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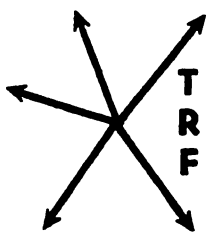

TRANSPORTATION RESEARCH FORUM

What Is the Intercity Rail Passenger Market? Can It Be Financed and Operated?

*by Carl R. Englund, Jr.**

MR. LIVINGSTON'S DISCUSSION of capital requirements 1970-1980 certainly has made abundantly clear the railroads' growing lack of capability to raise adequate funds for necessary basic capital improvements. It also has highlighted a much more uncomfortable aspect, an apparent long-term deterioration of the relationships of probable net earnings to the abilities to generate the needed capital funds of the future.

Considering not only the untold millions of precious dollars which have been siphoned off and lost forever through overlong continuance of deficit passenger services but also the magnified impact of even the slightest losses today, there is an increasingly pressing need to quickly bring the whole intercity rail passenger problem into more rational focus.

All who have an interest in the future of any intercity rail passenger services—the general public, government, rail management and labor—soon must come to sensible policy determinations based on the facts developed to date. The waves of super railroad theory which have appeared, at times, to almost overpower reason, must be brought into line with what both our national capabilities and our rail industry actually can provide in the way of intercity rail passenger services.

Understandably, it still is very much of an "in thing" to talk of all sorts of high speed corridors, of exotic equipment, and of relatively fantastic people movement potentials. Any time that a news commentator or a new planning group gets on the subject, there is bound to be an attentive audience. None of us knowingly would want to be party to balking progress. If a super railroad can be justified for construction, we no doubt will build it. Any type of forward movement normally has been accompanied by alternate waves of elation and depression as problems arose. History records the examples of the bankers who said that the telephone never would work and that the electric light ideas were folly.

What the growing weight of evidence is beginning to imply is not so much that we could not build a super railroad if we had the funds as that our present concepts of trying to commingle standard freight operations with super passenger operations are not going to work to best advantage.

The former Pennsylvania Railroad was subjected to extreme pressures to get on with the high speed Northeast Corridor concept. After their management had consented to the experiment, promises began to be made in order to cushion the mounting (and unrealistic) clamor. Many of the promises have

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not been redeemed or are they now likely to be under any so-called free enterprise economic conditions. In fact, there is an almost daily accession of new evidence pointing to valid grounds for belief that when some truly objective economic studies of the Northeast Corridor can be undertaken, not only the Corridor's high speed operation but also some of the concurrent special commuter services' detrimental impacts well could provide the foundation for another classic Harvard Business School type of case history of what not to do.

The distressing daily line-ups of freight trains stalled for track clearance at entry points to the Corridor route; the sight of lightly-loaded one-car passenger trains shuttling along while 100 to 150 car freight trains are halted awaiting an opportunity to cross over tracks; the knowledge of "fines" being levied by passenger authorities if a few minutes' delay should be incurred by one-car passenger trains being held to clear "bread and butter" freight trains, makes us wonder if we somehow have lost our bearings in running a railroad. Certainly the demonstrated system of economic priorities appears to be lopsided.

Summing up, an unusual set of paradoxes faces the decision makers. Even today, a creditable sort of passenger service could be continued or restored along certain routes at relatively low price tags for start-up assistance bearing in mind a life span governed by employment of presently depreciated equipment plus a point in time in the very near future when labor costs will run away from revenue productivity. Super railroad possibilities would be much less certain. Even by employing the best tools we presently have for forecasting, nowhere outside the Northeast Corridor do we yet see adequate indications of the enormous potential ridership volumes that the super railroad enthusiasts would have us believe exist.

We also are learning the hard way that commingling freight and high speed passenger trains on the same set of tracks apparently is raising almost insoluble economic problems in maintenance of proper alignment. From a practical dollars and cents standpoint, compatibility of joint use probably does not exist. If super speeds are desired, then the trackage for these trains must be exclusively passenger operated. At least that is what the results to date are telling us.

We have grade crossings risks that only can be eliminated by tremendous expenditures; we have potential through-put (capacity) problems on our much-retrenched remaining intercity trackage which tend to deny the capability to superimpose much in the line of passenger service without creating serious difficulties for conduct of viable freight operations.

