APTA

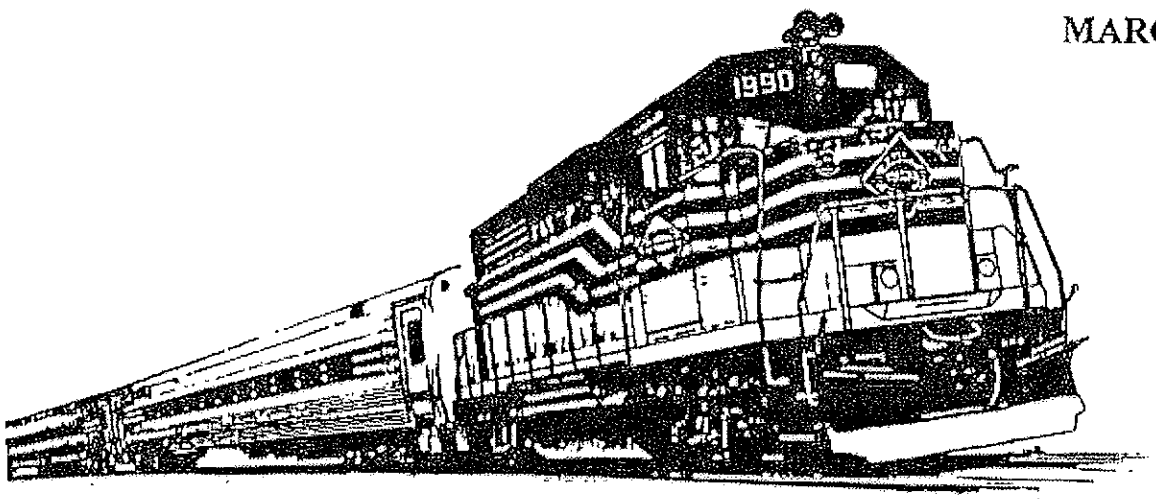
AMERICAN PUBLIC TRANSIT ASSOCIATION

COMMUTER RAIL COMMITTEE

NEW START HANDBOOK

TIPS AND RESOURCES FOR PLANNING AND IMPLEMENTING A SUCCESSFUL COMMUTER RAIL ENTERPRISE

RICHARD K. TAUBE
MARCH 21, 1996



ABOUT THE APTA COMMUTER RAIL COMMITTEE

The American Public Transit Association (APTA) sponsors a committee which is open to all of the association's members to improve communication and promote the growth and performance of the commuter rail industry. Currently, 18 operating and planned commuter rail systems are represented as voting members of the committee. These are listed in Appendix A.

APTA's commuter rail committee maintains a "new start caucus," consisting of interested individuals from existing, planned and contemplated systems who share information and offer encouragement to those who hope in the future to benefit from new commuter rail systems. This handbook arose from the many requests for information from caucus members. New commuter rail projects are under consideration in over 30 locations in the United States and Canada, as listed in Appendix B.

Each spring since 1988 the committee has sponsored a commuter rail conference, hosted by successful operating systems. The 1996 conference will be in Burlingame, California hosted by the San Mateo Transit System on behalf of the Caltrain commuter rail system. In 1997, the conference will be in Dallas and in 1998, the conference will be hosted by SEPTA in Philadelphia. New start issues are featured prominently on the agenda of these annual conferences.

For further information about the committee or this handbook, contact the current chairperson:

Rick Taube
Executive Director
Northern Virginia Transportation Commission/
Virginia Railway Express
4350 North Fairfax Drive
Arlington, VA 22203
Tel: (703) 524-3322
Fax: (703) 524-1756

You may also contact the APTA staff liaison:

Dan Foth
Executive Director-Commuter Rail
American Public Transit Association
1201 New York Avenue, N.W.
Washington, DC 20005
Tel: (202) 898-4113
Fax: (202) 898-4049

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ABSTRACT

The commuter rail industry is enjoying a remarkable resurgence. Systems are operating and growing in 18 locations throughout the United States and Canada, with a new system in Dallas set to open later in 1996. Scores of additional cities in North America are actively exploring commuter rail options, often as part of integrated public transit systems including subways, light rail, and feeder buses.

Commuter rail is proving to be a popular, affordable and practical option to solve urban and regional congestion problems and meet clean air mandates. This is because commuter rail service is efficient in moving customers, especially over long distances, with the lowest cost per passenger-mile of any public transit mode at a level which competes vigorously with single-occupant automobiles. Commuter rail service has an excellent safety record with solid and comfortable single or bi-level rail cars, either self-propelled or hauled by diesel or electric locomotives on tracks often shared with intercity and even freight railroads.

The main factor giving commuter rail systems a competitive edge is the industry's dedication to continually improving customer service and employee motivation. Reliable on-time performance, clean rail cars and stations, prompt station announcements, friendly and informative station agents and crews, and modern ticket vending equipment all help to win loyal customers and boost employee morale.

This commuter rail New Starts Handbook compiles information from experts at the existing commuter rail properties and from professionals engaged in planning and implementing new and expanded systems in the United States and Canada. The information is organized to provide first an indication of where and why commuter rail can be the best alternative for serving markets for commuter transportation. Next, ideas on how to plan such systems are given. Lessons on implementation come next. Finally, suggestions are provided as to how to create the capacity for growth and build momentum for long term success.

Clearly, no single volume could contain all there is to know about the start-up and operation of the complex organizations that characterize commuter rail operations in North America. Indeed, it would be a major accomplishment just to list all the questions that should be asked by communities considering new commuter rail options, without even attempting to provide all of the answers. But this handbook does at least try to anticipate the most important and/or frequently asked questions and to give tips on how to find the answers that are tailored to the specific needs of each locality. To that end, the database associated with this handbook is of primary importance.

Two elements of the database are of greatest significance. The first is a set of benchmark data providing comparisons of operating statistics allowing existing systems to compare their performance with their peers. APTA's Commuter Rail Committee is publishing these data for the first time in April, 1996 and will provide regular updates. These data will indicate to potential new start properties the likely level of success to which they can aspire.

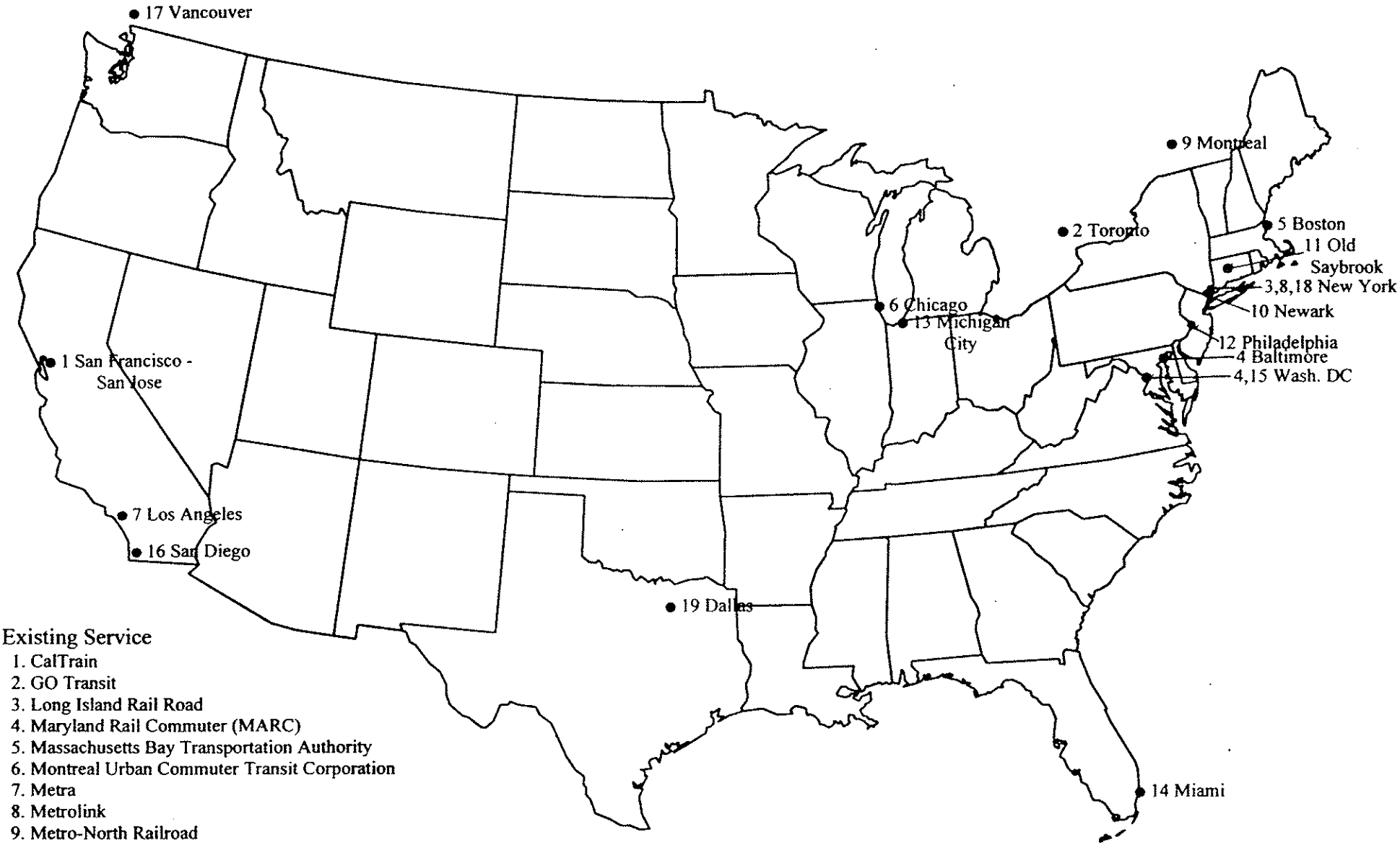
The second element of the APTA Commuter Rail Committee database is a set of contracts, requests for proposals, and research reports that are available to guide new start agencies. Examples include: existing contracts between government operators and freight railroads governing access to rights-of-way; contracts between government agencies and private system operators and maintenance firms; bond prospectuses covering issuance of tax-free debt for railcar acquisition; grant applications for federal capital grant funds under FTA's Section 9 and other programs; requests for proposals for ticket vending equipment, general engineering consultants and planning expertise; and feasibility and benefit cost studies comparing commuter rail to other alternatives.

These elements of the database, as indicated in the "resource listings" below, are available from APTA's Commuter Rail Committee chairperson or from APTA's Executive Director-Commuter Rail on request. Further, the APTA Commuter Rail Committee will continue to update and expand the sources. It is expected that in the future these databases will be available on-line via Internet.

TABLE OF CONTENTS

LIST OF FIGURES

Figure 1



Existing Service

1. CalTrain
2. GO Transit
3. Long Island Rail Road
4. Maryland Rail Commuter (MARC)
5. Massachusetts Bay Transportation Authority
6. Montreal Urban Commuter Transit Corporation
7. Metra
8. Metrolink
9. Metro-North Railroad
10. New Jersey Transit
11. Connecticut Department of Transportation
12. Southeastern Pennsylvania Transit Authority
13. Northern Indiana Commuter Transportation District
14. TriRail
15. Virginia Railway Express
16. Coast Express Rail
17. West Coast Express
18. PATH (NY/NJ)

New Starts (1996)

19. Dallas Area Rapid Transit

Commuter Rail Services

Services currently operating
or scheduled to begin service in 1996

I. WHY CONSIDER COMMUTER RAIL?

Commuter rail service in the United States and Canada offers an exciting success story in an era marked with generally stagnant public transit ridership, congested commuting corridors and heavily polluted air in the major cities. Currently, 18 systems are operating, with another ready to begin later this year (Figure 1). Almost 30 million passenger trips are taken on these systems each month.

Commuter rail service can be defined as rail passenger service operated on the equivalent of heavy freight railroad tracks to serve regional commuting needs. Depending on the operator, service may be all day or only during peak hours, be self-propelled or locomotive-hauled, use electric or diesel locomotives, single-level or bi-level railcars, or high or ground-level platforms. Traditional fare collection by conductors or barrier-free proof-of-payment may be used. Generally, commuter rail systems are integrated with other regional transit providers to permit transfers throughout the metropolitan region.

In some cases, the distinction between commuter rail and light rail or subway service is murky. For example, Syracuse University has used since September, 1994, two reconditioned Rail Diesel Cars for a downtown transit shuttle (known as "On Track") between the university and the Carousel Mall, in order to alleviate downtown parking problems at the Carrier Dome. This is not considered commuter rail. On the other hand, the Port Authority Trans Hudson (PATH) high-volume service linking New York City and New Jersey joined APTA's commuter rail committee in 1995 and, depending on the statistical source, may be considered as either commuter rail, subway/heavy rail, or both.

Figure 2 shows institutional data and Figure 3 shows performance measures for 15 commuter rail systems operating in the U.S. and Canada as of FY 1993. Appendix A lists the 19 current commuter rail systems that are operating or scheduled to begin by the end of 1996 and Appendix B provides a summary of the status of approximately 30 additional systems that are in varying stages of planning. Appendix C is a glossary and list of abbreviations used in this handbook.

As can be seen in Figures 2 and 3, in 1965, Go-Transit in Toronto began as a demonstration by the Province of Ontario, and within six months carried 15,000 daily passenger trips. Permanent service began in 1967 and today, this system has grown to carry well over 100,000 average weekday one-way passenger trips.

When Maryland's Mass Transit Administration took over commuter rail service (now known as MARC) in 1974 in the Baltimore-Washington suburbs on the Camden/Brunswick Line, and in 1976 on the Penn Line, only 8,700 daily trips were provided, and ridership actually dropped to 5,400 daily passengers trips in 1983, with the daily total now at 20,000.

Tri-County Commuter Rail (Tri-Rail) in South Florida began in January, 1989 as a "maintenance of traffic" measure during reconstruction of I-95. Eighty-one miles of track were purchased from a private railroad for $264 million by the State of Florida. Initially, 2,500 daily passenger trips were served on 16 trains; today 11,000 trips are carried on 30 daily trains.

Figure 2
North American Commuter Rail Operators
1993 Institutional Data

	LIRR	METRA	METRO NORTH	GO TRANSIT	NJT	MBTA	SEPTA	MUCTC	CAL TRAIN	MARC	METRO LINK	NICTD	TRI RAIL	VRE	CONN DOT
Total Route Miles	319	499	380	223	477	494	443	57	78	186	335	93	67	81	33
Route Miles Owned	319	177	380	9	406	461	272	0	49	0	183 7	69	67	0	0
Route Miles Leased	0	322	0	214	71	33	172	57	29	186	150 5	24	0	81	33
Number of Trains per Day*	715	665	546	109	582	397	735	81	60	77	75	40	30	16	18
Number of Routes	11	13	8	7	12	13	7	2	1	3	5	1	1	2	1
Bi-Level/Single Passenger Cars	both	bi-level	single	bi-level	single	both	single	both	bi-level	single	bi-level	single	bi-level	single	single
Average Age of Fleet	21	19	16 8	23	9 8	6 5	19 5	18	9	20	2	8 8	5 3	19 1	25
Number of Stations	134	215	119	54	158	102	181	31	34	40	38	18	15	17	7
Operate or Contract Service	operate	varies	operate	CN/CP	operate	Amtrak	operate	CN/CP	Amtrak	Amtrak, CSX	Amtrak	operate	Herzog, UTDC	Amtrak, CSX, NS	Amtrak
Fare Collection Technique conductor/proof of payment	conductor	conductor	conductor	proof of payment	conductor	conductor	conductor	conductor	both	conductor	proof of payment	conductor	proof of payment	proof of payment	conductor
Year Current Organization Established	1834	1984	1983	1967	1983	1974	1,983	1985	1992	1974	1992	1989	1989	1992	1990
Average Daily One-Way Passenger Trips in First Year of Operation	n/a	232,745	80,000	15,000	108,000	30,000	74 000	n/a	28,831	8,700	3,700	6,800	2,500	3,500	1,000

Source: United States Federal Transit Administration, "Section 15 1993 Report," Washington DC. Data returned by commuter rail operators

Figure 3
North American Commuter Rail Operators
1993 Performance Measures

	LIRR	METRA	METRO NORTH	GO TRANSIT	NJT	MBTA	SEPTA	MUCTC	CAL TRAIN	MARC	METRO LINK	NICTD	TRI RAIL	VRE	CONN DOT
Average Weekday One-Way Passenger Trips	325,000	275,154	210,000	94,600	160,400	79,000	67,317	25,000	21,000	20,000	12,856	12,000	9,133	8,000	1,070
Average Fare per One-Way Trip	$4.05	$2.27	$4.08	n/a	$3.37	$1.84	$2.60	n/a	$1.97	$3.16	$3.24	$3.20	$1.17	$4.26	$1.94
Annual Passenger Miles (000's)	1,960,886	1,584,000	1,744,226	467,400	1,035,303	431,390	275,920	n/a	132,115	142,896	109,512	89,967	88,615	45,209	5,555
Average Passenger Trip Length (Miles)	21	21	23	n/a	24	19	14	n/a	23	30	33	28	32	27	20
Operating Cost per Passenger Mile	$0.34	$0.22	$0.26	n/a	$0.33	$0.25	$0.46	n/a	$0.26	$0.21	$0.39	$0.25	$0.22	$0.26	$0.91
On-Time Performance	93%	97%	96%	96%	92%	95%	96%	96%	92%	92%	84%	94%	85%	91%	94%
Farebox Revenue (000s)	$291,548	$167,000	$241,504	$95,000 (c$)	$170,084	$42,600	$55,700	$8,000	$11,312	$15,715	$10,655	$10,248	$4,606	$5,942	$531
Farebox Recovery	44%	55%	56%	n/a	50%	40%	35%	n/a	37%	49%	25%	46%	23%	51%	11%

Source: United States Federal Transit Administration, "Section 15 1993 Report," Washington DC. Data reviewed by commuter rail operators

Metrolink, operated by the five-county Southern California Regional Rail Authority (SCRRA), paid $450 million for 175 miles of Southern Pacific and Sante Fe Railroad rights-of-way before beginning service in October, 1992. By 1994, ridership exceeded 12,800 daily trips, up from 3,700 trips in the first year. On October 2, 1995, Metrolink service was extended to the Inland Empire-Orange County line, between Irvine and Riverside, over 49 miles southwest of Los Angeles. Route miles for the entire system now total 394, with 85 daily trains serving 44 stations and carrying 21,000 daily trips. Given Southern California's severe air quality problems, Metrolink uses locomotives with "retarded fuel injection" which burn low sulphur fuel.

The Northern Indiana Commuter Transportation District (NICTD) acquired right-of-way from the South Shore Railroad (Chesapeake and Ohio) in 1989, carrying 6,800 average weekday passenger trips in that year. Current ridership is about 12,000 daily trips. From 1976-1989, the State of Indiana had paid South Shore to operate commuter rail service. NICTD's right-of-way is in turn leased to the Anacostia and Pacific for diesel freight service. The MTA Long Island Railroad is the only commuter rail passenger operator that offers its own freight service.

The Virginia Railway Express (VRE) began to serve Northern Virginia's suburbs of Washington D.C. in 1992, starting with 3,500 daily passenger trips and now carrying 8,300.

The newest commuter rail system, Vancouver's West Coast Express, began five rush hour round-trips on November 1, 1995 along a 40-mile, 77-minute route linking Mission and Vancouver, British Columbia. CP Rail employees operate the service. As many as 11,000 passenger trips are expected, with eight current stations. Five locomotives and 28 rail cars are used, with the cars fully accessible to wheelchair users and equipped with bike racks, cellular phones, work stations and toilets. Excluding rolling stock, capital investment to start the system totalled $117 million (Canadian $), including $90 million for CP right of way.

The largest system in the U.S. and Canada, MTA Long Island Railroad, which began over 160 years ago, now carries over 325,000 passenger trips each day. It brings 1,000 people a minute into Manhattan's Penn Station during the morning rush hour, achieving up to 75 percent shares of some commuter market segments.

The commuter rail industry as a whole provided about 6.9 billion passenger miles of service in FY 1993 in the United States (the latest for which Federal Transit Administration Section 15 data are available), compared to total public transit passenger miles of 39.6 billion.

Commuter rail systems tend to carry customers for relatively long distances in heavily congested corridors. Consequently, commuter rail operators provided 17.4 percent of FY 1993 transit industry passenger miles while carrying 3.9 percent of passenger trips. Commuter rail industry rolling stock is very efficiently used, providing 2.6 times the transit industry average in passenger miles per vehicle mile (30.9 versus 11.7).

At the bottom line, commuter rail FY 1993 operating expenses averaged 29 cents per passenger mile, or about two-thirds of the transit industry average of 44 cents per passenger mile. Both figures are very competitive with the private automobile.

A distinctive feature of the commuter rail industry is that several operators lease their rights-of-way from freight railroads, as shown in Figure 2. VRE actually contracts with four different railroads for access (CSXT, Norfolk Southern, Conrail, Amtrak) while using Amtrak as its contract operator. Despite the complexities of dispatching that such relationships entail (each railroad dispatches its own territory), performance throughout the industry remains generally outstanding (Figure 3). As can be seen, almost all system on-time performance exceeds 90 percent, with five systems reporting 96 percent or better. Farebox recovery (the share of operating costs covered by fares) exceeds 50 percent for four systems, which is considered very good in the public transit industry.

A 1995 study by the Northern Virginia Transportation Commission compared the costs of building and maintaining the capacity to carry the number of commuters now carried by the Virginia Railway Express versus the equivalent capacity of interstate highway lanes and automobiles. The report found that over a 20 year period it was $260 million less expensive to build and operate commuter rail.

That conclusion should not be surprising, since common sense suggests that more intensive use of existing tracks otherwise sitting idle or perhaps carrying freight and/or intercity passenger trains, is clearly preferable to assembling new right-of-way and constructing new highways in heavily congested commuting corridors.

In the Dallas, Ft. Worth area, service on Union Pacific and Burlington Northern rights-of-way (costing $5-$8 million per mile) is set for four phases, beginning later in 1996. Thirteen rail-diesel cars have been purchased for rehabilitation. A contract operator is being procured, with BN and UP expected to compete.

Figure 4 shows another 16 selected cities in the U.S. and Canada in which new commuter rail service is being seriously considered, and Figure 5 gives institutional details for some of these. All of these areas have at least progressed through a detailed feasibility study. In Seattle, for example, a demonstration preceded a March, 1995 referendum on financing permanent service. Although the referendum failed (it included extensive light rail transit as part of a $6.7 billion plan for the three-county region), the demonstration was popular with customers, and another referendum is planned for late 1996. Refer to Appendix B for a summary of the status of approximately 30 such potential new start systems.

