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Amtrak's Route Accounting: **Fatally Flawed, Misleading & Wrong.**

Critique Prepared and Written
by
The Rail Passengers Association

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Congress requires Amtrak to submit regular reports on the financial performance of each of its routes. The reports that Amtrak produces, however, *do not meet the requirements Congress has mandated, misrepresent the actual economic performance of individual routes and do not provide the financial information that Congress, the public and Amtrak itself need to make sound decisions.* Amtrak’s route reporting system, Amtrak Performance Tracking (APT), allows Amtrak to continue its false narrative that the NEC is more “profitable” than it is and that the long-distance trains cost more than they do. Amtrak claims that it is just “following the law” as it slashes customer services and threatens route eliminations. Congress should demand that Amtrak also follow the law in reporting route performance – and reconsider the laws that Amtrak claims require it to degrade its service to the nation.

The task of assessing route financial performance is complex and difficult for an organization like Amtrak where each of its individual routes represents just a single component of an integrated and interdependent system and where a significant portion of total costs are either fixed or shared. “For 34 years, Amtrak generated ... route performance reports using its Route Profitability System (RPS).”^{vi} However, “Amtrak management, Congress, and other stakeholders [FRA, states, freight and commuter railroads] ... raised concerns over the system’s transparency, timeliness, system maintenance, and *cost allocation* [emphasis added].”^{vii} “In 2005, the Government Accountability Office (GAO) criticized Amtrak’s reliance on cost allocations rather than cost assignment [saying that it] contributed to unreliable financial performance reporting.”^{viii} “RPS did not provide the reliable cost accounting information essential to making prudent business decisions [emphasis added].”^{ix}

Congress has tried to solve the problem of the accuracy and transparency of Amtrak’s route accounting with legislation, several times, without success. In 2005, Congress directed the Secretary of Transportation “to retain a consultant ... to develop ... a methodology for determining the *avoidable* [emphasis added] and fully allocated costs of each Amtrak route [and that Amtrak] apply the methodology in compiling an annual report to Congress ... The Federal Railroad Administration (FRA) tasked the Volpe National Transportation Systems Center with developing the Amtrak cost accounting methodology.”^{xi}

Volpe quickly agreed that RPS was not “*an appropriate tool for analyzing route and service adjustments* [emphasis added].”^{xii} Why? Because “RPS [did] not calculate and report *avoidable costs* [emphasis added] by route as required by statute.”^{xiii} Volpe also reported other weaknesses in RPS: inadequate documentation; inaccurate, unreliable and inexplicable results across periods; inconsistent and conceptually lacking allocation rules; limited use as a management tool because it did not provide accurate information for decision making.^{xiv}

Volpe’s effort to develop costing methodology, however, coincided with an Amtrak effort to improve RPS. Because “[t]he similarity between ... Volpe’s effort to develop a methodology for estimating the Avoidable and Fully Allocated Costs ... and Amtrak’s effort to improve RPS ... offered a unique opportunity for collaboration, ... FRA, Amtrak and Volpe decided to pursue these [two] parallel initiatives as [a single] integrated effort.”^{xv} There were, however, differences in emphasis: Amtrak focused on Fully Allocated Costs while “Volpe assumed primary responsibility for developing the methodology to estimate *avoidable costs* [emphasis added] ...”^{xvi} Because both FRA and Volpe wanted to “ensure that [Amtrak would use] the APT methodology ... for more than just fulfilling Amtrak’s annual reports requirements to Congress, [they wanted] to obtain Amtrak’s acceptance regarding the usefulness and validity of the methodology.”^{xvii} This gave Amtrak significant influence over the final product.

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The Avoidable Cost methodology suffered as a result. Amtrak and Volpe designed a structure that combined Amtrak’s roughly 1,600 individual Responsibility Centers into nine similar cost families, then divided them into 36 subfamilies and finally into 44 subcategories.^{xv} Although the “Family framework [was] designed *primarily as a tool for estimating Fully Allocated Costs* [emphasis added], [Volpe believed it could also] serve as the basis for estimating avoidable costs [since] Fully Allocated and Avoidable Costs are estimated in a parallel manner for each [Responsibility Center] Family.”^{xv} Volpe determined that six of the 44 subcategories were entirely avoidable, fourteen were entirely fixed and twenty four were “mixed,” each with both fixed and avoidable components. To estimate the avoidable portion of the “mixed” subcategories, Volpe used “professional judgment” for fourteen and statistical regression analysis for the remaining ten.^{xvi}

The work product of this joint effort was the Amtrak Performance Tracking System (APT), “the culmination of efforts by Amtrak, FRA, and Volpe to develop an improved methodology and a process for calculating and reporting Fully Allocated costs, Avoidable costs, and revenues for Amtrak routes and other businesses.”^{xvii} APT depends on “approximately 60,000 allocation rules.”^{xviii} “Each allocation rule *was manually created using professional judgment* [emphasis added] that followed pre-defined general guiding principles.”^{xix} APT ran parallel with RPS during 2009 then replaced it in 2010.^{xx}

Volpe recognized an important flaw in the APT methodology. The STB^{xxi} (and its predecessor the ICC^{xxii}) used “procedures to estimate Avoidable Costs [that also included] the recognition of lost revenues on connecting services [to provide] a more complete measure of the financial impact of service termination...”^{xxiii} “As Amtrak’s trains function as a network and changes to individual or multiple trains likely result in changes to revenue, not just on the affected trains but on other trains, calculating the avoidable revenue is a difficult exercise. These lost revenue effects will exist to varying degrees if Amtrak routes are terminated.”^{xxiv} Volpe, however, did not attempt to fix the flaw, instead recommending that it “be considered as part of follow-on development efforts.”^{xxv} We have not found evidence of any such efforts.

Congress acted again in 2008 with PRIIA,^{xxvi} directing the USDOT Office of Inspector General (OIG) to review APT “to determine whether it produces reliable reporting on Amtrak’s financial performance.”^{xxvii} The OIG assessment was highly critical, reporting that “Amtrak’s heavy reliance on cost allocation, which requires cost *estimation* [emphasis added], reduces the precision of APT’s performance reporting. While it assigns over 90 percent of its revenue, Amtrak assigns only 20 percent of its costs and allocates the rest. APT [only] increased the percentage of assigned costs from RPS’s 5 percent to 20 percent.”^{xxviii} “While every cost accounting system relies on allocation to a degree, other railroads assign as much as 80 percent of their costs to track their performance with precision.”^{xxix} The reason OIG cited for Amtrak’s lack of precision was that Amtrak’s “current business practices do not require the collection of detailed data on costs.”^{xxx} Volpe had already noted this defect in its initial report: “Any methodology ... must operate within the constraints of the company’s other information technology and of its record keeping structure.”^{xxxi} GAO noted, “Indirectly allocating a high percentage of costs rather than directly assigning costs increases the risk that revenues and expenses for a cost center or line of business will be misstated.”^{xxxii} “Amtrak’s finance department officials stated that the costs of collecting the information necessary to reduce the percentage of Amtrak’s indirectly allocated expenses may be too high to justify the increase in precision.”^{xxxiii} Without knowing the benefit of having more accurate information, how could Amtrak conclude that it would not be worth the cost?