We have back-up labor costs that are phenomenally high though they need not be if sensible renegotiations could be conducted. The potential future expenses of putting out the passenger product, considering the sum of the restrictive labor agreements covering every aspect from shops to over-the-road operations, are such that future passenger services would have lost their financial equilibrium even before they were started. In simplier words, the labor intensive required to produce passenger service is so high in relation to future revenue generation possibilities that as new wage increases come along, there will not be room to raise fares to meet added expenses and still retain the rider markets.

Last but not least, the railroads have been almost entirely stripped of the type of management capabilities needed to successfully market and operate a real passenger service. Nowhere in today's railroad organizations can one find the empathy or the sensitivities which would characterize the business determining and securing mechanism of a typical airline.

Bearing in mind the growing realization that we nonetheless must solve successfully the amplifying needs for improved ground transportation and also that a frontal attack must be made on pollution, airport congestion and other transportation-induced problems, the balance of this discussion will be devoted to carefully reviewing the salient controlling factors entering into the development and composition of any intercity rail passenger program.

The presentation of the subsequent investigatory routines is based on the composite findings of a series of major rail-oriented studies to date.

CRITERIA GOVERNING IMPLEMENTATION OF INTERCITY RAIL PASSENGER SERVICE

In substance, one salient fact stands out sharply from the welter of voices and pressure movements for service continuances, installation of super railroads, or total discontinuance . . . **we are yet to develop a definitive intercity passenger train policy.**

What is Meant by Policy?

Policy represents orderly decision based on the calculation and evaluation of all the pertinent facts—markets, operations, equipment, labor costs, required facilities, sources of capital and operational funds—that can be assembled in order to determine relative degrees of **feasibility** of one or more potential courses of action.

How Would Feasibility be Determined?

The principal elements to be evaluated for determination of the actual feasibility of a proposed intercity rail passenger operation would be:

1. Development of definitive forecasts of reasonably attainable market potential for a line segment under conditions of a varying range of schedule speeds.
2. Calculation of costs for providing each one of the schedule ranges (speeds):
   a. within the capabilities of existing rights of way and equipment,
   b. by providing special rights of way and equipment for the highest speeds.
3. Setting of equipment and motive power requirements for each speed range, reconciling these to the current stage of technological development.
4. Analysis and costing of back-up facility requirements; various ranges of rehabilitation and/or alteration of facilities.

5. Consideration of the productivity adjustment potential available both in the management and labor segments of the proposed operation(s).
6. Establishment of the relationships of total costs to total revenues (market potentials) which can be derived at each step on the range of schedule speeds under consideration.
7. Definition of the financial needs both for capital and for sustaining operations, setting forth the timing and scale of operational support type needs.
8. Ascertainment of the costs for providing equivalent and/or better alternative facilities such as VTOL, STOL or standard aircraft.
9. Evaluation of the foregoing; decision as to course of action.

PROCEEDING WITH ANALYSIS OF CORRIDOR POTENTIAL

Let us take a look at the results developed from a recent independent analysis of corridor potential in the United States. In carrying out this work, the assumption was taken to qualify only relatively self-supporting corridors minus any influence from other types of existing services. In other words, if all intercity rail passenger service had been discontinued, between what points could viable corridors be developed?

A. Types of Service Considered

Two principal types of service, excluding commutation, required consideration:

1. Definite corridor-type potential between reasonably closely-spaced cities with key metropolitan area populations approaching the million mark or more.
2. Existing long-distance services having modest continuing volume potential. These would include certain transcontinental runs; Chicago-Twin Cities; The Illinois Central north-south corridor; North-South runs along the Atlantic Seaboard.

B. Types of Markets to be Drawn Upon

Both the existing types of service and the potential corridor services would draw from five basic types of markets:

1. A strictly time-oriented intercity business travel market. This market now is tied to mileage/time acomplishment limits that should not exceed two to three hours. The closer the elasped travel time can be squeezed to two hours, the better the potential. In the post World War II rail travel heyday, business travel accounted for some 65% of the backbone patronage on intercity passenger trains.
2. A time/distance-oriented personal travel market – sometimes called Ma 'n Pa 'n the Juniors–which, while it peaks in time bands similar to those of the business travel market, nevertheless does expand in worthwhile volume to a distance roughly equivalent to a day's travel (400 to 550 miles preferably during the day).

