b	All-Stations OTP ^c
	Last Four Quarters	1st Quarter FY 2013	1st Quarter FY 2013

Acela Express

Standard	>=0	90.0%	90.0%
Acela Express	0.1	89.7%	92.7%

Other NEC Corridor Routes

Standard	>=0	85.0%	85.0%
Keystone	0.6	89.6%	96.1%
Total Northeast Regional		86.0%	89.4%
Richmond / Newport News/Norfolk ^d	0.2	85.9%	86.6%
Lynchburg ^e	Not Available	87.8%	87.9%
All Other Northeast Regional	0.7	85.9%	91.0%

Non-NEC Corridor Routes

Standard	>=0	80.0%	80.0%
Capitol Corridor	2.1	93.8%	94.6%
Carolinian	1.3	70.7%	70.7%
Cascades	0.5	81.2%	81.3%
Downeaster	0.8	81.2%	92.5%
Empire Corridor	1.6	86.3%	81.6%
Adirondack	1.1	69.6%	54.5%
Ethan Allen Express	3.3	77.8%	85.3%
Maple Leaf	0.6	70.7%	72.9%
New York - Albany ^f	2.7	92.3%	95.5%
New York - Niagara Falls	0.5	88.6%	84.0%
Heartland Flyer	0.6	61.2%	79.9%





Reliability Data and Analysis Techniques

Amtrak Monthly Performance Report:

