U.S. Department
of Transportation

**Federal Railroad
Administration**

Administrator

1200 New Jersey Avenue, SE
Washington, DC 20590

The Honorable Robert C. Byrd
Chairman
Committee on Appropriations
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

The Transportation, Housing and Urban Development, and Related Agencies Appropriations Act, 2008 (Division K of Pub. L. 110-161) requires the Federal Railroad Administrator to "submit a report, and quarterly reports thereafter, to the House and Senate Committees on Appropriations detailing the Administrator's efforts at improving the on-time performance of Amtrak intercity rail service operating on non-Amtrak owned property. Such reports shall compare the most recent actual on-time performance data to pre-established on-time performance goals that the Administrator shall set for each rail service, identified by route. Such reports shall also include whatever other information and data regarding the on-time performance of Amtrak trains the Administrator deems to be appropriate."

This letter constitutes the first report in response to this requirement. It includes three sections: (1) a review of the tools and authority FRA has available to influence Amtrak on-time performance (OTP) on host freight railroads; (2) a summary of recent Federal Railroad Administration (FRA) efforts to improve Amtrak's on-time performance (OTP); and (3) a summary of our approach to performance measures.

FRA's Authority

While FRA does not have direct authority or enforcement mechanisms available to ensure reliable Amtrak operations over host freight railroads, we do have several tools available to influence and monitor progress, including:

- Serving as the Secretary of Transportation's representative on the Amtrak Board of Directors, which provides an opportunity to review proposed Amtrak actions and advocate for improvements;
- Overseeing Amtrak's capital and operating grants, including requiring Amtrak to establish plans and report on progress;
- Promoting railroad safety, which provides an opportunity to work with key railroad officials and review actions or barriers to improving on-time performance of Amtrak trains;

- Administering several other grant programs, including the new Capital Assistance to States – Intercity Passenger Rail Service Program, which includes criteria encouraging investment in railroad OTP improvements; and
- Responding to formal petitions filed with the Secretary by Amtrak to increase the speed of trains when Amtrak is unable to secure voluntary agreement from the host railroad (49 U.S.C. §24308).

Thus, even without regulatory authority over OTP, the FRA can leverage its Federal leadership role and its grant-making capabilities to support improved reliability of intercity passenger trains over host freight railroads.

Recent Actions

In our continuing efforts to assist Amtrak in improving its OTP over host freight railroads, the FRA has pursued two approaches: advocacy among the key stakeholders, and action plans for specific routes.

Advocacy. As I assured the Senate Appropriations Subcommittee at the April 3, 2008 hearing, improving OTP outside the Northeast Corridor continues to be a priority for FRA. As the Secretary of Transportation's representative on the Amtrak Board, I have repeatedly emphasized to the Board and Amtrak management the criticality of OTP to the Corporation's service quality, public image, traffic and revenue levels, operating economy, and financial performance.

In addition, FRA has sought to bring the parties together to advance the goal of improved OTP. For example, in my annual safety meetings with senior executives from each of the Class I Railroads, I have added Amtrak OTP to the regular agenda. I have emphasized the critical nature of this issue, and indicated that FRA will be taking a more active role in monitoring progress.

On April 16, 2008, Secretary of Transportation Mary E. Peters and I organized and led a meeting among the Class I railroads' top executives, the Amtrak CEO and Board of Directors in Pueblo, Colorado. This was the first such executive level meeting among these parties, and it yielded an open, frank, productive discussion of key issues including OTP. Secretary Peters took an active role in the discussion, and specifically requested that Amtrak, the Class I's, and FRA identify one Amtrak route on each major host railroad to develop an action plan for removing delays and improving OTP. We are now in the process of working with Amtrak and the Class I railroads to deliver on this directive.

Route Action Plans. As a precursor to the route-specific improvement plans now under development, FRA initiated a pilot for the Southeast (I-95) Corridor. The U.S. Department of Transportation has designated the Southeast Corridor region as a "Corridor of the Future."