3. Special affinity markets which will travel the year-around in fair volumes on runs of 12 to 15 hours' extent. The principal movements consist of transferees and their relatives back and forth between former and present homes. Good examples are the ridership on the Illinois Central between Chicago and way points as far south as Mississippi; between Northeastern cities and the Carolinas and Georgia; in Canada, between Montreal or Toronto and the Maritime Provinces.
4. Tourist and seasonal markets such as the movements between the North and Florida plus the bulk of the remaining transcontinental movements.
5. Skeleton remainders of formerly crowded overnight sleeping car runs catering primarily to business travel.

The variable markets made up of those people who are afraid to fly have not been considered. Fear of flight is a fast-diminishing phenomena.

DETERMINATION OF ACTUAL CORRIDORS—METHOD—PLUS MARKETING NOTES

Three levels of schedule speeds were established for the purpose of developing corridor ridership potential. These levels were: Phase I which would correspond to best possible speeds under present conditions—generally averaging between 50 plus and 60 mph; Phase II—70 mph average speeds; Phase III—80 mph average speeds and up.

The Phase I current market potential was calculated by employing Trip Generation Factors developed from the 1963 Census of Transportation in combination with the rail trip percentages obtained from the 1967 National Travel Survey Study Report. Personal income statistics, governing trip generation ratios, were drawn from the most current annual Sales Management Survey of income groups by city and area. Competitive air ridership data were taken from CAB figures and then recalculated to reflect optimum business-day type of ridership rather than by aggregate, average days. These data then were cast in the frameworks of the known time: distance tolerance factor of two to three hours which governs the majority of business travel modal choice decisions. Scaled reductions from the equations for determining ridership potential were made for those population segments of suburbia considered to be less easily accessible to rail termini than to neighborhood airports or interstate Highway ramps.

Minimum Phase I corridor start-up standards were set at (a) a ridership level equivalent to 250 to 300 daily round-trip revenue passengers across a railroad corridor segment; (b) a requirement for not more than 3 or 4 trains in each direction daily to produce this initial ridership level (this also would represent the minimum desirable operation); the maintenance of schedule averages as close to the 60 mph mark as would be possible; and (d) essentially daylight operations affording maximum equipment utilization.

Calculation of trial projections to determine the likely corridors within the United States, other than Boston—New York—Washington, D.C. and Springfield—New Haven—New York indicated that about 15 corridors appeared to qualify. Two were on the Pacific Coast, three were in the South, the

other ten were located in the zone east of the Mississippi and north of the Ohio Rivers. The highest route's forecast called for 600 daily round trips, the five lowest were just within the minimums. Corridor mileages varied from the 439 and 436 of the two longest to the 131 miles of the shortest.

In addition to the 15 corridors considered to be eligible, about 10 other route segments with smaller potential appeared to be worthy of ultimate consideration as feeder/connectors which could, on a consolidated terminals and revenues basis, justify their installation and operation.

Built into the Phase I estimates were some relatively sweeping requirements for improvement of terminal locations and their accessibility; also a type of corridor operation that spanned principal metropolitan areas, serving the outer arcs of suburbia as well as center city.

Projections also were made for the Phase II and Phase III levels of operation, i.e., 70 mph and 80 mph average schedules made good. Neither of these two projections "opened" any new corridors but they did add considerable ridership strength to the already nominated corridors. Ridership strengths have been totalled for each of the corridors but they have not been worked out in terms of added revenue contributions vs added capital and operational expenses.

Only partial examination was made of a 90 mph level which would be the equivalent of the non-stop New York–Washington Corridor trains' performance. Application of such a level of speed apparently would not materially affect the majority of the presently nominated corridors from the standpoint of creating tremendous additional inputs of business. Interestingly enough, in the case of one corridor and only one, a literal "ridership explosion" was indicated.