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Significantly, OIG reported that, “Amtrak has not yet implemented FRA’s methodology for calculating avoidable costs *because of time and resource limitations* [emphasis added].”^{xxxv} OIG also judged APT’s avoidable cost methodology as seriously deficient. “The methodology—meant to provide Amtrak and Congress with information on the financial impact associated with eliminating any route—has significant limitations because it relies to a substantial extent on statistical estimation that: (1) is not supported by economic theory; (2) does not account for key factors such as wages and rents; and (3) is based on limited data. Other railroad officials [that OIG] met with have developed transparent and systematic approaches to identify savings without using statistical estimation. None of the passenger and freight rail entities [OIG] interviewed uses statistical estimation to identify avoidable costs.”^{xxxvi} OIG recommended that FRA “Evaluate alternatives for addressing the requirement to calculate avoidable costs.”^{xxxvii} FRA responded: “Concur – While the adopted method fulfills the Congressional mandate for an avoidable costing methodology, FRA recognizes that alternative methods exist for avoidable expense estimation. Accordingly, within six months of OIG’s publication of its final report, we will summarize and update our prior analysis of such alternatives. To that end, we look forward to reviewing information OIG might have from its interviews to determine how related entities calculated their avoidable costs.”^{xxxviii} OIG responded: “...we consider [the] recommendation as *open and unresolved* [emphasis added] until we receive FRA’s revised response, or the results of its evaluation demonstrating that FRA has met the intent of our recommendation.”^{xxxix} In 2016, Volpe said that FRA had accepted each of FRA’s responses, but provided no information on how FRA resolved the “unresolved” issue of avoidable costing.^{xxxx}

When Volpe updated its report to Congress on the APT methodology in 2016,^{xi} it deleted all reference to Avoidable Costs, except for this footnote: “The Volpe Center developed a methodology to estimate the ‘Avoidable Costs’ of each Amtrak route, with assistance from Amtrak staff, but this was *superseded by a subsequent Congressional mandate* [emphasis added] under Section 208 of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) to develop service planning methodologies, and as a result the avoidable cost method was not implemented.”^{xii} However, a reasonable reading of the text of Section 208 (reprinted verbatim in Appendix [TBD]) suggests that Congress did not rescind its mandate to report Avoidable Costs but rather was expressing its frustration that Amtrak had not implemented Avoidable Costing. Also, this explanation differed from the one that Amtrak gave the OIG in 2013 when it said that its failure to implement Avoidable Costing resulted from “time and resource limitations.”^{xiii} Both explanations were given *five years after* PRIIA was enacted. That raises a question about Amtrak’s credibility and true intentions.

Why is Avoidable Cost important and its absence a significant problem? Because Fully Allocated Costs are fundamentally *accounting fictions* that neither reflect the underlying economics of a particular service nor provide the basis for projecting the effect on revenue and cost of service changes – either decreases or increases. They only define “the level of revenue that, for all products taken together, is required for the company to recover all its costs”^{xiiii} at a particular level of production. If revenues exactly cover Fully Allocated Costs, the enterprise breaks even.”^{xv} “If calculated on the basis of underlying financial accounting data, the Fully Allocated Costs of all of a company’s products should total all expenses shown on its income statement for the time period during which the products were produced and sold.”^{xvi}





While useful for assessing historical trends and costing state services,^{stvi} the “allocation of all costs to individual products and services *does not imply that each product caused its particular portion of the company’s total costs [emphasis added].*”^{stvii} By contrast, “Avoidable Costs ... are costs that cease to exist when a route is no longer operated.”^{stviii} They are conceptually the same and Incremental Costs “that vary as output ... changes from a baseline level [either up or down].”^{stix} “When projecting the cost of a possible increase in volume, ... managers would consider the total incremental costs that would be generated by such an increase, that is, variable manufacturing costs plus the portion of marketing, administrative, and other corporate costs that they believe[d] would vary with volume.”

Amtrak still remains non-compliant and reports route performance using only Fully Allocated Costs, which Volpe initially identified as one of the most significant deficiencies in the now discredited RPS system. What is Amtrak hiding? And why is it hiding it? We speculate that one reason is that APT “... provides the cost basis that the SWG and Amtrak use to evaluate options for assigning service area route costs.”^{stxi} If states knew the much lower “Avoidable Costs,” Amtrak would have greater difficulty off-loading its overhead costs to the states.

For its entire history, Amtrak has exaggerated to Congress, to the public (and perhaps even to itself) the real cost of operating the *national passenger train system*, ignored the benefits it brings to the people and the communities it serves, minimized the consequences of killing it and overstated the costs of expanding it.

The Rail Passengers Association asks the House Transportation & Infrastructure Committee and the Senate Commerce Committee to convene hearings to demand that Amtrak “follow the law” and make public the financial performance of individual routes using the Avoidable Cost

Methodology developed by Volpe (or whatever other version it provided to satisfy OIG’s “open and unresolved issue” on Avoidable Costing) but that Amtrak never implemented. After thirteen years of foot dragging, it is time for Congress to hold Amtrak to account.

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Appendix A

APT's Questionable Results

Here are examples that illustrate how fully allocated costing and APT's imprecise methodology produce information that is, at best, misleading and, at worst, patently false.

APT ERRORS

- APT charged the Miami terminal with costs for snow removal incurred elsewhere on the Amtrak system. Once the managers in Miami identified this obvious error, the Finance Department stopped the allocation.³¹ While such an error is easy to identify, other less obvious errors can go unnoticed. Consider the cost for snow removal at Buffalo NY, which experiences frequent, heavy snowfalls, versus the cost at Atlanta GA or Charlotte NC, which experience only occasional, light snowfalls. Does APT assign the actual cost of snow removal at each station or sum the cost for the entire system then trickle them back down to stations using a single rule, which will produce cost information as equally erroneous as that for Miami?
- APT produced cost allocations for FY 2017 that are clearly wrong. For example, it allocated:
 - Over \$67,000 of Maintenance of Way (M/W) costs for the Michigan Line to two long distance routes (Lake Shore and Capitol Limited) that do not use it;
 - Nearly \$300,000 in costs for High Speed Maintenance of Equipment to routes other than Acela;
 - Over \$430,000 in Yard & Equipment Moves in New York and Chicago to routes that do not reach either city.
 - Nearly \$600,000 of Western Division M/W to routes in the East and Midwest;
 - Over \$3,000,000 of Electric Traction Maintenance of Way (wires, sub stations, etc.) costs to routes that do not operate on electrified NEC infrastructure, including a half million in false costs to the long-distance system.
 - Over \$10.7 million in track maintenance costs to State Supported and Long Distance routes but less than \$90 thousand to the entire NEC.
- Frequency of Train Trips is the statistic that APT uses to allocate many costs. When this statistic is incorrect, the result is wrong. In FY 2017, this statistic was twice the actual for the Empire Builder and the Lake Shore Limited. The likely cause of the error was mistakenly treating the Portland section of the Builder and Boston section of the Lake Shore as separate trains. The known consequence was incorrectly overstating all costs allocated to these two routes on the basis of train frequency by a factor of two.

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APT ANOMALIES

Other cost allocations APT produced for FY 2017 seem highly suspect. Examples:

- The Silver Meteor, Silver Star, Palmetto and Crescent all originate and terminate at Penn Station New York. The costs of moving them to, from and within Sunnyside Yard for servicing should be similar, but APT says that they are not. It reported the cost for the Meteor at just over \$400,000, the Star at just over \$550,000, the Crescent at nearly \$790,000 and the Palmetto at over \$900,000.
- APT reported the same wide variation in the cost allocations of Yard & Equipment Moves to trains that originate and terminate in Chicago. For long distance routes, the cost varied considerably and inexplicably: The City of New Orleans was just under \$200,000, The Capitol Limited just over \$200,000, The Texas Eagle just over \$300,000, The Southwest Chief just over \$400,000, The Empire Builder over \$1.6 million and the California Zephyr nearly \$1.8 million. If there is a reason for such wide variation, it is not obvious. The more likely explanation is that APT's allocation rules do not reflect actual costs.
- APT reported that the cost of electric power for Acela was only 20% more per train mile than that for the Regional Trains, even though it has two locomotives compared the Regionals' one. On a per ton mile basis, the difference was even less: the allocation for Acela was only 6% more than Regionals even though energy costs increase disproportionately with speed and acceleration.
- APT charged Acela only 48% more per train mile than Regionals for catenary maintenance even though it has twice as many pantograph miles per train mile, travels at higher speeds and must inflict greater wear and tear than the Regionals.
- APT allocated three times more of the M/W cost of the Empire corridor to the Lake Shore than it did to the Maple Leaf, even though both use the identical amount of infrastructure.
- APR charged more than \$1.7 million in track maintenance costs to State and Long Distance routes but only \$97 thousand to the entire NEC.

APT BIASES

- APT as currently implemented is inherently biased against Long Distance and State Supported services because it employs only the Fully Allocated Cost methodology. The complete absence of any information about avoidable costs misleads Congress and the public by preventing any insight into how costs and revenues might change with any decrease or increase in service. This bias has led reasonable people to conclude that the elimination of all long distance routes would significantly reduce the need for taxpayer

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funding of passenger train service. Such a conclusion would be wrong because many of the costs APT currently allocates to long distance routes are costs for activities that are shared with other routes or fixed overhead costs that would not change; they would be reallocated to other routes.