As a part of our Fiscal Year 2007 Grant Agreement with Amtrak, FRA required Amtrak to submit a Southeast Corridor Performance Improvement Plan that would identify strategies to reach an OTP target of over 75% for the *Auto Train*, *Silver Service*, *Palmetto*, *Carolinian*, and *Piedmont*.

To track progress on the Southeast Corridor, Amtrak and CSX developed a "Scorecard" methodology that addresses the train-minutes of delay and delay causes by CSX division. While this method is currently being used only for the Southeast Corridor, it is a model that can be applied to any Amtrak route. Amtrak presented the initial Southeast Corridor Performance Improvement Plan on June 29, 2007, and followed that up with a revised Plan in conjunction with CSX on November 8, 2007. With host railroad participation, Amtrak is also required to provide to the FRA monthly status reports on strategy implementation and progress.

Although correction of OTP deficiencies must be a long-term, proactive process, results thus far offer some encouragement. Prior to implementation of the Southeast Corridor Performance Improvement Plan, OTP on the *Auto Train* route was 15%. To assist in achieving an agreed target OTP of 80%, Amtrak and CSX added one hour to the *Auto Train* schedule effective April 2007. Following that schedule change, reductions in train interference delays enabled OTP to reach 77%, and even to attain 100% for five weeks in 2007. The true test of this plan, however, will come when—under the terms of the Amtrak/CSX understanding, and after the implementation of enabling betterments, removals of slow orders, and associated adjustments in dispatching—the added hour is removed from the timetable. We at FRA will be following these *Auto Train* developments closely as a test case.

By extension of the principles recently applied to the Southeast Corridor, Amtrak is seeking to upgrade OTP on a route-by-route basis elsewhere in the country. For example, after Amtrak met with Norfolk Southern (NS) in May 2007, the *Capitol Limited*, *Lake Shore Limited,* and *Crescent* routes experienced improved OTP; this improvement reflects an increased focus on passenger train reliability and a reduction in freight train interference on the part of NS, which is a significant host carrier on all three routes.

Performance Measures

In requiring this report, Congress sought not just improved transparency in the tracking of Amtrak's OTP, but also better techniques for judging the quality of intercity passenger train performance. In response, we have assessed the strengths and limitations of alternative measures of performance. Attachment A provides a review of alternative performance measures for reliability.

While there is no single perfect measure of reliability, we will seek to refine and improve the method of reporting as we work with the stakeholders to establish specific targets for each route. In the meantime, we are providing a selection of pertinent OTP data for the various Amtrak routes in Attachment B. We also include a long-term OTP trend chart for each major Class I railroad in Attachment C.

I hope that the information contained in this report will assist the Committee in its work, and look forward to providing follow-on reports on OTP as specified in the 2008 Appropriations Act.

Identical letters have been sent to the Ranking Member of the Senate Committee on Appropriations, and to the Chairman and Ranking Member of the House Committee on Appropriations.

Sincerely,

Joseph H. Boardman
Administrator

Attachments

Attachment A:

Overview of On-Time Performance Indicators for Intercity Passenger Rail Service

Amtrak's ability to operate passenger trains on time has been a long-standing weakness of the railroad. Amtrak's continued struggle with on-time performance, coupled with its impact on ridership, has heightened scrutiny of the matter. Several statistical indicators exist for the various aspects of on-time performance. An apt combination of on-time indicators, which are explained in the subsequent text, can result in a more complete understanding of Amtrak's on-time performance.

Table 1 (on the following page) summarizes the pros and cons of each measure. Appendix A provides a glossary of terms.

I. Terminal Performance Indicators

Percent On Time. A basic indicator of on-time performance, "percent on time" is calculated by dividing the number of trains that arrive at their endpoint on time by the total number of trains operated during a specified period.

While this statistic readily indicates how often trains arrive on time, it provides a deficient snapshot of service reliability. For instance, the definition of "on time" can vary as the term does not always refer to the scheduled arrival time. Amtrak's monthly "percent on time" reports incorporate the former Interstate Commerce Commission's (ICC's) tolerance for lateness in the calculations. These ICC allowances consider trains 10 to 30 minutes late as on time, depending on the route length (see Appendix B for the precise thresholds). Although many Amtrak trains are hours late rather than minutes late (and thereby considered late even with the allowance), use of the ICC tolerance does inflate the "percent on time." However, including a tolerance in Amtrak's on-time performance parallels passenger expectations for late train arrivals and is an adjustment utilized in other modes of travel (e.g. the airlines).