<http://www.amtrak.com/reports-documents>

END-POINT ON-TIME PERFORMANCE REPORT MARCH

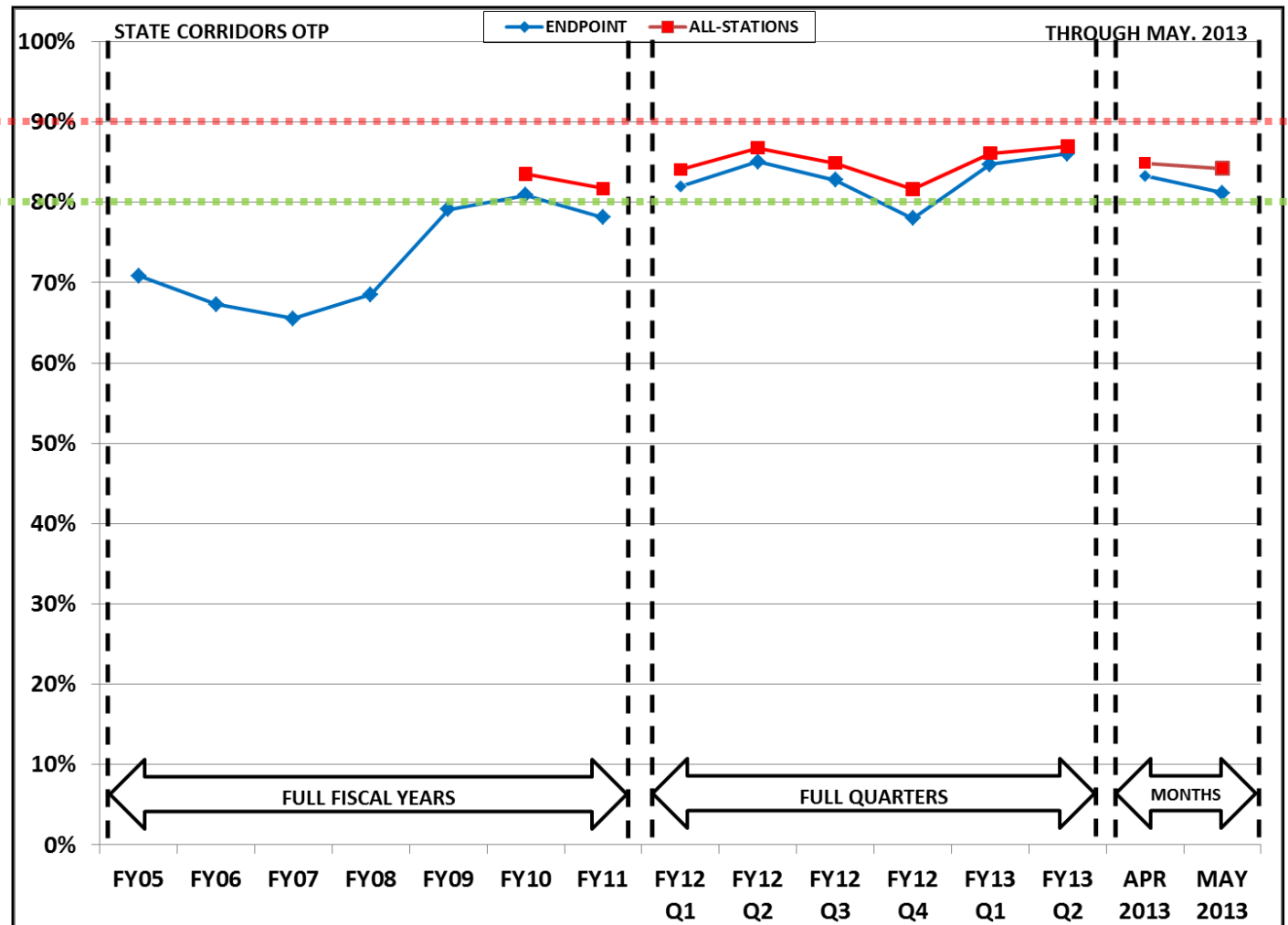
SERVICE		MARCH 2013	MARCH 2012	Change	FY13 YTD	FY12 YTD	Change
Amtrak System		85.2%	85.8%	-0.7%	85.5%	84.7%	0.8%
Amtrak Premium		89.7%	94.1%	-4.4%	89.4%	92.1%	-2.7%
Acela Express		89.7%	94.1%	-4.4%	89.4%	92.1%	-2.7%
Amtrak Corridor		90.2%	92.3%	-2.0%	88.4%	89.4%	-1.0%
Keystone		96.3%	94.1%	2.3%	91.6%	91.2%	0.4%
Northeast Regional		87.3%	91.4%	-4.1%	86.8%	88.5%	-1.7%
Richmond / Newport News /Norfolk		85.7%	88.7%	-3.0%	87.4%	89.5%	-2.1%
Lynchburg		93.5%	93.5%	0.0%	91.1%	91.8%	-0.7%
All Other Northeast Regiona		87.4%	92.0%	-4.6%	86.3%	88.0%	-1.7%
Short Distance		84.6%	84.4%	0.2%	85.4%	83.5%	1.9%
Capitols		94.4%	93.3%	1.1%	94.2%	93.9%	0.3%
Carolinian		64.5%	83.9%	-19.4%	71.4%	79.5%	-8.1%
Cascades		74.5%	74.7%	-0.2%	76.8%	73.5%	3.3%
Downeaster		89.3%	90.6%	-1.4%	83.1%	85.9%	-2.8%
Empire Corridor		90.0%	91.3%	-1.3%	87.7%	90.4%	-2.8%
Adirondack		74.2%	88.7%	-14.5%	72.4%	80.6%	-8.2%
Ethan Allen Express		87.1%	85.5%	1.6%	82.9%	75.7%	7.2%
Maple Leaf		64.5%	72.6%	-8.1%	69.8%	80.3%	-10.5%
New York - Albany**		96.7%	94.8%	2.0%	93.6%	94.3%	-0.7%
New York - Niagara Falls		90.3%	93.5%	-3.2%	88.3%	95.2%	-6.9%





Reliability Data and Analysis Techniques

State Corridor Routes (average)