- APT classifies state payments for regional services as revenue but does not treat federal payments for long distance, interstate services similarly thus further exaggerating the apparent taxpayer cost of the long distance routes.
- The largest source of bias, however, is that APT conceals capital costs. Consider this example. APT allocated \$5.1 million in track maintenance costs to State Supported routes, \$5.6 million to Long Distance routes but less than \$90,000 to the two NEC routes. How is this possible? Because Amtrak capitalizes most of the NEC's track maintenance costs so that they do not have to report them as operating expense.
- "APT [is supposed to account] for capital consumption ... using a standard financial amortization formula [called] 'Asset Usage Allocation (AUA).'"^{iv} However, "In APT, the AUA estimated measure of capital cost is *usually not included in Amtrak's monthly publication of basic train operating costs* [emphasis added]."^v Why? Amtrak made this decision; Volpe reported it but did not explain or criticize it.
- The GAO did. "Amtrak's financial reporting is ... incomplete because it does not allocate its depreciation costs by line of business. Leading organizations have shown that good information on, among other things, asset performance and conditions is critical to make informed capital resource allocation decisions ... [S]ince depreciation is critical information for a capital-intensive business such as Amtrak, by not allocating it, *Amtrak was understating its reported expenses* [emphasis added]. Amtrak finance department officials told us that they have had a methodology in place since 2010 to assign their depreciation expenses by route and subsequently to lines of business. However, Amtrak officials did not have confidence in the capital lease data used by the methodology ... Amtrak officials stated that they did not have a timeframe for when that data will be used to allocate their depreciation expenses ... until depreciation expenses are allocated to its routes and lines of business, *Amtrak will continue to be at risk of misstating financial information used for decision making* [emphasis added], which could result in misallocation of internal and federal resources."^{vi} Even after eight years later, it appears that these officials still "lack confidence" in the methodology.

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Appendix B

APT’s Allocation “Rules”

APT is an information technology system that the Route Systems and Assessment Department within Amtrak’s Finance organization implements and manages.^{vi} It is beyond the scope of this report to identify much less evaluate each of APT’s *60,000 manually crafted allocation rules*. Here are examples, drawn from Volpe’s reports, that have questionable value in estimating actual costs.

Maintenance of Way (approximate annual expense \$470 million):

Volpe Report: This cost category includes track, communications & signals, electric traction, bridges & buildings and support, which are grouped geographically: New England, New York, Mid Atlantic, Central, West, Empire (NY) and Michigan plus System Gangs and Support.^{vi} “[Maintenance of Way] is capital intensive, *nearly two thirds of expenses are ... directly assigned to capital or reimbursable businesses [emphasis added]*.”^{vii} “The majority of the MoW operating costs are allocated by Frequency of Train Trips and Electric Locomotive Unit Miles...”^{ix} FTT is the primary statistic for track sections, C&S, Bridges, and interlockings. FTT is the dominant statistic because it is available consistently across all businesses including freight. The major exception is Electric Traction which is primarily allocated by EUM in combination with defined Allocation Ratio percentages developed by SYSTRA Inc. to determine power usage by the user (Amtrak, SEPTA, NJT, MARC, DelDOT). The SYSTRA study is used to allocate expenses for the power transmission system to supply the NEC with electric power for locomotives.”^x

RPA Assessment: *Frequency of Train Trips does not consider either the weight or the speed of the train, both of which have an effect on the amount of wear and tear on track and bridge structures. This allocation statistic certainly understates the costs imposed by both heavy freight trains and Acela, which has been dubbed a “rolling bank vault” by some Amtrak employees for its extreme weight. If Amtrak charges Norfolk Southern and CSX an amount based only on the number of trains it operates without regard to ton miles, these two railroads are getting access at bargain rates. New Jersey Transit is also getting a bargain rate compared to the other three commuter agencies since NJT’s trains on the corridor are typically longer than those of the other agencies. The fact that more than two thirds of M/W costs are capitalized without any “compensating” charge for depreciation (or*





Amtrak’s substitute, the Asset Utilization Allocation) significantly understates the actual cost of operating the NEC.

Stations (approximate annual expense \$200 million):

Volpe Report: Station costs include Ticketing, Operations, Management & Supervision, Baggage, Station Masters & Ushers, Red Caps & Porters.^{ks} “...Total Boards and Deboards is the primary cost driver and preferred allocation statistic for many station expenses, [but] Amtrak does not have that statistic for commuter trains operating at its stations; instead Amtrak uses a substitute measure, Passenger Car Unit Trips.”^{ks} “[A] Passenger Car Unit Trip is a count of passenger cars, excluding locomotives, dining cars, or sleeping cars.”^{ks} In a word: coaches.

RPA Assessment: It is questionable that the cost of operating a station varies in direct proportion to the number of passengers using it. The primary determinant is the size of the station. Except for staffing and janitorial services, it is unlikely that the cost of operating Penn Station in New York, for example, would vary in proportion to, much less significantly with, the number of passengers arriving and departing. In its first report, Volpe stated a portion of station costs were fixed. So APT, using only the number of passengers, does not produce an accurate estimate of avoidable cost because its allocation contains a large element of fixed cost.

Moreover, at some of Amtrak’s largest (and most expensive) stations, APT cannot use even this statistic because commuter agencies do not report it. Instead, APT uses passenger car unit trips (in plain language, number of coaches). Since commuter cars using Penn Station in New York, 30th Street Station in Philadelphia, Union Station in Washington and Union Station in Chicago have more than double the capacity of Amtrak’s intercity coaches, the result is that APT gives these commuter agencies at least a 50% discount on station costs or – on the flip side – double charges Amtrak trains.

Red Caps & Baggage (included in station cost):

Volpe Report: “Red Cap, porter, and baggage costs ... are driven by activity on long-distance routes and not corridor (commuter type) services [and] are allocated by Trip-length Weighted Total Boards and Deboards ... This statistic is calculated by dividing Passenger Miles for riders boarding or deboarding from a particular station by the [total] of boarding or deboarding passengers at that station, creating a trip-length weight which is applied to TBD at that station.”^{ksv}

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RPA Assessment: *The presumption that only passengers traveling longer distances have luggage and need red cap service and/or baggage service is defeated by the facts. Amtrak provides redcap service at Boston (only one long distance round trip per day), New York, Philadelphia and Washington DC (only five long distance round trips per day) and New Haven CT (no long distances trips at all). Short distance routes also offer checked baggage service: Chicago-Milwaukee (86 miles), Charlotte-Raleigh (173 miles), Los Angeles-San Diego (128 miles), Seattle-Portland (187 miles) and Seattle-Vancouver BC (157 miles). Many passengers use Red Cap service to get priority boarding for the Acela and Northeast Regional services. It is highly unlikely that APT's allocation of these costs accurately reflects avoidable or incremental costs.*

First Class Lounges (included in station cost):

Volpe Report: "Costs to operate first class lounges are allocated to trains based on First Class Riders."^{lv}

RPA Assessment: *Chicago, Portland and Los Angeles each have Metropolitan Lounges that are used by both business class and sleeping car passengers. If Volpe's allocation rule applies, then APT allocates all costs to the long distance routes is erroneous because it ignores business class passengers that far outnumber sleeping car passengers. Moreover, because the majority of lounge costs is fixed, the allocations to individual routes and trains do not provide an accurate estimate of avoidable (or incremental) cost.*

Fuel (approximate annual expense \$100 million):

Volpe Report: "Amtrak does not measure and record each train journey's fuel consumption but rather relies on a formula that *estimates* [emphasis added] a journey's fuel consumption."^{lvi} "Fuel expenses ... are allocated nationally; expenses recorded at every fuel Cost Center are allocated to all Amtrak trains using diesel fuel whether those trains actually received fuel at that Cost Center or not. This procedure is the equivalent of pooling all diesel fuel expenses for all Cost Centers and allocating that cost pools to all Amtrak diesel trains"^{lvii} "*Fuel costs are allocated almost exclusively by the statistic diesel power usage factor (DPFU) using a national allocation* [emphasis added]. Costs are allocated based on train's system-wide DPFU, not its DPFU attributable to a particular region or Cost Center because in many cases no available fuel usage statistic for a particular train could be linked exclusively to the location where the fueling occurred. DPFU is a calculated statistic that incorporates factors such as a train's weight, trip length, trip time, locomotive type and car types, as well as certain track and terrain characteristics."^{lviii}