When considering the relatively low ridership totals forecast for the 15 routes chosen as viable corridors, it should be borne in mind that there is no fundamental body of research data for railroads to draw upon such as that which has been assembled by the airlines for gauging possible extraordinary impact of certain services, their fare levels, their background promotion. Furthermore, the forecasting represents a realistic appraisal of the full impact of the combined adverse factors created by today's serious decline in the product image of rail passenger travel; the general lack of relationship of present pricing policies to the consumer's personal estimate of the value of a rail journey; and the locational obsolescence of such a high proportion of the existing in-city rail termini.

It probably would be safe to assume for any one of the potential corridors that the resulting product image improvement and performance achievement should help create added ridership well over and above the forecast limits IF: arrangements were carried out to guarantee proper market access; the trains were operated with clean, attractive equipment on a basis of extreme reliability; the involved personnel developed the proper empathy for handling people; the schedules were timed when people wanted to travel rather than when the railroad wanted to operate them. It naturally would require a period of time to work up to this condition.

Were the total people movements across the potential corridors to stay near or only moderately above the preliminary ridership forecast levels, then

a serious question should be raised about the validity of embarking on more than the three or four "best" possibilities. However, experience has shown us that with some intelligent spading, "hidden" markets quite frequently can be developed and exploited. An intriguing example is the fantastic expansion of the Los Angeles-San Francisco air coach market. Several years ago, a pair of price cuts by a smaller, independent airline, accompanied by installation of hourly or better frequency, saw volume literally mushroom overnight. This came on the heels of a 20-year period which, except during World War II, had registered very little change in the aggregate annual totals of common carrier passengers despite an enormous growth in the regional population and economy. Suddenly it became the "in thing" to fly to San Francisco (or Los Angeles) on an evening date or for a quick day's sightseeing or shopping . . . as well as to employ air travel for more normal business or personal reasons. Measured on the relative scale of costs, it became no more expensive for two to make the round trip than to go out for an evening to a better-known restaurant.

A possibly less valid group of examples—less valid in the sense that we have nothing to compare them with at present—but nonetheless most interesting—can be picked up from the former New York Central Railroad's mass people movements in Upstate New York during the early fifties. When it was decided to inaugurate excursion trains between Syracuse and New York City, the round trip fare was set at $5, departure time 5 a.m. and the return home around 11 p.m. all on the same day. Advance ticket sales for the first run were so strong that two 18-car trains, each with a mid-train baggage car hot dog and soda pop "store" were set up. The first train was fully loaded and departed at 4:45 a.m. In its 17 coaches were 1,428 seats occupied by almost 1,600 people—many children sat three to a seat. The second section left on-schedule, made a stop at Canastota, and came to New York equally full. Before that program finally had to be closed down several years later, trains were being run on Wednesdays and Saturdays at excellent loadings that held up right to the end. Spot checks on regular full-fare trains indicated very little evidence of any dilution of ridership on the then-considerable fleet of scheduled passenger trains. A series of ridership audits developed many interesting facts. Wives of key executives of major corporations were riding these trains; farm groups were being drawn in from a hundred-mile radius around Syracuse; every trip had a faithful few who drove in from points as far distant as Niagara Falls to take the trains. Even at the depressed rates, average per-trip receipts were matching the gross transportation receipts for the then well patronized 20th Century Limited on a typical New York-Chicago run.

The first excursion trip out of Utica was even more impressive. By 4 a.m. of the inaugural day, Utica City Police were on hand to control a crowd that grew to more than 5,000 people. Both available trains were quickly filled plus all the standby equipment that could be made into additional trains plus all the available overflow space on through trains that were stopped to receive add-ons.

Corridor operations are not seeking excursion-type situations per se but they can draw on past promotional types of approaches to determine ways and means to build aggregate corridor markets to a greater size and also to a

greater degree of significance to the public in terms of filling the public's needs . . . either actual or created.

