TESTIMONY OF LOUIS S. THOMPSON
DIRECTOR, NORTHEAST CORRIDOR PROJECT
FEDERAL RAILROAD ADMINISTRATION, U.S. DEPARTMENT OF TRANSPORTATION
before the
SUMBCOMMITTEE ON TRANSPORTATION AND COMMERCE OF THE COMMITTEE
ON INTERSTATE AND FOREIGN COMMERCE
U.S. HOUSE OF REPRESENTATIVES
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My name is Louis S. Thompson of the U.S. Department of Transportation. I am Director of the Northeast Corridor Project within the Federal Railroad Administration. This project involves major reconstruction of the railroad line between Washington, D.C. and Boston Mass., including tracks, signals, electric traction power, communications, stations and maintenance facilities. Congress has authorized $1.75 billion for this project and the Administration has requested an additional $750 million. I have also been given the responsibility of administering the Department's program of operating and capital assistance to Amtrak ----- a program amounting to some $873 million for fiscal year 1980. On October 10, 1979, Congressmen Harley Staggers, Chairman of the House Committee on Interstate and Foreign Commerce, James Florio Chairman of the Subcommittee on Transportation and Commerce and Edward Madigan Ranking Minority Member of the Subcommittee, wrote to Amtrak and the Department requesting an analysis of rail passenger corridors having the greatest potential to attract substantial ridership and save energy. My

office was given the responsibility of preparing the Department's contribution to this analysis, in collaboration with Amtrak. The time available for our analysis has been very short ----- we were asked to submit the information by January 30.

I must emphasize that the information presented in my testimony is drawn from very preliminary results of an analysis which even in its final form will have been done with some haste. It would be premature at this stage to identify any corridor upgrading as having costs which are exceeded by the benefits. There is no intent by the Department of Transportation at this stage to suggest a new program or other Federal upgrading activity. For this, many elements would need to be considered including the responsibility of the States vis-a-0-vis the Federal Government for financing such a program.

Because of the incomplete state of our analysis, I have not been able to answer all of the questions which Congressman Florio asked us in connection with this hearing, and in some cases I have not been able to answer in enough detail. I would be happy to supply more complete answers for the record after our analysis is submittted. Furthermore, Amtrak has not yet had adequate time to review the figures with us and some of the figures could well be different in our final submittal as a result of this joint review. Amtrak wishes to make it clear that it will not go on record with these numbers at this time,

but in the interest of being responsive to Mr. Florio's request I am presenting some of the information, with appropriate disclaimers and reservations.

Before answering the questions which Mr. Florio has asked us in connection with this hearing, I would like to summarize very briefly the nature of our analysis requested for January 30, from the preliminary results of which the answers to these questions are derived.

We first identified eleven corridors with the greatest potential for attracting substantial ridership and saving energy and on which we intended to focus the subsequent analysis. This list was drawn up primarily on the basis of a 1977 study prepared for the Department by a contractor, the Aerospace Corporation, pursuant to Section 901(6) of the Railroad Revitalization and Regulatory Reform Act. In that study, corridors were ranked on the basis of current rail ridership as well as potential demand, considering all modes of travel. In preparing our list we removed two corridors from the top ranked list contained in the Aerospace Study and added others. (The list has not been expanded from 11 to 18.) The Los Angeles to San Francisco corridor was one of those removed because of the competitive disadvantage of rail due to the excessive distance involved. The Bay Area to Sacramento route was added because of the opportunity to link a State Capital, which typically generates a high number of trips in relation to

its population, with a nearby major metropolitan area by rail, as in the case of the well developed corridor services of Albany-New York City and Harrisburg-Philadelphia on the East Coast. The specific rail route chosen to potentially serve the Bay Area to Sacramento corridor was the Southern Pacific route from Sacramento to San Jose via Davis, Suisun-Fairfield, Martinez, Richmond, Oakland and Newark, for a distance of 129 miles.

For each corridor we have considered two levels of upgrading and have developed demand estimates, upgrading cost, and other information for each level. We have considered two different frequencies of service -- 3 and 6 trips per day each way for San Jose-Sacramento. The upgrading levels considered were 79 mph maximum speed and 110 mph maximum speed. However, this does not mean that a speed of 110 mph could be maintained for the entire distance, but rather that 110 mph could be reached where the curves are not restrictive or where prudence would not dictate a slowdown because of closely spaced grade crossings or other conditions. I should add that Southern Pacific now has a maximum speed of 70 mph on its railroad as a matter of policy, even where trains could safely travel at higher speeds. Clearly some agreement on appropriate circumstances for relaxing this policy would need to be reached with SP before operating at higher speeds than at present. Further, there are municipal or county speed limits on many

parts of the route, some of which are not necessary to maintain safety. We have assumed that many of these restrictions would be relaxed in order to arrive at a more attractive running time.

We have also made two different assumptions about the price of gasoline in 1985, the year on which this analysis focuses. These are a trend based projection of $1.40 per gallon and an upper limit projection of $2.50 per gallon. Both figures are in terms of today's dollars and clearly both would be higher in terms of 1985 dollars. We are also developing estimates about what could happen if the supply of gasoline were further limited by 10 percent. The President's authority for gas rationing under current law is triggered by a 20% reduction in supply.

Using the above assumptions and the trend based gas price, we have produced preliminary estimates of potential demand, cost of upgrading, energy savings, equipment needs, operating costs and revenues. I will now answer Mr. Florio's questions and discuss how we arrived at the answers.