Another issue with "percent on time" is that the statistic can be easily influenced, and the validity of long term trends can be weakened, by means of schedule changes. To account for some delays, Amtrak adds additional time to the run-time of routes, known as "pad" or "recovery time," when developing its schedules. By adding recovery time, "percent on time" is improved, at least initially, as lengthened schedules reduce the number of late trains. As a result, this statistic can show an increase in on-time performance without improvements to train delays and trip times. Thus, "percent on time" can improve while service to the public deteriorates if schedules are inordinately lengthened to achieve the improvement.

Additional limitations affect the usefulness of "percent on time." First, it does not reveal the severity of lateness: the statistic provides no indication as to whether late trains are regularly minutes late or hours late. Second, the “percent on time” statistic does not incorporate the performance of a train between route endpoints. A train may be an hour

<table>
<tr><th colspan="8">Table 1:
Some Advantages and Limitations
of On-Time Performance Indicators</th></tr>
<tr><th>Advantages</th><th>Percent On-Time</th><th>Average Endpoint Minutes Late for All Trains</th><th>Average Endpoint Minutes Late per 100 Train-Miles</th><th>Average Endpoint Minutes Late for Late Trains</th><th>Delay Minutes per 10,000 Train-Miles</th><th>Scheduled Train Speed</th><th>Effective Train Speed</th></tr>
<tr><td>Indicates a train’s ability to regularly operate on-time</td><td>X</td><td></td><td></td><td></td><td></td><td colspan="2">X
(when compared)</td></tr>
<tr><td>Indicates severity of lateness</td><td></td><td>X</td><td>X</td><td>X</td><td></td><td colspan="2">X
(when compared)</td></tr>
<tr><td>Indicates severity of lateness normalized for distance</td><td></td><td></td><td>X</td><td></td><td></td><td colspan="2">X
(when compared)</td></tr>
<tr><td>Calculates all train delays encountered over a normalized distance</td><td></td><td></td><td></td><td></td><td>X</td><td></td><td></td></tr>
<tr><td>Can help identify causes of delays</td><td></td><td></td><td></td><td></td><td>X</td><td></td><td></td></tr>
<tr><td>Illuminates long-term trends in service quality as actually delivered to and perceived by the public</td><td></td><td></td><td></td><td></td><td></td><td colspan="2">X
(when considered together)</td></tr>
<tr><td>Limitations</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>There are multiple definitions of “on-time” which can make it unclear which definition is in effect</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td></tr>
<tr><td>Does not reveal the severity of the lateness</td><td>X</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Does not reveal the frequency of the lateness</td><td></td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>Trends can be invalidated by changes in schedules over time</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td></tr>
<tr><td>Performance in intermediate markets not taken into consideration</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td></tr>
<tr><td>Provides no insight into causes of OTP problems</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td>X</td><td>X</td></tr>
<tr><td>Double-counts the effect recovery time has on normalizing on-time performance</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Does not reveal the severity of the lateness in relation to schedule</td><td></td><td></td><td></td><td></td><td>X</td><td></td><td></td></tr>
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late to a mid-point stop, but may make up that time throughout the duration of the route due to the recovery time in the schedule. Although the endpoints on some routes are the city-pairing that is most traveled, the passengers traveling from endpoint to endpoint rarely make-up a majority of the ridership. As a result, “percent on time” does not necessarily reflect what a majority of passengers experience. Third, “percent on time” does not indicate why a train’s reliability is so poor; a route’s low percentage indicates problems, but provides no information on their causes.