To summarize, any location with a potential market for public transit solutions to long distance commuting problems (e.g. congested freeways, constrained downtown parking, deteriorating air quality), and especially those locations with available rail rights-of-way and existing Amtrak service, should consider the feasibility of commuter rail service. This is because, among public transit options, commuter rail has proven to be efficient, safe and effective. Customers like the style of service, and respond enthusiastically and loyally wherever reliable commuter rail options are provided.

Figure 4

Potential Commuter Rail New Start Cities
In the United States and Canada

● New Start Cities

Figure 5
Selected Planned and Potential New Starts
in the United States and Canada

	Portland Maine	Cleveland Ohio	Dallas Texas	East Bay SanFrancisco California	Burlington Vermont	Atlanta Georgia	Seattle Washington	Tampa Florida	St. Louis Missouri
Projected Revenue Service Date	1997	1996	1996	1996	1996	1997	1997	1997	1998
Projected First Year Average Daily Passenger Trips	27,500 - 35,833	3,000	3,200	3,000	not available	11,200	17,000	not available	not available
Projected First Year Route Miles	114	38	10	83	12	158	80	31	69
Projected Daily Trains	4	8	30	4	not available	24	49	6	not available
Operate or Contract Service	Amtrak	contract	contract	contract	contract	contract	contract	contract	contract
Own or Lease Right-of-Way (Miles)	lease	lease 21.2 own 17	own	lease	own	lease	lease	lease	lease
Private Railroad Providing Rights-of-Way	MBTA,STRC	Conrail	------	JPB,CalTran, UP,SP	-----	NS,CSX	BN,UP	CSX	BN,UP

Source: Phone Interview

RESOURCES:

- "APTA Commuter Rail Committee Commuter Railroad Comparative Survey/Analysis," (April, 1996). This "benchmark" data project provides performance comparisons.
- "Investment Analysis -- VRE Versus Equivalent Highway Capacity," Kathleen Benton, Northern Virginia Transportation Commission (April 24, 1995).
- "North American Commuter Rail," W. Middleton, Passenger Train Journal (1994). Includes photos and a detailed user's guide and system map for every system in the U. S. and Canada.
- "Commuter Rail Journal," Passenger Transport (bi-annually in April and October). Articles profile industry issues, and each April review the current status of potential new commuter rail locations.
- "Transit Markets," William D. Middleton, Transit Connections (Vol. 3, No. 3, 1995) pp. 33-72. Profiles of 80 transit systems, including most commuter rail operators, including development plans.
- "Report on the Status of the Metrolink System with Emphasis on the MTA's Costs and Benefits," Richard Stanger, SCRRA (November, 1995).
- "Commuter Rail Transit Ridership Report--Third Quarter, 1995," APTA (January 31, 1996).
- "Regional/Commuter Rail Planner's Guide," William D. Middleton, Railway Age (November, 1995) pp. G1-20.

II. HOW TO PLAN

A. Determining Feasibility

In reviewing the history of commuter rail systems, including those that are now operating and others still in the planning stages, it is evident that many systems have required a very long time to reach fruition. VRE dates to 1964 when the Northern Virginia Transportation Commission first considered the idea, with the active implementation process stretching for almost a decade from 1984 to 1992. In Vancouver, initial interest surfaced in 1981, with agreements signed in May, 1994 with Canadian Pacific Railroad (CP) and BC Transit for service start-up in late 1995. The origins of Metrolink date to the early 1970's, with a $2 million project linking Orange County and Los Angeles that eventually became part of Amtrak's route structure and a 1982 demonstration on Southern Pacific Railroad (SP) for four months providing 2,000 daily passenger trips. A 1980 sales tax for the Los Angeles County Transportation Commission (now MTA) led to a $150 million project budget in 1988, negotiations from May, 1989 to October 1990 to acquire rights-of-way from freight railroads, and service beginning in October 1992 under a five-county joint powers authority (SCRRA).

Figure 6 summarizes the likely time and cost for starting commuter rail service "from scratch." As can be seen, six years is not out of the question from initial feasibility study to opening day, at an administrative cost of almost $2 million for studies, negotiation and legal fees, plus extensive (uncharged) sponsoring agency staff time. Of course, planning to extend existing commuter rail service or replace discontinued Amtrak intercity routes should be easier, quicker and cheaper.

VRE's initial feasibility study in 1984 examined service that would terminate with a connection to the Metrorail (subway) system outside the urban core, at a start-up cost of $45 million, to serve 6,000 daily passenger trips. To stimulate more local support, this was revised in 1985 to call for a two-year demonstration with reduced crew sizes and used railcars at $8 million net cost per year plus $2 million for start-up. Suitable used railcars could not be located (e.g. some did not meet FRA fire regulations). By 1986, a pilot project was proposed with a single Amtrak train, but Amtrak would not provide insurance. The 1987 Chase, Maryland accident (in which a Conrail locomotive struck an Amtrak train, with significant passenger deaths and injuries) ultimately called into question Amtrak's no-fault insurance arrangement with the freight railroads and the enforceability of indemnification of gross, willful and wanton negligence. Consequently, VRE could not proceed until a $200 million insurance program was pieced together in a very tight insurance market, which also required changes in state law and an act of Congress in 1990.

During this period, VRE ridership forecasts were revised twice before a 1990 bond issue ($79 million) and rail car order, culminating in service implementation in June, 1992. The final service plan reached into the urban core, was designed to serve 9,000 daily trips and required new and rehabilitated railcars, which represented significant departures from the initial feasibility study.

TIP: Expect to reexamine and revise your initial feasibility study often before service begins. Check the pulse of the community you intend to serve and use those opportunities to alter the project to broaden its constituent base of support and reflect additional revenue sources. Be prepared to anticipate and respond to sudden changes in market conditions for such vital project components as rolling stock and insurance. Where service is proposed to suburban and exurban areas not now served by transit, feasibility studies may be more costly as origin-destination data needed for ridership forecasts may not be readily available.

The costs of feasibility studies will vary with the scope of work. Major investment studies to attempt to qualify the project for federal "new start" funding can easily cost over a million dollars and require two years to complete, including extensive public involvement efforts. If existing agency data and ridership forecasting models are available, costs will be lower, and if the purpose of the study is to provide sketch planning assistance to fit the project into a broader regional context (e.g. constrained long range transportation plan of the regional Metropolitan Planning Organization), less time and money will be required.

The experience of VRE is indicative of the low range of feasibility planning costs:

Initial consultant feasibility study (1983-4) (ridership forecast, startup budget, operating plan)	$125,000
Re-examination of initial study by consultant (1989)	$50,000
More detailed consultant ridership forecasts (1989)	$125,000
Actuarial consultant study examining indemnification issues (1989)	$75,000
	$375,000
Agency staff special studies (comparative bus strategies, new versus used rolling stock, etc.) (1985-90)	$125,000
	$500,000

Once the decision is made to proceed, many additional studies are required (next section).

TIP: Set aside at least $500,000 to $1,000,000 and at least a year for defining and producing a feasibility plan.

Figure 6

Commuter Rail Start Up Time and Cost

Activity		Time	Cost
Feasibility Study	Commuter Rail only or	1 year	$250,000
	Major Investment Study	2 years	$1 million
	Subtotal	2 years	$1 million
Implementation			
Phase I:	Negotiate Railroad Agreements	2 years	$250,000
	Plus Cost of Access		$10 + per train mile
	Negotiate Insurance Program	2 years	$250,000
	Cost of $200 million program	-	$3 million per yr. + $10-20 million in trust.
	Subtotal	2 years	$500,000+
Phase II:	Negotiate Operating Contract	1 year	$100,000
	Plus Cost of Agreement	-	$30 per train mile
	Rolling Stock	2 years	$1 million per new single-level railcar and $1.5 million per rebuilt locomotive.
	Fare Collection Equipment	1 year	$25,000 per machine with software.
	Stations/Parking/Construction	2 years	$1 million per modest station with 100 space lot.
	Subtotal	2 years	$100,000+
	Total	6 years	$1.6 million for administrative costs +

In examining the feasibility of service, look for opportunities to expand market penetration, improve operating efficiencies and boost potential constituencies. Service between two large urban centers (e.g. Milwaukee and Chicago) is likely to be a more feasible project than service to one such center, since balanced loads in both directions may be possible. For example, MARC carries 20 percent of its Penn Line peak ridership and 10 percent of its Camden Line peak ridership to Baltimore from the District of Columbia.

Also, in forecasting ridership and determining the size of parking lots, be aware that attraction zones for commuter rail service expand as the distance away from the urban core is greater. VRE found 80 percent of its riders in its inner zones attracted to its stations from five miles or less, but the distance grew to 10 miles for stations in its outer zones.

Feasibility studies can be used to help win friends and influence people. Any new transportation project will be in competition with others to win required approvals and funding. Such projects may set off geographic and modal rivalries. One response is to produce comparisons of the economic benefits of the proposed project to other alternatives. Commuter rail may have an advantage, especially if rail rights-of-way are available at fair market prices.

At each stage of planning and implementing a commuter rail system, the advice of established commuter rail operators can be a valuable resource. Depending on your unique situation, you can contact directly representatives of successful commuter rail systems that are known for their special expertise (see Appendix A). For example, Metra in Chicago prides itself on its employee involvement and productive labor relations and is well-known throughout the industry for its willingness to share innovations and encourage better management communication. SEPTA has completed an ambitious "Railworks" capital refurbishment and expansion process; Metrolink expanded rapidly -- indeed almost instantaneously -- after a devastating earthquake; MARC has emphasized customer service by acquiring a deluxe parlor car which it prices at a premium fare; Caltrains is especially bicycle friendly; and VRE bears the scars of protracted negotiations with several freight railroads over access fees and levels of insurance.

TIP: By examining the comparative structures shown in Figures 2, 3 and 5 above, systems operating in similar environments can be identified (e.g. geographic, institutional, size of customer base, freight railroads owning rights-of-way). At most systems, and also through APTA's Commuter Rail Committee, experts are available to provide specific advice to agencies contemplating new commuter rail systems. Refer to Appendix A for contacts at each commuter rail system. In some cases, freight railroads may also actively assist in feasibility studies as will potential contract operators, such as Amtrak.

The initial feasibility studies will usually produce recommendations of a process for implementation plus a start-up budget. Based on the experience of many current systems, there are several problem areas that are very likely to lead to considerable delay and additional expense. Among those are: insurance issues especially if using rights-of-way or stations owned by the private sector, lease or purchase fees for land for stations and yards, local government site plan and permitting processes, rolling stock deliveries, procurement protests, and approval by freight railroads of operating plans and schedules. As explained in detail

below, negotiations with freight railroads can be especially time-consuming.

TIP: If your project requires purchase/lease of rights-of-way or other facilities owned by private freight railroads, the feasibility study should examine the willingness of those owners to cooperate and should program approximately two years for negotiations. Any preliminary operating plans should be shared with those railroads for initial reaction. Whenever possible, railroad representatives should participate in the feasibility study process.

According to Norfolk Southern's Vice President-Strategic Planning, "...railroads hate to share assets....But when the only options are to share or leave the market, sharing is often the preferred choice....Track sharing is no panacea. There are often difficulties, and each opportunity must be analyzed and negotiated separately. But with much of the low hanging fruit already harvested, creative track sharing is another tool to improve efficiency."[1]

Union Pacific, on the other hand, actively seeks commuter rail business. Its brochure proclaims: "Our shareholders will receive an increased return through more intensive use of the railroad's assets."[2]

RESOURCES:

- "Chronology of VRE," R. Taube, Northern Virginia Transportation Commission (May 7, 1992).
- "The NS View of Track Sharing," Jim McClellan, Progressive Railroading (October, 1995) p. 46.
- "UP Shouts All Aboard," Frank Malone, Progressive Railroading (September, 1995) p. 134.

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1 "The NS View of Track Sharing," Jim McClellan, Progressive Railroading (October, 1995) at page 46.

2 "UP Shouts All Aboard," Frank Malone, Progressive Railroading (September, 1995) at page 134.

B. Finding the Funds

At the initial feasibility phase, ideas for project funding often can be more innovative (speculative) than at later stages of project development. Some general ideas may be helpful in defining sources, including:

1) The Federal Transit Administration's formula grant program (formerly Section 9) awards funds to urbanized areas based on such factors as fixed guideway route miles. Consequently, starting a new commuter rail service brings with it new federal funds, with a two-year lag (i.e. starting service in FY 1996, would make a system eligible for funds in FY 1998). VRE, for example, has qualified for over $5 million in annual Section 9 funds, with a 20 percent non-federal match required. Because of caps on the portion of Section 9 funds available to each region for operating assistance, and recurring congressional attacks on that portion of the program, new starts should not count on receiving any of these funds for operating costs. But payments to freight railroads for access can be considered as a capital cost. The new formula funds do not flow directly to the new commuter rail project, but rather are awarded by FTA formula to the region. Agreements then must be reached with other recipients in your region to share these funds through the regional Metropolitan Planning Organization (MPO).

2) The Intermodal Service Transportation Efficiency Act of 1991 (ISTEA) encouraged states and regions to use federal funds flexibly. Again, especially in large urban areas with air quality problems, funds may be available to a new start commuter rail project for capital and start-up operations from such ISTEA programs as Interstate System, Statewide Surface Transportation Program, National Highway System, Congestion Mitigation and Air Quality (CMAQ) and Regional Surface Transportation Program (RSTP). These 80 percent federal funds also may be fully matched by the state. Given the purpose of the programs (to promote flexibility, intermodality and air quality) and their relative youth (which provides less time for existing interests to capture and establish a recurring claim to the funds), new commuter rail projects should have a good chance to obtain some funding. Examples include Metra for its Wisconsin Central expansion and VRE for track improvements on freight railroad-owned rights-of-way.

3) Earmarks of federal funds are still provided by influential members of Congress. For example, MARC received a $60 million earmark in the ISTEA authorization, although relatively little has been actually appropriated to date. Obviously such a strategy is very problematic at the early feasibility stage and can pit one new project against other established systems. In the best of all worlds, earmarks imposed on established funding programs would not be available to anyone.

4) In-kind match should be considered. St. Louis provided $100 million of in-kind match (railroad bridges and other right-of-way) to obtain $400 million of federal funds, with no local cash outlay required, for its light rail project (also known as Metro-Link).

5) Obviously the best source of funding is dedicated, stable and reliable. In starting VRE, a new transportation district was created with a two percent gasoline tax. That tax has covered the entire local share of the project for most participants, while providing additional monies for highways and other transportation projects in the district. The tax did not require a local referendum, since a mechanism existed in the Commonwealth of Virginia to create new transportation districts and levy such a tax.

6) With Amtrak discontinuing many routes, Congress may provide some financial assistance to states seeking to continue these routes. The Clinton Administration has proposed combining several programs into flexible grants to states to fund Amtrak and other programs. New start sponsors should watch these developments carefully.

7) Do not count on private freight railroads providing generous terms for sale or lease of rights-of-way or sharing in the costs of the project. They may, however, help to finance certain costs over time through lease-purchase agreements or "lending" the funds.

8) If a steady source of funding is available (e.g. local gas tax) sale-leaseback transactions are generally available to help project cash flow. Examples of equipment that can be readily financed in that way include rolling stock (new or rebuilt) and ticket vending machines.

9) Successful commuter rail systems create economic value, especially around busy rail stations. Encourage local governments to look to land-owners/ developers to offer support for the project, including proffers (offers of value including free stations), where this is permitted by local law. Often, railroads may own such land, which can be taken into account in bargaining for overall access fees.

10) Tax-increment financing, in which special tax zones are created around stations, should also be considered, where permitted by state or local law.

TIP: To summarize, look for <u>new</u> sources (so as not to antagonize existing project sponsors), look to leverage funds (through sale-leaseback or other forms of borrowing) since project benefits will accrue over an extended period of time, and offer innovative sources (since at the initial feasibility stage all potential sources should be examined before a preferred mix is agreed to).

RESOURCES:

- "VRE Investment History," G. Norwood, Northern Virginia Transportation Commission (February 5, 1993). Traces sources of funds by purpose as the VRE project moved from feasibility study to start-up.

C. Structuring the Organization

There are as many institutional structures for commuter rail projects as there are individual systems, since local conditions will dictate the most appropriate form of project management and ownership of assets. For example, in several cities, the well-established transit agency operates commuter rail as a division of its overall organization (SEPTA in Philadelphia, MBTA in Boston). In other cities, commuter rail operating agencies operate semi-autonomously, perhaps with policy guidance or financing assistance from other agencies (Metra, MTA-Long Island Railroad, MTA Metro-North Commuter Railroad). Elsewhere, states or provinces manage commuter rail operations (MARC, Connecticut DOT, Go-Transit). Joint Powers Boards or Authorities are also a common form of management (e.g. CalTrain and SCRRA in California). In Northern Virginia, VRE operates as an unincorporated joint project between two different regional transportation commissions.

Because new commuter rail projects typically extend for considerable distances, often into suburban territories in which local governments have not been required to support public commuter transportation, in many new start cities it will be necessary to look beyond the existing public transit operators. Because existing operators have well defined missions and established sources of funding they may not welcome new commuter rail projects and instead view them as rivals. On the other hand, planning and operating expertise often resides in such existing public transit agencies. Accordingly, newly established joint powers boards and authorities may obtain staff from those operators (e.g. SCRRA obtained staff from Los Angeles MTA and Caltrains, with its Peninsula Corridor Joint Powers Board representing three counties, obtained staff from San Mateo Transit -- samTrans).

Ultimately, decisions must be made on who will own and maintain the project assets, manage the service, make policy decisions on schedules and fares, collect revenues and absorb the considerable exposure to risk required to serve such large numbers of the public. These are extremely important decisions that will determine whether the commuter rail system will survive by being able to control its operating costs and generate customers and political support.

TIP: Before a new commuter rail project is implemented, sponsors are likely to become intimately familiar with the U.S. Congress, judicial systems, state legislature, Wall Street financial firms and media. To speed the process along, consult with experts who can help you understand the types of incentives that will encourage each of these forces to be helpful. Consult experts in "institutional architecture" to propose the management/ownership organization that will work best and leverage the broadest levels of support in your community. Whenever possible, the state should be called upon to finance the system, given its broader access to revenue sources. A joint powers board is often the most effective way to reflect local service objectives. As a general rule, pass financial and risk responsibilities

to state agencies and retain customer service decisions for local agencies who may be better able to communicate with customers and employees.

Another important consideration is whether or not the particular commuter rail system is formally considered to be a "railroad" for purposes of railroad retirement and/or federal safety reporting. Agencies that manage contract operations for Tri-Rail, VRE and MARC argue that they are not railroads. SCRRA does consider itself to be a railroad while managing similar contract operations. Consultation with attorneys is well advised when structuring the organization to avoid unintended consequences.

D. Building Coalitions and Involving the Public

Expensive and complex initiatives such as new commuter rail service require all the friends they can get. As the feasibility study is being prepared and after it is completed, look for support from such groups as:

1) Developers and land owners who may profit from induced economic activity near stations;

2) Employers who may obtain better access to favorable labor markets;

3) Other transit operators and their trade associations in the U.S. and states who are building coalitions to generate industry funding;

4) Clean air and other environmental groups who lobby for more flexible funding;

5) Chambers of Commerce/Boards of Trade marketing local amenities to attract new business;

6) Contractors and construction firms, railcar manufacturers, lawyers, financial advisors, consultants and others who supply services and products;

7) Private freight railroads who may "ask for the moon" and then work hard to help you pay for it;

8) Railroad passenger associations (such as the National Association of Railroad Passengers -- NARP -- and state affiliates).

9) Real estate agents who recognize access to commuter rail is a powerful selling point for houses (e.g. 43% of 1992 house purchasers in VRE's service territory were influenced by proximity to VRE). A 1994 study of MBTA's effect on single-family housing values concluded that "Single-family residences located in communities that have a commuter rail station have a market value that is approximately 6.7 percent greater than that of residences in other communities."[1]

[1] "Impacts of Commuter Rail Service as Reflected in Single-Family Residential Property Values," Robert J. Armstrong, Jr., Transportation Research Record 1466 (1994) at page 96.

Commuter rail customers are typically well-off financially. For commuter rail operators, this means that such systems are held to a very high standard, since customers have choices, usually the private automobile. Highly reliable, on-time performance is needed to capture these riders who are willing and able to pay for quality service. These same customer characteristics suggest persons who are generally skilled at communicating with elected officials. They can be a powerful, positive force for promoting a new commuter rail project, but must be motivated to do so by being invited to participate in the planning process at an early stage and provided the kind of system they can enthusiastically support. VRE formed the Friends of the Virginia Railway Express soon after the initial feasibility study was completed, and continued to work with this group of up to 400 members as the project evolved over several years. In the opening weeks of service, many members of this group proudly served as ambassadors at the stations to help new riders, reflecting years of hard work to overcome the many obstacles encountered along the way.

You should also know your enemies. Such groups as the American Automobile Association may oppose commuter rail projects as an unwarranted diversion from highway spending. AAA may also oppose such sources of funding as new gas taxes or highways or bridge tolls that could be used to help finance new commuter rail projects. Such opposition should be anticipated, and if possible, overcome by responding to specific concerns and inviting advocates of that point of view to participate in the development of the feasibility study.

TIP: Commuter rail customers are typically affluent and knowledgeable in government processes. Organize those potential customers to lobby effectively. Invite as many interest groups as possible, including opponents, to participate in the feasibility study process. Keep on asking because people appreciate being asked even if they choose not to participate initially. Especially involve private freight railroads whose continuing support is often necessary for any such service to be provided and who can be very helpful in obtaining financing. After completion of the feasibility study, its examination by a broad-based, state and local appointed Blue Ribbon Commission is desirable. That group can provide an independent report on whether and how to implement the project and can create a broader base of influential support to speed the decision on implementation.

RESOURCES:

- "Impact Assessment of VRE on Land Use Development Patterns in Northern Virginia -- Base Line Phase of 1984 to Mid-1992," Northern Virginia Planning District Commission (December, 1993).
- "Impacts of Commuter Rail Service as Reflected in Single-Family Residential Property Values," Robert J. Armstrong, Jr., Transportation Research Record 1466 (1994), pp. 88-98.

III. HOW TO START

A. Obtaining Approval to Start: Strengthening Coalitions

The decision to advance from the feasibility study phase of a new commuter rail project to the implementation phase is not always clear cut. In some cases, the decision to go ahead or not is linked to a decision on funding, often involving a local referendum on a tax source. For example, in the Seattle area, a March 1995 referendum on funding was scheduled at the end of a demonstration of commuter rail service to Tacoma.

In some situations, projects initially rejected by voters may resurface in a revised form and win approval. Or, voter approval may not be required and the go ahead may occur over a period of time as supporting agencies gradually begin to budget funds. As stated, VRE feasibility planning commenced in 1984, and the project metamorphasized several times. When four local governments signed a Master Agreement in 1989, setting the terms on which they would financially support the VRE project, the starting signal finally turned from flashing yellow to green.