Perhaps the most compelling reason for renegotiation leading to lower product-cost bases is the fact that today's rail transportation product has not increased in value to the user proportionate with the general pricing increases of other transportation. To explain: on a bulk (volume) sales basis, a ride from city A to city B possesses a demand price at which the ridership will be maximized. This demand price cannot be determined on the basis of uniform mileage rates constructed in postal fashion. Rather, it is dependent upon such things as the quality of the completion, the competition's local rate structure terminal locations, the friction factor of driving (how difficult or how easy is the equivalent drive?) and various other related pressures such as adequacy of collection and delivery services in the cities, the closeness and/or dispersion of destinations, etc.

Along the Atlantic Seaboard between areas of greatest population concentration and traffic congestion, fares charged could be higher than in the freer-moving more dispersed Pacific Coast high-density population strips. A recent study of a proposed Pacific Coast corridor indicated that, granted certain urban area station configurations, a fare of $4 for a 103-mile run operation with service every two to three hours at averages approaching 60 mph would generate a satisfactory ridership density. This same route links two major cities but the added distance of 367 miles could not be sold for more than $1 additional if equivalent loading densities were to be achieved. Obviously this would be totally uneconomic for rail operation.

The reasons and the means for attracting riders to intercity passenger trains will vary from area to area . . . both as to distance of travel that will be freely bought and as to the level of fares which can be charged. A not unlikely comparison of the buying process is that of a housewife shopping the shelves of a supermarket for a favorite type of product. She normally will pick the best quality grade which bears the lowest price tag. Rail passenger transportation has been relegated to the same selective type of buying process and therefore if it is to be operated, it must be costed and sold in similar fashion bearing in mind the individual relationship of trip potential to each separate market which is being considered.

It now is recognized that the basic nature of the remaining rail passenger markets definitely differs from those of years past but what may not be clearly understood is that the entire marketing process (pricing, service, promotion) also has changed in pattern and must be much more closely tailored to each individual transportation zone if any degree of operational/financial success is to be achieved. Partially as a result of retrenchment of passenger operations over the years, the railroads are not staffed with the skills required to both recognize and put into action the new marketing criteria. Correspondingly, there is no pipeline to top management which can explain and set forth the requirements for most effective rehabilitation.

OTHER MAJOR OPERATIONAL COMPONENTS REQUIRING CONSIDERATION AND DECISION

Before getting ahead of ourselves and discussing ways to finance and

operate the "eligible" corridors, let us take a few additional minutes to explore more thoroughly the various other components requiring thorough consideration.

Labor

Labor has come in for considerable comment on the score of allegedly being obstructive to progress. Numerous cases are cited of refusals to renegotiate even if failure to do so meant train discontinuances. Why? One supposition is that, like a drowning man's last efforts, even when one sees jobs disappearing, the tendency is to cling to the last straw without real regard to the future. Anything in hand apparently is worth more than a lesser quantity. Another governing factor is the universal hope that makes the average human the everlasting optimist he is. . ."surely in this case somebody will step in, we won't really lose out."

Before beginning to work out any proposed major retrenchments or readjustments in terms of crewman assignments and shop procedures, there obviously must be some alternatives to offer in terms of total jobs. This is where policy becomes necessary. Perhaps there is a design for a revised intercity passenger service that will take up a lot of the slack. Perhaps a package could be worked up which, while obtaining better manpower utilization and lower aggregate costs, would provide desirable improvements in wages. . .without resulting in untenable reductions of total employment. If this could be achieved and then related to a believable program for operating the new service, the Brotherhoods most probably would talk.

A keynote of successful labor relations is participation. Essentially, the men are as desirous as management to be an important part of something that is successful. This is a prime key to job satisfaction and accompanying performance.

In solving step one of the recent Long Island Rail Road shop strike, one of the longtime foremen related that Governor Rockefeller's intervention and attention made him feel a part of something important. When he would come home from work, his wife would show him newspaper stories such as: "x number more cars shopped this week than last." The man had been feeling somewhat grumpy about the work push until he heard his wife talk. His subsequent reactions, as he related them, were: "I realized that I was a part of the act, that people expected these improvements of us and were interested in them . . . how could one help but get in there and work?"

There is nothing more deadly for morale and for work output than seeing a business go downhill and jobs disappearing. Everyone fights a delaying action both out on the line and in the Executive Suite just to preserve some sort of status quo. It is the aftermath of the current struggle for status quo, as rail passenger service approaches total phase-out, that is so damaging to the present cost ratios of passenger operations.