Finally, by treating all train arrivals equally — regardless of run length, passenger-mileage, or revenues — the “percent on time” statistic makes no allowances or adjustments to reflect the relative importance of the various services that Amtrak operates. In Amtrak’s nationwide “percent on time” totals, each arrival of the Chicago-Milwaukee (86-mile) Hiawatha service counts equally with each arrival of the Sunset Limited (1,995 miles), despite significant differences in lateness, number of riders affected by lateness, and ridership expectations. While other on-time performance statistics report the lateness of trains, none of the commonly used statistics weight the importance of routes by any measure. As a result, none of the frequently-used indicators truly illustrate the Nation’s overall on-time experience with Amtrak.

Average Endpoint Lateness (in Minutes) for All Trains. This statistic is based on endpoint terminal delay, which is the lateness of a train at its final destination. For a given period on a given route, the total endpoint terminal delays of all trains are added up and divided by the number of trains, thus yielding an average delay per train arrival. This particular calculation utilizes a zero tolerance for lateness since the typical passenger will perceive his or her train’s lateness based on the printed timetable. Thus “average endpoint lateness for all trains” will represent the best point estimate of what the passenger on a given route can expect in detraining at the ultimate terminal.

Many of the limitations with the “percent on time” statistic also apply to “average endpoint lateness for all trains.” The average endpoint lateness can be influenced simply through a lengthening of schedule times. Furthermore, this simple average does not measure volatility in the performance of individual trains; for that, more complex statistical measurements would be needed. Also, since this statistic only calculates endpoint lateness, it does not incorporate the on-time performance between route endpoints. Additionally, “average endpoint lateness for all trains” provides no information on what is affecting on-time performance. However, it does provide an index of the severity (as opposed to the incidence) of reliability problems on individual routes.

Average Endpoint Lateness (in Minutes) per 100 Train-Miles. This statistic provides the average lateness trains experience over 100 miles of operation. Routes with the same average endpoint lateness do not necessarily experience the same severity of lateness, which this statistic illustrates. A route 200 miles in length with an average endpoint lateness of 30 minutes (i.e. 15 minutes late per 100 train-miles) experiences a greater degree of lateness than a 600 mile route with same average endpoint lateness (i.e. only 5 minutes late per 100 train-miles) since it generates 30 minutes of average endpoint lateness while only traveling one-third the distance. Similarly, end-to-end passengers on the shorter route are much less likely to tolerate 30 minutes of lateness (and are much more likely to forsake passenger rail travel in future) than are passengers on the longer route with the same average lateness. Thus, the "average endpoint lateness per 100 train-miles" illustrates the average lateness of trains over a uniform distance, and attempts to gauge the perceived severity of the route's unreliability.

Of course, the "average endpoint lateness per 100 train-miles" also has many of the same drawbacks mentioned in the previous statistics. It can be influenced by lengthening schedules, it does not incorporate on-time performance between endpoints, and it does not reveal factors affecting a train's on-time performance.

"Average endpoint lateness per 100 train-miles" is useful for comparing a route's performance with itself over time, and with other analogous routes. However, it is not a reliable indicator in a comparison of short- with long-distance routes, as it exaggerates the true performance of the latter. Here is why: The root of this statistic, "average endpoint lateness for all trains," is already normalized for distance since the recovery time ("pad") incorporated in the schedules is typically higher, on a per-mile basis, for longer than for shorter routes, according to preliminary FRA staff research (see Appendix C). Converting the "average endpoint lateness for all trains" to a uniform distance normalizes the data for distance a second time, which double-counts the effect recovery time has on improving on-time performance. A long-distance train with the same "average endpoint lateness per 100 train-miles" as a short-distance train, in reality encounters more delays, which is concealed by the additional recovery time embedded in its schedule. As a result, comparisons of "average lateness per 100 train-miles" between routes should be used carefully, especially between short-distance and long-distance trains.

Average Endpoint Lateness (in Minutes) for Late Trains. This statistic illustrates the average lateness of only those trains that are considered "late" to their endpoint and is another indicator reflecting the severity of lateness. Since the statistic only includes late trains, it better depicts the severity of late trains. The "average endpoint lateness for late trains" may incorporate the ICC tolerance; however, calculating the statistic without the tolerance provides a more accurate depiction of lateness. As a result, the FRA does not incorporate the ICC tolerance when utilizing "average endpoint lateness for late trains."