***RPA Assessment:** Both GAO and OIG criticized Amtrak’s inability to determine with any degree of precision how much each train, route and activity contributed to total fuel cost. Volpe does not describe how Amtrak developed the Diesel Power Usage Factor or whether Amtrak has ever attempted to verify the accuracy of the DPFU estimate of fuel consumption with studies that compared estimated with actual fuel consumption. In the absence of further documentation, it is not possible to consider APT’s fuel cost allocations to trains and routes as being either a credible or a reliable reflection of actual economic reality.*

Electric Power (approximate annual expense \$90 million):

***Volpe Report:** “The [electric] Power ...Subfamily captures the direct cost of powering electrified train service on the NEC and the Keystone route. The corridor is divided into northern and southern segments (north and south of New York City, respectively) with Amtrak purchasing power from 10 vendors on the entire corridor, as well as from commuter agency Metro North... In addition to purchasing electric power, Amtrak is reimbursed through agreements by commuter rail agencies for their power consumption on the southern segment, though this is treated as a revenue transaction.”^{ixxi} “Electric Power Usage Factor (EPUF) ... estimates [emphasis added] power consumed by a train based on distance, car weight, and ‘hotel’ power for onboard services.”^{ixx} For trains running on the “South End” (New York -Washington -Harrisburg), the allocation becomes more complicated because “[four] commuter agencies operate electric train service on the southern segment, but the *limited operational data* [emphasis added] that they provide to Amtrak does not allow for their allocation by [electric power usage factor].”^{ixxi} “A study by SYSTRA Consulting, Inc. ^{ixxii} simulated [emphasis added] electric power usage by NEC users and [estimated] a Customer Electric Percentage (CEP) for each [operator].”^{ixxiii}*

“Overall, Amtrak receives [49.6] percent of the total.”^{ixxiv} The latest SYSTRA study identified “specific route percentages ... and these are used to apportion a fixed share to each Amtrak route, with the EPUF statistic then used to allocate to individual trains within each route ...”^{ixxv}. “Because the SYSTRA study calculated [Customer Electric Percentage] using service level estimates at a [single] point in time, the Allocation Ratios used to allocate costs ... are updated by SYSTRA periodically as new estimates are made or as commuter agencies adjust service levels.”^{ixxvi} “For the percentage assigned to each commuter [agency], the costs are allocated by the Frequency of Train trips (FTT) statistic.”^{ixxvii} “For the 56 miles between New Rochelle and New Haven, Metro North bills on the basis of Unit miles; Amtrak allocates the costs in same manner.”^{ixxviii}

***RPA Assessment:** The only instance we can identify where APT’s allocation for electric power accurately reflects Amtrak’s actual cost is for power purchased from Metro North because it is allocated on the same basis that Metro North invoices it.*





On the North End segment between New Haven and Boston, Amtrak should have accurate data for its total cost of power since no commuter agency operates electrically powered trains on this segment. Whether the allocation between the Acela and Regional routes and then to specific trains accurately reflects actual cost depends on the reliability of the “Electric Power Usage Factor.” However, like the Diesel Power Usage Factor, the Volpe report did not provide any information on how Amtrak developed this costing tool or whether Amtrak has ever attempted to verify its accuracy.

On the South End, cost information appears to be imprecise. From Volpe’s description of the process, our understanding is that Amtrak first apportions its total power bill each month between itself and the four commuter agencies by using a percentage factor based on SYSTRA’s simulation that is not done using actual service data each month but only periodically. Next, Amtrak applies the percentages SYSTRA estimated for each of its each of its routes to each train on the route using Amtrak’s Electric Power Usage Factor. For the commuter agencies, however, Amtrak allocates their portion by Frequency of Train Trips. If the four commuter agencies are billed for a percentage of the total south end power cost, Amtrak’s allocation seems unnecessary and its purpose unclear.

As with fuel costs, in the absence of further documentation, it is not possible to consider APT’s power cost allocations to individual routes and trains as being a reliable reflection of the actual – much less avoidable – cost.

Sales (approximate annual expense of all sales subcategories \$175 million):

Volpe Report: The Sales category includes all activities engaged in selling tickets on Amtrak trains. It includes marketing, information and reservation call centers, field sales, sales administration, travel agent services, commercial account services, travel agency commissions, credit card commissions, passenger experience, and airline system access fees.^{ixix}

Sales costs are driven by the number of tickets sold for a service. Most costs are allocated to Amtrak trains in proportion to their share of Total Riders. APT allocates expenditures for travel agent commissions and airline reservation system access on the basis of a statistic obtained from another Amtrak information system that calculates the level of a train’s sales by outside travel agents.^{ixix}

RPA Assessment: It appears that APT assigns the cost of travel agent and credit card commissions directly to individual trains and thus are an accurate measure of avoidable costs. However, except for advertising costs that

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are directly assigned to trains and routes, it is unlikely that the number of tickets sold has any effect on other general sales costs, except as discussed below.

Information & Reservations (approximate annual cost \$75 million):

Volpe Report: “[This category includes the cost of providing] reservation services to both the general public as well as interacting with outside travel agency reservations and information service systems [including] the costs of reservation sales call centers ... as well as the costs of the operating information systems required for Amtrak reservation services.”^{lxxxii} “The exclusive allocation statistic for the Information & Reservations Subfamily is the Talk Time Allocation Factor ... which assigns Information & Reservations costs to Amtrak routes based on the share of talk time at [the reservation centers] spent booking reservations for each route relative to total talk time. RSO is calculated based on a 3-month rolling average talk time survey of calls at [reservation centers].”^{lxxxiii}

RPA Assessment: The talk time allocation statistic does not provide a reasonable estimate of avoidable cost for three reasons. First, it is not based on hard data, but on a “survey” that is very likely subject to human judgment and error. (For example, it takes more than twice as long per passenger to book a reservation on the Silver Meteor or the Crescent than it does on the Capitol or the Lake Shore. The reason for such a wide difference is not obvious.) Second, more than 900,000 trips involve connections. To which route does the agent assign the talk time? Third, at least half, if not more, of the costs are fixed.^{lxxxiii}

Marketing (approximate annual cost \$70 million):

Volpe Report: “Activities include market research, customer relations, general advertising, telephone directory advertising, production of timetables, and sales promotions.”^{lxxxiv}

“Some [costs] are system wide in scope and are responsible for marketing for all routes, whereas others correspond to broad regions or, in some cases, individual routes. In these latter cases, costs are allocated to specific routes...” APT allocates all other costs on the basis of passenger revenue on the theory that marketing efforts are focused roughly in proportion to route revenues.^{lxxxv}

RPA Assessment: To the extent that marketing expenditures are not route specific, they are fixed and not avoidable with regard to specific routes. The “theory” that marketing efforts are focused in proportion to route

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revenues remains unproven unless Amtrak actually budgets marketing dollars to individual routes as a constant percentage of projected revenue.

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Passenger Inconvenience (approximate annual cost \$15 million):

Volpe Report: “Passenger inconvenience costs are directly assigned to appropriate [trains or routes] when possible and otherwise allocated by Total Passenger Miles.”^{lxxxvi}

RPA Assessment: *It is difficult to imagine a circumstance where passenger inconvenience costs cannot not be assigned directly to specific trains and routes. If there are instances where these costs must be totaled system-wide then trickled down to specific routes, passenger miles will not produce an accurate cost estimate. The use of route on time performance weighted by the number of passengers using that route would produce a more accurate estimate of the actual, avoidable cost.*

Utilities (approximate annual expense \$6 million):

Volpe Report: “Utilities expenses [include] gas, electric, and water provided t various terminals, stations and support facilities.”^{lxxxvii} “The Unit Trips (UT) statistic is used almost exclusively to allocate Utilities ... expenses, representing the size of trains that utilize a facility.” “Although Commercial customers are present at some of the locations served by the Utilities Cost Centers, Amtrak has no means to allocate costs to those businesses.”