Management

Rail management though drawn in good proportion from the ranks too long has tended to stay rather isolated from the firing lines in terms of comprehension of the actual minutiae of each job. Jurisdictions are split along many

lines—there actually is no consolidated front in dealing with passenger service economics and problems. Orders can come down from Mechanical people, Operating people, Maintenance of Way people, various other groups. . . .orders that all too frequently tend to countermand each other. . . .orders that don't make that degree of total sense that the men in the field actually can develop an understanding grasp of the needs.

This is not to say that the railroad's efforts are not well-intentioned. Nonetheless, the net effect of having so many different channels of approach is only slightly better than chaos if one is trying to run a smooth, efficient, people-carrying operation where all the participants must develop a maximum degree of personally motivated interest if the operation is to succeed.

Both Transworld Airlines and Avis Rent-a-Car, among others, are conducting interesting executive participation programs. Monthly, executives must go out and work side-by-side with the men on a variety of service assignments. Though the immediate impact may not be measurable, in the longer run the backwash from the indication of management interest has been a perceptible increase in job and company interest to the tune that "they really care."

Terminal Operations

Indications of ridership potential for the immediate future are such that there would be very few dollars available to contribute to operation of the type of large, in-city terminals now in use. It is obvious that the railroads will not be able to continue the existence of such major expense yokes around their necks. The decisions and the solutions for terminal location and operation in the future apparently will have to be transferred to the communities sponsoring the efforts to restore intercity service. In many cases, consolidations probably can be worked out and, while doing so, other forms of ground transportation can be coordinated so as to create transportation centers at which railroad trains, city and intercity buses and other transit modes would perform feeder/distributor functions. A transportation center now in the planning stage at White Plains, N. Y. envisages a bus-rail complex such as that which has been constructed at Midi Station in Brussels, Belgium where all modes including airport trains funnel into a common point.

Grade Crossings

Grade crossings pose serious operational problems. There are far more grade crossings in the United States that have high-density vehicular traffic than exist in Europe. There also is not the costly man-operated system that in Europe sees gates being lowered by timetable for approaching trains. . .if the train is late, the gates stay down.

Grade separations frequently are unnecessarily expensive since so-called new standards of construction bearing on width and approach gradients have converted numerous otherwise less costly projects to the status of major undertakings.

With the American Trucking Association's lobby becoming ever more powerful and effective in pushing through larger truck and trailer sizes, it becomes increasingly risky to operate faster, lighter-weight trains over the multitude of level grade crossings which exist.

COST OF FREIGHT TRAIN INTERFERENCE

There are rigid mathematical formulae that determine the through-put capacity of a railroad route. The figures cannot be altered at whim. For example, if both passenger and freight trains are to be operated on the same tracks of a double-track railroad, and if the difference in net average speeds made good between the fastest and the slowest trains does not generally exceed 20 mph (preferably 15 mph), an optimum through-put capacity can be attained. The minute that trains are operated with differentials of average speeds made good in the 25 to 40 mph range, or greater, potential through-put capacity is cut drastically. Faster trains are overtaking slower ones with such frequency and rapidity that operations quickly could be paralyzed unless the number of faster trains were to be held to minuscule levels. Considering all the factors contributing to costs of freight operation, it is easy to see that any substantial impairment of daily operations—either enroute train scheduling and/or enroute switching—easily can run into substantial sums. In fact, a recent study of a smallish commuter operation which interfered only very slightly with freight operations, nonetheless priced this interference out at $750,000 per annum.

Despite its former multiple track setup (8 tracks via 3 routes between Syracuse, Rochester and Buffalo, for example) New York Central recognized the importance of track capacity problem by fleeting its "Great Steel Fleet" of fast passenger trains. A segment of track might see as many as 10 fast trains pass in as little as 45 minutes and then it would be open for several hours of unimpeded freight use.