The drawbacks of this statistic are that of the "average endpoint lateness for all trains." It does not reveal the frequency of lateness, it can be influenced by lengthening schedules, it provides no information on intermediate stop performance, and offers no indication of the cause of delays. To be fully appreciated, this statistic should be read in conjunction with "percent on time."

Initial Terminal Delay. "Initial terminal delay" illustrates the lateness of train departures at the origin of a route. While this measure is not a direct gauge of on-time performance, it is indicative of on-time operating abilities. Trains that regularly experience "initial terminal delays" are hindered in their ability to operate on-time from the very start of the route, often missing their "slots" and thus slipping later as they proceed down the line.

II. En-Route Delay Indicator

Delay Minutes per 10,000 Train-Miles. This statistic is a record of all train delays (i.e. unscheduled stops between stations, elongated dwell times at stations, and trains running below scheduled speeds) incurred over each 10,000 train-miles of operation over a route. This statistic is calculated on the basis of conductors' reports of all deviations from the "pure run-time" over each route segment. The "pure run-time" is the best-case scenario trip time for an Amtrak train over a route, with no interference or delays. It is developed after multiple test runs on a route by agreement between Amtrak and the host railroad. The established "pure run-time" plus "recovery time" yields the published timings for a route.

One advantage of using "pure run-time," and reported deviations from it, is that changes are made to "pure run times" relatively infrequently—for instance, when Amtrak develops a new multi-year contract with a host railroad. By contrast, published route timings, which form the basis for most of the other OTP measures, are more readily susceptible to change as they are often updated twice a year. In addition to being less frequent, changes in "pure run time" also tend to be more microscopic—in minutes instead of hours—as they normally impact short route segments rather than an entire route of hundreds of miles. Finally, because conductors report on the cause of each delay, the "delay minutes per 10,000 train-miles" can pinpoint the reasons and parties responsible for declining OTP (e.g., slow orders, freight congestion, and mechanical problems), thereby offering a path toward remedial measures.

Aside from normal station dwell times, delays of any kind undermine passenger morale and detract from the perceived competence of the carrier. Thus, the fewer the delays, the fewer the frustrations felt by passengers and the more likely they will become repeat customers of intercity passenger rail. Still, while helping to identify routes with on-time performance issues (since trains with frequent and sizable delays are prone to late arrivals), the "delay minutes per 10,000 train-miles" measure does not directly indicate the on-time performance of a route. As a result, it is beneficial to use this figure in conjunction with other measures, to help illustrate why trains are arriving late.

Despite the undoubted utility and advantages of "delay minutes per 10,000 train miles," it is not a perfect measure of OTP. Over time, and as a result of extended negotiations among Amtrak and the freight railroads, the "pure run time" of a route and of its segments is susceptible to adjustment. Especially over a five- or ten-year period, and possibly in even less time, an improvement in "delay-minutes per 10,000 train-miles" for a given route may represent a kind of "grade creep" if "pure run times" have lengthened by degrees. In that case, a decrease in "delay minutes per 10,000 train-miles" may actually mask an increase in scheduled or effective train speeds and a worsening in service to the public. This possibility further underlines the need for consideration of multiple OTP measures, and for the development of criteria that may protect against "grade creep" in reports on intercity passenger rail service quality.

III. Average Speed Indicators

Although not constituting "on-time performance" indicators per se, the average speeds at which trains operate provide important measures of route performance when examined in conjunction with the "endpoint" and "delay" indicators. Indeed, the two average speed indicators — when used together and compared over time — arguably provide the most comprehensive available overview of route performance.

Scheduled Speed. "Scheduled speed" is the average miles per hour a train is scheduled to travel over a route (mileage divided by the scheduled run-time between endpoints). Since the mileage and station stops along routes are relatively constant, changes in average miles per hour typically result from changes in schedule length. Routes with poor on-time performance may have recovery time added to their schedule, causing an increase in schedule length and a decrease in the train's average miles per hour (if in fact other route variables remain unchanged).