RPA Assessment: *Although small, this expense is clearly fixed, not avoidable. We are somewhat surprised that Amtrak does not use electric (or gas) meters to determine utility costs for its “commercial customers.”*

Police (approximate annual expense \$60 million):

Volpe Report: “The Police ... performs traditional patrolling duties in support of Amtrak trains, facilities, and ROW. [It] consists of two Subcategories: National and Regional/Local. The Regional/Local Subcategory provides the front line policing duties while the National Subcategory coordinates and supports the operation across the Amtrak network.”^{lxxxviii}

The key driver of Police costs are passenger levels in and around stations, but as passenger related statistics are unavailable for all customers they cannot be used in the allocation. For that reason, where possible, [passenger car

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unit trips] PUT is used to allocate expenses around stations while [car and locomotive unit trips] UT is used in other locations as it is available for freight and commuter customers.^{xxxx}

RPA Assessment: If police activity occurs on a specific train or in stations served by a single route, then it could (and should) be directly assigned to that route using data obtained from the Amtrak Police Department. Otherwise, it is a fixed costs and allocation on the basis of other factors (passenger car unit trips and car and locomotive unit trips) does not produce data that reflects variable/avoidable cost.

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General and Administrative (approximate annual cost \$1.4 billion):

Volpe Report: These costs include higher level management activities *not closely associated with a particular portion of the business*. This includes functions that support the entirety of the enterprise including finance, computer services, payroll operations, human resources, and employee services available corporate-wide. “The primary allocation statistic is the Total Activity Cost [which means] the total cost of each ‘cost object,’ including all direct costs, [plus allocated indirect costs including] *the Asset Usage Allocation.*”³⁶

RPA Assessment: *G&A costs are a significant cost component representing one third of what APT reports as Amtrak’s total operating cost.*

- *Given their nature and scope, it is clear that they would not change with the elimination of any single route (or probably not even significantly with the discontinuance of the entire long-distance system). Most if not all of these costs would be reasonably considered avoidable.*
- *APT’s methodology allocating G&A by effectively marking up a “base cost” has the effect of magnifying allocation errors APT already made in estimating that base cost.*
- *Amtrak appears to capitalize track maintenance costs on the NEC. The Asset Usage Allocation (AUA - the synthetic substitute for depreciation, amortization and interest) does not appear in Amtrak’s route accounting reports. We have been unable to locate the report that reconciles APT route accounting results with Amtrak’s financial statements.*
- *By omitting the Asset Utilization Allocation, APT significantly understates the “fully allocated operating cost” of the Northeast Corridor. The omission is significant. Amtrak is capital intensive. Depreciation, amortization and interest account for 20% of Amtrak’s total operating cost. On its balance sheet, Amtrak reports that “right of way and other properties,” which mostly represent NEC infrastructure, are 62% of Amtrak’s depreciable assets.*³⁷

Maintenance of Equipment (approximate annual cost \$600 million)

Turnaround Maintenance:

Volpe Report: This cost category includes cleaning, inspections and minor repairs on trains before each departure and also enroute. Turnaround facilities can work exclusively on cars, locomotives or both. At some locations, turnaround services are performed by outside contractors.

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APT allocates the costs of each turnaround facility to routes and trains that use that facility. APT allocates different costs differently. Some it assigns directly to trains and routes; other costs, such as shared, overhead and support, APT allocates on the basis of Car Unit Trips for cars and on the basis of Units Used for locomotives, with a distinction between diesel and electric. At locations utilizing outside contractors, APT allocates on the basis of locomotive and car unit trips without distinguishing between the type of equipment. APT assigns the cost Amtrak employees who accompany trains and perform minor enroute repairs (known as “train riders”) directly to specific trains.^{cc}

RPA Assessment: Where APT assigns costs directly, its allocations likely reflect actual avoidable (variable) cost. When it allocates shared, overhead and support costs, however, a portion of these allocations include costs that would not change with a reduction (or increase) in service. Amtrak had 53 turnaround facilities in 2016.^{cc} We identified only six facilities that serviced long distance routes.

- *Four serviced only a single route and would be avoidable with the elimination of that route: Lorton VA (Auto Train), Savannah GA (Palmetto), Sanford FL (Auto Train) and San Antonio TX (Texas Eagle).*
- *Two others – Hialeah FL (Meteor & Star) and New Orleans LA (Crescent, City of New Orleans & Sunset Limited) serviced multiple routes and would be entirely avoidable only with the discontinuance of all routes using those facilities. For all other shared turnaround facilities, the APT cost allocations do not accurately reflect the avoidable (incremental) cost of any decrease (or increase) in the number of trains using the facility.*

Locomotive Maintenance:

Volpe Report: “Amtrak locomotives are maintained at numerous facilities. Since a particular locomotive could be maintained at several different facilities and used on multiple routes, using the national level allocation approach ensures that the actual location where such equipment is maintained does not affect how maintenance costs for that equipment are allocated to trains.” “[C]osts associated with preventive maintenance [are allocated on the basis of the number of Units Used] because preventative [sic] maintenance is largely based on time and this metric] is a time-based statistic. [N]on-preventative [sic] maintenance costs [are allocated on the basis of [Unit Miles] because such maintenance is based on usage.”^{cc}

RPA Assessment: This allocation method uses a type of “standard costing” that may represent a reasonable calculation of avoidable cost, especially if the equipment involved is sold when removed from service. If held in reserve or assigned to different services, the cost would not be eliminated but reallocated. While the use of national average costs by type of locomotive may provide an approximate estimate of avoidable or incremental cost, it lacks precision because an “average” cost does not indicate how much variance exists around the mean. Variance can result because some maintenance facilities may be far more efficient than others; some routes may

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require more or less maintenance than others because of grades and curvature; some locomotives of the same type may vary considerably in reliability.

Car Maintenance:

Volpe Report: This category reflects the cost of maintenance performed on coaches, dining, sleeping and baggage cars and includes both preventive maintenance and repair of bad orders, freeze damage and wrecks. Amtrak’s Work Management System tracks labor and material costs, the type of work performed and the specific unit number and equipment type. All work at this level is expensed.^{scv} “Cost allocations are at the national level to all trains that utilize the type of equipment being repaired. Amtrak cars are maintained at numerous facilities. Since a particular car could be maintained at several different facilities, using the national level allocation approach ensures that the actual location [and cost] where such equipment is maintained does not affect how maintenance costs for that equipment are allocated to trains. Train activity statistics are used in conjunction with equipment type ... to ensure that the costs for maintaining a particular equipment type, regardless of the place where it is maintained, are allocated only to trains using that equipment type.”^{scvi}

RPA Assessment: *The same as those for locomotive maintenance outlined in the section above.*

Subsidiaries:

Volpe Report: “The Subsidiary [cost family] represents Cost Centers associated with Amtrak’s five Subsidiary Companies, which include Chicago Union Station Company (CUS), Passenger Railroad Insurance Limited (PRIL), Penn Station Leasing, LLC (PSL), Washington Terminal Company (WTC) and 30th Street Limited, L. P. (TSL).”^{scvii} The diverse nature of Amtrak’s subsidiaries means that the manner in which APT allocates Subsidiary expenditures depends on the particular subsidiary. “Most Subsidiaries are associated with specific locations, so expenditures are allocated locally to the routes and customers operating at those locations.”^{scviii}

- Chicago Union Station: Eight percent of Station operations-related costs are allocated to the Commercial business. APT allocates the other 92 percent of station operating costs to both Amtrak and Metra based on Passenger Car Unit Trips; it allocates maintenance of way costs to Amtrak trains or to other customers that use specific areas of track maintained by the subsidiary, including Freights, using Frequency of Train Trips or Unit Miles. APT allocates Insurance costs on the basis of on Total Passenger Miles.^{scix}
- Philadelphia 30th Street: “...the majority of expenses represent station rent, interest and depreciation, and professional fees.” APT allocates station rent to Amtrak trains on the basis of Total Boards and Deboards. It

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allocates depreciation and interest, which make up the bulk of remaining subsidiary expenses, and other subsidiary expenses, such as professional fees, directly to Unallocated.⁵

- In the case of Penn Station in New York, the entirety of the subsidiary's monthly expenses represents interest charges. Therefore, the expenditures go directly to Unallocated.⁵
- Likewise, in the case of Washington Terminal, the entirety of the subsidiary's monthly expenses represents depreciation expenditures and goes directly to Unallocated.⁶
- The exception is PRIL whose expenditures are allocated nationally. "A majority of the costs for this subsidiary are associated with Amtrak's accrual for self-insurance for passenger claims, insurance policies with outside companies and professional fees. Based on a review of liability claims, [APT allocates] the majority of passenger claims insurance expenditures [on the basis of total passenger miles with the remaining going directly to Reimbursable]."⁶

RPA Assessment:

- *Chicago: The allocation of Chicago Union Station costs to Amtrak and to Metra on the basis of passenger car unit trips produces either a double charge to Amtrak or a fifty percent discount to Metra because Metra's cars have at least double the capacity. To the extent that APT uses frequency of train trips to determine charges for freight access probably results in a significant discount to the freight railroads. Moreover, the cost of operating a station as large as Chicago will not likely vary much within a large range of passenger volume so these allocations have no meaning when it comes to estimating avoidable or variable cost.*
- *Philadelphia: In the absence of any Asset Utilization Factor charge, APT's allocation of rent, interest and depreciation to "unallocated" results in a significant understatement of the operating cost of the Northeast Corridor.*
- *New York: APT's allocation rule produces the same understatement as noted above for Philadelphia.*
- *Washington: The same critique for Philadelphia and New York above applies to Washington if the depreciation is related to station facilities; if it results from real estate development activities, then APT should allocate it to that business line.*

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Appendix C

The Important Costs Missing in Amtrak’s Route Performance Reports

“Allocating GAAP-defined depreciation and interest to trains and other ancillary businesses could not be done in a manner that properly reflected the relative usage of capital assets for particular trains. Instead, a synthetic Asset Usage Allocation charge provides a more representative measure of the resource cost of capital equipment and property—regardless of how paid for—currently being used by Amtrak to produce its various services and outputs.”⁴¹

“Amtrak’s financial reporting is also incomplete because it does not allocate its depreciation costs by line of business. Leading organizations have shown that good information on, among other things, asset performance and conditions is critical to make informed capital resource allocation decisions. These data give organizations the ability to perform analyses that can be used to support strategic and operational budgeting decisions. 42 In 2005, we reported that Amtrak did not allocate its depreciation expense by route or business line and that since depreciation is critical information for a capital-intensive business such as Amtrak, by not allocating it, Amtrak was understating its reported expenses. 43 Amtrak finance department officials told us that they have had a methodology in place since 2010 to assign their depreciation

expenses by route and subsequently to lines of business. However, Amtrak officials did not have confidence in the capital lease data used by the methodology. Amtrak officials plan to evaluate the data and determine when Amtrak would begin applying the results from the methodology in its external reports. Amtrak officials stated that they did not have a timeframe for when that data will be used to allocate their depreciation expenses. In addition, proposed changes to Amtrak’s current infrastructure and corporate development line of business may change how depreciation expenses are allocated to its train operations business lines as the new line of business may be responsible for more of Amtrak’s infrastructure. However, until depreciation expenses are allocated to its routes and lines of business, Amtrak will continue to be at risk of misstating financial information used for decision making, which could result in misallocation of internal and federal resources.”⁴⁴

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Appendix D

Amtrak's "Asset Utilization Factor"

“Consideration was given to the history of public sector contributions towards Amtrak capital expenditures, Amtrak’s use of borrowings (and hence its incurring of interest expenses) for the acquisition of only certain subsets of its capital assets and the use of leases and sale-leaseback transactions for some capital assets. It was decided that simply allocating GAAP depreciation and interest to routes and other ancillary businesses did not yield a contribution to Fully Allocated Costs for a particular route that accurately reflected that route’s relative usage of capital assets. Instead, the decision was made to replace depreciation and interest with a synthetic capital charge, which provides a more representative measure of the resources costs of all capital equipment and property – regardless of how financed – currently being used by Amtrak to produce its various services and outputs. The synthetic capital charge is an annualized value based on the original acquisition costs of the assets and the underlying opportunity cost of capital as a production resource as reflected in the U. S. Treasury long term borrowing rate. Since Amtrak’s data systems do not link capital assets to [responsibility centers] in specific areas, procedures needed to be developed to link such assets to the outputs and services whose production they support.”^{vi}

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Appendix D

The Avoidable Operating Cost of the Long-Distance System

How badly does Amtrak's Fully Allocated Costing system misrepresent the actual cost to the federal government? What would we know today if Amtrak had implemented the avoidable cost methodology that the Volpe National Transportation Systems Center outlined in its report to Congress in 2009?

Using our interpretation of Volpe's avoidable cost methodology, we've prepared a rough estimate of the impact that the elimination of all of Amtrak's long distance routes would have on its revenues and costs. Our purpose is to highlight the large degree to which the fully allocated costing methodology Amtrak uses in calculating the financial performance its routes significantly overstates the actual cost to the federal government. In preparing this estimate, we have kept in mind the Inspector General's caution that Volpe's avoidable cost methodology applied only to the elimination of a single route and was not appropriate for estimating the "savings" of discontinuing multiple routes at a single stroke. We've explained our reasoning for each of our estimates in the notes to table A-1 below. The takeaway from this exercise is that *Amtrak is likely overstating the federal cost of the long distance system by more than \$300 million a year.*

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Table D-1

Estimated Avoidable Cost of Long Distance System

(\$000)

Cost/Revenue Category	Fully Allocated Cost FY17	Estimated Avoidable	Fixed Reallocated	Note
Maintenance of Way	\$27,362	\$1,596	\$25,766	1
Maintenance of Equipment	\$211,162	\$182,343	\$28,819	2
On Board Services	\$182,635	\$173,302	\$9,333	3
Train & Engine	\$160,066	\$158,151	\$1,915	4
Yard	\$21,559	\$18,325	\$3,234	5
Fuel	\$61,100	\$61,100		
Transportation Multiple	\$1,499	\$1,499		
Train Movement	\$9,935		\$9,935	6
Host Railroad	\$49,244	\$49,244		
Transportation Support	(\$711)	(\$711)		
Power	\$3,159	\$3,159		
Route Stations	\$21,722	\$21,722		
Shared Stations (Commuters)	\$12,106	\$2,000	\$10,106	7
Shared Stations (No Commuters)	\$35,736	\$15,000	\$20,736	7
Sales	\$3,951		\$3,951	8
Information & Reservations	\$29,895	\$10,015	\$19,880	9
Marketing	\$22,637	\$15,931	\$6,706	10
Station & On-Board Technology	\$1,633		\$1,633	
Corporate Administration	\$44,373		\$44,373	
Centralized Services	\$63,179		\$63,179	
Qualified Management	\$40,768		\$40,768	
Direct Customer (non NTS)	(\$3,389)		(\$3,389)	
Subsidiary	\$14,186		\$14,186	
Utilities	\$260		\$260	
Police-National	\$2,818		\$2,818	
Police-Regional	\$4,904		\$4,904	
Special Operations	\$7,304		\$7,304	





Environmental & Safety	\$3,071		\$3,071	
Total Amtrak Cost	\$1,032,166	\$712,676	\$319,489	
APT Long Distance Revenue	\$547,452	\$547,452		
Cost Sharing Revenue	\$7,688		\$7,688	
Revenue from Connections to Other Routes		\$16,654	(\$16,654)	
Total Long-Distance Revenue	\$555,139	\$564,106	(\$8,967)	
Total Taxpayer Cost of Long Distance	\$477,027	\$148,571	\$311,803	

Notes to Table D1:

- 1) **Maintenance of Way.** The elimination of all long-distance routes would have a negligible effect on these costs. On the NEC, they account for only 6% of electric train miles; on the Empire corridor only 10%; on the Michigan line none. We assumed that Western Division costs involved only maintenance at major terminals since Amtrak does not own any mainline right of way in the west. Only two, Hialeah (Miami) and New Orleans, would be eliminated if all long-distance routes ceased. We estimated their avoidable cost at 50% of the total fully allocated cost, since the other half reflected costs at either New York or Chicago, which also serviced large number of short distance and commuter services. We considered all of the Fully Allocated Costs charged to Auto Train as avoidable.
- 2) **Maintenance of Equipment.** Volpe found that costs for turnaround servicing and Maintenance Support showed economies of scale, which meant that costs would decrease more slowly than volume, which indicated some portion of total costs were fixed. Locomotive and car maintenance, showed a direct linear relationship. Those we considered fixed were \$2.7 million for Back Shop, \$4.9 million for material control, 55% of the M of E Multiple[™] and \$100,000 of Acela maintenance costs incorrectly charged to Long Distance.
- 3) **On Board Services.** We considered these costs entirely avoidable except for Commissary Management, which we considered 25% fixed (a conservative figure since long distance is only 47% of total food expense and Amtrak would entirely close only two of its commissaries – New Orleans and Hialeah) and OBS support, which we considered 50% fixed even though Volpe assessed it as entirely fixed (again, a conservative estimate since long distance is allocated 74% of total OBS cost).
- 4) **Train & Engine Crew.** We classified these as entirely avoidable except for 50% of T&E support that we considered fixed on the theory that this amount contains fixed cost elements shared with both the NEC and State Supported Routes. Volpe considered them to be 100% fixed.
- 5) **Yard.** We considered Yard entirely variable except for overhead and supervision that Volpe said represented 15% of total cost that we considered fixed.
- 6) **Train Movement.** Since this cost category is largely if not completely for system management and NEC costs, we considered it 100% fixed with respect to long distance services.
- 7) **Stations.** We treated route stations as 100% avoidable. We identified 30 shared stations that only long distance trains used; 23 were staffed, many of them small. In the absence of any station cost information, we assumed an average annual cost per staffed station at \$500,000. We estimated the avoidable cost of red caps,

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porters and baggage handlers at \$2 million since these services would continue to some extent at most stations.