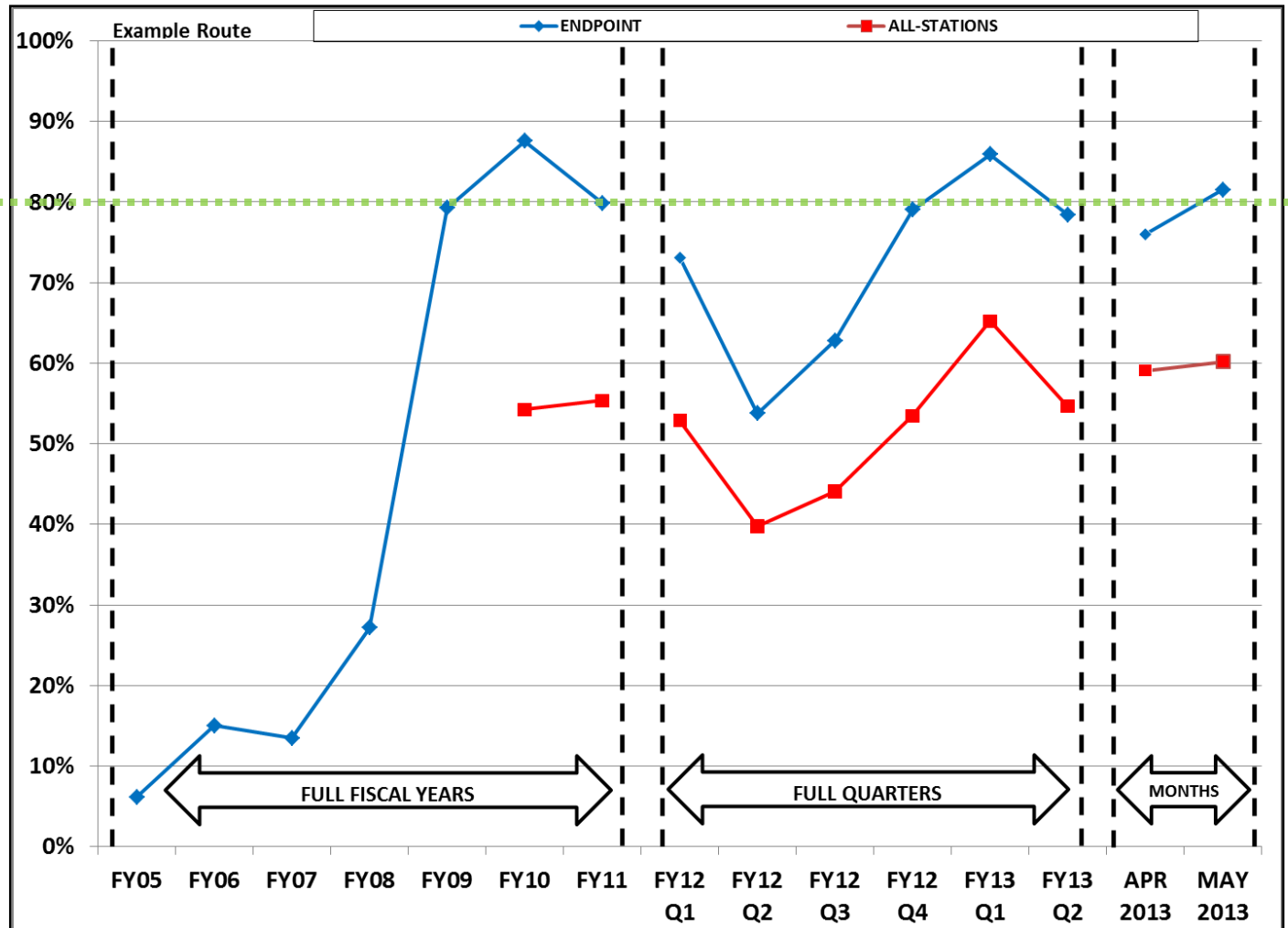




Reliability Data and Analysis Techniques

Example Long Distance Route

Current
OTP
Standard
is 80%



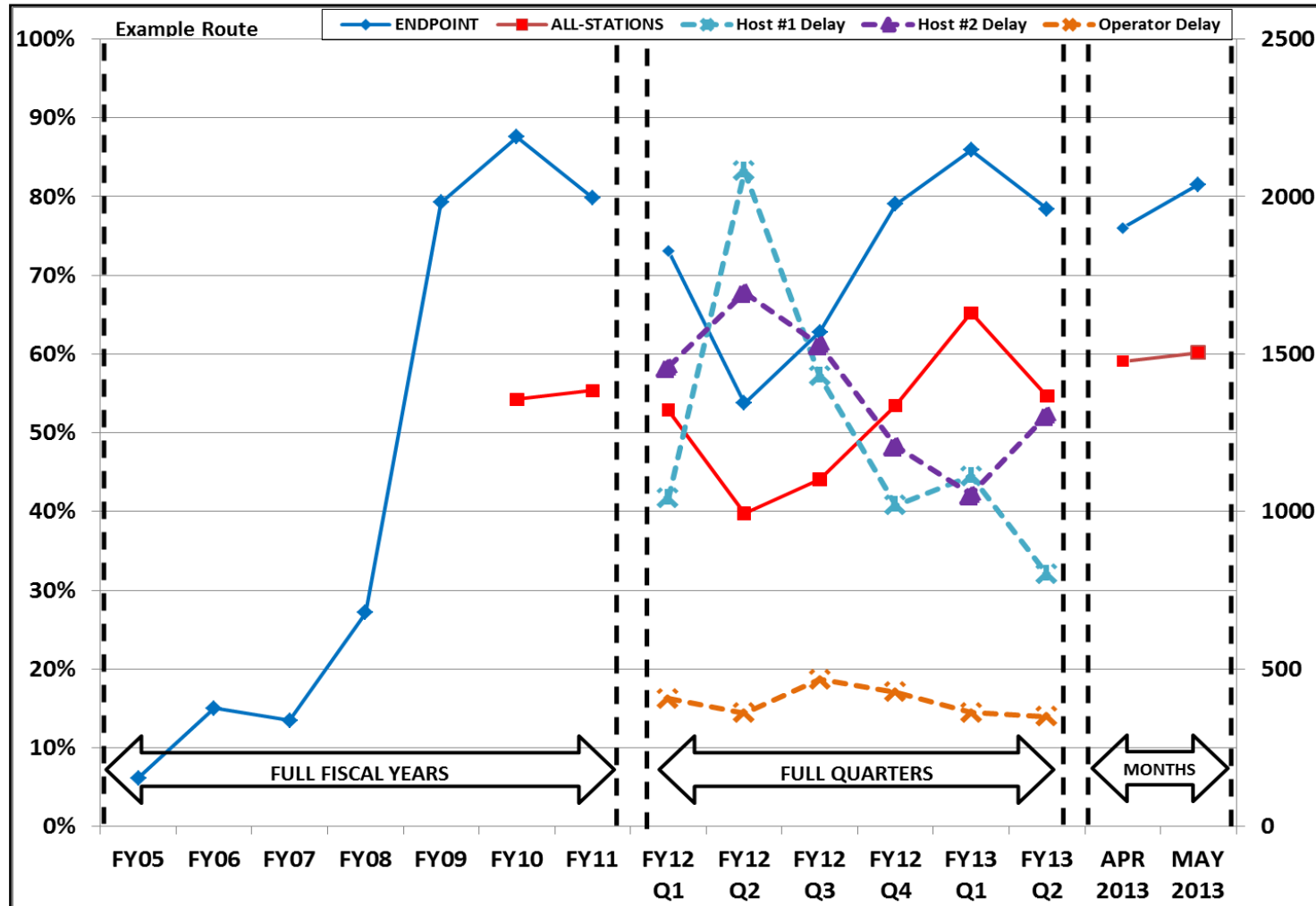


Reliability Data and Analysis Techniques

Example Long Distance Route

Host Delays Exceed Standard

Operator Delays Also Exceed Standard





Reliability Data and Analysis Techniques

Example Host Delay Summary -- FRA Quarterly Report

<http://www.fra.dot.gov/Page/P0532>

TABLE 7:
OFF-NEC HOST RESPONSIBLE DELAYS BY SERVICE
 Minutes of Delay Per 10,000 Train-Miles