Effective Speed. An additional statistic that assists in measuring on-time performance is the "effective speed" (i.e. effective miles per hour of a train). This statistic divides a route's mileage by the scheduled run-time plus "average endpoint lateness for all trains." For example, a 200-mile route scheduled to take 3 hours with an "average endpoint lateness for all trains" of 30 minutes, has a "scheduled speed" of 67 mph (200 miles / 3 hour schedule) but an "effective speed" of 57 mph (200 miles / (3 hour schedule + 30 minutes "average endpoint lateness for all trains"). Adding the "average endpoint lateness for all trains" to the scheduled run-time provides greater insight into the actual operating speed of trains. The "effective speed" of a train can be compared to the "scheduled speed" to illustrate the effect delays are having on publicly-perceived travel times.

Increases in train delays lead to increases in "average endpoint lateness for all trains," which, in turn, decrease the "effective speed" of a train. However, a decrease in "effective speed" without a corresponding decrease in OTP suggests that a train's schedule has been lengthened.

Because so many opportunities exist over time to gradually lengthen train schedules in response to on-time performance problems, time-series comparisons of average and effective speeds for a particular route often offer the most concise summary portrait of a route's evolving performance. In particular, comparisons of average and effective speeds over time would be most useful in tracking the substantive accomplishments of OTP betterment programs such as those presently underway in the Southeast (I-95) Corridor.

Conclusion

The available statistics individually provide only partial pictures of Amtrak's OTP and contain many nuances. A robust perspective of Amtrak's on-time performance stems from analyzing multiple indicators while considering the thresholds used and the distinctions of each statistic. When complimentary indicators are concurrently evaluated, the various dimensions of on-time performance, including frequency, severity, and cause of late trains, can emerge and shed light on possible pathways to an improved, more marketable transportation product.

Appendix A [to Attachment A]: Definitions

Average Endpoint Minutes Late – The number of minutes, on average, a train arrives late to its final stop over a period of time.

Effective Speed – The average speed a train travels after incorporating the average lateness encountered over a period of time.

Endpoint – The final station stop on each end of a route.

Endpoint Terminal Delay – The lateness of a train at a route's final stop.

Initial Terminal Delay - The lateness of a train in departing from its originating station.

Interstate Commerce Commission Tolerance – An allowance, established by the Interstate Commerce Commission, permitting intercity passenger trains 10 - 30 minutes late to be considered as on-time, depending on the route's distance.

Percent On-Time – The percentage of trains considered to be on-time upon arrival to their final stop over a period of time.

Recovery Time – Time added to lengthen schedules to account for some delays expected along a route.

Scheduled Speed – The average speed a train is to travel over a route, based on the train's official schedule.

Terminal Performance Indicators – On-time performance indicators based on train arrivals and departures at route endpoints.

Train Delay – Consists of any unscheduled stops between stations, extended dwell time at stations, and having to run trains below scheduled speeds.

Train-Mile – A mile traveled by a train along its route.

Appendix B [to Attachment A]: ICC Issued On-Time Performance Tolerances

ICC On-Time Performance Tolerances	
Trip Length (Miles)	Tolerances (Minutes)
0 - 250	10
251 - 350	15
351 - 450	20
451 - 550	25
551 or more miles	30

ICC Tolerance vs. Zero Tolerance February FY08 Year-to-Date Percent On-Time Data			
Amtrak Train	Tolerances (Minutes)	% On-Time (ICC Tolerance)	% On-Time (Zero Tolerance)
Hiawatha	10	84%	44%
Lincoln Service	15	57%	30%
Adirondack	20	42%	15%
Empire Service	25	71%	38%
Capitol Limited	30	44%	19%

Appendix C [to Attachment A]:

Recovery Time Estimates on Corridor vs. Long-Distance Routes

Comparison of Amtrak Route Lengths and Estimated Route Recovery Time Corridor Routes vs. Longer Distance Routes Utilizing Corridor Trackage				
			Route Recovery Time	
Route Type	Route Name	Mileage	Total Hours	Hours Per 100 Train-Miles
Corridor Route	Regional (NYC-D.C.)	256	0.33	0.15
Longer Route Over Corridor Trackage	Silver Star	1522	5.48	0.36
Corridor Route	Lincoln Service	284	1.32	0.46
Longer Route Over Corridor Trackage	Texas Eagle	1305	8.98	0.69
Corridor Route	Illini	310	1.37	0.44
Longer Route Over Corridor Trackage	City of New Orleans	926	4.72	0.51
Corridor Route	Cascades	310	1.37	0.44
Longer Route Over Corridor Trackage	Coast Starlight	1377	6.63	0.48