1. What is the potential demand for rail service and the potential energy savings from upgrading the Sacramento - San Francisco - San Jose corridor, and what is the cost of the upgrading?

a. Demand

At the present time the amount of train travel on the corridor is a bad indicator of the potential ridership, because of the nature of the present service. In particular, one leg of the Zephyr runs between Sacramento and Oakland and one leg of the Coast Starlight runs from Oakland to San Jose, each with one round trip per day and no connection at Oakland. In 1978 there were only 11,500 Amtrak passengers between these cities. In order to estimate potential riders we used a forecasting technique derived from information on passenger demand in other corridors where there is good rail service. This technique incorporated a relationship between the percent usage of different modes of travel and the service offered by each mode. Our very preliminary projections indicate that for three trains per day and 79 mph top speed there could be 300,000 to 400,000 passengers per year and for six trains per day and 110 mph top speed there could be 600,000 to 800,000 passengers per year. This would mean 100 to 130 passenger miles per train mile. Studies have shown that frequency and reliability in corridor service are usually more important than top speed in attracting passengers.

b. Energy Savings

The energy savings will of course depend on how many of these people would be traveling if train service were not

available and what other modes they would be using. Depending on the demand estimates we calculate that the savings would range from about 20 to 40 barrels of oil per day. However, past studies have shown that if corridor service is considered only on its merits as an energy saver, the subsidy per barrel saved could be quite high.

At this point we have not yet calculated demand and energy savings under our assumed upper limit of gas prices or an assumption of limited supply. Under either of these scenarios, there would undoubtedly be more train riders. However, it is unclear whether the train service per se would be responsible for more energy savings. I must also add that these are very preliminary figures subject to some refinement in our report.

c. Cost of Upgrading

Physical requirements for upgrading track and signals to appropriate standards were identified by field inspections conducted by Federal Railroad Administration track safety inspectors and later costed out using the latest unit prices and appropriate contingency and inflation factors. The line is already in good overall condition, particularly from Sacramento to Oakland and requires comparatively little trackwork to bring the entire corridor to class IV standards permitting 79 mph speeds. It requires only moderate additional work to permit 110 mph speeds. The requirements for signals will depend on

the frequency of service as well as the speed proposed. In particular, in order to travel at speeds above 79 mph on portions of the line, cab signal controls would have to be installed over those portions, and on the locomotives. In addition, a frequency of three round trips per day might require centralized traffic control (CTC) over a thirty mile length of single track between San Jose and Oakland. With six trains per day and higher speeds it would almost certainly be necessary. Assuming installation as early as 1981, the cost for a 79 mph upgrading would range from 4 to 6 million dollars and the cost of a 110 mph upgrading would range from 13 to 18 million dollars. Again, these are preliminary and subject to review. We have not discussed these estimates with Southern Pacific.

Both the 79 mph upgrading and the 110 mph upgrading must be characterized as the minimum level of improvements required to operate at these speeds. To maintain the service over a long period of time, to make significant improvements to ride quality at these speeds, and to enhance further the safety and operating flexibility, considerable additional investment could be required.

To the above estimates must be added allowances for station rehabilitation and construction and for grade crossing elimination or protection. For stations our estimates range from a low level program costing $200,000 to $400,000 to a high

level program costing $3 million to $4 million. For grade crossings the extent of protection or elimination would depend on the frequency and maximum speed. Installing crossing gates and lights where they do not now exist would cost about $3 million, and any program involving grade crossing elimination would cost considerably more -- about $1.5 million per crossing. The extent of such a program would depend on a more detailed analysis of the hazards at each crossing on the line.

In summary the cost of a minimum track and signal upgrading, station upgrading and grade crossings work could range from $8 to $25 million without counting necessary grade separation and depending on the level of frequency and top speed picked as a target.

2. What operating speeds and train frequencies would be required to achieve the above ridership and energy savings?

The answer to question 2 is contained within the context of question 1.

3. Based on the above frequencies, what would be Amtrak's equipment needs?

Equipment needs would depend on what level of demand actually materialized within the ranges previously mentioned. Choosing a reasonable set of values in these ranges, service

could be provided at 3 trains per day with two working train sets, each consisting of one locomotive, two Amfleet cars and one Amcafe car; with six trains per day there would be four working train sets of the same number of cars. If 110 mph service were contemplated the locomotive would have to be appropriate for the higher speed and somewhat more expensive. With appropriate spare capacity factored in, the equipment requirements would be as follows:

Speed/frequency		Locomotives	Cars	Capital Cost ($ millions)
79	3	3	9	10
79	6	5	15	17
110	3	3	9	11
110	6	5	15	18

Again, this would depend on the passenger demand estimates, which we are still reviewing.

4. If the Sacramento - San Francisco - San Jose corridor were upgraded, what percentage of operating costs could be covered by revenues? How would this figure compare with the current cost to revenue ratio on the Sacramento - Oakland portion of this route?

I am hesitant to present even preliminary results here, and I would prefer to submit any numerical estimates for the record at such time as our analysis is complete.

It would be difficult in any case to compare this with current experience on the Sacramento - Oakland portion of this route since this is only operated as a small portion of a long distance route to Chicago. The costs and revenues are not separable for the portion and would not be comparable with a corridor service.

5. What operational or other problems do you envision if passenger train frequencies were increased on this route?

We have already noted the fact that certain signal investments are necessary to increase the frequency of trains to the levels contemplated. The question of just how much of an investment in centralized traffic control is required to accommodate 6 trains per day and whether any additional sidings are required cannot be answered without further study. Nevertheless, the level of freight and passenger traffic would be well within the capacity of this railroad line and we would not anticipate problems if the appropriate investments were made.