Service	Host		1st Quarter FY 2013						
			Total Delay	Largest 2 Delay Categories ^b				MM&C Allowance ^c	Route Miles
				#1	Minutes	#2	Minutes		
<i>Standard</i>			900						
OTHER ROUTE	HOST 1		870	FTI	303	PTI	188	0	1,209
	HOST 2		1241	CTI	517	DSR	309	0	68
	HOST 3		950	PTI	676	FTI	197	0	28
OTHER ROUTE	HOST 1		442	DSR	151	FTI	84	0	2,198
	HOST 2		1012	DSR	565	DCS	277	0	80
EXAMPLE ROUTE	HOST 1		1113	DSR	447	FTI	253	0	190
	HOST 2		1055	FTI	410	DCS	202	0	1,784
OTHER ROUTE	HOST 1		2448	DSR	1837	FTI	298	0	126
	HOST 2		1617	FTI	1172	DCS	259	0	37
	HOST 3		1227	FTI	387	DSR	231	0	1,104

DSR = Slow Orders
 FTI = Freight Train Interference





Reliability Data and Analysis Techniques

Example Host Delay Summary -- FRA Quarterly Report

<http://www.fra.dot.gov/Page/P0532>

APPENDIX B:
OFF-NEC HOST - RESPONSIBLE DELAYS BY TRAIN
Minutes of Delay Per 10,000 Train-Miles

Service	Train	Host	1ST QUARTER FY 2013					
			Total Delay	Largest 2 Delay Categories ^b				MM&C Allowance ^c
				#1	Minutes	#2	Minutes	
Standard			900					
OTHER ROUTE	TRAIN 1	HOST 1	820	FTI	229	PTI	223	0
		HOST 2	1539	CTI	796	DCS	310	0
		HOST 3	1885	PTI	1353	FTI	386	0
	TRAIN 2	HOST 1	919	FTI	377	DSR	153	0
		HOST 2	942	DSR	326			
		HOST 3	16	FTI	8			
OTHER ROUTE	TRAIN 1	HOST 1	419	DSR	150			
		HOST 2	1103	DSR	594			
	TRAIN 2	HOST 1	465	DSR	152			
		HOST 2	921	DSR	535	DCS	259	0
		HOST 3						
		HOST 3						
EXAMPLE ROUTE	TRAIN 1	HOST 1	1642	DSR	578	DCS	410	0
		HOST 2	908	FTI	356	DCS	191	0
	TRAIN 2	HOST 1	583	DSR	315	FTI	147	0
		HOST 2	1202	FTI	463	DCS	213	0
OTHER ROUTE	TRAIN 1	HOST 1	2164	DSR	1549	FTI	245	0
		HOST 2	2051	FTI	1475	DCS	311	0
		HOST 3	1352	FTI	477	DSR	240	0
	TRAIN 2	HOST 1	2758	DSR	2151	FTI	357	0
		HOST 2	1182	FTI	868	DCS	206	0
		HOST 3	1102	FTI	298	DSR	222	0

DSR = Slow Orders
FTI = Freight Train Interference





How Can States Influence Reliability?