The recovery times used in the above table were based on preliminary FRA staff research. The figures were attained by taking the sequential city pairings of a route and comparing their scheduled run-times in each direction. Differences in scheduled run-times, based on direction, were summed to produce the total route recovery time (in hours) and then converted to route recovery time per 100 train-miles (in hours).

The recovery time per 100 train-miles normalizes for distance. As a result, a “corridor route” should have the same recovery time per 100 train-miles as the “longer route over corridor trackage.” However, the table shows that a “corridor route” has less recovery time per 100 train-miles than the “longer route over corridor trackage,” thus illustrating that longer-distance routes tend to have proportionately more recovery time added to their schedules than shorter distance routes.

Attachment B: Amtrak On-Time Performance: Fiscal Year 2008						
	Year to Date Totals through February 2008					
Amtrak Routes	Endpoint Lateness Indicators			Average Speed Indicators		
Northeast Corridor Service	% On-Time	Avg. Minutes Late* (All Trains)	Avg. Minutes Late* (Late Trains)	Scheduled Speed (MPH)	Effective Speed (MPH)	% Difference - Effective from Scheduled Speed
Acela	84%	9	16	70	68	-2%
Regional Service	78%	9	16	59	58	-2%
Short Distance/Corridor Trains						
Adirondack	42%	48	56	35	33	-6%
Blue Water	27%	54	63	45	40	-11%
Capitols	86%	6	16	43	42	-3%
Carolinian	48%	38	46	53	51	-4%
Cascades	62%	17	28	49	47	-5%
Downeaster	68%	12	16	48	44	-8%
Empire Service	71%	15	25	53	52	-2%
Ethan Allen Express	27%	36	40	44	40	-9%
Heartland Flyer	63%	16	30	49	46	-7%
Hiawatha	84%	6	12	58	54	-7%
Hoosier State	37%	42	63	39	34	-13%
Illini	54%	26	40	56	52	-7%
Illinois Zephyr	76%	16	30	59	56	-6%
Keystone	86%	6	11	59	56	-5%
Lincoln Service	57%	24	35	52	48	-7%
Maple Leaf	43%	39	49	42	40	-4%
Missouri Services	14%	72	75	50	41	-18%
Pacific Surfliner	79%	9	17	41	41	-1%
Pennsylvanian	89%	9	20	47	46	-1%
Pere Marquette	28%	35	38	44	39	-12%
Piedmont	78%	8	15	55	53	-4%
San Joaquins	86%	9	20	52	51	-3%
Vermonter	41%	47	53	46	43	-6%
Wolverines	30%	46	53	46	42	-9%
Long Distance Trains						
Auto Train	87%	13	57	49	48	-1%
California Zephyr	41%	128	177	45	43	-5%
Capitol Limited	44%	56	70	44	41	-6%
Cardinal	37%	90	109	41	39	-4%
City of New Orleans	83%	21	53	48	47	-2%
Coast Starlight	50%	65	106	39	38	-2%
Crescent	72%	26	56	46	45	-2%
Empire Builder	56%	69	117	48	47	-2%
Lake Shore Limited	45%	61	81	49	46	-6%
Palmetto	58%	34	54	55	53	-4%
Silver Meteor	70%	34	76	51	50	-3%
Silver Star	44%	59	74	49	48	-3%
Southwest Chief	82%	25	69	53	52	-1%
Sunset Limited	19%	135	152	42	40	-5%
Texas Eagle	33%	82	99	41	39	-4%

*Weighted average based on number of Acela and Regional operations along the NEC
NOTE: "Scheduled speed" = elapsed time per published timetable divided into route-mileage.
"Effective speed" = (elapsed time per published timetable plus average minutes late for all trains) divided into route-mileage.

Attachment C