- 8) **Sales.** Volpe considered most costs in this category as fixed. We have done the same
- 9) **Information & Reservations.** Volpe judged that only wages paid to customer service phone agents were avoidable and that the rest were fixed. We questioned the validity of the talk time allocation survey that calculated the average talk time for a long distance passenger at three times the system average. We reduced that time by one third.
- 10) **Sales & Marketing.** We considered credit card, travel agent and passenger inconvenience allocations as entirely avoidable; the rest fixed.
- 11) **All Other.** Volpe considered all other costs fixed; we did the same.

Table D-2

Volpe Report Assessment of Fixed/Avoidable Costs by Category

Cost Category	Cost Sub Category	Variability	Analytical
Maintenance of Way	Track	Mixed	Detailed
	Communications & Signals	Fixed	
	Electric Traction	Mixed	Statistical
	Bridges & Buildings	Fixed	
	Support	Fixed	
Maintenance of Equipment	Turnaround	Mixed	Statistical
	Locomotive	Mixed	Statistical
	Car	Mixed	Statistical
	Support	Mixed	Statistical
	Multiple	Mixed	Detailed
On Board Service	Crew	Avoidable	
	Food & Beverage Supplies	Avoidable	
	Commissary Management	Mixed	Detailed
	Support	Fixed	
Train & Engine Crew	Crew	Avoidable	
	Support	Fixed	
Yard	Direct	Mixed	Statistical
	Train Moves	Mixed	Statistical
	Train & Equipment Moves	Mixed	Statistical
Fuel		Avoidable	
Electric Power		Avoidable	
Transportation Multiple	General	Mixed	Detailed
Train Movement	General	Mixed	Detailed





	Host Railroad	Mixed	Detailed
	Transportation Support	Mixed	Detailed
		Mixed	Detailed
		Mixed	Detailed
Sales			
Information & Reservations	Route	Mixed	Statistical
Stations	Shared	Mixed	Statistical
Corporate Administration		Fixed	
Centralized Services		Fixed	
Qualified Management		Fixed	
Direct Customer		Fixed	
Subsidiary		Mixed	Detailed
Capital		Mixed	Detailed
Utilities		Fixed	
Police	National	Fixed	
	Regional	Fixed	
Environmental & Safety		Fixed	

Appendix E

Legislative Mandates

The Consolidated Appropriations Act, 2005, Public Law 108-447

DIVISION H—TRANSPORTATION, TREASURY, INDEPENDENT AGENCIES, AND GENERAL GOVERNMENT APPROPRIATIONS ACT, 2005;

Title I—Department of Transportation, GRANTS TO THE NATIONAL RAILROAD PASSENGER CORPORATION.

“Provided further, That the Secretary of Transportation is authorized to retain up to \$4,000,000 of the funds provided to be used to retain a consultant or consultants to assist the Secretary in preparing a comprehensive valuation of Amtrak’s assets to be completed not later than September 30, 2005: *Provided further,* That these funds shall be available to the Secretary of Transportation until expended: *Provided further,* That this valuation shall to be used to retain a consultant or consultants to develop to the Secretary’s satisfaction a methodology for

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determining the avoidable and fully allocated costs of each Amtrak route: *Provided further*, That once the Secretary has approved the methodology for determining the avoidable and fully allocated costs of each Amtrak route, Amtrak shall apply that methodology in compiling an annual report to Congress on the avoidable and fully allocated costs of each of its routes, with the initial report for fiscal year 2005 to be submitted to the House and Senate Committees on Appropriations, the House Committee on Transportation and Infrastructure, and the Senate Committee on Commerce, Science, and Transportation before December 31, 2005, and each subsequent report to be submitted within 90 days after the end of the fiscal year to which the report pertains.”

PRIIA 2008 Division B Section 208, 25Pub. L. No 110-432, div. B, § 208.

SEC. 208. METHODOLOGIES FOR AMTRAK ROUTE AND SERVICE PLAN- NING DECISIONS.

(a) **METHODOLOGY DEVELOPMENT.** — Within 180 days after the date of enactment of this Act, the Federal Railroad Administration shall obtain the services of a qualified independent entity to develop and recommend objective methodologies for Amtrak to use in deter- mining what intercity passenger routes and services it will provide, including the establishment of new routes, the elimination of existing routes, and the contraction or expansion of services or frequencies over such routes. In developing such methodologies, the entity shall consider—

- (1) the current or expected performance and service quality of intercity passenger train operations, including cost recovery, on-time performance and minutes of delay, ridership, on-board services, stations, facilities, equipment, and other services;
- (2) connectivity of a route with other routes;
- (3) the transportation needs of communities and populations that are not well served by intercity passenger rail service or by other forms of intercity transportation;
- (4) Amtrak’s and other major intercity passenger rail service providers in other countries’ methodologies for deter- mining intercity passenger rail routes and services; and
- (5) the views of the States and other interested parties.

(b) **SUBMITTAL TO CONGRESS.** — Within 1 year after the date of enactment of this Act, the entity shall submit recommendations developed under subsection (a) to Amtrak, the Committee on Transportation and Infrastructure of the House of Representatives, and the Committee on Commerce, Science, and Transportation of the Senate.

(c) **CONSIDERATION OF RECOMMENDATIONS.** — Within 90 days after receiving the recommendations developed under subsection (a) by the entity, the Amtrak Board of Directors shall consider the adoption of those recommendations. The Board shall transmit a report to the Committee on Transportation and Infrastructure of the

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House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate explaining its reasons for adopting or not adopting the recommendations.

GAO Commentary on PRIIA:

PRIIA (Pub. L. No 110-432, div. B, § 208) required FRA to obtain the services of a qualified independent entity to develop a methodology to assess potential useful changes to Amtrak’s passenger services—such as adding or eliminating routes and frequencies—taking into consideration the current performance of the routes.²⁵ The independent entity is then required to

provide recommendations for useful methodologies to Amtrak and Congress. FRA stated that such recommendations could provide substantial insight to Amtrak, FRA, and stakeholders, including enhanced decision making, measurable service improvements, and transparency.

As of November 2015, FRA had not implemented the requirement because, according to FRA officials, FRA did not have the resources to conduct the study on its own and Congress did not appropriate funding specifically for FRA to procure a third-party contractor for this purpose.²⁶

In December 2015, legislation was subsequently enacted that requires Amtrak to obtain the services of a qualified independent entity, instead of FRA.²⁷ Fulfilling this requirement could provide Congress, Amtrak and FRA with a useful tool to conduct a more in-depth assessment of

Amtrak’s various routes.²⁸

FAST ACT 2016 PUBLIC LAW 114-94—DEC. 4, 2015

“SEC. 208. METHODOLOGIES FOR AMTRAK ROUTE AND SERVICE PLAN- NING DECISIONS.

“(a) METHODOLOGY DEVELOPMENT. —Not later than 180 days after the date of enactment of the Passenger Rail Reform and Investment Act of 2015, Amtrak shall obtain the services of an independent entity to develop and recommend objective methodologies for Amtrak to use in determining what intercity rail passenger transportation routes and services it should provide, including the establishment of new routes, the elimination of existing routes, and the contraction or expansion of services or frequencies over such routes.