> **TIP: Don't ask voters to approve open ended spending commitments. Carefully specify in any referendum exactly what service and facilities are to be provided, when, and to what geographic areas. Try to structure the projects so that each district voting on the referendum has something of importance to gain from supporting it. If you have a good project, don't accept defeat and be resilient as each obstacle to approval is confronted. Package the project in well-defined phases, perhaps preceded by a demonstration. Settle cost-sharing responsibilities early so there are no open-ended commitments. Don't promise more than can be delivered. Make initial ridership forecasts very conservatively to recognize a gradual buildup of patronage and to keep expectations modest.**

Elected officials and staffs have been characterized facetiously as possessing a "genetic lethargy" which discourages actions on controversial projects of uncertain outcome. To overcome fear of controversial new revenue sources, coalitions identified during the feasibility stage must be re-energized to build momentum for project approval and prompt implementation. Dedicated project staff must be prepared to overcome daunting obstacles, and encouragement to colleagues engaged in such efforts is always appreciated. Pep rallies by organizations such as "Friends of the VRE" can help drum up interest. Distribute hats with your logo to elected officials willing to be photographed wearing them. Consider selling inaugural tickets (say for $100) with the proceeds held in escrow, as a measure of public support. If your existing regional transit system enjoys public favor, emphasize your connections to it and the new fare revenues that existing system will receive from your transfer customers.

Project enemies will also be re-invigorated as prospects for implementation grow. Be prepared to contest for funding against existing regional transit systems and local governments in regional forums, overcome creative friction among lawmakers called upon to pass new laws to accommodate your project, and battle anti-growth advocates who may deride your project's contributions to urban sprawl or call your project "Robin Hood in reverse" for its attraction of affluent patrons at general taxpayer expense. Expect railroad issues to surface as detailed access agreements are worked out.

TIP: **Get a picture of the freight railroad chief executive officer shaking hands with your governor over the concept, if not the details, of the project. Show the picture to railroad and government agency staff frequently over the succeeding months as progress stalls. Be more persistent than your opponents are obstinate. Remember that implementation is more like a relay race than a sprint. Translate project statistics into meaningful elements, such as cars taken off the freeway each morning; or vehicle miles of travel reduced -- which together with emission factors allows estimation of tons (or kilograms) of hydrocarbons, carbon monoxide and oxides of nitrogen eliminated; or jobs created; or state tax revenues generated. Make liberal use of special train rides and station days in the neighborhoods, as nothing generates more favorable publicity than shining railcars and locomotives and happy children with colored balloons.**

B. Revising and Integrating Plans

When the decision is made to go ahead with the project, perhaps armed only with a feasibility study and a pledge of funding, what would a manager's "to do" list look like? The following is such a list from VRE's startup, dated January 1, 1988 (which proved to be four and a half years before trains rolled in revenue service). More details are provided about each of these start-up activities in subsequent sections. Failure to attend to these details, to set priorities and to organize teams to accomplish them can lead to painful delays in implementation. Near the top of this list -- and any other such list -- is a reexamination of previous elements of the feasibility study, including the financial plan and ridership forecasts. Do you still have a market and how will the project be paid for?

TIP: If private railroads are providing right-of-way, involve those railroads in any update of the feasibility study, with special attention to review and approval of operating plans. Obtain any such approval in writing, recognizing that private freight railroads may be large bureaucracies with shifting personnel and internal communications problems of their own, and periodically double-check that the written approvals are still acknowledged by the railroad.

After the initial feasibility study the following integration activities may be required as you proceed to start-up. These are not listed in order of importance or chronologically. All of these activities must be accomplished, often simultaneously. A project team should have a clear customer focus in mind, and "hard" and "soft" areas should be brought together for effective communications (e.g. engineers should talk with marketers about how to design and build with the customer in mind).

Administration:

- Develop staff assignments for planning, start-up and operations
- Establish priority strategic objectives.
- Select and manage consultants (review and revise feasibility, overall industry advice, legal, financial, engineering).
- Devise governing board structure and cause elected official members to be appointed.
- Keep local agency chief administrative officers informed of key meeting dates and decision points.
- Conduct regular quarterly briefings of local chief administrative officers and elected officials and special briefings of General Assembly members and others as needed.
- Identify legislative items to facilitate implementation.

- Update mailing lists of vendors, support committees, local and state officials.

- Clarify need for waivers from Railroad Retirement Board and other federal and state agencies.

Data collection:

- Establish procedures to compile FTA Section 15 data.

- Structure performance reports for regular administrative and board review.

Insurance:

- Draft self-insurance trust agreement for review by railroads and government agencies.

- Negotiate contingent loan (say for $5 million) to be inserted in state budget to manage cash flow problems following a claim.

- Seek funding for initial capitalization for insurance program (may total $20 million for a $200 million program with $5 million self-insured retention).

- Develop scope of work for actuarial study to help define insurance program.

- Name a broker of record and evaluate commercial and captive insurance availability.

- Explore legislative solutions to cap liability or at least cap punitive damages and the need to waive sovereign immunity to allow indemnification of private railroads.

- Negotiate with contract operator (when selected) and state for claims and risk management services.

Master Agreement:

- Draft agreement among several cities and counties governing how the service will be funded and defining ownership of assets and management structure of the project.

Financial Plan:

- Hire financial advisor to help produce multi-year financial plan.

- Set up budget review process with several local funding agencies.

- Review preliminary capital and operating budgets for at least the next two

fiscal years.

- Prepare federal and state grant applications and notices to MPO regarding planned projects, and when required, obtain "letters of no prejudice " to permit local expenditures in advance of final state and federal grant approval.

- Obtain resolutions from state and local agencies certifying continuing financial support to the extent permitted under state law.

- Prepare Request for Proposal (RFP) for banking services.

- Hire bond counsel, and select underwriters.

- Arrange for sale/leaseback or cross-border leases of rolling stock and ticket vending machines.

Rolling Stock:

- Obtain project engineer.

- Arrange on-site visits for senior staff of prospective manufacturers and other commuter rail operators to help prepare rolling stock specifications.

- Draft rolling stock specifications with help from contract operator since the operator may be expected to maintain equipment.

- Identify maintenance facility.

- Issue Invitations for Bid (IFB) or RFP's for rolling stock.

- Seek short term leases to obtain rolling stock to start service before all new railcars are available (or, if you will have extra cars before service starts arrange to lease those to others as a source of revenue).

- Hire equipment inspector to monitor car and locomotive building.

- Arrange for transportation of equipment through local points of entry (e.g. seaports) and manufacture in local facilities, if possible.

Stations/Yards/Parking/Facilities:

- Obtain local/state agreements for sharing funding, liability and maintenance.

- Define and design a basic station, with common modular design and lighting standards, with some local options (size, colors), and develop criteria for those local options.

- Design signs.
- Select station locations, obtain zoning approvals, acquire or coordinate access by purchase or lease.
- Properly size parking lots in relation to anticipated patronage with room for growth.
- Procure construction services and construction managers.
- Identify and contract for storage and service facilities.
- Identify and complete (working with railroads) any required track work (switches, signals).
- If significant bottlenecks exist (e.g. narrow bridges, tunnel clearances) conduct engineering studies and consider options for operations and rolling stock (e.g. improving a tunnel clearance could allow bi-level railcars with corresponding operating efficiencies).

Railroad Operating Agreements:

- Negotiate with contract operator/maintainer, including pre-revenue training.
- Negotiate with rail unions used by contractors to seek reduced crew sizes.
- Negotiate with freight railroads regarding access, approvals of schedules.
- Consider operating cost implications of future purchase of rights-of-way versus lease.

Fares and Ticketing:

- If Amtrak service parallels your service, ask Amtrak to honor your tickets to give your customers more choices. Seek cross ticketing with Amtrak and commuter bus operators.
- After evaluation of the economics of traditional conductor sales versus barrier free, proof of payment systems, develop specifications for and proceed with procurement of ticket vending machines and supporting communications network.
- Adopt zone fare structure based on distance, approve tariff, coordinate with budget activities and operations planning.

Operations Planning:

- Prepare contingency plans and drills for service interruption due to weather,

strikes, etc. including contracts for backup bus service.

- Plan coordination of feeder bus service at origin and destination stations.
- Develop contingency plans for too few riders and too many, including peak surges (e.g. satellite parking, feeder buses).
- Investigate broader hours of service and more intensive use of rolling stock, including turnbacks and express and skip-stop service.
- Investigate interlining equipment with other rail operators.

Marketing/Customer Service/Media Relations:

- Plan and procure concessions (e.g. coffee, newspapers) to be available on-board and at stations.
- Hold meetings with local support groups, including "ambassador" training for customer service on opening day.
- Hire consultant and develop marketing plan.
- Adopt advertising guidelines for sale of ads for newsletters, on-board, and at stations.
- Constitute an Opening Day Committee to plan ceremonies. Include local businesses.
- Contact local vanpool operators and ridesharing coordinators to share information and develop policies for ridesharing from commuter rail parking lots.
- Consider a guaranteed ride home program for commuter rail customers provided by private taxi firms.

TIP: **Among the scores of important activities listed above, those requiring the most careful attention during the revision of initial feasibility plans phase include reaffirming claims to funding sources, satisfying freight railroad concerns, fine-tuning the institutional architecture by establishing a clear cut organization to manage the project and/or control the assets, and creating an insurance structure to cover required indemnifications.**

How many persons are needed during this phase of project development? This, of course, will vary with local conditions. In the case of VRE, the annual cost (for a period of four and a half years) was about $50,000 for a lead project consultant and $250,000 for about three full-time equivalent senior professional staff members, plus untold hours of local and state agency staff not assigned to the project but required for

essential coordination, plus the one-time costs of additional consulting studies to update the initial feasibility report ($50,000) and redo the ridership forecasts ($50,000). Direct charges to the project would be, therefore, a minimum of about $300,000 annually plus special studies during this process.

It is useful to create a project management plan. This document will describe the project with detailed maps and its legal authority; define terms; set forth the organization and staffing (including agencies involved, lines of responsibility, and names and phone numbers) define a management control structure with a master schedule, control devices, fiscal management, procurement process and change order control; and establish a series of performance reports and special management studies. It is often helpful to break the project down into units (e.g. by route) and set-up management controls for each unit.

TIP: Of utmost importance is the project directory, in which each agency head designates a primary staff contact for each activity or unit, to avoid confusion. Also, the project schedule must be updated at least monthly. As a new project, the management control systems must interact with systems already established for existing projects by other agencies. Where differences exist, "bridges" should be established defining the connections.

RESOURCES:

- VRE Commuter Rail Patronage Forecasts -- Technical memorandum on "FY 1996 Forecasts" and "Long Range Model Methodology" Parsons Brinckerhoff, Richard Pratt, Consultant, Inc. (October, 1994).
- "VRE Patronage Revenue Forecasts." Richard Pratt, Consultant, Inc. (May, 1987).
- "Project Directory for Construction of VRE Facilities "(Revised: January 29, 1992).

C. Institutional Management Assignments -- Ownership of Assets

While the initial feasibility study presumably would address the pros and cons of various institutional hosts for the project, and before winning approval to go ahead such decisions are often made, it is useful to reassess the options at this stage. Which agency should own or lease the rolling stock, rights of way, stations, parking lots and ticket vending machines? Should the same agency provide overall policy direction to the project and/or supply operating personnel (train crews, maintenance) or administrative staff (accounting, procurement, contract management)? Which units of government should be responsible for operating subsidies, capital improvements, grants management and insurance? To what extent should governing boards be involved in day-to-day management of operations and procurement?

As mentioned above, in some cities, the existing multimodal transit agency performs all of these functions (e.g. SEPTA, MBTA). Elsewhere, a state agency fulfills all of these roles (e.g. MTA-MARC, NJT, Go-Transit). Sometimes separate regional operating authorities are created (Metra, MTA - Long Island Railroad, MTA Metro-North Commuter Railroad). The use of existing transit organizations is often quicker and simpler than starting from scratch, and these organizations already possess procurement and project management expertise that is readily transferable to commuter rail.

But there are sometimes compelling reasons why a new authority should be created or why these responsibilities should be split among several organizations. For example, existing organizations with well-established roles may lack the "fire in the belly" necessary to overcome startup hurdles, and existing bureaucracies may be too rigid to bend toward an expanded mission. Liability concerns also are paramount among the reasons to create a separate organization with "firewalls" between itself and other units of government. A new organization may be better positioned to define new jobs and negotiate more efficient work rules with organized labor.

Selecting multiple agencies for various roles also may allow greater efficiencies through specialization. VRE reflects a very complex organizational structure, but was created to bring in several agencies with special expertise. VRE is a joint project of two transportation district commissions, one of which was created in 1986 primarily to accomplish the commuter rail project since the service territory stretched into jurisdictions distant from the urban core. The commissions jointly own the rolling stock and several stations (those located in non-participating local jurisdictions such as Alexandria, Arlington and the District of Columbia). Participating local governments and private railroads own the remaining stations, some of which were paid for with bond proceeds from the commissions. Parking lots are owned by local governments, many of which have maintenance agreements with the Virginia DOT, which designed and constructed the parking lots using its park-and-ride lot expertise. The commissions jointly lease access to private rail rights-of-way and contract with Amtrak for maintenance and operations. Each of four railroads dispatch their own territories used by VRE.

The commissions have created a joint policy committee, known as the Operations Board, to handle routine policy matters (e.g. contracts under $100,000), while the commissions retain major policy decisions (e.g. fares, budgets, grant applications). The Operations Board hires an Operations Director who, in turn, manages a small staff for revenue accounting, budget, and related contract management and oversight.

The VRE project sponsors are bound together with a Master Agreement which spells out responsibilities for subsidy and liability. A task force of local government staff meets monthly to review project status and a separate task force of senior financial officials reviews the budget each year as it proceeds from initial Board guidelines through several drafts to final approval by the commissions and acceptance by each participating jurisdiction.

Such a structure allows the VRE project to function with a minimum of staff (the Operations Group has less than 15, which is supplemented with part time assistance from staff of NVTC and PRTC and occasional help from local and state agency staff). The commission staffs have specific functional responsibilities, such as major capital procurements, legal matters and legislative advocacy. While this structure minimizes project staff, coordinated teams of loosely affiliated agencies require an intensive management effort.

Local control of such decisions as pricing of parking can create headaches for the system. In the case of VRE, some local governments have instituted parking fees designed to cover the costs of operating the lots and providing security (e.g. $1.00 per day) and others have assessed greater fees for non-residents (e.g. $2 per day versus $2 per month).

TIP: Whether or not existing local and state agencies actually own or manage pieces of the project, give each a stake in the project with public acknowledgements of their contributions to its success. Do not relinquish pricing decisions for such components as parking, since the customer views the total cost of the trip and it is counterproductive to establish system fares and parking fees that are not considered as a unit.

Options for owning/operating a new commuter rail system include various levels of "turnkey" operations, in which expert firms plan, purchase and either continue to operate the system or turn it over at some point to other authorities.

TIP: In choosing a turnkey strategy, keep in mind that access to rolling stock may be limited (at one point in the late 1980's the Air Force was rumored to be purchasing used freight locomotives for hauling missiles and consequently few if any hulks were available in the private market for rebuilding); maintenance facilities may be hard to find in your area; and -- most importantly -- private railroads may insist that governments stand behind indemnification pledges and therefore restrict the access of private firms to their rights-of-way and certainly refuse to allow dispatching by others. Notwithstanding these

difficulties which may compel a significant level of government involvement and provision of services by the host freight railroad at non-negotiable prices, there will undoubtedly be appropriate opportunities for contracting functions to the private sector, such as: operating crews; maintenance of rolling stock; construction and maintenance of stations, yards and parking lots; revenue collection and accounting; and marketing. In any event, plan on creating integrated asset management systems for inspections, maintenance and capital planning, before each individual entity imposes its own unique system that ultimately may thwart communication and coordination.

Whichever institutional structure is established, a project mission should be developed that will guide all agencies and employees participating in the project. This mission statement need not be elaborate. For example, VRE's mission statement is:

> The VRE, a joint project of NVTC and PRTC, will provide safe, cost-effective, accessible, customer-responsive, reliable rail passenger service as an integral part of a balanced, intermodal, regional transportation system.

Regardless of the institutional form of ownership, an individual should likely be designated as the chief operating officer for the project. That individual could be responsible for contract oversight if a private operations firm is employed or can direct operations staff if they are employed directly by the agency. According to APTA surveys, salaries for such individuals range from approximately $60,000 to $150,000 plus benefits, depending on the size of the organization and its location. VRE completed a recruiting process for such an executive in 1994, and the schedule for doing so follows as Figure 7. Figure 8 shows the required qualifications for VRE's chief operating officer. As can be seen, it required about five months to complete the process, which involved extensive input from local and state agencies and did not utilize a professional recruiting firm.

Each individual manager will have to establish a comfortable working relationship with his or her governing board that provides sufficient communication to the board of management objectives and early warning of problems, while not condoning too much "micro-management" by the board. Some managers prefer to ask for forgiveness rather than permission. Is this the style that will work best in your situation?

RESOURCES:

- "Recommended Management Changes for Improved Administrative Efficiency of the VRE," L. Auger, S. Roberts, R. Taube (September 9, 1994). Includes organization chart and delineation of responsibilities among sponsoring agencies.
- "Master Agreement for Provision of Commuter Rail Services in Northern Virginia -- Establishment of VRE" (October 27, 1989, Revised: April 2, 1992).
- "Selection of VRE Director of Operations," (February 3, 1994). Contains recruitment process and schedule, required qualifications and job description.

Figure 7

Schedule for Selection of Chief/Operating Officer for Commuter Rail Organization

	Activity	Dates
1.	Review by VRE Task Force of draft selection documents (i.e. process, schedule qualifications, job description).	January 7-14, 1994
2.	Revised draft selection documents mailed to VRE Operations Board.	January 14, 1994
3.	VRE Operations Board reviews selection documents and recommends action to commissions.	January 27, 1994
4.	Based on Operations Board recommendations, revised selection documents forwarded to commissions.	January 27, 1994
5.	Commissions adopt actions included in selection documents.	February 3, 1994
6.	Recruiting ads appear.	February 13-21, 1994
7.	Applications deadline.	March 11, 1994
8.	Initial selection of top 3-5 candidates by NVTC and PRTC executive directors with one local staff representative from PRTC jurisdictions selected by PRTC chairman and one local staff representative from NVTC jurisdictions selected by NVTC chairman plus the director of VDR&PT or his representative.	March 17, 1994
9.	Report to VRE Operations Board by executive directors in executive session and authorization to invite top 3-5 candidates for interviews.	March 18, 1994
10.	Executive session interviews of top 3-5 candidates by VRE Operations Board and staff selection group and final ranking of candidates.	March 25, 1994
11.	Ranking of candidates presented to commissions with authorization to extend job offers in rank order until accepted.	April 7, 1994
12.	Job offer extended to top ranked candidate with deadlines for acceptance by April 15, 1994.	April 8, 1994
13.	Approximate starting date for candidate.	April 18-May 16, 1994

Figure 8

Required Qualifications For Commuter Rail Chief Operating Officer

1. At least 10 years of increasingly responsible management experience in public or private enterprise, with experience in and/or knowledge of commuter rail operations desired.

2. Graduation from an accredited college or university with at least a bachelor's degree.

3. Experience and/or skills in:

   a) Management: leadership of teams of individuals (blue collar, professional, elected officials) from diverse backgrounds and organizations; motivation of employees with 24-hour responsibilities; exceptional organizational abilities to meet deadlines and anticipate challenges; record of effective personnel management including hiring, training and promoting women and minorities; experience in reporting to a Board of Directors including elected officials.

   b) Communication: Excellent written and oral skills; preparation of meeting materials for policy boards; effective relations with the media and citizens groups; sharing timely information with elected officials and staffs from diverse governments; setting priorities and responding effectively to diverse requests from various constituencies.

   c) Financial/budget: Preparation and administration of capital and operating budgets for commuter rail or related service organizations; grants administration from federal and state funding agencies.

   d) Knowledge of railroad and contract operations: Effective management of service, construction and manufacturing contracts, preferably in a commuter rail operating environment; experience in developing and implementing rail capital projects and using rail capacity models.

   e) Safety and/or emergency preparedness: Knowledge of and practical experience in federal safety regulations, (e.g. Federal Railroad Administration)safety audits, preparing for and responding to emergencies (e.g. weather related, equipment failures, accidents).

   f) Marketing and Customer Relations: Experience in an environment in which sales to customers determine the success of the operation; identifying target markets and devising and implementing programs to increase sales in those markets.

   g) Planning: With a policy board, placing the operation in proper context (mission, goals objectives), generating consensus from diverse sponsors and constituents, and progressing toward these goals and objectives.

D. Obtaining Access to Rights-of-Way -- Negotiating with Freight Railroads

If at all possible, buy. It cannot be over emphasized that one of the greatest factors in determining whether a new start can control its future costs is ownership of the assets it uses.

When a public agency providing commuter rail service is able to reach an acceptable agreement with a private freight railroad for access to existing track, either through purchase or lease, it illustrates public-private cooperation of the highest order. Stockholders gain through more intensive use of railroad assets and taxpayers gain from the ultimate use of other people's money -- stockholders have financed the significant investment in assembling land for a transportation corridor and providing tracks and signals. VRE was able to lease access to almost 100-miles of double-track class I railroad for under $1 million annually from 1992 through the end of 1994. One of the four railroads providing such access did not even seek a return on its investment, asking only that it be fully indemnified against any and all risks, including its own gross negligence.

Partially as a result of such favorable contracts, VRE determined that over a 20-year period, VRE's investment in commuter rail would cost $260 million dollars less than building equivalent peak hour interstate highway capacity and operating single-occupant automobiles.

Even at very affordable access fees, there are undeniably difficult problems to overcome when leasing access from private freight railroads. First, potential rail passenger agencies must prove to freight railroads that commuter rail trains can coexist with freight traffic. Since the right-of-way belongs to the railroad, it needs to know that its potential growth for the next several decades can be accommodated, since such a railroad will remember clearly obligations to continue subsidized passenger operations imposed in the past by the ICC and will view any access provided for passenger service as very likely a permanent obligation.

TIP: Offer to pay for a multi-year forecast of freight-passenger traffic growth with the full cooperation of the potential freight railroad landlord. VRE constructed a capacity model for one of its railroads to explore together the ability of the railroad to accommodate growth and the need for specific capital improvements.

Each railroad dispatches its own territory, and freight and Amtrak will have higher priority. In the case of VRE, dispatching occurs from Jacksonville, Florida; Greenville, South Carolina; and Harrisburg and Philadelphia, Pennsylvania. The commuter rail operator may also have to pay for lost incentives due to delayed Amtrak trains and also pay for delayed freight trains, even if they are operating out of their scheduled slots. The railroads may refuse to allow incentive compensation based on on-time performance, and as a result the commuter rail operator may suffer delays.