SPIRALLING RIGHT-OF-WAY MAINTENANCE EXPENSES; DEFERRED MAINTENANCE

Right of way maintenance expenses are threatening to outstrip a sensible cost-to-revenue relationship unless procedural changes are instituted. As manpower and materials costs have increased, it has been determined that optimum maintenance cost levels for large segments of existing track mileage probably cannot be achieved without reducing top track speeds. Depending upon the route, the traffic density and other needs, new maximums of 50, 60 or 70 appear to be coming in. Maintenance cost curves climb sharply for each mph above 60; above 70 they escalate even more rapidly.

Coincident with the swift increase in use of jumbo size freight cars, there appear to be some very serious unanswered problems as to what these cars do to track at varying speeds of operation. Suffice to say, some roads are of the opinion that lower speed limits may have to be imposed when jumbo-type freight car movements are involved.

Many intercity rail routes formerly had definite overcapacity. Today, with main line track costing between $5,000 and $10,000 or more per mile per year to maintain, circumstances have forced the activation of drastic trackage pruning back to a point that more closely matches optimum needs . . . not extreme needs. Ergo there is not the capability to superimpose a fleet of fast passenger trains on top of the majority of existing operational routes. In many cases, there would not be the capability to install even a single round

trip if operations were to be scheduled at the speeds some of the dreamers demand.

In a few instances where passenger service now exists, the elimination of this service (essentially an unremunerative one) would enable the undertaking of substantial additional trackage reduction. The dollars' benefit to be derived from this reduction by gearing it to the levels that freight traffic can support, would far outweigh anything but almost unachievable levels of passenger revenue contribution were passenger service to be retained.

A combination of the economics forcing reduction in levels of maintenance to those compatible with slower-speed operations together with the sizable backlog of deferred maintenance accumulated during recent years spells out a problem of magnitude of funding required to upgrade trackage for fast passenger running . . . an order of magnitude that would be most difficult to attain.

SUMMING UP THE COMPONENTS REQUIRING CONSIDERATION

There is a general lack of free-running track facilities which would allow the operation of passenger trains at speeds much greater than a median 70 mph occasionally to a maximum of 80-85 mph without going into major right of way redevelopment work for most of the seemingly eligible corridors. This work would involve major grade crossing eliminations, substantial curvature reduction, installation of added signalling and high-speed passing tracks, tremendous investments to reduce deferred maintenance, readjustment of en-route freight train operations and switching routines. There are numerous portions of trackage, which could fit into proposed corridor functions, that now are filled during the better part of each work day with standing cuts of cars awaiting switching to/from trackside industries.

IF SUPER TRAIN OPERATIONS ARE DESIRED

Generally speaking, the only alternative for establishing super train operations apparently would be to construct new, or if not new, largely segregated running tracks and operational areas. This course probably will prove to be so expensive, when measured against all the other alternatives for providing balanced transportation, that the majority of proposed super train operations other than those now running or planned for the Northeast Corridor pretty much will be ruled out. An article in the October, 1969 issue of the magazine issued by the non-profit Transit Research Foundation of Los Angeles contains a thinly veiled hint to the effect that this is the true situation.

COST OF INTERCITY RAIL PASSENGER OPERATIONS— PHASE I—CORRIDOR TYPE

Calculations for the cost of operation of the 15 proposed corridors are based on a Phase I start-up with highly capacity (150 seats) two-coach and single-unit diesel propelled passenger trains. A three-man crew would be preferable but the operating costs are based on four. It is assumed that the rehabilitated equipment would be converted from steam to electric heating and that consideration would be given to push-pull if stub terminals are to be served.

The basic operational and maintenance costs were estimated at $2 per mile prior to the most recent, late-1969, rounds of wage increases. The $2 included the expense of a 4-man crew, time and mileage costs for the coaches and diesels, train supplies, car cleaning, inspections, and minor yard costs.

An additional $2 per mile should be imposed to cover enroute station costs, provide an equitable share of common costs and pay reasonable management fees. Other than for minimum ticket-selling requirements and a modest assessment for minimum loading-space needs, the foregoing estimates do not contemplate sizable allocation of funds for support of major terminals.

The first year's revenue forecast indicated that the very modest projected revenues would meet 68% of the budgeted costs of $4 per mile. The projection for the second year of operation, coupled with a slight upward adjustment in fares, indicated that revenues would meet 89.6% of the costs. The second year called for a one-third increase in ridership accompanied by a 44.6% increase in revenues.