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Associate Administrator for Railroad Policy
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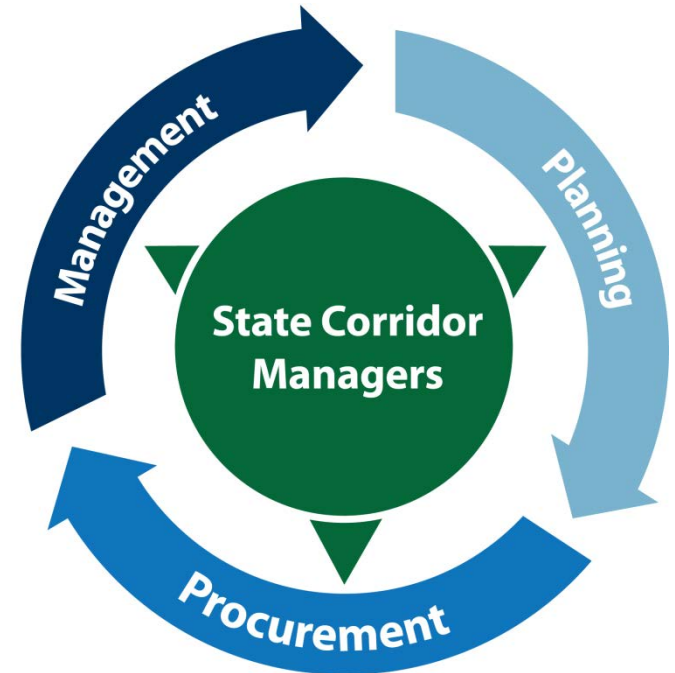


How Can States Influence Reliability?

Corridor Management Framework

State corridor managers can influence reliability at each stage of the corridor management lifecycle:

- Planning
- Procurement
- Management





How Can States Influence Reliability?

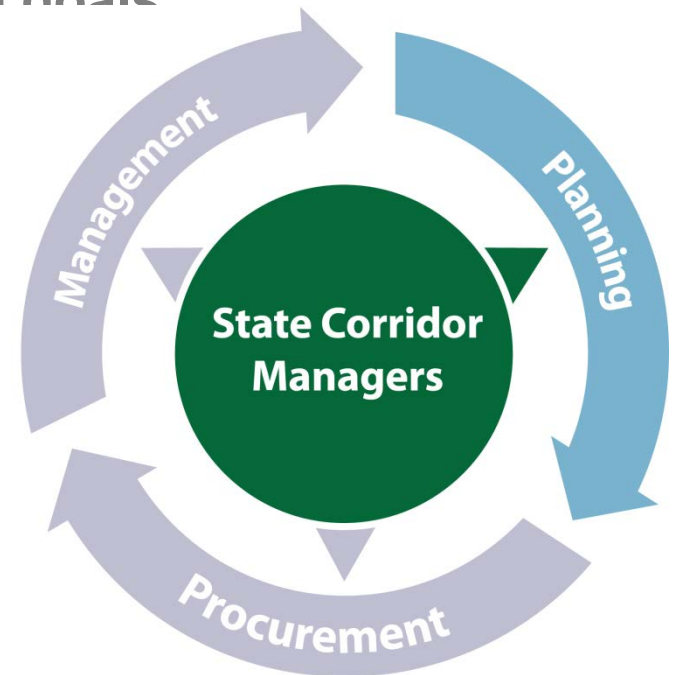
Planning

Coordination with hosts and operator

- Communicate State needs and goals.
- Work with hosts and operator to develop service profiles that align with needs and goals

Scheduling

- Identify optimal schedules and slots.





How Can States Influence Reliability?