TIP: When entering negotiations, employ persons who speak the railroad's language. Know the railroad's objectives. Prioritize your own objectives and be flexible to generate several alternatives (e.g. you may be able to trade off-corridor improvements in exchange for access to your preferred corridor). Offer to pay for the railroads to use dedicated employees to assist dispatchers in monitoring commuter rail performance and aid in coordinated communication. Build in strong incentives for the railroad to respond very quickly to signal, switch and communication failures on its right-of-way. Several trains full of unhappy customers should not have to wait for emergency maintenance personnel to arrive from distant locations. When delays due to such problems do occur, prompt communication is needed between freight railroad dispatchers, commuter rail contract operator, commuter rail customer service employees, and customers.

Each freight railroad may have a different agenda as it negotiates commuter rail contracts. One railroad may regard the leases to commuter rail operators and Amtrak as a profit center, and link each entity's contract into a nationwide strategy. This means that if the railroad wishes to greatly increase its return from Amtrak when nationwide access agreements expire in 1997, it may be unwilling to agree to a contract with a more modest return for an individual commuter rail operator, fearing that it could be regarded as a precedent. Similarly, the Association of American Railroads adopted a strategy for high speed rail, in which separate rights-of-way and complete indemnification were required. The same strategy may then be applied to each separate commuter rail negotiation by the AAR members.

In theory, railroads are constrained in their asking prices for access to their track by several forces of competition, including other railroads, corridors in the same area and other modes (e.g. a public agency could provide express bus service if rail access rates are too high). But where a railroad has a nationwide objective, it may take a hard line with respect to an individual city, and without other rail corridors or sources of funding local commuter rail projects could be jeopardized. For example, a railroad demanded that VRE increase its annual access payment to $3.2 million from $600,000 for the same level of service, as a pre-condition of discussing a request to add trains to respond to customer overcrowding. The subsequent negotiations required over two years, and no extra trains could be added during that time. In such a situation, what can be done to overcome what project sponsors believe are railroad contact demands that are impossible to meet? Among possible responses are:

1) Determine exactly what you wish to accomplish and your own priorities. Then create a true partnership with the freight railroads and seek "win-win" solutions. Railroads have publicly recognized that "opportunities exist for freight railroads and passenger services to form strategic partnerships that will benefit both." Some railroads even prefer to be known as "commercial railroads" rather than "freight railroads" to reflect their provision of Amtrak and commuter passenger services.

Nonetheless, a good rule of thumb is to expect to be bitterly frustrated before reaching nirvana because some railroads may regard commuter operations as threats to their profitable freight business.

2) Obtain data from other commuter rail operators as to what they pay for access, with the same railroad or others. Figure 9 shows computations by R. L. Banks and Associates, Inc. for VRE over a period of several years. The comparisons are illustrative only since each system receives a particular bundle of services for its access fee that vary greatly.

As can be seen, VRE's access fee on CSXT jumped from about $4.78 per train-mile to about $10.50 per train mile when its agreement was renewed in early 1995, after two years of hard bargaining. In the case of VRE, the Commonwealth of Virginia has stepped in with $4 million annually of statewide discretionary federal Surface Transportation Program funding to cover the additional costs and help make track improvements required by CSXT as a condition of allowing expanded peak hour service. As expected, such a sharp increase did not go unnoticed by local critics of the VRE project. Among their comments:

- The phrases: "The public be damned" and "Charge what the traffic will bear" are alive and well in Northern Virginia.
- "Where is Jesse James when we really need him?"
- On the other side, a comment from the railroad:
  "If you don't like it, you are free to build your own railroad."

Be advised that the freight railroad will be fully aware of prices paid for access elsewhere. For example, the State of Florida paid an affiliate of CSXT over $260 million for limited control of tracks used by Tri-Rail (and the railroad now pays Tri-Rail for freight use of the line at about $.075 per car-mile). Each such purchase price sets a new floor below which railroads will be loathe to sell.

3) Seek to obtain agreement on a lower corridor value by using assessed valuations for state taxation, which the railroad may be actively seeking to reduce still further. Reduce the price still further by deductions for items of value that may benefit the freight railroad, such as freight service, utility easements and exemptions from state and/or local property taxes. Evaluate assessments carefully and recognize that in some cases the rail corridor is not comparable to neighboring parcels because of physical constraints (these corridors may be long, thin ribbons of real estate with poor access).

Figure 9
Railroad Access Fees

Location	Owner	Plant user fee per car-mile ($1989)	Per Train-Mile ($1989)
Metra Chicago	Northeast IL Railroad Corp.	-	$6.52
Metra	Chicago and Northwestern	-	5.65
Metra	Illinois Central Gulf	-	2.01
Metra	Burlington Northern	-	3.80
VRE	RF&P/CSXT (1992-1994)	$.87	4.78
VRE	CSXT (1995-1999)	-	10.50
VRE	Norfolk Southern (1992-1994)	$.76	2.59
VRE	Conrail (1992-1994)	-	7.50 (for 2 miles)
Amtrak	Norfolk Southern	-	2.58
Amtrak	Chicago, Missouri & Western	-	1.01
SEPTA	Conrail	$.47	1.48
New Jersey Transit	Conrail	$.29	1.20
Tri-Rail (Prior to purchase of right-of-way)	CSXT	$.78	-
MBTA	Conrail	$.25	-
MARC	Amtrak	$.44	-
ARC	CSXT	$.55	-

Source: R. L. Banks & Associates, Inc. for VRE (9/10/93 and 6/16/94). Updated figures for 1995 include: VRE on NS $11.27 per train mile; VRE on CSX $10.39; Metra on CNW $10.09; Metra on BN $4.32; MARC on CSX $4.02; MARC on Amtrak's NEC $2.01; and NJT on Conrail $1.37.

4) Seek to pay based on the proportion of track capacity used, perhaps demonstrated by a track capacity model, rather than as a proportion of trains currently running. The latter approach will boost commuter rail fees if the railroad chooses to reroute freight.

5) Attempt to demonstrate and obtain agreement that track and signal improvements to be provided by the commuter rail operator will also benefit freight customers and the costs should be shared.

6) Try to link any payments, or at least annual contract escalation, to on-time performance, which is a function of freight railroad dispatching and maintenance.

7) Produce a realistic financial plan to document the extent to which railroad financial demands can or cannot be met. Railroads are often willing to seek funding for the project in state legislatures and Congress. Educate the railroad about how local and regional funding decisions are made, since it may have the mistaken impression that new federal flexible funds are available for the asking (rather than being oversubscribed by existing local and regional projects as is usually the case).

8) If it is ultimately necessary to gain leverage, consider legislative help, perhaps in the form of a "limited time easement" condemnation, linking railroad tax assessments or access to discretionary government programs to cooperating with the project, or even a mandated state or federal forum in which a settlement could be compelled. Recognize that freight railroads are powerful adversaries, typically contributing heavily to both political parties. The railroad chief executive officer may earn more in annual salary and bonuses than your entire operating budget. It is far preferable if at all possible, to work with the railroad on legislative solutions (e.g. waiver of sovereign immunity, more funding for public transit).

9) Federal legislative initiatives are also available, but certainly represent a long term strategy. Objectives such as creating a federal forum to resolve disputes, capping liability and exempting commuter operators from punitive damages, modifying Amtrak's authority to compel access to terminals, and related changes all have some appeal, but may be vigorously opposed by the AAR.

10) Some would advocate involving customers (freight shippers and commuter rail passengers) and other coalition members in a public campaign to pressure the railroad into accepting a lower access fee. While it may be fun to orchestrate a public bashing of the railroad, it has several obvious pitfalls, including the fact that the railroad can retaliate in the public arena, thereby alienating some potential customers. More to the point, if you ultimately are prepared to accept an agreement similar to the one you have been denouncing in the media, the public campaign will surely be regretted. While affluent, well-connected commuter rail customers can be a very powerful force if carefully focused, freight shippers should also be brought into the coalition. Shippers may fear that passenger operations will degrade their service and should be reassured.

11) At the hardball end of the spectrum, keep in mind that local and state governments can tax and that freight railroads also depend on access to freight customers (which might be influenced by local zoning). Also local governments have some authority to enforce environmental restrictions and other regulations that may be costly to the railroads. In special circumstances it may be possible to purchase a segment of track from another railroad used by your freight rail adversary.

12) Be certain local and state agencies have agreed on a bargaining team, team captain, and strategy. Keep them all fully informed on progress (or lack thereof) as the strategy is implemented. A state secretary of transportation is usually in a much better position to lead the team than a local official, but when the agreement is concluded, local governments may be critical if they were not on the team.

13) Not all negotiations will be about the price of access. All other relevant details must also be pinned down to mutual satisfaction. Do not assume that the railroad intends to keep its physical plant intact during the term of the agreement. Shortly, before VRE signed its initial operating agreement with a railroad, the railroad ripped up one of two tracks on a bridge, which subsequently has become a major bottleneck and which VRE is being required to restore as a condition of expanded passenger service. Another railroad provided notice of its intention to take up one track over a 30-mile portion of the corridor, and VRE has been required to pay $150,000 annually to the railroad, over and above its other access fees, to keep the second mainline in place. Also, VRE continued to press for access to track further out the corridor, but access was denied, even to reach a potential storage yard that could have been built on considerably less expensive land (90 percent less) than the eventual site that had to be used, which is closer to the urban core.

14) While access fees should initially be calculated to reflect railroad costs, which suggests assessments based on car-miles or train-miles for track maintenance and car-miles or number of trains for dispatching, for administrative simplicity it may be preferable to collapse charges into a lump sum payment, possibly expressed on the basis of dollars per train-mile.

15) To assemble a team to consider <u>purchase</u> of the right-of-way, the following persons are needed, according to a report by R. L. Banks and Associates to VRE: legal counsel; rail asset appraiser; real property appraiser; bridge inspection engineer; environmental auditor; and overall project coordinator. The respective activities of each is summarized below.

a) Project Coordinator. This role could encompass the following tasks:

- Identification and funding of the other required disciplines through subcontractual arrangements;

- Preparation of appraisal report on rail assets (i.e., all involved

railroad property, except land);

- Coordination of professional efforts by subconsultants;
- Adjustment of land appraisal to reflect appropriate value diminutions such as non-resaleability of and encroachments upon fee simple title, including perpetual reservation of freight-running rights to the freight railroad and its successors or assigns; and
- Assistance with carrier negotiation.

b) Real Property Appraiser. To conduct a full scale on-site survey, summarizing findings in multi-copy written appraisal report.

c) Environmental Auditor. To conduct a thorough examination of the involved property to identify, prior to closing, any portions which require remediation measures and to estimate cost thereof (to be borne by seller) unless the railroad will indemnify the buyer for remediation of all pre-closing releases.

d) Legal Counsel. To supervise required title search, appropriate purchase and sale documentation as qualified by relevant environmental documentation.

e) Title Company to conduct an appropriate title search to ensure that upon consummation of the transaction, appropriate title documentation meeting all relevant state and local requirements has been achieved. It may be necessary to employ a separate title company in each jurisdiction. If so, appropriate supervision must be exercised by legal counsel and by the overall project coordinator. Note that the selling railroad may not be sympathetic to a purchaser's desire for clear title, since they may be convinced that the property can always be continued in its present rail use. A problem might arise for a purchaser if the land is placed in a non-railroad use in the future.

f) Bridge Inspector. The potential expense of rehabilitating bridges is so high that specialized civil engineering assistance is prudent to inspect all bridges.

16) Try to include in the base agreement provisions for special trains (such as ceremonies, sporting events, station days, county fairs), since negotiating separate fees and insurance for each of these will be time consuming and deadlines may be missed.

17) Try to establish a joint operating committee to review with the railroad causes of delays and methods to improve communications, with regular meeting dates, and written responses by the railroad to recommendations of the group.

18) The railroad may insist on separate lease documents for land it owns on which

stations and parking are to be constructed. Failure to reach agreement may delay access to the property and hold up construction.

19) Contract language should be written to qualify lease payments as eligible capital expenses for federal grant purposes. Also, consider a clause allowing prepayment, which can sometimes be advantageous if a local government borrows at tax free rates but is credited at the railroad's taxable (higher) cost of capital.

20) Railroad police can be extremely helpful in controlling vandalism at remote stations, but the railroad may refuse to commit these resources for liability reasons.

21) The railroad may demand that the commuter agency indemnify against labor claims as well as all other risks (hazardous materials spills, other accidents) occasioned by the mere existence of commuter rail (i.e. that would not have happened "but for" the existence of commuter rail).

22) Railroads will resist compulsory arbitration, preferring to be the sole judge of what is acceptable under the contract.

23) A negotiated settlement is preferred, but as US DOT Secretary Pena put it, "As VRE's experience indicates, this is not always possible."

RESOURCES:

- "Operating Access Agreement Between Southern Railway Company and NVTC/PRTC for VRE Service Between Alexandria and Manassas, Virginia, "(December 1, 1989).

- "Operating Access Agreement Between CSX Transportation, Inc. and NVTC/PRTC concerning VRE Commuter Rail Service," (January 10, 1995).

- "Master Lease Agreement Between CSXT Transportation, Inc. and NVTC/PRTC Concerning VRE Commuter Rail Stations" (March, 1995).

- "Agreement Between Maryland State Railroad Administration and CSX Transportation for Provision of New Signal System to Permit Increased Operation of MARC Trains," (March 19, 1990). Drafted to permit use of federal funds for improvements to the private railroad.

- "Strategies to Facilitate Acquisition and Use of Railroad Rights-of-Way by Transit Properties" Transit Cooperative Research Program #J-5-1, Kevin Sheys (September, 1994).

- "Operating Access Agreement Between Consolidated Rail Corporation and NVTC/PRTC Concerning VRE Commuter Rail Service" (December 1, 1989)

- "Alternative Access Arrangements Available to Northern Virginia Public Bodies in Connection with Continuation/Enhancement of VRE Commuter Rail Service on the Norfolk Southern Railway Company Right-of-Way Between Alexandria and Manassas." R. L. Banks and Associates, Inc. (September 7, 1995).

E. Insurance/Indemnification

State-owned and operated commuter rail systems may rely on existing state resources to provide levels of indemnification satisfactory to all. In some cases, state limits on tort liability reduce exposure to risk of claims. And generally, with such tort claim limits passenger fares can be lower, since the share of fare revenues devoted to tort liability is lower. Research published in 1994 showed public transit systems with such immunity devoted an average 4.19 percent of fare revenues to tort liability costs, while the average for systems without such liability limits was 7.01 percent.[1]

But for most locally owned systems, private railroads may demand levels and forms of protection that are almost beyond local resources. And to provide such coverage, several changes in state (and even federal) law are likely to be required. The experience of VRE in this regard is most instructive.

State Farm, Aetna, Travelers, Allstate, and other familiar names for automobile casualty and liability insurance will not be found on your policies. Whatever good hands you're in it is likely that you will either be in London or Bermuda. But, first you must get comfortable with retaining the first $5 million per accident. Your actuary, a very highly paid student of probability, will explain that railroads are very safe, characterized by low frequency/high severity occurrences. However, it is not the epitome of no risk: a fire policy covering pig iron under water. Governments often employ the concept of sovereign immunity to limit liability to modest sums; for instance in Virginia the Tort Claims Act limits government liability to a maximum of $100,000 per person. VRE tried to give the railroads sovereign immunity for risks arising from the operation of commuter service, but neither the Virginia General Assembly nor the Attorney General would agree. Absent insurance or reserves the railroads wanted a full faith and credit indemnification (most local governments cannot provide such a credit guarantee without a referendum).

After a Chase, Maryland accident in 1987, the railroads broadened their demands for indemnification to cover all liability, regardless of the character of negligence. Using the example of the Chase accident this would mean VRE will be financially responsible even though railroad management might be aware that employees were using illegal substances and defeating the safety appliances on locomotives. In a more typical relationship the commuter operator would be paying the railroads' insurance premiums as an avoidable cost. Finding $200 million in coverage three or four times over (one for each railroad used by VRE) was not possible in a "hard market," and eventually the separate railroads agreed to a common policy, with the exception of Conrail.

[1] "State Limitations on Tort Liability of Public Transit Operators," TCRP Legal Research Digest #3 (December, 1994).

At the state level, recognizing that VRE could not redefine sovereign immunity to include private interests, it obtained legislation from the General Assembly to allow self-insurance to compromise sovereign immunity by allowing VRE to pay more than the ceiling (then $75,000 per person, now $100,000). Legally it works through the creation of a third party administrator in the state government, but when VRE asked the plan's administrator to cover the actual operation of a train carrying the Governor and others on a ceremonial ride, he refused. It seems he felt that actual train operation might expose the plans assets to a real risk. On the Thursday before the Saturday that the train was to run VRE received calls from the operator (Amtrak) and the railroad owning the tracks demanding that insurance be in place by sundown or VRE could forget the ceremonial train ride, Governor or no Governor. With no help from the third party administrator, VRE ended up with a policy issued from a fax machine in Ft. Wayne, Indiana for this special ceremonial trip.

VRE established such a reputation for need that insurance brokers all around the country returned calls promptly. So-called "humorous" telephone messages threatened: "Your insurance is canceled... just kidding!"

After successive negotiations with Amtrak ($50 Million) RF&P ($100 million) and Southern (infinity) VRE determined that it must purchase insurance from a "captive." Captives are thinly capitalized companies, usually operating from off-shore. Policies sold by captives are often only sold to stock-holders. The Virginia Code had to be amended to permit governmental investment in these companies. Also, much to the distaste of many Virginia legislators, state law was amended to allow indemnification of gross negligence, as demanded by the railroads. VRE's "plan" had to be identified in new state legislation as being equivalent to "insurance," since VRE's liability was restricted in its exemption from sovereign immunity in the Tort Claims Act to the amount of its "insurance." To win approval of the latter provision, a sunset provision was added. Unfortunately, the sunset provision took effect before the legislation could be renewed, but since this occurred before VRE service had started, no serious damage to the project resulted. The new provision does not contain the sunset clause.

Starting in April 1989, VRE supported an attempt to eliminate punitive damages from the operation of all rail passenger service in the United States. Here is what Senator Ernest F. Hollings, Chairman of the Senate Committee on Commerce, Science and Transportation Committee said at that time:

> The specifics of this situation do not dictate a reversal in sound public policy to approve a legislative exemption from punitive damages.... Indeed the lesson from the Chase accident was that additional steps must be taken by the railroads to prevent employees from acting irresponsibly and in utter disregard of the safety consequences of their actions....The fact that the industry clearly expects to save a significant amount of money in settling injury or wrongful death cases as a result of this amendment should raise questions among all those interested in fair treatment of rail passengers.

During 1990, VRE was required to work through Congress to provide a cap on liability for Conrail as a condition of using a bridge and two-mile stretch of track. As the bill moved into the House the amendment was narrowed so that even Maryland's commuter rail service would not be covered if it were to operate through to Virginia. This provision survived an initial veto and failed override before finally being successfully attached to a bill that was signed into law (Public Law 101-322,104 STAT.295).

VRE was called upon to provide another kind of "insurance" as well, since several local governments that were part of the sponsoring transportation district were not participating in the project. They demanded that their assets at NVTC be fully protected against any claims arising from the VRE project. State budget language was added to reinforce NVTC's trustee status over the considerable assets held by NVTC for each of its member jurisdictions.

TIP: The first question to ask a freight railroad during serious discussions of implementing commuter rail service should be addressed to the levels and structure of insurance to indemnify that railroad. Will the railroad prefer to leave the administrative duties to an impartial third party such as a state agency or will the railroad insist on its own oversight? Be aware that the level of reserves and amounts of insurance needed to provide indemnification will vary greatly depending on the confidence level chosen from the underlying actuarial study. Agreeing on a 90 percent level of confidence could save an agency as much as a million dollars annually compared to selecting a 95 percent level of confidence. Such actuarial studies attempt to predict future losses based on past loss experience of comparable commuter rail operators, until the new railroad has gained a few years of its own operating experience.

VRE's insurance program is now comprised of a $5 million self-insured retention, a layer of commercial insurance up to $25 million (with annual premiums of over $1 million) captive insurance with Ace up to $100 million (costing $750,000 annually with half of the premium returned if no claims are made) and with XL up to $200 million (costing $500,000 annually). The latter two organizations are based in Bermuda. The annual premium cost is over $2 million, paid for by earnings on a $20 million reserve administered by the Virginia Division of Risk Management.

TIP: Try to obtain, as VRE did, a retrospective premium provision that will allow lower premiums on the assumption of no significant claims, and if claims do occur, the policy can be automatically reinstated upon repayment of the previous discount. Once you have established an insurance program, use it to its maximum extent. For example, you may be able to absorb liabilities from your contract operator (say, for federal employees liability protection -- FELA) at less cost through your program than your operator charges you (e.g. Amtrak charges VRE 8 percent of employees' salaries for FELA protection).

With the tragic accidents in New Jersey and Maryland early in 1996, and subsequent FRA and NTSB rules and recommendations, freight railroad concerns with adequate insurance are understandably heightened. For example, the CSXT contract with Maryland requires MARC to indemnify CSXT but excludes gross negligence. Consequently, the two parties are very likely to strenuously contest who must pay for the enormous claims that will arise from the loss of life in this accident.

RESOURCES:

- "NVTC and PRTC Commuter Rail Operations Liability Insurance Plan for VRE" (December 20, 1989). Executed contract with Virginia's Division of Risk Management describing responsibilities for VRE's self-insurance trust.
- "Agreement Between the Division of Risk Management and NVTC/PRTC for Management of the Liability Insurance Plan for VRE" (October 27, 1989).
- "Indicated Loss Funding Requirements for VRE Commuter Rail," Tillinghast, Nelson and Warren (June, 1986; June; 1987; July, 1988; June, 1993). Actuarial studies required for VRE's self-insurance trust.
- RFP 87-5 Broker of Record/Insurance Consultant for the Virginia Railway Express Commuter Rail Project, (Issued: October 2, 1987).
- "State Limitations on Tort Liability of Public Transit Operations," TCRP Legal Research Digest #3 (December, 1994).

F. Finance

Finding funds to start your system can be relatively easy if you are represented by a key member of Congress, since earmarking of federal funds is still a common practice. Tri-Rail in Florida began as a "maintenance of traffic" project during reconstruction of I-95, with a large share of earmarked federal funding.

TIP: Earmarks must be translated into grants. The earmark may apply only to capital funds with a 20 percent non-federal match required. Don't expect a 100 percent federal share, and don't expect FTA officials to be as excited about your project as are you and your members of Congress. A former FTA Administrator's reaction to VRE's $750,000 federal earmark: "I'm not going to support another subsidy sucker in the D.C. metro area!" To encourage continued congressional support, when your system makes a major procurement, write the member of Congress in whose district your vendor is located to let them know that federal transit appropriations are at work.