Fare levels for both the first and second years would be somewhat under those now prevailing. It is interesting to note that if enough traffic could be developed to require a third coach on each train, total out-of-pocket expenses, including those for the added equipment, could be met. Possible benefits resulting from productivity renegotiations are not included in the foregoing estimates; neither are any allowances made for depreciation.

Funds for extraordinary expenses connected with the Phase I start-up presumably would have to be acquired on a project basis from some sponsoring Authority. The areas of facilities, rolling stock and motive power will require considerable initial outlays. The estimates for first full-year trackage rehabilitation, equipment and motive power rehabilitation, training and promotional activities, would tack on the equivalent of at least an additional $3.75 per train mile. The largest part of this expense would be for non-recurring items.

Provided that the terminal problem could be solved and that modest ridership growth occurred on an all-year (not seasonal) basis, the proposed operation should convert by the end of the second year or the middle of the third year to one that would be solvent on an out-of-pocket basis. It then should stay in this condition for the roughly 2 to 4 years remaining before total re-equipping would become necessary. At that time, unless substantial external assistance again were forthcoming, the next generation of operations could not be inaugurated.

Meaningful work rules, renegotiation would be required at an early date in order to provide the wherewithal not only for the funds required to develop further growth, but also for ensuring the ability to conduct a financially sound enterprise over a period of years.

The approximate daily mileage of trains operated would approach 25,000; the total route mileage would be between 4,000 and 5,000.

In terms of total aid dollars required, the sum of $45 to $50 million should be able to underwrite the first year of the Phase I start-up and operation; a sum on the order of $5 to $7 million would be required for second-year support. After the end of the second year, very little in the line of support funds theoretically would be required until the time arrived to re-equip.

The sources of the dollars for the first year presumably would be $37.5 to $42.5 million Federal; the balance coming from the concerned municipalities in terms of terminal services performed. Second-year dollars would be principally Federal.

The principal caveat of the foregoing budget is that major city terminals would be principally financed by the cities concerned . . . being converted to transportation centers or other revenue producing activities.

The foregoing outlays do not contemplate the total scale of deferred maintenance required to be made good. They include contributions on the order of $15 to $17 million, maximum. This segment of the cost ascertainment may have to be renegotiated either in terms of raising the funding or else reducing the number of routes requiring massive trackage rehabilitation.

SPECIAL MARKET LONGER-DISTANCE TRAINS

More study is required to determine not so much what the status of the remaining markets is today but how these markets will trend in the future. This will be an important determinant in what to do with certain long-distance services which appear to have a still-current volume potential possibly justifying some type of special efforts.

First-round calculations indicate that for a Phase I holding type of operations (again, 5 to 7 years) if the managements would be willing to forego sleeping car operations, relying upon what sleeper coaches are left if necessary, if they would shift to a better grade type of airline meal service, they could operate their trains on an almost break-even basis as related solely to out-of-pocket costs. Four to six car trains would be envisaged. A mix of high capacity day coaches and leg-rest reclining-seat coaches would be used.

A one station, one common coach yard and engine terminal type of operation would be required at cities where other passenger services remained. Electric heating should be substituted for steam, a high grade program of networked feeder connections should be worked up, regional timetables should be issued showing all connecting roads' services.

In round numbers, the subsidy costs should not exceed $15 million for the first year's conversion and $2.5 million for the second year. It would take a period of time to calculate properly what a fair payment would be for rendering such service.

A degree of common sense would have to be employed in staffing such trains. They could not possibly be crewed on the scale of a 2-car long distance train (currently running) which has an engineer, fireman, conductor, brakeman, coach attendant and two dining car employees to run a snack stand . . . total on-board count of 7 in two cars normally handling about 30 revenue passengers and seldom over 50 even on weekends.

PHASE II AND PHASE III—CORRIDOR OPERATIONS

Both Phase II (gradual introduction of new hardware plus some accelerations) and Phase III (all-new equipment plus first-round conversion to super railroads) are too far away in terms of equipment, marketing and financing uncertainties to quantify at this time.