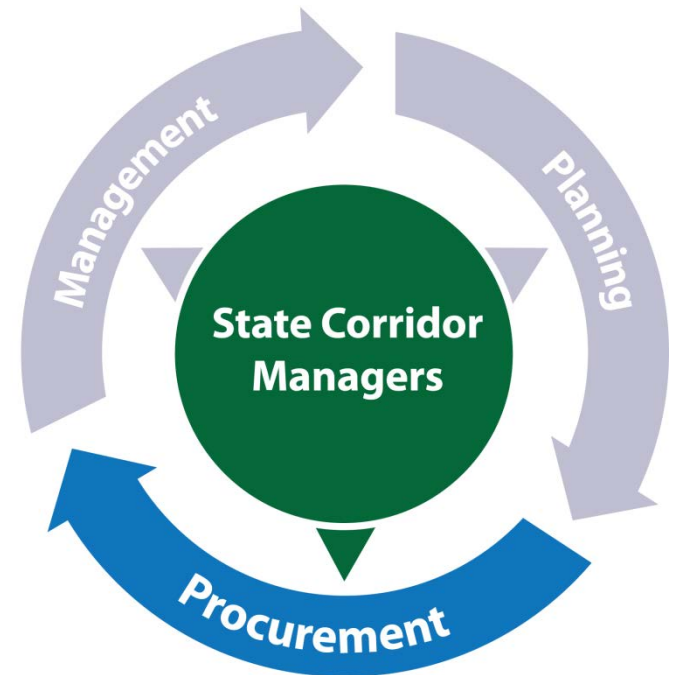
Procurement

Operator service contracts

- Establish reporting structure for reliability data.
- PRIIA sec. 207 standards are a baseline. Negotiate higher OTP standards if desired.

Host railroad incentives

- Consider negotiating separate, corridor-specific agreements with operator and host railroads that include additional performance standards and incentives.
- Likely to require additional funding for incentive payments and capital improvements.





How Can States Influence Reliability?

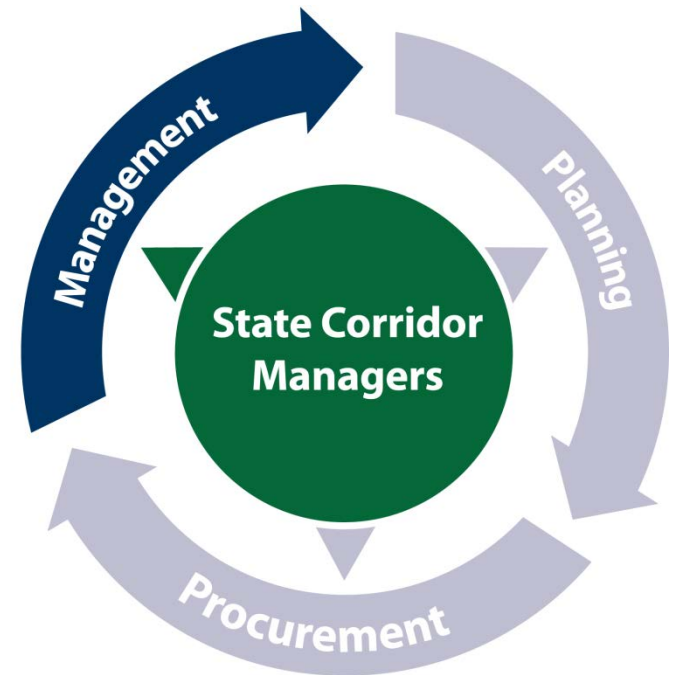
Management

Active measurement and reporting

- Analyze OTP and delay data regularly.
- Address shortfalls with host and operator.

Continuous improvement

- Identify opportunities for infrastructure maintenance and rehabilitation, to minimize slow orders and disruptions.
- Address issues and opportunities in planning and procurement phases.





How Can States Influence Reliability?

Federal Support

STB Investigation

- PRIIA section 213 allows the Surface Transportation Board (STB) to investigate and take action if OTP or other service quality standards as established under section 207 are not met for two consecutive quarters.
- Determine if deficiencies in OTP or standards could have been reasonably addressed by host railroad or Amtrak.
- Potential actions include levying damages and other relief against host railroads.



For questions or more information, contact the STB Passenger Rail Operations Section at rcpa@stb.dot.gov or 202-245-0283





How Can States Influence Reliability?

Conclusion

Analyze and act on reliability and OTP data

- States are customers of intercity passenger rail services.
- OTP is correlated with costs/revenues, customer satisfaction, and other benefits.
- Through careful analysis and advocacy, you can influence passenger rail reliability in your State.

Standards establish a baseline for reliable service

- PRIIA section 207 and STB establish and enforce a baseline minimum standard for OTP.

OTP and delay data are readily available

- FRA quarterly reports provide the starting point.
- Work with operator if more detail is needed.





Questions & Answers

Type Your Question into the Chat Pod

- The host will read your question aloud and direct it to the presenters.

-OR-

Raise Your Hand

- The host will recognize you when it is your turn.





Thank You!

For Questions or Comments:

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