Federal and state funding agencies will have detailed and voluminous regulations that must be met to qualify for funding. Failure to meet these regulations can delay (or remove) such funds from your arsenal. Meeting the regulations takes considerable time and expense (the costs can usually be defrayed by the grant) and include such categories as civil rights and disadvantaged business enterprises among many others.

In identifying funds, a new, dedicated source is preferable. As mentioned, the VRE project was partially funded with a new two percent regional gas tax, and also used oil overcharge refunds to help fund its insurance program. A demonstration of commuter service in Seattle used $1.5 million out of a $13 million anti-trust settlement, plus $1 million in earmarked federal funds to provide free commuter service (and $10 roundtrip fares for sporting events). BN operated this demonstration, using 14 leased Go-Transit bi-level railcars in two trainsets. In San Diego, the North County Transit District is using the proceeds of a one-half cent sales tax plus $70 million of state-issued bonds.

TIP: A regionwide gasoline tax that covers the local costs of the project can be a powerful inducement for local governments to participate in the project, and even more so if there are extra proceeds that can be applied for other transportation purposes (e.g. roads). Be aware that the "free rider" problem is very real, and some local jurisdictions may expect to use the service without helping to pay for it. Not allowing the relatively painless regional gas tax to be levied in a non-participating jurisdiction can provide an incentive to participate financially.

To the extent that your project wishes to use pre-owned rolling stock, existing federal interest in that property may complicate its sale, just as cross-border or other sale leaseback transactions involving that equipment may encumber its transfer to your project. FTA staff can be helpful in facilitating such a transfer, or can point out reasons why such a transfer can't take place (e.g. FTA new start criteria, environmental analyses).

TIP: Be very wary of cross border leases that are not fully defeased (meaning funds to repay the transaction are deposited in a trustee bank). Generally try to make any legal and financial consulting fees contingent on the successful completion of a deal, since the markets for these transactions are very thin and shift frequently.

Believe it or not, money can be borrowed by local agencies who have no real assets and cannot promise to repay the money. VRE borrowed $79 million in 1990 using an "appropriation based credit," in which NVTC's jurisdictions agreed only to consider budgeting the funds to repay the debt in each year's budget process. Because a major rating service did not share VRE's confidence in this debt structure, VRE purchased bond insurance to gain an "A" rating and very favorable market interest rates. The funds were used to finance rolling stock and stations, although a last minute change in the tax code by Congress limited the ability of VRE to use the funds to establish its insurance reserve.

Overall, VRE raised about $122 million of capital funds before service began. In addition to the bonds, sources included local contributions of $7 million (primarily from the two percent regional gas tax), less than a million dollars of federal funds, $23 million from the Commonwealth of Virginia, and investment income of $14 million. Uses of the funds included $20 million for an insurance reserve, $25 million reserved for future capital projects, $34 million for rolling stock, $18 million for system stations, $1.5 million for other equipment, $5.0 million for equity in stations co-owned by local governments, and $20 million of working capital.

In addition, local governments used about $22 million of their general funds and local bonds to build stations and parking for which they retained sole ownership.

When VRE service began, the state, local governments and fare-paying customers each paid about a third of operating and capital costs, with a fare box recovery ratio of over 50 percent (as required by the Master Agreement).

TIP: Offering temporary demonstrations with escape valves are useful in encouraging to participate outlying jurisdictions with little experience subsidizing public transit. But the need to fund a gigantic insurance reserve prior to a demonstration may defeat that strategy. Consequently, contract operators with access to insurance -- if they exist -- can be essential to the success of a demonstration.

Sponsoring agencies will require regular and detailed financial reports. As the number of agencies sharing in ownership of assets grows, the complexity of accounting grows exponentially. Again, regular briefings of financial officers of participating jurisdictions will help establish confidence. As mentioned, an annual budget review process for local officials that also updates a multi-year financial plan can be useful.

TIP: Build sufficient contingencies and rigid audit requirements into contracts for construction projects to be performed by the freight railroads, since their lack of familiarity with your project may cause

their initial engineering estimates to be far removed from their ultimate costs and the bills may not be sent for an extended time after work is completed, requiring difficult reconstruction of financial records for audit.

In the post-ISTEA environment of cooperative regional transportation planning and programming, new sources of funds may be available for commuter rail projects. The regional and state processes for allocating these funds can be lengthy and complex. Learn the key local dates and individuals involved in the process, and allow sufficient time to meet submittal deadlines. Persons making the decisions may not be familiar with the project and how it can benefit the region, so briefings and presentations should be arranged. VRE marketed itself in these forums as providing a peak hour freeway lane of capacity at a fraction of the costs.

TIP: **You may sometimes be called upon to devise appropriate uses for unexpected sources of funds. A local member of Congress may see an earmarking opportunity or the President may propose an economic stimulus package. Usually such requests are false alarms, but every system should have devised a wish list of projects that are not currently funded but that are approved up to the stage of funding. Obviously, such previously unfunded projects will not be in the current Transportation Improvement Program nor in the Financially Constrained Long Range Transportation Plan, so become familiar with how such regional documents can be amended expeditiously. Many regions must comply with Clean Air Act mandates, and some will need to impose transportation control measures (TCM) to meet those mandates. Because commuter rail systems are environmentally friendly, these projects (including improved parking, more frequent schedules, and reduced fares) could qualify as TCM's with funding from flexible regional sources such as the Congestion Mitigation and Air Quality (CMAQ) program.**

Careful consultation with a financial adviser will pay off in long term financial rewards and help in meeting sudden cash flow requirements. You will first want to carefully explain your tolerance for risk, which should be based on your own investment policies and applicable local, state and federal requirements.

TIP: **Techniques are available to help manage cash flow. For example, if you borrowed to fund start-up and must pay principal and interest into a trustee's account prior to semi-annual payments to bond holders, you can take advantage of "float contracts" that will pay you higher interest than you would normally earn on those trustee deposits through a longer term structured portfolio, and provide the discounted present value of these higher earnings in advance. Consequently, you might receive a check for a million dollars now to work through a budget cash flow emergency, rather than earning slightly less over an extended period of years as your bonds mature.**

If a sponsoring agency is empowered to issue bonds for the project, you will need a financial advisor, team of underwriters, bond counsel and possibly bond insurance. This team will help prepare an official statement containing a detailed description of your project, opinion of bond counsel regarding its tax-free status, the debt service requirements, indenture of trust and funds and accounts for debt service, and detailed information about the financial health of the agencies responsible for debt service. The lead underwriter will also give advice about the market timing for your debt issue.

TIP: You can pay the costs of your financial team from the bond proceeds. Tax-free debt carries with it a complex set of accounting responsibilities to calculate and pay arbitrage rebates, which are basically penalties for earning a higher rate of return on the bond proceeds than the interest being paid to bond holders. Experts may charge up to $10,000 each year for such specialized calculations. Also, routine annual project audits should cost $25,000 and up and specialized audit reports are required by federal and state funding agencies.

RESOURCES:

- "Preliminary Official Statement for $79,350,000 of NVTC/VRE Commuter Rail Revenue Bonds, Series 1990" Morgan Stanley & Co., Craigie Incorporated and Kidder, Peabody & Co. (January 19, 1990).
- "Preliminary Official Statement for NVTC/VRE Commuter Rail Revenue Refunding Bonds, Series 1993," Morgan Stanley & Co.; Craigie Incorporated; Wheat First Securities, Inc. (June 29, 1993).
- "FTA Regulations for Grantees" and "FTA Master Agreement," Federal Transit Administration (Revised: 1987).

G. Operations

Operations include dispatching, maintenance of way, on-board crews and maintenance of rolling stock, all of which are sensitive to labor agreements. There are a number of unique qualities to railway labor relations. For example, there are 18 separate unions in the Railway Labor Executives Association, the RLEA. Frequently the railroad over whose tracks you plan to operate may have labor contracts spelling out which jobs belong to which craft for the operation of any and all railroad trains over those tracks. The Railway Labor Act provides for protection of displaced railroad employees and resolution of disputes. Those of you with FTA funding know of "13c," labor protection in which displaced employees receive several years of salary, but you may not know that the railroads pioneered this concept.

Whether to use agency employees for operations or choose a contract operator will depend on which approach is more efficient. An ongoing research project funded by the Transit Cooperative Research Program of the Transportation Research Board is seeking to identify the extent to which contracts with private operators contribute to efficient operations. This project is also compiling existing operating agreements for reference. The report is expected late in 1996.

TIP: Wherever possible retain the right to contract out, even if you choose a contract operator (e.g. a different firm might provide a better price for car cleaning). If at all possible, your agency or its private contractor should seek to control dispatching, since this so greatly affects on-time performance. Whether or not contract operators are employed a station/line manager concept has appeal, in which one person is placed in charge of all station service (e.g. ticketing, cleaning, landscaping, passenger information, maintenance).

If the choice is made to seek a private operator, hiring a firm to perform some or all of the above operating tasks will first involve a review of the work on each of the railroads. No railroad is likely to want to be responsible for any potential displaced commuter rail employees, and will seek indemnification against such claims. However, railroads also may not be comfortable with the thought of a new operator over their tracks. VRE was able to convince its contract operator, Amtrak, to seek to use the reduced crew agreement it had negotiated for MBTA service in Boston. Unfortunately, the RLEA representatives initially did not see this as new work. In VRE's discussion of crew size and hours of work there were frequent references to "give backs." Ultimately VRE did prevail and Amtrak's MBTA contract became the basis of service in Virginia.

There are two additional special human resource programs for rail labor:

- The Railroad Retirement system, not Social Security, provides for railroad employees' retirement. Much of the liability for two million original employees is now carried by the employers of 200,000 current employees.

- The Federal Employers Liability Act, FELA, governs the compensation of injured railroad employees. FELA does not limit the recovery of an injured

employee and does require an adversarial proceeding for the employee to recover.

TIP: Try to find a relevant labor agreement with reduced crew sizes and apply it to your situation. If Amtrak or a freight railroad is the contract operator, it may not be willing to jeopardize its own labor harmony to push too hard for smaller crews for a particular commuter rail operator.

Be aware that labor actions at other railroads can shut down your operation. VRE, at long last ready to begin service after eight stressful years of implementation planning and trouble-shooting, saw its service shut down in its very first week of operation by a nationwide strike affecting one of its freight railroad hosts and its contract operator. Thankfully, by the second week service was restored and no similar events have occurred since.

Currently, competition to provide contract operations of commuter rail services is healthy, with several private operators and (depending on the right-of-way) freight railroads vying with Amtrak. In 1994, Amtrak carried 22 million intercity passenger trips, but the commuter rail properties it managed in Boston, Los Angeles, San Francisco, Connecticut, Maryland and Virginia carried 33 million passengers. Similarly, UP's commuter operations in Chicago (90,000 weekday riders on C&NW lines) and Los Angeles constitute 16 percent of the 1,200 trains UP operates each weekday. Herzog Contracting Corporation recently won a three-year, $17 million contract to inspect and maintain track and structures for Metrolink. Herzog also is the contract operator for South Florida's Tri-Rail system.

In writing RFP's for contract operators, list desired parameters for:

1) Travel time
2) Frequency and level of service
3) Span of service time
4) Capacity
5) Rail car type
6) Consists (length and composition of trains)
7) On board amenities (e.g. reclining seats, coffee vending)
8) Stations: How many? Level of services? Size? Level of maintenance?
9) Parking lots
10) Railcar/locomotive maintenance (maintained to FRA standards)
11) Ticket sales
12) Indemnification/insurance

Solicitation of a contract operator should take about six months to a year from the time the RFP is issued, complete with the above data, assuming no prequalifying and no protests. In the event that more than one railroad corridor is competing, each with one or more potential operators, useful criteria are:

1) Most advantageous union agreements (cost, flexibility)
2) Dispatching quality
3) Environmental issues (often relevant as a choice between competing corridors or two or more competing railroads).
4) Indemnification/Insurance/Performance Bonds
5) Expansion potential
6) Municipal slow zones in competing corridors (not easily changed)
7) Schedule

A favorable operating contract should as much as possible permit contracting out. It should also permit flexible job assignments. Controlling operating costs is interdependent with other decisions, since use of freight rights-of-way means freight liability concerns and labor agreements will influence what operating practices freight railroads are willing to allow. Dispatching priorities also come into play. But station, parking lot and support building maintenance and cleaning, communications (employee radios, station announcements), security, ticket vending and parking fee collection, supervisory fleet (auto/trucks) maintenance and computer maintenance, all being relatively small in scope and not interrelated, can be readily contracted, often to small, local firms.

The contract operator will require an extended period of time (up to six months) to properly train crews.

TIP: The use of advanced operating technologies requires intensive training and frequent maintenance.

As stated previously, projects leasing access from freight railroads will need -- at a very early stage -- to submit operating plans for approval by those railroads. It is better to work out the plans in the first place in cooperation with railroad personnel. If a track capacity model is used for this purpose, try to get the railroad's commitment to accept the results. Railroads may try to restrict commuter operations to limited "windows" to maintain their own flexibility to serve their freight customers, but expect that same railroad to operate freight trains during the commuter rail window. Thus, however optimistic a commuter rail sponsor feels about the role of mid-day and late night "sweeper" service in opening up new markets for shoppers and boosting peak ridership at little increase in operating costs (through more intensive use of crews and rolling stock) it may not be an available option where freight railroads control access.

Freight railroads also may insist on retaining control over the firm that provides operations. One of VRE's railroads insisted on Amtrak as a contract operator and since Amtrak controlled access to its own Union Terminal, the decision was made by VRE to choose Amtrak on a sole source basis.

TIP: "Don't let politics invade operations" sounds like good advice, but it isn't. Operations depend on winning concessions from parties reluctant to concede and on paying for service. Politics are all about getting things done and paying the bills. To the extent that politics inevitably invade operations, they should be non-partisan.

Finally, operating practices have safety implications. The use of night-time split shifts has been criticized as contributing to fatigue but justified by cost savings to cash-strapped operating authorities. Using push-pull operations saves the costs and time of turning trains but has raised questions from FRA and NTSB over safety, despite the excellent overall safety record of such operating practices.

RESOURCES:

- "Purchase of Services Agreement between Amtrak and NVTC/PRTC for Operation of VRE," (October 27, 1989, Revised: April, 1994).
- "VRE/CSXT Dispatch Planning Model Train Simulation Results," Wilbur Smith Associates/Berkeley Simulation Software (August 30, 1994).
- "Los Angeles County Transportation Commission Request for Proposal #CR006 for Commuter Rail Operations Services)" (June 7, 1991).
- "RFP for a Contract Services Operator for the Peninsula Commuter Service (California) Contract No. C-818" (September 3, 1991).
- "RFP for Qualifications and Proposal #CT/F140-92 Seattle-Tacoma Commuter Rail Project, "DRAFT: April, 1993).
- "Commuter Rail System Management Contracts to Minimize Cost and Maximize Productivity," TCRP Project J-6, Task 13 (in progress).

H. Rolling Stock

Each new railcar you purchase may have more than 5,000 engineering drawings, 7,000 parts and 30,000 welds. Accordingly, a single-level stainless steel Budd-design car seating 100-120 may cost over $1 million, and a bi-level car seating 150 may cost up to $2 million. Used cars are also sometimes available on the market. VRE purchased used Budd coaches from MBTA and overhauled them for $320,000 per cab and $210,000 per trailer (including the $40-50,000 purchase price) to provide 10 additional years of service.

APTA's Rolling Stock Committee, Commuter Rail Subcommittee is compiling an inventory of existing commuter/railcars by property, age, and configuration. This should provide a valuable resource for researching the market for new and used equipment, when it is completed (perhaps 1996).

In deciding on rolling stock, several dimensions should be considered, including whether high or low-level platforms can be used, whether bi-levels or single levels are preferred, whether diesel or electric locomotives are to be employed, whether push-pull or multiple-unit train sets are to be used, and whether new or rebuilt rolling stock will be acquired, by purchase or by lease. High-level platforms allow easier passenger boarding and avoid the need for crews to pull and release traps (covers and steps) at each station, but may not be acceptable to freight railroads. Unless electric service is already available on a rail line, electrification is a very costly prospect for new starts and would likely not be cost effective unless required, say by clean air regulations. Push-pull or multiple-unit operations save crew costs since turning is avoided and consequently shorter headways are possible with the same number of trains, but safety concerns have been raised by FRA, NTSB and others, despite the general excellent safety record of such train configurations. New rolling stock can be built to local specifications, but is on average 40 percent more expensive for equivalent useful life and requires an average 30 month lead time versus 16 months for rebuilt units.[1]

TIP: If your system is truly customer-oriented, you must be willing to pay the price for two by two seating, versus the more economical three by two seating. Include on-board telephones that are very popular during delays. Add flexible features that are likely to be popular for a variety of potential operators, since your railcars may be leased to other systems (at rates of perhaps $200 per day per coach) or sold with remaining useful life.

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[1] "The Big Rolling Stock Revival," Gary Landrig, Mass Transit, (Nov-Dec, 1995) at page 84.

New locomotives cost more than $2 million for a 3,000 horsepower diesel unit, while rebuilt locomotives may cost $1.2 to 1.5 million, depending on amenities. These are usually rebuilt freight units. Go-Transit claims to be the first operator to use a diesel electric locomotive (GMFS9PH) built for passenger service.

TIP: When researching potential sources of used rolling stock, beware of failure to comply with Americans with Disabilities Act requirements (e.g. older bi-levels may not have wide enough entrances and aisles and may have steps that don't accommodate wheelchairs); also be aware that FRA fire and other safety standards must be met.

Cab cars are railcars that can control the entire train when the train is in a push-pull mode with the locomotive fixed at one end. When approaching an intersection, such units may look to inexperienced drivers as if they are receding. New FRA regulations require flashing ditch lights on locomotives and cab cars, which help improve train visibility. Another technique is to affix bold safety stripes to the end of the cab car and conduct a vigorous education campaign to avoid accidents, especially soon after service starts and until drivers get accustomed to the new push-pull operating approach.

The FRA and NTSB have expressed concerns about the use of cab cars and multiple-unit operations (without locomotives forward). A notice of proposed rulemaking may alter strength requirements for cab cars and other commuter rail cars. APTA is seeking to write standards for such cars on behalf of the industry. Special concern with doors and windows is needed to accommodate new regulations for emergency exits.

TIP: If a low bidder is not well known in the marketplace, careful evaluation is needed.

For a foreign manufacturer new to the U.S. market that was the low bidder on VRE railcars (there were no domestic bids) VRE officials traveled to the foreign production site and spoke with general managers of railroads and transit systems there who used equipment manufactured by that company. The general managers were asked to rate its performance and provide inspection of operating and maintenance records for verification. VRE officials rode the railcars there and examined the firm's computer aided design capabilities and its manufacturing processes. They talked to the U. S. Commercial Attache and officials of several multi-national firms doing business with the firm, while obtaining a complete customer list for further reference checks. They met with officers of the foreign development bank to determine the financial health of the manufacturer. A foreign law firm was retained to help in the investigation. Ultimately the rail cars were produced successfully (if late) at a substantial savings ($300,000 per car) compared to similar cars purchased at the time by other U.S. commuter rail operators.

TIP: During the project planning phase, most systems will be approached by entrepreneurs wishing to provide state-of-the-art (and beyond) equipment, such as rolling stock. They may offer inducements such as lower cost, superior performance, and manufacture in local facilities. They may ask for sole-source consideration or at least for modification of bidding specifications to accommodate their products.

While such offers may seem attractive, and the support of emerging technology is an admirable goal, there can be serious hidden costs, such as unforeseen delays, regulatory hurdles for unproven technology, and customer unfamiliarity. You may find that the staid, tried and true approach works best.

Self-propelled railcars also provide a rolling stock option, either as diesel or electric multiple units. Stainless steel versus aluminum railcars must also be evaluated when preparing specifications for bid. Stainless steel cars are readily rehabilitated and life can extend to well over 50 years. Also ease of maintenance must be considered, and whether a contract maintenance firm has adequate facilities and incentives to perform well.

TIP: **When procuring railcars, request vendor financing, since very favorable financing terms may reduce the overall cost of a package of railcars or locomotives and associated services. To illustrate the need for such financing, point to the competition -- private automobiles -- whose manufacturers fully understand the benefits of vendor financing. Other incentives can be requested to help boost the local economy, such as local products and services. Also, consider seeking an option on other commuter rail systems' railcar procurements as a means to achieve lower prices through high-volume purchases and to reduce administrative costs of multiple procurements.**

Through the end of the decade from 200 to 800 new commuter railcars are likely to be ordered, adding to a backlog of 500 cars, and providing many opportunities for new systems to seek options. In addition, four to 12 self propelled diesel multiple units may be acquired by GO-Transit, and North County Transit (San Diego) is considering new service on a 22-mile Oceanside-Escondido route. Dallas has already acquired RDC's to be rehabilitated for its new service.

Issues associated with determining the optimal number of railcars to maintain as spares are described in a TSRP publication cited below. Reported spare ratios of existing commuter rail operators vary from 3.5 percent at Metra to 21 percent at SEPTA. The publication explores the impact on these spare ratios on fleet costs, maintenance practices, procurement cycles, age of fleet, etc.

RESOURCES:

- "Contract for Procurement of Railcars Between Mitsui & Company (USA), Inc. and NVTC for VRE," (February 1, 1990).
- "Agreement for Sale/Leaseback Transaction for Two VRE Locomotives" (April 8, 1994).
- IFB 94-4 for Two Rebuilt VRE Passenger Locomotives with Independent Head End Power Units (Issued: April, 1994).
- IFB 95-1 for the Overhaul of Ten VRE Commuter Rail Cars (Issued: October, 1994).
- Agreement Between NVTC and STV/Steelye, Stevenson, Value and Knecht for Assistance in the Selection, Purchase, Inspection and Acceptance of Commuter Rail Cars and Locomotives for the Virginia Railway Express (November 19, 1987).
- "Development of Stainless Steel Railcars in Japan," Iseo Hatano, Nickel Development Institute (1991).
- "Stainless Steel for Mass Transportation" America Iron and Steel Institute (January, 1977).
- "Literature Available," Nickel Development Institute (March, 1994).
- "Scope of Work for VRE Bi-Level Railcar Procurement," NVTC (March 1, 1996).
- "The Big Rolling Stock Revival," Gary Landrig, Mass Transit (Nov-Dec, 1995) pp. 84-87.
- "The Transit Railcar Market -- 1996-2000," William D. Middleton, Transit Connections, (Vol. 3, No. 3, 1995) pp. 11-13.
- "System-Specific Spare Rail Vehicle Ratios," TCRP Synthesis 15 (1995).
- "Commuter Rail Grows Up," Cliff Henke, Metro Magazine (Jan/Feb 1996) pp. 40-47. Profiles potential DMU markets in the U.S.