“(b) CONSIDERATIONS. —Amtrak shall require the independent entity, in developing the methodologies described in subsection (a), to consider—

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“(1) the current and expected performance and service quality of intercity rail passenger transportation operations, including cost recovery, on-time performance, ridership, on-board services, stations, facilities, equipment, and other services;

“(2) the connectivity of a route with other routes;

“(3) the transportation needs of communities and populations that are not well served by intercity rail passenger transportation service or by other forms of intercity transportation;

“(4) the methodologies of Amtrak and major intercity rail passenger transportation service providers in other countries for determining intercity passenger rail routes and services;

“(5) the financial and operational effects on the overall network, including the effects on direct and indirect costs;

“(6) the views of States, rail carriers that own infrastructure over which Amtrak operates, Interstate Compacts established by Congress and States, Amtrak employee representatives, stakeholder organizations, and other interested parties; and

“(7) the funding levels that will be available under authorization levels that have been enacted into law.

“(c) RECOMMENDATIONS. —Not later than 1 year after the date of enactment of the Passenger Rail Reform and Investment Act of 2015, Amtrak shall transmit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives the recommendations developed by the independent entity under subsection (a).

“(d) CONSIDERATION OF RECOMMENDATIONS. —Not later than 90 days after the date on which the recommendations are transmitted under subsection (c), the Amtrak Board of Directors shall consider the adoption of each recommendation and transmit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a report explaining the reasons for adopting or not adopting each recommendation.

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Appendix F

Background Information on Systra Consulting

According to its website, SYSTRA Consulting applies systems engineering tools, processes, and practices to project life-cycle phases, including project concept, design, implementation, operation, and maintenance. Its Traction Power and Electrical Systems group has successfully modeled, analyzed, designed, tested, and provided construction support service for many types of traction power systems. Their power team includes licensed professional engineers from the railroad and utility industries. They use software programs such as RAILSIM, PSS/E, ETAP, CYMCAP and SKM Power Tools. They offer capabilities in simulations and analytical studies.⁴¹⁸

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Appendix G

Endnotes

ⁱ *Amtrak’s New Cost Accounting System Is A Significant Improvement but Concerns Over Precision and Long-Term Viability Remain*, US Department of Transportation, Office of the Inspector General, Report #CR-2013-056, March 27, 2013 (hereafter referred to as OIG 2013), page 2.

ⁱⁱ *Idem.*

ⁱⁱⁱ *Ibid*, page 1.

^{iv} *Idem.*

^v *Ibid*, page 2.

^{vi} *Methodology for Determining the Avoidable and Fully Allocated Costs of Amtrak Routes Volume I, Main Report*, U.S. Department of Transportation, The John A. Volpe National Transportation Center, Report to Congress, December 15, 2009 (hereafter referred to as Volpe 2009), page 1.

^{vii} *Ibid.*, page 20.

^{viii} *Ibid.*, page 22.

^{ix} *Ibid.*, pages 22-23.

^x *Ibid.*, page 23.

^{xi} *Ibid.*, pages 24-25.

^{xii} *Ibid.*, page 25.

^{xiii} *Ibid.*, page 23.

^{xiv} *Ibid.*, page 33.

^{xv} *Ibid.*, page 33.

^{xvi} *Ibid.*, pages 46 through 50.

^{xvii} *Ibid.*, page 22.

^{xviii} *Update on the Methodology for Amtrak Cost Accounting, Amtrak Performance Tracking (APT): Volume I*, U.S. Department of Transportation, Federal Railroad Administration, April 22, 2016 (hereafter referred to as Volpe 2016), page 46.

^{xix} *Idem.*

^{xx} OIG 2013, op. cit. page 3.

^{xxi} Surface Transportation Board.

^{xxii} Interstate Commerce Commission.

^{xxiii} Volpe 2009, op. cit. page 29.

^{xxiv} *Idem.*





^{xxv} *Idem.*

^{xxvi} *Passenger Rail Investment and Improvement Act of 2008*, P.L. No. 110-432 Div. B.

^{xxvii} OIG 2013, op. cit. page 1.

^{xxviii} *Ibid.*, page 6.

^{xxix} *Idem.*

^{xxx} *Idem.*

^{xxxi} Volpe 20009, op. cit., page 32

^{xxxii} *Amtrak - Better Reporting, Planning, and Improved Financial Information Could Enhance Decision Making*, United States Government Accountability Office, January 6, 2016, GAO 16-67, (hereafter referred to as GAO 2016), page 24.

^{xxxiii} *Ibid.*, page 25.

^{xxxiv} OIG 2013, op. cit. page 6.

^{xxxv} *Ibid.* pages 6 and 7.

^{xxxvi} *Ibid.* page 9.

^{xxxvii} *Ibid.* page 19.

^{xxxviii} *Ibid.* page 10.

^{xxxix} Volpe 2016, page 15.

^{xl} Volpe 2016.

^{xli} *Ibid.*, page 13, footnote 3.

^{xlii} OIG 2013, op. cit., page 6.

^{xliii} Volpe 2009, op. cit., page 30.

^{xliv} Volpe 2016, op. cit., page 32.

^{xliv} *Ibid.*, page 20.

^{xlv} Volpe 2009, op. cit., page 30.

^{xlvii} *Idem.*

^{xlviii} *Ibid.*, page 29.

^{xlix} *Ibid.*, page 30.

ⁱ *Ibid.*, page 29.

ⁱⁱ *PRIIA Section 209 Cost Methodology Policy, Final Version*, The States Working Group (SWG) and Amtrak, August 2011, page 3.

ⁱⁱⁱ *Amtrak Better Reporting, Planning and Improved Financial Information Could Enhance Decision Making*, United States Government Accountability Office, Report GAO-16-67, January 2016, (hereafter referred to as GAO 2016), page 21.

^{liii} *Idem.*

^{liv} *Ibid.*, page 37.

^{lv} *Ibid.*, page 27.

^{lvi} *Amtrak Performance Tracking (APT) System, Methodology Summary*, U. S. Department of Transportation, John A. Volpe National Transportation Systems Center, September 2017 (DOT-VNTSC-FRA-17-06), (hereafter referred to as Volpe 2017), page 46





^{lvii} Volpe 2016, page 73 and 74.

^{lviii} Ibid., page 75.

^{lix} Idem.

^{lx} Ibid., page 76.

^{lxi} Ibid., page 130.

^{lxii} Idem.

^{lxiii} Idem.

^{lxiv} Ibid., page 129

^{lxv} Idem.

^{lxvi} OIG 2013, page 4.

^{lxvii} Ibid., pages 54 and 55.

^{lxviii} Ibid. page 116.

^{lxix} Volpe 2016, op. cit., page 126

^{lxx} Idem.

^{lxxi} Idem.

^{lxxii} See Appendix F

^{lxxiii} Volpe 2016, op. cit. page 126.

^{lxxiv} Ibid., page 126.

^{lxxv} Idem.

^{lxxvi} Ibid., page 127.

^{lxxvii} Ibid., page 126.

^{lxxviii} Ibid., page 127.

^{lxxix} Ibid., page 131.

^{lxxx} Idem.

^{lxxxi} Ibid., page 132.

^{lxxxii} Ibid., page 133.

^{lxxxiii} Idem.

^{lxxxiv} Ibid., page 134.

^{lxxxv} Idem.

^{lxxxvi} Idem.

^{lxxxvii} Ibid., page 150.

^{lxxxviii} Ibid., page 151.

^{lxxxix} Ibid., page 152.

^{xc} Ibid., page 137.

^{xci} *Consolidated Financial Statements, National Railroad Passenger Corporation and Subsidiaries (Amtrak), September 30, 2017 and 2016, page 3.*

^{xcii} Volpe 2016, op. cit., page 93.

^{xciii} Ibid., page 94.

^{xciv} Ibid., page 95.

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- ^{xcv} Ibid., page 97.
^{xcvi} Ibid., page 98.
^{xcvii} Ibid., page 142.
^{xcviii} Ibid., page 143.
^{xcix} Idem.
^c Ibid., page 144.
^{ci} Idem.
^{cii} Idem.
^{ciiii} Ibid., page 143.
^{civ} Ibid., page 37.
^{cv} GAO 2016, op. cit., pages 26 & 27.
^{cvi} Volpe 2009, op. cit., page 9

^{cvi} Volpe 2016, op. cit., page 104.
^{cviii} GAO Report, 2016, op. cit., page 20
^{cix} <http://systraconsulting.com/>, accessed May 21, 2018.

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