I. Procurement of Engineering/Design/Construction Services

You may choose an institutional host for your commuter rail project that does not possess its own force of engineers and architects, and very likely will not have its own construction employees. Accordingly, many of these activities will be procured. First and foremost, state laws must be followed, and if federal funding is used, many additional procurement requirements will be required. Examples of federal requirements include Davis-Bacon wages in which prevailing local union wages must be paid, and detailed records kept, and Buy America which sets minimum U.S. content. In some states such as Virginia, certain professional services cannot be obtained by competitive bid, requiring instead requests for proposals that cannot require a binding array of hours worked by individual with associated fees. Obviously, any solicitations should be carefully reviewed by attorneys and others who are thoroughly knowledgeable about state and federal procurement regulations.

TIP: Try to avoid low bid procurement and instead use negotiated procurement.

For many tasks, you should anticipate teams of firms will respond to your requests for proposals. This allows specialists to be available for tasks that you describe in your scope of work. With careful planning and sensible, careful contract management, these business relationships are often very successful. But too frequently, things can go wrong, and some of the reasons are:

1) Lack of local presence by consultants, who consequently must travel extensively at your expense or try to handle sudden local problems from a remote location. Such individuals might not be aware of local conventions such as format for engineering drawings, that could cause confusion for local construction firms.

2) Key individuals may be re-assigned to other projects.

3) Change orders to respond to unforeseen situations may be poorly documented leading to claims and counter claims.

4) Occasionally a firm may practice forms of intimidation prior to contract award such as repeated protests backed up by lawsuits seeking injunctions. This is one reason to build lots of time into project schedules, since such actions may be independent of the care with which the requests for proposals are drafted and may be designed to gain leverage with projects on a tight schedule.

5) Many legitimate questions can be handled and subsequent protests avoided, by soliciting public input from the industry before issuing the RFP, and again in at least one pre-proposal information conference. Any lessons and clarifications should be shared with all potential respondents.

6) Subcontractors may end up in disputes with prime contractors and try to place the agency in the middle to gain leverage.

7) Private construction contractors may not be familiar with local government requirements. Your RFP should very clearly and thoroughly spell out these requirements.

8) Contractors may try to elude liquidated damage claims for failure to complete projects on time by citing allowable exceptions (e.g. force majeur). You will need detailed documentation to make a fair determination.

TIP: For each of the above common problems there is a solution. Be certain that bid and performance bonds are in place, whenever possible include enforceable liquidated damages and be prepared to litigate. Firms generally are asked whether they have ever failed to complete a project in responding to RFP's, so may be willing to work out a mutually agreeable settlement rather than risk alienating future customers. Insist that your contractors have local offices to assure accessibility and familiarity with local customs. Establish by contract the right to refuse transfers of individual consultants into or out of your scope of work. You do not want an effective construction manager to be transferred in the midst of the project, especially before the construction contract is closed out and all claims and counterclaims resolved. Try to use the standards of the biggest government agency purchasing construction services in your area (e.g. consider your state DOT's standard retainage percentage, materials certification and claims and change order processes) because private firms are more likely to be familiar with those standards. Write RFP's to appeal to the broadest possible market of potential respondents. For example, slightly lower bid and performance bonds may allow more smaller firms to respond, and your rail stations may be similar enough to small warehouses, for example, to lure construction firms with no experience in the rail industry. On the other hand, for construction on private railroad property, the railroad will usually insist on using its own forces (at rates that may exceed Davis-Bacon levels after administrative fees are added). Allow enough time between RFP due dates and contract award for detailed negotiations over fees and scope of work. Board members may rethink such contracts before authorizing award which may require time to add refinements, for example. Be aware that inexpensive construction managers and other services may be available to your project as local and state governments are downsizing.

Once construction begins, local zoning and building codes are likely to require significant time to obtain permits.

Some agencies prefer to use a pre-qualifying round in their procurements, in which the credentials of the top few firms or teams are established and only those top firms are then permitted to submit detailed proposals. Be aware that this will add about three months to the process.

With respect to design of stations, each system will likely want to provide some unifying elements while at the same time allowing local neighborhoods some choice. VRE obtained modular designs, with a central "head house" to cover ticket vending machines, and canopied units stretching along the platform. Within these common modular designs, local stations could vary by color (a choice of four) and size. All signs were identical, however.

All new stations must now comply with Americans with Disabilities Act standards, as must reconstruction of most stations. Commuter rail operators were required to produce "key station plans" designating their intentions to upgrade certain existing stations to provide accessible paths, lighting, signs and even ticket vending machines that comply with ADA design standards. VRE, for example, installed at each of its 17 stations a new generation of ticket vending machines that allow transactions to occur at a level closer to the ground to benefit persons seated in wheelchairs and that provide audible instructions to benefit persons without sight.

TIPS: For station design, involve citizens and local government elected officials and staff in the decision process, since these designs must meet local standards and above all be accepted by nearby neighborhoods. Be ready to strike a balance, since some persons will favor bright lighting for safety while other neighbors may resent the intrusion of such lights (consider timers that light such lots only when vehicles and/or patrons are likely to be present, which also conserves electricity). While simple, modular designs may save money, be prepared for criticism: "VRE built the Taj Mahal without a roof or a toilet!" Whenever possible use existing Amtrak stations and site new facilities at regional transportation centers.

Many facility and design decisions will influence operating costs and customer acceptance, and should be made with due consideration for these consequences. For example, short platforms to save money may restrict train lengths or require repositioning trains to open doors in sequence, which greatly delays schedules. Short canopies over platforms may also save money but anger customers who are rained on as they enter or exit the train.

A decision to expand tunnel clearances may allow bi-level railcars to be used at lower crew and other operating costs than single-level railcars. VRE asked clearance engineers whether a bi-level railcar would fit through the tunnel under the U.S. Capitol at First Street. The response: "It would only fit the second time." At the time, Amtrak's engineering department was not willing to consider enlarging the tunnel at Amtrak's expense, so VRE ordered single-level railcars. Since then a cooperative project has begun with Amtrak, VRE and MARC to expand the tunnel, and VRE is currently evaluating bi-levels for its next order.

TIP: Be aware that private railroads will insist on setting standards for facilities built on, over or near their rights-of-way, and if more than one railroad is involved, their standards will be different (e.g. one will require concrete platforms and another will demand wooden platforms). Railroad review of designs may take a very long time. Build this extra time into your schedule. Railroads will also insist on expensive flag protection for your construction crews and usually will insist on performing work using their own forces. Railroads may also demand low level platforms, fearing interference with freight trains from high-level platforms.

In order to coordinate the many ongoing construction projects accompanying a new commuter rail system, VRE created a construction "Project Directory" which identified lead agencies and staff during the construction phase of the project. For example, 9 local jurisdictions were involved, each with several internal agencies (site plan review, inspections, planning, etc.), plus several regional and state agencies. For each agency, contact names and numbers were set forth together with responsibilities. Also, construction firm contacts were listed, as were construction managers. Persons responsible for station and yard component systems were also included, like ticket vending machines, newspaper vending, and recycling (manufacturers, staff coordinators and contract officers). Other important contacts were also provided, such as architects, railroads, and utilities (e.g. fiber optics, telephone, electric). With a span of service of 55 miles in one direction and 35 miles in another, VRE transacted business with seven local and long distance telephone carriers, four electric companies, and a pipeline company.

Conditions change as the commuter rail project matures. Consequently, the flexibility to respond to change is often very valuable. Facilities can be designed and built to be responsive to change, although to do so often costs more in the short-term.

TIP: In station designs, allow room to grow (extra ticket vending machines, entrances, extended platforms). Acquire land for expanded parking before the commuter rail system makes the land much more valuable. Leave room for additional tracks to accommodate expanded passengers and freight service and consider future changes in operating plans that may call for boarding on the opposite side of the track (with extra platforms, tunnels, pedestrian overpasses and/or elevators). Single platforms requiring bi-directional operation on the same track are about 10 percent of the cost of dual platforms with elevators and grade separated crossings. Even if these facilities are not actually built, agreements with railroads and other parties should establish the terms on which they can be accomplished if needed in the future.

It is not necessary to centralize all design/construction activities for the project. In the case of VRE, most station designs were accomplished by a team consisting of a national engineering firm and a national engineering/architectural firm, but a 1,500 space parking structure and adjacent station (costing $2 million) was designed by different firms employed by a developer who proffered much of the work to a local jurisdiction. A similar

situation existed at another new suburban station, while renovations to existing Amtrak stations were accomplished in four different jurisdictions by four different teams. For most parking lots, the Virginia DOT designed and engineered but hired private contractors for construction.

By now everyone must realize that it is no longer permissible to simply "drain a swamp" to locate a facility. Where a facility impinges on wetlands, count on many months or years of additional analysis. The Washington Metropolitan Area Transit Authority incurred costs of $20 million over two additional years to develop appropriate wetland mitigation measures at a $100 million transportation center at which VRE is constructing a $1 million station due to open in May, 1996.

Regarding parking, several small lots may be easier to accomplish than a few big lots, but this in turn may delay schedules by requiring trains to stop frequently for relatively few customers. Where parking lots are located close to the border of neighboring jurisdictions, disputes may arise over which one is responsible for expansion if non-residents crowd the lot. In downtown areas of historic communities, where Amtrak depots tend to be located, providing parking may be resisted by residents who fear train customers are contributing to congestion. A critic of the VRE project in one such historic area warned of devious plans to use eminent domain to demolish historic downtown sites to build massive parking structures for outsiders. He was elected to the city council on that platform. Now that VRE service has begun, sufficient parking is not available at that location, thereby constraining heavier ridership forecast initially.

TIP: **Because commuter rail ridership models tend to underestimate demand from exurban areas, especially since detailed origin-destination data may not be available for such areas that lack previous transit experience, regardless of how much parking your models tell you that you need at outlying suburban stations, count on needing more. Make every effort to obtain options before service begins to provide such expanded parking.**

RESOURCES:

- "VRE Key Station Plan for Compliance with the Americans with Disabilities Act." (July 26, 1992).
- "Project Directory for Construction of VRE Facilities" Revised: January 29, 1992).
- IFB 91-6 for the Construction of Virginia Railway Express Commuter Rail Platforms, (Issued: March 4, 1991).

J. Fare Structure and Collection.

Historically, on-board personnel have sold and collected tickets that can also be purchased at each station for cash from commuter rail employees. More recently, many systems have installed ticket vending machines at stations, in some cases eliminating personnel at those stations.

TIP: Consider involving the public in determining the appropriate placement of TVM's and ticket validators within the station, in relation to other amenities such as newspaper vending machines. VRE conducted a test of several scenarios with a hundred volunteers. One enthusiastic tester walked off with a large and expensive logo sign, however, thereby marring somewhat the occasion for its sponsors.

Some systems have turned to proof of payment systems, in which on-board inspectors verify proper tickets for a sample of customers (and impose penalties for those persons who don't have the proper tickets).

In evaluating its options VRE chose the proof of payment system with credit/debit card machines at stations. No cash sales at stations or on-board were provided for. On-board sales or sales at stations by Amtrak agents (Amtrak is VRE's contract operator) would have been subject to an 8 percent commission. Ticket vending machines that accept cash are more expensive to purchase than credit or debit card - only machines, must be serviced regularly to remove cash, and must be kept under tight security. In several of VRE's remote locations, such security was impractical. As a concession to customers who did not wish to use credit or debit cards, VRE contracted with several firms to sell coffee and newspapers at stations, as well as tickets for cash. Nearby retail outlets were provided with tickets at several locations which they also sold for cash. VRE experimented with -- but later discontinued -- a cash ticket vending machine in the secure confines of Union Station. VRE also sells tickets by mail, which are processed for a two percent commission by a "transit store" (a retail outlet specializing in transit tickets, ridesharing promotion and related merchandise).

TIP: Unsubsidized sales of tickets, coffee and sundries by firms at low volume stations are likely to be unprofitable to the firms. After two years, most of VRE's eight station vending contracts expired with no offers for renewal. Nonetheless, VRE's cash-less sales strategy at stations has worked well, with customers favorably rating the ease of purchasing tickets.

Given VRE's distribution of customers and lengthy gaps between suburban stations, VRE conductors are able to check almost all customers' tickets every day. Violation rates are extremely low (less than 0.5 percent). Failure to have a properly validated ticket can result in fines of $150 to $250, plus a day in court. In order to assess such penalties, VRE had to change state law to define fare evasion as a misdemeanor. All cases are adjucated in the City of Alexandria's District Court, and the success of prosecuting fare evaders has been mixed. The most common offenses are failure to have a ticket and validating a ticket too many times. For all tickets except the monthly

pass, VRE customers must insert their tickets into a validating machine before boarding, which stamps the time and date.

TIP: **Conductors should be provided a mechanism to issue warnings, since regular customers may (rarely) forget to validate. Since such persons may pay well over $2,000 annually for service, they should not be driven away permanently over a single dispute worth less than $10. For example, conductors could informally ask other customers to share a multi-ride ticket with regular riders who are caught, and the conductor can hand validate such a ticket.**

Fare vending machines that accept credit and debit cards must be linked to a credit card clearing house and bank processing network as well as to the commuter rail system's revenue accounting systems with appropriate software, and personnel must monitor performance. For proof of payment systems at least two machines should be available at every station in case a machine fails. They must be properly designed and installed to comply with ADA requirements.

VRE's 60 fare vending machines (no cash) cost about $15,000 each ($20,000 for the "talking" and better performing second generation), installed and tested. Two central processing units were purchased at $25,000 each, with software for the ticket vending machines totaling $6,250 per unit for 60 units. Ticket validating machines cost $2,500 each. Operating costs include long distance telephone fees since each on-line ticket transaction requires a call to the clearinghouse. Access to credit/card companies and bank clearinghouses plus other processing fees, commissions and machine operating costs, total about $1.80 per ticket. Tickets sold at stores and other vending locations cost VRE about $2.40 per ticket at a five percent commission rate. This sales commission rate compares with rates of about one percent for Go-Transit and BC Transit, for example. Credit card companies charge from two to six percent as a commission on each transaction.

Another technology that can assist ticket sellers and customers is a ticket issuing machine, a small point of sale device the size of a shoe box that can be placed on a retail counter and used to issue each ticket as it is ordered. Before VRE invested in these $3,500 machines, each retail outlet was provided with a stock of pre-printed tickets on consignment, with a considerable expense to VRE of delivering adequate stocks of tickets and a corresponding security risk.

With respect to fare levels and fare structure, some systems have mandated cost recovery targets. For example, MARC's requirement of 50 percent led to a 10 percent fare boost in 1994 after several years of no increases, with another 9 percent increase applied in March, 1996. VRE also must maintain a cost recovery ratio of at least 50 percent, but has chosen to boost fares a little each year (about four percent annually since July, 1993) to match inflation. VRE will not raise fares at all in 1996 as a means to attract more riders.

Before it began operations in 1992, VRE examined its market using a ridership forecasting model based on the assumption that roundtrip fares should not exceed typical

downtown parking charges (about $8-$10). Even with such a competitive pricing cap imposed, VRE's ridership was constrained by the "free" parking provided to most federal employees and many others in downtown Washington, D.C. While VRE's maximum fares were so constrained, the minimum fares were also dictated by concerns of inner jurisdictions that VRE not divert customers from existing bus and subway systems. Accordingly, VRE fares were set above such other public transit fares for shorter trips in the inner zones.

Within these upper and lower boundaries, VRE chose a zone fare system with 9 zones of about five miles each. Fares were "tapered" somewhat to fit within the maximum and minimum constraints, but were largely based on a boarding charge of about $3.50 plus a mileage charge of about $.25, rounded to the nearest nickel.

This initial tariff structure was then modified to meet special circumstances; for example, to encourage riders who get off before maximum load points, reduced fares for such zone to zone trips were initiated.

TIP: Produce a written "tariff" that specifies the fare levels and structure, and describes special circumstances (discount, free passes, penalties). Hold public hearings before adopting it and each time it is changed. Fold this process into the agency's commuter rail budget process. Continually reexamine the revenue potential of tariff revisions. For example, Tri-Rail is switching to a zone fare system from a flat fare to earn an additional $1.5 million in fare revenue annually. Systems receiving federal Section 9 funding must have half-fare discounts for elderly and disabled customers during off-peak hours.

Discounts for multiple-ride ticket purchases are often provided, with the justification that such purchasers advance their money to the system and save wear and tear on machines with fewer transactions. Accordingly, VRE offers 15 percent discounts for 10-trip ticket purchases compared to single ticket prices, and 30 percent discounts for monthly passes. Because VRE's monthly passes can cost almost $200 for a distant zone, most customers (70 percent) have purchased 10-trip tickets.

TIP: Public safety officers will ask to ride free. Your Board must adopt a policy to include in the tariff. Free passage costs revenue and may lead to customer resentment, but on the other hand the presence of uniformed officers can improve security. Your contract operator (e.g. Amtrak) may also request that its employees ride at a substantial discount, and may offer other contract inducements in return.

Some systems offer customer amenities at an extra fee. For example, MARC charges considerably more for its reserved "parlor" car, with wide, swivel seats, newspapers and soft drinks. The Long Island Railroad has used a subscription club car for several years, with patrons paying what amounts to a "club fee" to participate. Promotions including free juice in the easy-chair environment have boosted ridership and revenues (e.g. westbound service grew 27.7 percent in 1994).

VRE offers a 50 percent fare discount for school groups and a summer pass for $150 for unlimited rides for students under 21 who can verify their status. VRE also provides monthly pass purchasers who have proof of 11 consecutive purchases the twelfth ticket at half price.

Fare structures that are integrated with connecting transit systems can offer strong inducements to travel, and several commuter rail systems provide such links. A common point of contention is how the revenues will be split among sponsoring agencies.

TIP: Rather than engage in lengthy and contentious debates with connecting systems about revenue sharing, consider "eating" any discounts provided for such joint fares. Granting a new customer a $1 discount for a joint fare with the proceeds paid to another transit agency may be worth the extra $5 or $6 paid to the commuter rail system for such a new trip.

VRE has used this approach in allowing VRE ticket holders to ride free on connecting bus routes (at costs to VRE of up to $1.00 per one-way trip), and to pay Amtrak more for a trip by VRE ticket-holders on parallel Amtrak routes than VRE receives for the ticket (since the costs to VRE are still less than adding VRE trains for such incremental service). VRE is also exploring a machine that will issue a joint subway/bus/VRE pass and is pursuing the use of Smartcards to provide a truly seamless trip from parking through final destination, including reduced-priced transfers to and from Metrorail.

VRE and MARC offer reduced price through trips for each other's customers who wish to travel south on VRE from Maryland or north on MARC toward Baltimore.

Other systems using common fare media are:

1) LIRR and Metro North: "Uniticket" bus passes, MTA "Metro card."
2) Metra: "Link-up" sticker for urban buses
3) Go-Transit: "Twin pass" access to buses
4) New Jersey Transit: Bus access
5) Caltrain: Bus access
6) Tri-Rail: Bus access
7) Metrolink: Each ticket includes two free bus transfers
8) Connecticut DOT: "Uni-Rail" pass to Metro-North for the 20 percent of its riders who transfer.
9) Go-Transit: While not an intermodal pass, the "companion pass" offers monthly pass holders the opportunity to take a guest on Go-Transit free on weekends.
10) MARC riders transfer free from trains to Baltimore's buses, light rail and Metro.

RESOURCES:

- "VRE Tariff" (Revised: February 17, 1995).
- "Agreement for Sale/Leaseback Transaction Involving VRE Ticket Vending Machines," (April 24, 1992).
- IFB 93-1 for the Purchase of ADA Compliant VRE Ticket Vending Machines (Issued: April, 1994).
- IFB 93-2 for the Purchase of VRE Ticket Issuing Machines (Issued: October 29, 1994).
- IFB 90-3 for the Purchase of VRE Ticket Vending Machines (Issued: July, 1990).

K. Security/Emergency Response/Safety

Commuter (and intercity) rail operations are remarkably safe. In 1994, 40,400 persons died on U.S. highways, or 112 fatalities per day. Another 1,071 persons died in airplane accidents, 864 died boating, but on railroads, five passengers lost their lives. Many rail-related highway deaths occurred at grade-crossings (610). Another 21 rail workers were killed on the job.

As commuter rail service typically stretches through many local jurisdictions, coordination of emergency response is of the utmost importance. If a train fails and customers are stranded, who will respond? Will buses be provided and where should they deliver customers? Who will summon rescue personnel in the event of an accident? Who will train local police, and fire personnel to respond properly in the complex environment of a wreck involving diesel locomotives and railcars?

TIP: Require your contract operator to prepare an emergency response manual and coordinate proper training. A video tape prepared with one local system can be used to train others. VRE's "Operational and Emergency Handbook" was prepared by Amtrak in May, 1992. It contains an emergency directory, a description of operations (e.g. operating speed limits) and equipment, (including photos and diagrams of emergency access points), a directory of stations and yards, an explanation of emergency equipment and procedures, listings of grade crossings with railroad mile posts and type of warning devices, and tunnel operations and emergency procedures, all with detailed maps and diagrams. VRE sponsored several disaster drills to acquaint each local police and fire agency with the environment of a simulated disaster and follows up regularly to ensure continuing coordination.

Despite the best preparations, things can and will go wrong. In 1993, some VRE customers marooned for an hour within sight of a station eventually bolted from the train and walked off into the woods and along the tracks with local police in pursuit, before buses could arrive to take them to the nearest subway station.

There are some contingencies that it is extremely difficult and unpleasant to contemplate and prepare for (e.g. violent crimes), that fortunately are extremely rare. On the other hand, most systems will cope with snow emergencies every year.

TIP: A "winter storm plan" should provide a framework for cooperation. with a clear procedure for activating the plan. It should specify the number of employees to be activated at each station and in what sequence for removal of ice and snow. It should provide for sufficient stores of sand and salt. It should describe rolling stock preparation, including mini-trains on each line for rescues. The location of supervisory vehicles should be specified. Lines of communication by time of day need to be spelled out. Procedures for activating switch heaters are needed. Finally, a complete list of names and numbers of

key personnel is needed, with pagers, cellular phones and home phones included.

A nationwide program to promote rail grade-crossing safety is known as "Operation Lifesaver." The organization provides a coordinated promotional program and is a valuable resource for commuter rail systems. It also provides an excellent mechanism for cooperation with freight railroads.

Federal and state governments have detailed regulations to promote rail safety. Each commuter rail operator must become familiar with them, for they impact equipment specifications, operations and maintenance procedures, and hence capital and operating costs. For example:

- Locomotive engineer qualifications -- Training programs approved by FRA and standard performance monitoring.
- Hours of service act -- FRA says waiting for a deadhead vehicle to transport to point of final release counts as work time.
- Remedial actions reporting -- If FRA penalties assessed, must write what is done to correct the safety situation.
- Grade crossing signal safety -- FRA has maintenance, inspection, testing standards. Timely action required in malfunction.
- Railroad police officers -- Can be designated to enforce laws in all states where railroad has property.
- Alcohol/drug testing -- Also applies to contract employees. Failing test can require mandatory instruction and professional evaluation or only removal from safety - sensitive duties, depending on severity. Requires pre-employment, random, post-accident and reasonable cause tests.
- Freight car safety standards -- includes maintenance of way cars.
- Each state may have different full crew laws.

In response to two devastating commuter rail accidents in early 1996, FRA issued emergency order #20. It affects operating practices of push-pull equipment not controlled by cab signals, including restricted speeds in certain circumstances following slowing or stopping, until the next signal can be seen; calling and acknowledging signals among crew members; and testing and marking of emergency exits (windows and doors). The order also required "Interim System Safety Plans" from each commuter rail agency, in order to compile plans for improved safety in a number of areas, among those being push-pull operations, new technologies (e.g. positive train separation), and grade crossings.

TIP: Anticipation of future regulations may influence the willingness of freight railroads to lease access to their tracks. For example, FRA is exploring anti-collision systems that would stop trains headed toward collisions, slow down trains exceeding speed limits and protect track workers and equipment from being struck by trains. These systems are also known as "positive train separation" systems, and may include global positioning systems (GPS). One accident cited as a motivation for such a system is the collision of two Northern Indiana Commuter Transportation District trains at Gary on January 18, 1993 in which seven people were killed and 95 injured. Rail lines carrying passenger service would presumably be first in line for such systems, if they are mandated, and freight railroads may seek to be indemnified by commuter rail systems for the considerable cost of installing such systems on freight trains.

As a means to deter vandalism, "Crimesolvers" programs can be set up, in which rewards of up to $1,000 can be offered for information leading to a conviction. Typically each local jurisdiction has its own program, with a civilian board of directors that renews proposed cases that police have not solved and determines appropriate rewards to offer. Vandalism cases may have rewards of $100, for example. Your system can augment such a reward with system funds, if desired. Private donations fund the Crimesolvers programs. Participants can post signs at the facilities warning of the affiliation. Metal signs cost about $50 each and can be installed by commuter rail personnel at appropriate station locations.

Commercial firms also offer to the industry audits and training in safety and environmental management. For example, Amtrak has praised the system provided by DuPont, while cutting lost-time days by on-duty employees to 48,437 in 1993 from 86, 265 in 1991. Clearly, setting up such a system in advance is better than imposing one retroactively, which then might meet worker resistance as an intrusion on the established work culture. These effective systems emphasize worker involvement.

The best known success story of commuter rail emergency response is that of Metrolink, which opened seven new stations on 63 miles of new track on two lines in a month after the devastating Northridge, California earthquake of January, 1994. Passenger trips on those lines jumped from 1,000 to 8,000 daily, eventually receding to 3,000.

RESOURCES:

- "Fire Safety Training Video for VRE," Fairfax County Fire Department, (1992).
- "VRE Winter Storm Plan -- 1994-95," (November, 1994).

L. Marketing/Customer Service/Communications

Commuter rail systems are most effective where they can offer the carrot of customer service and the stick of traffic congestion. In assessing its markets, VRE observed that the Washington D.C. metropolitan area ranked fourth in the U. S. (using 1990 census data) in daily vehicle miles traveled per lane mile on freeways and first on arterials, or second overall. The region also ranked second in total vehicle hours of delay per 1,000 persons. The 1990 per capita cost of delay and wasted fuel in the region was $770. The area needed an infeasible 215 new freeway miles and 325 arterial miles by 1995 to prevent congestion from deteriorating, and planners there invented a new "level of service G" to describe a situation (even worse than "F") in which peak congestion was forced to spread throughout the day as drivers diverted to the shoulders of the peak.

TIP: In regions with such congestion the commuter rail project will gain support from drivers who wish to use the train and from those who hope others will.

Even with such a promising playing field, amply fertilized with congestion, commuter rail success depends on marketing and customer service.

TIP: Begin by choosing a name, logo and color scheme that helps identify your customer objectives. VRE chose a name and logo that suggested a solid tradition of service from the good old days and matched that with historical elements in its station design. Colors were those of the Virginia state flag: blue, white and cardinal. Racing stripes on the locomotives and safety stripes on the cab cars combined aesthetic and functional purposes. Be certain to register your name and logo, and thoroughly protect your copyrights from infringements (particularly likely in ads for real estate that may use your logo and stations). Copyright and related legal fees should be less than $1,000. The name and logo can then be used or licensed for souvenirs and other merchandise (pins, maps, tee-shirts, ties, hats, toy trains). While profits from sales of these items may not be great, they do provide excellent incentive awards to employees and supporters.

Research has shown that many potential home buyers will be positively influenced by proximity to commuter rail stations, which opens many possibilities for real estate-related promotions. These can include fliers, joint newspaper ads, and reduced-price tickets sold to real estate firms for distribution to clients.

TIP: Before service begins, consider a baseline market research study to measure attitudes of potential customers. Follow up at least once each year with customer surveys to measure how customers' advance perceptions match reality. VRE conducts two annual on-board customer surveys, in the spring and fall.

In order to build momentum toward a successful opening, consider several advance ceremonies and events. Rallies with bands and balloons (e.g. on St. Patrick's Day) can boost awareness that the train is coming. Contests can be held to choose slogans and nicknames. VRE's original slogan "Easy in, easy out" was quickly replaced, when some officials noted unpleasant connotations, with "You've got a train to catch." Station days at each station allow local citizens to tour the facilities and have a free ride. As equipment arrives, ribbon cutting ceremonies can provide striking photo opportunities.

Finally, in preparation for opening day, volunteer "ambassadors" can be trained to serve at each station for the first few weeks, to assist with the inevitable customer confusion -- especially about ticket vending machines and the need to validate tickets. For opening ceremonies, consider a colorful souvenir program (with costs defrayed by local sponsors and firms whose products were used for the project -- such as railcars). VRE also commissioned a limited edition inaugural poster that became a collectors item. VRE's souvenir program featured cartoon art from the several formative years of the project, expressing such themes as a "light at the end of the tunnel," "damsel in distress tied to the tracks," and "the little engine that could."

TIP: Communicating with customers is the key to customer service. Keep mailing lists of potential customers. Establish a toll free line to answer questions prior to start-up. Set up a home page on the Internet. VRE's web site includes "Train Talk" in which e-mail messages are shared with a growing list of customers.

Communications with customers can be reinforced with automated platform announcements and toll free information and ticket sales telephone lines. VRE's system is known as TRACS, and was obtained at a cost of about $100,000 for software, plus about $5,000 per station for installation of speakers. Because the system was called upon both to sell tickets by telephone and provide station announcements, it has been overburdened and not lived up to the full desires of its purchasers.

TIP: Your local newspaper may be willing to provide free newspaper vending machines for use by itself and its competitors, as well as providing newspaper recycling containers. Negotiate with such a sponsor about styles and colors of equipment and about the extent of recognition provided to the sponsor by the commuter rail agency.

Put as much of the vital information for your customers together in one brochure as possible, including fare matrix, zone boundary maps, station locations, parking capacity, feeder bus and other transit connections, ticket sales locations, mail order procedures, and toll-free telephone information numbers. Keep this brochure current and widely stocked to promote your system as well as inform your customers.

Continue to involve your customers and station neighbors in your project to give them a sense of ownership. For example, VRE has initiated in February, 1995 an "adopt-a-station" program, for civic and neighborhood groups to provide volunteer cleanup and landscaping services. Application materials explain the program and VRE staff provide safety training.

RESOURCES:

- "Attitudinal Survey and Market Research for VRE," JHK & Associates, Inc. (March 1, 1991).
- "VRE Inaugural Program" (June 12, 1992).
- "On-Board VRE Customer Survey Results" (May, 1994)
- "VRE Riders' Guide" (Revised: July 2, 1994).
- "VRE Adopt-A-Station Application Packet" (February, 1995).

IV. CREATING THE CAPACITY FOR GROWTH

A. Strategic Planning

Each commuter rail system needs a process to confront possibilities. Even before service begins, and certainly shortly thereafter, each commuter rail system must turn its attention to managing its assets for the most effective return, creating positive momentum, anticipating the future and preparing to meet inevitable challenges. Among the greatest advantages of commuter rail services compared to other modes is the ability to add capacity on existing rights-of-way. And when capacity must be expanded, it should be done to accommodate future growth. As an example, the MUCTC system in Montreal carries 3 million annual passenger trips today, but has targeted short term growth to 7.3 million and is building capacity for 10 million.

Tri-Rail's first five years of operations provided a "wait and see" response from customers and elected officials, but as success created rising expectations, the system has had to plan for rapid expansion, including double-tracking and relocating four stations.

Metra's capital improvement process is known as "FAST" (Future Agenda for Suburban Transportation) and has the objective of achieving a capability of 50 miles in 45 minutes. Up to $4.1 billion is to be spent over 10 years. An economic study forecasts significant gains in local employment (72,000 jobs) and new tax payments to the state ($110 million).

Metro-North Railroad has forecast 18 percent growth to 70 million annual passenger trips by 2003, and has rebuilt its entire culture over the last decade to gain momentum for that gigantic increase. Metro-North Railroad facilitated its ridership growth through a series of long-term investments which were the product of an overall vision of the level of services that would attract customers, as well as identification of a reliable stream of funds.

For its ongoing strategic planning process, VRE has used an elaborate interactive on-line computerized decision-support system in which Board members, elected officials and staff help identify issues and rank order possible solutions. In conjunction with this process, VRE added a more sophisticated ridership forecasting model to go along with its track capacity/operations model. MARC has just completed a strategic planning process performed by a consultant. MARC and VRE continue joint exploration of interlining, through service and joint storage for the future.

TIP: A very important product of any commuter rail strategic planning process should be a capital improvement program that identifies specific funding sources and the dates and process by which those funds can be obtained (since many funding sources now require competition in regional forums). The projects should also be incorporated into regional and local CIP's so that the commuter rail agency is not the sole advocate. Another important component should be forecasts of regional air quality gains from commuter rail investments. Also, projects that boost intermodal connections should

be highlighted, since they are more likely to be strong candidates for new and existing flexible funding sources.

SEPTA has completed a giant "Railworks" capital expansion program for which it had to close certain stations and lines and employed innovative marketing techniques to placate customers during construction (e.g. free passes for persons delayed more than 15 minutes). SEPTA also employs a capital project ranking process that is worthy of note. Two stages are used. The first ranks projects and the second ranks which rail lines need the most assistance (as a final check on the initial project ratings). Each project is examined from a number of perspectives, and numerical scores are assigned. Ultimately, the SEPTA Board can rearrange priorities, to account for additional factors, in adopting the final capital plan. The criteria for ranking projects include:

- Safety (10 points)
- Service quality (9 points)
- Current ridership (8 points)
- Investment per rider (8 points)
- New riders (7 points)
- Operating cost impact (7 points)
- Passenger comfort (7 points)
- Critical nature (6 points)
- Location on a high ranked line (6 points)
- Traffic congestion relief (6 points)
- Economic development (5 points)
- Previous commitment (3 points)

There are 9 similar criteria for ranking lines.

TIP: **With more Amtrak routes being discontinued, each commuter rail system should add emphasis to extending service, in cooperation with state governments. Also, partnerships with the state should be forged to explore the implications of a nationwide network of high speed rail service. For example, VRE and the Commonwealth of Virginia are studying the future of high speed service in the Washington D.C. to Richmond corridor.**

RESOURCES:

- "Planning for the Business and Strategic Management of VRE," R.L. Banks and Associates, Inc. (May 31, 1990). Includes description of SEPTA's priority-setting methodology for capital improvement projects.
- "FAST Project Economic Analysis," Economic Consulting Service, Inc. for Metra (DRAFT: December 1, 1994).

B. Marketing/Customer Service/Maintaining Coalitions

Once service begins, your customers are your most effective advocates. By reaching out to segments of your market, you can create powerful allies. Cal-Train has defined itself to be especially bicycle friendly. New Jersey Transit calculated that its customers spent $2 million and reduced automobile vehicle miles traveled by 100,000 by using the new "service to the shore" during the summer of 1992, which is of interest to both environmentalists and economic development advocates.

Keep names, addresses and telephone numbers from customer surveys and ticket transactions, and mobilize your customers for such important tasks as legislative advocacy, bargaining with railroads, competing for scarce regional transportation funds, encouraging more local governments to financially support your project and even to encourage your contract operator to improve performance or offer more customer amenities.

TIP: Your customers may mobilize to oppose some changes you are seeking, such as fare increases or schedule changes. Be certain to invite early participation in these decisions by the public, listen to what customers and taxpayers are saying and do what they say as often as possible. The VRE Riders Association, for example, organized a petition drive against a proposed schedule change eventually signed by about 20 percent of all VRE riders. The proposed schedule change was revamped by VRE to the group's satisfaction and the group continues as a source of political "muscle" to advocate beneficial changes and financial support for VRE.

The communities around stations can be harsh critics (objecting to train horns, traffic congestion and late-night lighting), but if neighbors are invited to participate in decisions about these stations, they can become steady friends.

TIP: To make a fare increase more palatable, consider linking it to service improvements, or, as in the case of Metra (whose last increase was in 1989) to a specific set of capital improvements.

Each commuter rail system has its own ideas as to how to make its customers feel pampered. For example:

1) Metra has absorbed the extra costs of two by two adjustable seating in new coaches for greater comfort (versus less expensive fixed, three by two). Metra's motto: "An investment in quality can bring you ridership in quantity." It seeks to make customers feel elite, and conveys a "new and aggressive" image, since it knows 93 percent of its customers own automobiles. Many Metra Board members are customers and senior staff pay for their own Metra tickets. Metra also knows its customers. A third

of riders are college graduates and another quarter have post graduate education. Two-thirds are in professional/technical/ managerial/business occupations. Three-quarters have family incomes above $40,000, and one-quarter above $75,000.

2) In 1994, Long Island Railroad ordered 99 bi-level cars and 26 cab cars with two by two seating in response to its customers. The "typical" LIRR customer is male, 38 years old, with an $80,000 family income. LIRR's surveys show customers value speed, safety, relaxation, personal space and transition time.

3) SEPTA offers free passes to customers delayed by more than 15 minutes. Surveys reveal high levels of satisfaction with the program, and most believe it helps reliability (but only six percent of respondents report that it attracts them to ride the system).

4) Tri-Rail has found that its success has raised expectations, with more amenities expected. Its new coaches will have tables, luggage racks and bike racks. All cars will be retrofitted with carpets, luggage racks and sun-resistant glass windows.

5) New Jersey Transit offers "come talk to us" sessions at major terminals and monthly focus groups of customers to keep managers attuned to customer attitudes.

Accepting paid commercial advertising offers an enticing prospect of revenue, for on-board displays, at stations, and in customer newsletters, but potential problems exist.

TIP: **Local zoning regulations often apply to station advertising, which requires careful advance research before a commuter rail system advertising policy can be adopted. Be advised that the ability of a system to pick and choose among advertisers and advertising content must be very carefully construed. Careful legal advice is required in drafting such guidelines. As a general rule, accepting commercial advertising only and uniformly prohibiting non-commercial applications can avoid claims of infringing freedom of speech and allow refusal of such adds as alcohol and tobacco, if that is the local system's choice. But, expect to deal with claims that you are infringing on First Amendment rights if you at all attempt to restrict ads you find to be obnoxious to some of your customers.**

In marketing commuter rail service to prospective riders, the characteristics of existing riders can provide an accurate target for which to compete. But across the board advertising can be ineffective and even wasteful, if capacity does not exist to serve new customers on all of your trains.

TIP: **Try to target marketing initiatives to fill empty seats and avoid standing room-only crowds on some trains. This is especially important for systems that may be restricted as to the number of new trains that can be placed in service, due to budget or railroad operating agreements.**

Perhaps the most important component of effective customer service is a highly motivated workforce. "Rail transit ambassador" programs are underway at at least six commuter rail systems, and they seek to make every person in the organization responsible for customer satisfaction. Many, like VRE's employee motivation program, include customer service seminars for crews, with such techniques as Meyers-Briggs testing, role playing, ADA awareness, stress management techniques, customer service awards and regular demonstrations of management's commitment to these concepts. VRE is also working with its contract operator to provide cash awards to crew resulting from productivity improvements.

RESOURCES:

- "Guidelines for Commercial Advertising on VRE Property and Publications," (January 20, 1995).

C. Performance Measurement and Enhancement

How well a system is performing can (and should) be measured from several perspectives: Is the budget being met? Is customer satisfaction at least steady? Are employees motivated to perform to their full potential? Is ridership growing? Is the financial support necessary for growth falling into place? Are coalitions providing legislative advocacy and other support for required funding and regulatory reform? How well does the local system measure up to systems elsewhere in the U. S. and Canada?

APTA's commuter rail committee is answering the last question with a benchmark performance data project that will be available to the public in April, 1996. It reports for each system such service characteristics as: revenue train trips by day of week, passengers, service hours, and who owns and operates the service; physical characteristics: track-miles, signals, centralized traffic control, bridges, at grade crossings; power systems and propulsion; fleet characteristics: size of fleet, age, electric versus diesel; performance: on-time, car-miles; financial features: operating revenue, expense categories; fare structures and ticketing features; and personnel. These data are then used to derive comparative measures of service effectiveness and efficiency.

Probably the two most common measures are the share of operating costs covered by operating revenues (known as operating ratio). Here, 50 percent or better is considered good. Second, operating cost per passenger-mile of 35-cents or less is good because it is competitive with the cost of operating private automobiles.

Another source of peer review information is the series of annual FTA Section 15 reports for which all recipients of federal aid must file annual data.

Another APTA event, the "rail rodeo" accompanying the annual Rapid Transit Conference, is open to commuter rail operators and maintenance crews and can be used as an incentive to boost morale.

Each system has its own ideas about how best to boost performance. For example, one senior New York transit official stated:

> The major problem facing transit systems today, especially newer ones, is conveying the concept to the public and elected officials that the principal plant will eventually get older and require replacement. With age comes increased maintenance and without proper preventive maintenance, operations become compromised.

Other examples include:

1) Metro-North Railroad focussed in 1994 on station upkeep to control graffiti, collect trash and improve lighting. They overhauled on-board restrooms, provided more visible uniformed police, and added cellular phones (two or three per train on one-third of the fleet) generating 33,000 annual calls with $24,000 of revenue for Metro-North Railroad. In 1983, Metro-North's inherited railroad was so bad that conductors locked themselves in cab

cars, customers sued over service quality, air conditioning and heating failed and wheels fell off railcars. The remarkable turnaround in a decade was accomplished by a commitment to a management mission, gaining workforce support of that mission, and identifying a dedicated funding source. These improvements were based on customer opinion surveys.

2) Metra focussed on safety, with "safety blitzes" at stations in which customers were shown videos of the consequences of going around traffic gates with their cars. Metra also concentrates on employee relations, which is essential with 15 unions and 19 separate contracts. It has celebrated the tenth anniversary of its labor management committee. Metra regards managers and employees as equal partners, starts slowly to build trust (e.g. safety issues), works up to more difficult problems (e.g. work rules, cost containment), and endeavors to be consistent and fair so that when the answer is "no," it can be accepted.

3) Tri-Rail is replacing staffed ticket booths with vending machines.

4) Caltrain is increasing service, including providing a special event train departing 15 minutes after every major event at the San Jose Arena.

5) For the Paris subway, customer wishes and organizational functions are sorted into four categories based on relative intensity (importance) and relative difficulty in fixing. Categories that are very important and easy to fix can be tackled first, such as good transit maps.

6) In London's Underground, performance reports that formerly were kept from the public attracted intense interest from the media and resulted in hostility and defensiveness from employees. Publishing each report now makes them routine and has ended the defensiveness. Also, "secret shoppers" are sent throughout the system by management to test customer service. A guarantee of no delays of more than 15 minutes costs 0.5 percent of annual ticket revenue. The operation is split into business units using line and station managers with real decision power (e.g. they each have their own engineering units and maintenance teams and can buy services from other lines).

7) Other ideas for better performance include purchases of software for:

   a) On-board monitors for transmitting locomotive "health" data to the control center;

   b) Field computer terminals for maintenance of way to establish or cancel work zones and slow orders with automatic train notification.

   c) Crew management for automatic notification of assignments.

d) Automatic on-line reports from fare vending machines.

8) Consider installing a bogey on a revenue car for continuous track inspection and maintenance scheduling versus an expensive Track Geometry Car.

9) Try to turn setbacks into opportunities for improved performance. When a key manager leaves, reexamine priorities and procedures. When better ridership forecasting models become available, use them, even if you must "write down" previous, more ambitious targets.

10) Commuter rail systems are designed to carry customers over relatively long distances in heavily congested commuting corridors. Emphasize performance reports in terms of passenger-miles, instead of passengers. Also, report passengers as one-way passenger trips, not as round trips or persons. This provides performance measures more comparable to those used for other modes. Most commuter rail systems perform very well on a cost per passenger mile basis compared to private automobiles.

11) Each time your schedule is changed, you may be required to pay each freight railroad up to $10,000 for reprinting schedules. Accordingly, consider making your schedule changes coincide with freight railroad or Amtrak timetable changes to share printing expenses.

12) Ironically, taxpayers and the media may react negatively to employee incentive programs designed to produce the results they favor in the private sector (e.g. customer service seminars by Disney). Metra has had success with prizes for employees (golf shirts, inexpensive watches) as rewards for winning national Harriman safety awards.

RESOURCES:

- "National Transit Summaries and Trends for the 1993 National Transit Database Section 15 Report Year," FTA (May, 1995).

D. Service Integration

As a means to prepare for growth, reduce costs, and improve service quality, integrating service with other carriers can offer many opportunities. Accomplishing such integration is not easy, however, because institutional lethargy and regulatory constraints often stand firmly in the way.

Among the successful examples of service integration are:

1) New Jersey Transit and Conrail share mutual trackage rights and dispatching on portions of each others tracks. NJT dispatches, operates and maintains under contract for Amtrak portions of the Northeast Corridor used by 216 weekday NJT trains, and also provides for Amtrak some turnaround maintenance of rolling stock.

2) Metro-North Railroad dispatches Amtrak on the New Haven Line, which is part of the Northeast Corridor. Metro-North actually owns 60 miles of the corridor. Metro-North also dispatches Amtrak trains over the Hudson Line which is part of the Amtrak Empire Service to Albany and points beyond.

3) Caltrain is discussing a track maintenance and storage yard agreement with Amtrak, its contract operator. The Bay Area Air Quality Management District imposes a $4 surcharge on motor vehicle registrations and uses the proceeds to provide 15 small bus shuttles, in cooperation with local districts and employers. These cannot compete with existing transit routes.

4) Tri-Rail owns five, 11-passenger vans it leases to employers to provide shuttles at rail stations.

5) In the Seattle area for a demonstration, borrowed Go-Transit rail cars were used. Ultimately the Puget Sound Regional Transit Authority is seeking to provide a seamless system with ferries, buses and rail options.

6) The North County Transit District (San Diego) is integrating Amtrak, Metrolink and Sante Fe freight service and connections on its track.

7) VRE and MARC are continuing explorations of integrated service, including joint layover facilities, through service, cooperative marketing, and eventually even cooperative bargaining with freight railroads and contract operators. With Amtrak, the two systems are cooperating on tunnel clearance improvements and facilities in and near Union Station in the District of Columbia. VRE has operated "baseball" trains through from Virginia on MARC track with MARC crews to reach Oriole Stadium at Camden Yards in Baltimore. When VRE was unable to expand its peak service due to freight railroad restrictions -- despite standing crowds -- it initiated parallel bus routes operated by other transit agencies at VRE expense. To compensate for no mid-day service (again due to freight railroad restrictions), VRE initiated a guaranteed ride home program with

local taxi companies (VRE paying 90 percent of the cab fare). VRE customers now can ride free on MARC with a valid VRE ticket, and vice versa.

8) Several commuter rail systems are experimenting with "station cars" using electric vehicles, in which customers have access to small cars for short trips to and from suburban stations. Examples include MBTA (using 1994 CMAQ funds); Metro-North Railroad using 12 cars in White Plains in cooperation with the New York Power Authority; the Long Island Railroad with Long Island Lighting; NJT with Jersey Central Power and Light; SEPTA with PECO; Metra with Commonwealth Edison using CMAQ funds; and Metrolink with several Southern California power authorities.

RESOURCES:

- "Baltimore - Washington Commuter Rail Accessibility" Washington/Baltimore Regional Association (1986).

V. CONCLUSION

At the end of a lengthy volume filled with information, tips and resources, there should be little left to say. Of all of the worthwhile advice, the following suggestions perhaps provide the best summary:

1) Leave enough time.

2) Tell the truth to sponsors, advocates, opponents and customers.

3) Create proper institutional incentives to perform.

4) Don't try to solve all your problems simultaneously.

5) Be resilient.

With those words to live by, good luck to all those who are considering new commuter rail service, and don't forget to write (that is, keep in contact with APTA's Commuter Rail Committee to share your successes and disappointments).

APPENDIX A

Operating Commuter Rail Systems in the U.S. and Canada

APTA COMMUTER RAIL COMMITTEE
OPERATORS SUBCOMMITTEE
March 7, 1996

U.S. MEMBERS:	COMMUTER RAIL EXECUTIVE:
1. Connecticut Department of Transportation 2800 Berlin Turnpike, P.O. Box 317546 Newington, CT 06111 Tel: (203) 594-2900 Fax: (203) 594-2913	Lawrence Forbes, Rail Administrator
2. Dallas Area Rapid Transit (DART) 1401 Pacific Avenue, P.O. Box 660163 Dallas, TX 75266-7210 Tel: (214) 749-3008 Fax: (214) 749-3609	Lonnie E. Blaydes Jr., Vice President Commuter Rail and Railroad Management
3. MTA-Long Island Rail Road (LIRR) Jamaica Station Jamaica, NY 11435 Tel: (718) 558-8252 Fax: (718) 657-9047	Thomas P. Prendergast, President
4. MARC/Mass Transit Administration 5 Amtrak Way P.O. Box 8718 BWI Airport, MD 21240 Tel: (410) 859-7422 Fax: (410) 859-5713	Kathy Waters, Director, MARC Train Services
5. Massachusetts Bay Transportation Authority (MBTA) 10 Park Plaza, Room 5720 Boston, MA 02116 Tel: (617) 222-3433/3441 Fax: (617) 222-5841	John J. Brennan III, Director Railroad Operations
6. MTA-Metro-North Commuter Railroad 347 Madison Avenue New York, NY 10017-3706 Tel: (212) 340-2677 Fax: (212) 340-4081	Donald N. Nelson, President

	U.S. MEMBERS:	COMMUTER RAIL EXECUTIVE:
7.	Metra 547 West Jackson Boulevard Chicago, IL 60661 Tel: (312) 322-6737 Fax: (312) 322-6965	Philip A. Pagano, Executive Director
8.	New Jersey Transit Corporation (NJ Transit) One Penn Plaza East Newark, NJ 07105-2246 Tel: (201) 491-7912 Fax: (201) 491-7905	Robert Randall, Vice President/ General Manager, Rail Operations
9.	Northern Indiana Commuter Transportation District (NICTD) 33 East U.S. Highway 12 Chesterton, IN 46304 Tel: (219) 926-5744 Fax: (219) 929-4438	Gerald Hanas, General Manager
10.	Northern Virginia Transportation Commission/Potomac and Rappahannock Transportation Commission/Virginia Railway Express (VRE) 4350 N. Fairfax Drive, Suite 720 Arlington, VA 22203 Tel: (703) 524-3322 Fax: (703) 524-1756	Richard K. Taube, NVTC Executive Director
11.	Port Authority Trans Hudson Corp. (PATH) One PATH Plaza Jersey City, NJ 07306 Tel: (201) 216-6199 Fax: (201) 216-6266	David F. Feeley Acting Vice President/General Manager
12.	SCRRA/Los Angeles County Metropolitan Transportation Authority 818 West Seventh Street, Suite 700 Los Angeles, CA 90017 Tel: (213) 244-6803 Fax: (213) 489-1469	Richard Stanger, Executive Director

U.S. MEMBERS:	COMMUTER RAIL EXECUTIVE:
13. Southeastern Pennsylvania Transportation Authority (SEPTA) 1234 Market Street, 14th Floor Philadelphia, PA 19107-3780 Tel: (215) 580-8400 Fax: (215) 580-8444	Michael T. Burns, Assistant General Manager, Railroad Division
14. San Mateo County Transit District (samTrans) Peninsula Corridor Joint Powers Board 1250 San Carlos Avenue P. O. Box 3006 San Carlos, CA 94070-1306 Tel: (415) 508-6348 Fax: (415) 508-6365	Jerome Kirzner, Director, Rail Services
15. Tri-County Commuter Rail Authority 305 South Andrews Avenue, Suite 200 Ft. Lauderdale, FL 33301 Tel: (954) 728-8512 Fax: (954) 763-1345/463-7136	Gilbert M. Robert, Executive Director
CANADIAN MEMBERS	
16. West Coast Express Ltd. Suite 800 1815 West Hastings Street Vancouver, British Columbia Canada, V6C 1B4 Tel: (604) 689-3641 Fax: (604) 689-3896	Lecia Stewart, President
17. Go Transit 20 Bay Street, Sixth Floor Toronto, Ontario, Canada M5J 2W3 Tel: (416) 869-3600 x473 Fax: (416) 869-1469	S. Paul Johannsson, Director Rail Services

CANADIAN MEMBERS:

COMMUTER RAIL EXECUTIVE:

18. Montreal Urban Community
Transit Corporation
612 St. Jacques Street, 7th Floor
Montreal Quebec,
Canada H3C 1C8
Tel: (514) 280-5181
Fax: (514) 280-6198

Marcel Gregoire, Director,
Commuter Rail

NON MEMBERS:

19. Coast Express Rail
North County Transit District
311 South Tremont Street
Oceanside, CA 92054
Tel: (619) 967-2862
Fax: (619) 967-0941

Betty Laurs, Manager of Rail
Services

EX-OFFICIO MEMBERS:

20. APTA Vice President - Rail Transit
New Jersey Transit Corporation (NJ Transit)
One Penn Plaza East
Newark, NJ 07105-2246
Tel: (201) 491-7132
Fax: (201) 491-7134

Shirley A. DeLibero, Executive
Director

21. APTA Staff
1201 New York Avenue, N.W.
Suite 400
Washington, DC 20005
Tel: (202) 898-4113
Fax: (202) 898-4049

Daniel Foth, Executive Director
-Commuter Rail

APPENDIX B

Proposed New Start Commuter Rail Systems in the U.S. and Canada

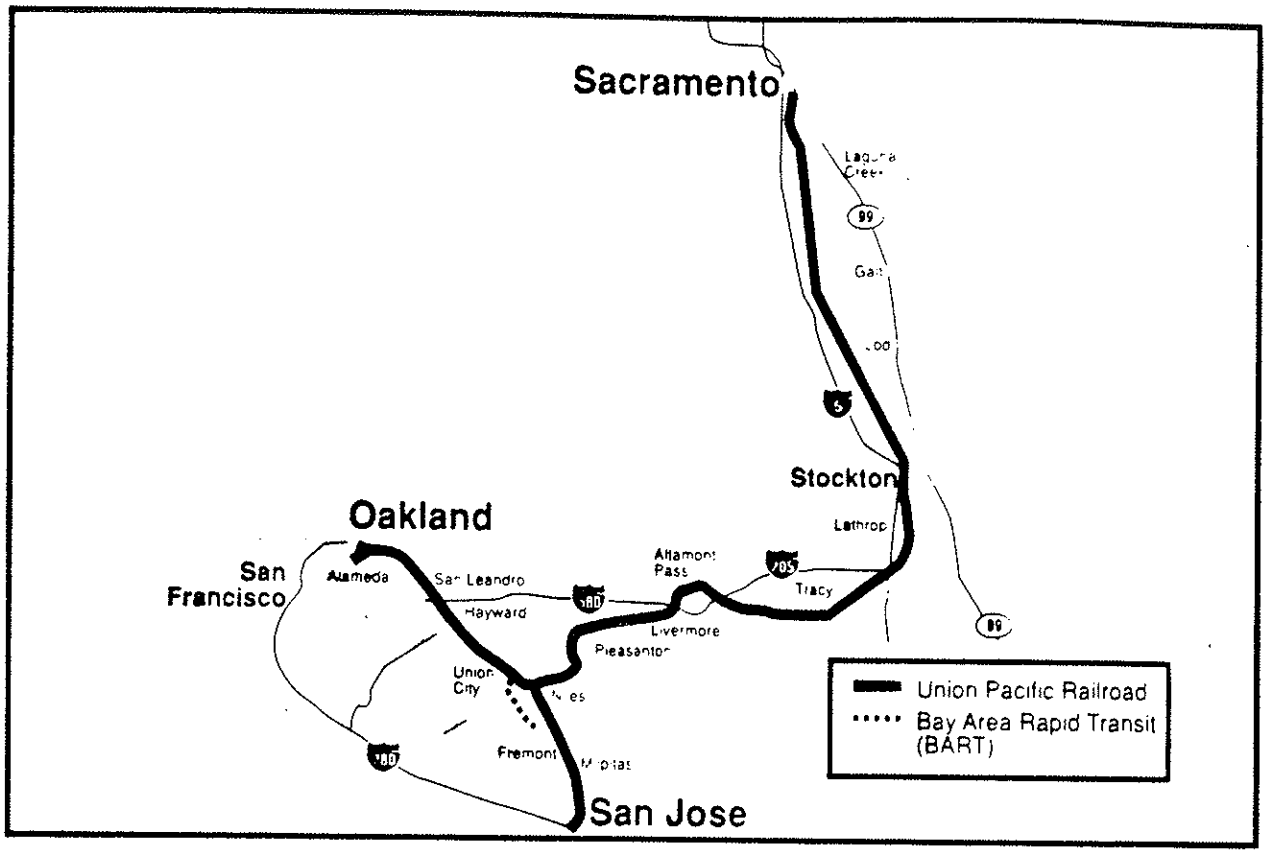
Appendix B
Commuter Rail New Starts in North America
April 1996

I. Commuter Rail New Starts Scheduled to Begin Service in 1996 and 1997

San Joaquin County, California:

Start up Date:	Summer, 1997
Origin/destination:	San Joaquin Valley, east of San Francisco, through Stockton and Livermore, and into San Jose
Project length:	85 miles
Service Level:	Phase I of the Altamont Service will include two morning and two evening trains during the peak travel periods.
Equipment:	To be determined
Service Operator:	To be determined
Implementing Agencies:	San Joaquin Regional Rail Authority in cooperation with the Bay Area Rapid Transit District
Financing:	Funding agreements are still being negotiated.
Contact:	Robert Stockwell or Stacy Mortinson San Joaquin Regional Rail Authority P.O. Box 1810 Stockton, California 95201 Phone: (209) 468-3025

Commuter rail service from San Joaquin to San Jose will be part of the San Francisco Bay Area regional system coordination with BART (see page B8 for information on regional commuter rail plans). The Regional Rail Authority is awaiting finalization of the Union Pacific and Southern Pacific Railroad merger to complete negotiations for access rights and improvements to the rail lines. The Regional Rail Authority is formalizing operating agreements.



Portland, Maine

Start up Date:	1997
Origin/destination:	Portland to Boston
Project length:	114 miles
Service Level:	Negotiations with the existing operators of non-stop bus service from Portland to Boston are in progress. If bus and rail service is integrated, three round trip busses will complement four round trip trains: two peak hour trains in the morning and evening, one mid-day and one late evening. The operation plan calls for shared bus-rail facilities and integrated ticketing.
Equipment:	Amtrak
Service Operator:	Amtrak
Implementing Agencies:	Maine Department of Transportation

Financing:	Construction and rehabilitation of the tracks, signals and bridges will begin as soon as final negotiations are completed. Capital improvements are expected to cost $47 million.
Contact:	Michael Murray Maine Department of Transportation State House Station 16 Portland, Maine 04333 Phone: (207) 287-2841

A preliminary engineering study and an environmental impact statement have been completed and federal and local funding sources have been identified. Final negotiations are in progress with the service operator (Amtrak) and the railroad owners (MBTA and Springfield Terminal Railway Company). Ridership is expected to be about 430,000 passengers per year. Should bus and train service operate independently, expected ridership falls to 330,000 passengers per year.

Dallas, Texas
Dallas Area Rapid Transit (DART)

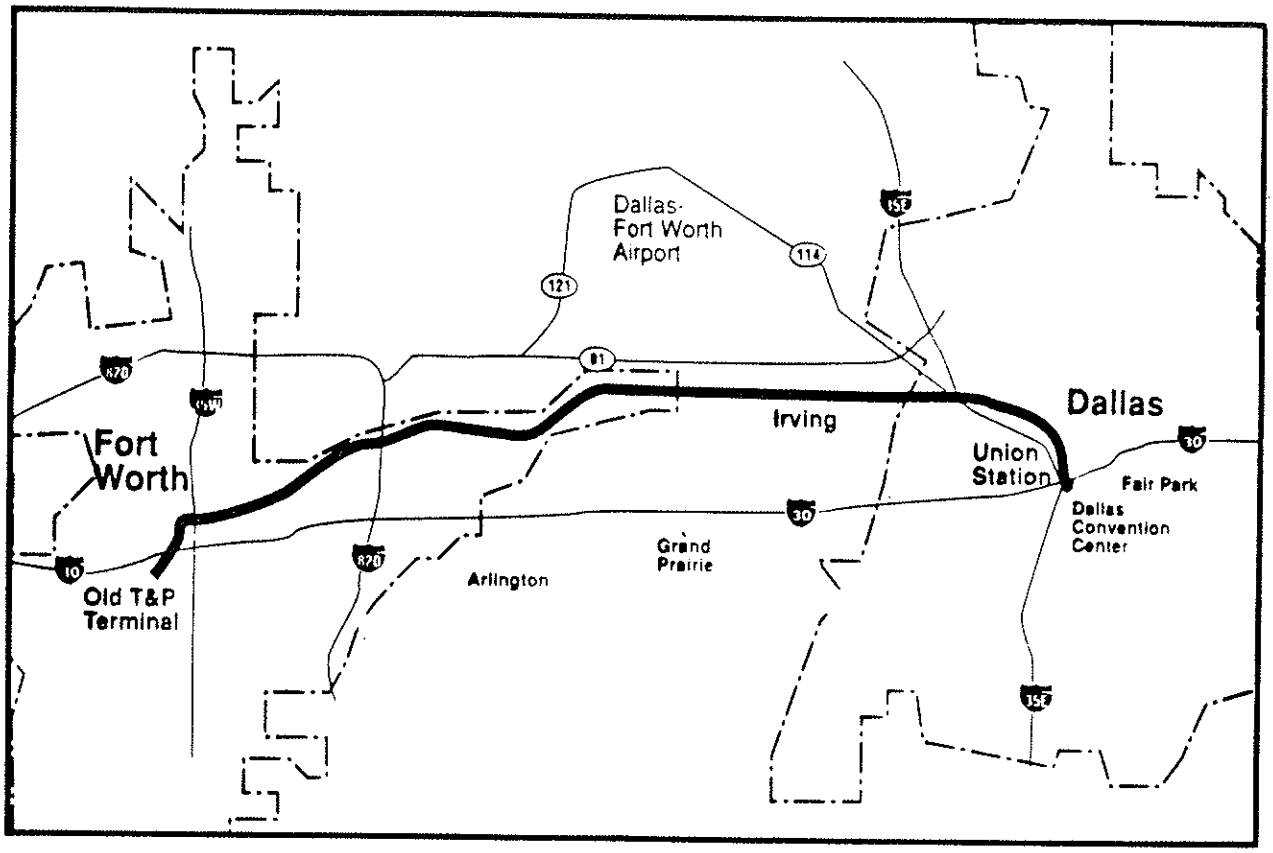
Start up Date:	December, 1996
Origin/destination:	Phase I will run commuter rail service from South Irving to Union Station in downtown Dallas. Additional phases will expand service to Fort Worth and the Dallas/Fort Worth Airport
Project length:	Phase I is 10 miles. The proposed final length is 37 miles.
Estimated Travel Time:	17 minutes
Service Level:	Phase I will service three stations with 30 trains daily running at 25 minute headways during morning and evening peak periods (See Figure Two). Phase II will expand service to Fort Worth, increase the number of stations served to 9, and add mid-day trains. Phase III will increase service frequency to 54 trains per day by double tracking the corridor and Phase IV will extend commuter rail service to the Dallas/ Fort Worth Airport sometime around 2005.
Equipment:	Service will be initiated with 13 former VIA Rail Canada Budd rail diesel cars. These will be thoroughly overhauled and modernized.

Service Operator:	To be contracted
Implementing Agencies:	Dallas Area Rapid Transit, Fort Worth Transportation Authority
Financing:	$68.2 million needed for Phase I of the project is being funded through a combination of regional sales taxes and federal funds. The corridor is leased to two freight railroads. Their payments offset operating costs (dispatching and maintenance) and help pay for capacity improvements required for the shared use. The freight railroads also make separate capital contributions for track and signal upgrades. The Federal Transit Administration's Section 9 and CMAQ funding also are sources of project construction funds. Operating costs will be fully funded locally.
Contact:	Bill Whitbred, Project Manager Commuter Rail, DART PO Box 660163 Dallas, Texas 75266-7209 Phone: (214) 749-2794

The proposed commuter rail service is intended to feed into the 20-mile light rail service in Dallas (scheduled to begin in June 1996). A daily ridership of 3,200 is projected for initial Phase I service. By the year 2000, the daily ridership is expected to be approximately 10,700 assuming full development of all three phases. Dallas and Fort Worth bought 34 miles of the former CRI&P with an UMTA grant and lease the right-of-way to freight railroads, thus creating a unique funding source for commuter rail. At South Irving, the commuter rail service will be linked with existing DART bus services, while the Medical Market Station will serve five hospitals with a total employment of 30,000 and the major Dallas Market Center area.

Design work is now complete for all required station and track work, and construction is in progress at Dallas Union Station and corridor capacity improvements. In addition to station and maintenance facilities construction, work will include a track upgrade to FRA Class 3 standards, three miles of new track, upgrade of sidings and turnouts, two new single-track bridges, rehabilitation of three existing bridges, and signaling improvements.

Fare collection will be a self-service, proof-of-payment system using the same ticket vending machines as DART's light rail.



Burlington, Vermont:

Start up Date:	1997
Origin/destination:	Charlotte to Burlington
Project length:	12 miles
Estimated Travel Time:	30 minutes
Service Level:	Service levels are yet to be determined, but morning and evening peak travel is expected with mid-day trains running on the hour. The plan is to connect the commuter rail with light rail service to the university, hospital, and shopping districts.
Equipment:	Undecided, diesel railcars are being considered.
Service Operator:	To be determined
Implementing Agencies:	Vermont Agency of Transportation, Rail, Air and Public Transportation Division

Financing: Capital costs are projected at $7.75 million for track upgrades, station construction and equipment. A line item appropriation from Congress was approved for $5.65 million in 1995. Matching funds for capital improvements are now being sought at the state level. The Vermont legislature has designated $1.75 million for the renovation of Union Station in Burlington.

Contact:
Richard Bowen, Rail Planner
Vermont Agency of Transportation
Rail, Air and Public Transportation Division
133 State Street
Montpelier, Vermont 05633
Phone: (802) 828-2710

To mitigate anticipated traffic congestion during the reconstruction of Route 7 in 1998, the Vermont Agency of Transportation will sponsor a commuter rail project along the corridor. In addition to finalizing funding strategies, the managing authority is addressing concerns over high projected labor costs resulting from the use of federal funds

II. Existing Operators Expanding Service

Southern California

Southern California's Metrolink now operates six lines covering 395 miles. System ridership has grown continuously to 21,000+ daily passengers since service began in October, 1992. The seventh line is scheduled to begin operations in mid 1997. When completed, the 490-mile system will have cost an estimated $1.3 billion for capital improvements and rights-of-way. A 41 percent farebox recovery ratio is projected.

Although Metrolink has exceeded original ridership estimates, budgetary concerns will slow further implementation of the system. In response to Orange County's bankruptcy, California approved legislation that will allow counties to transfer funds from special accounts to general funds. This means that once secure transit funds can now be used to head off a non-transit budgetary crisis.

Contact:
Richard Stanger
Executive Director
SCRRA/Los Angeles County
818 West Seventh Street, Suite 700
Los Angeles, California 90017
Phone: (213) 244-6803

Wilmington, Delaware:
The Delaware Department of Transportation completed the feasibility study and operational assessment of commuter rail service to Newark, Delaware from Wilmington and Philadelphia. This project extends Southeastern Pennsylvania Transit Authority (SEPTA) service ten miles south to Newark, Delaware. Negotiations are in progress on outstanding right of way issues and an updated service agreement with SEPTA. Capital costs are estimated at $2.3-$3 million. Historically, operating costs have been assessed by SEPTA based on the number of hours and miles trains operate within Delaware. An estimated 200 riders per day will utilize the Newark station. Construction is tentatively scheduled to begin in June with service beginning sometime in the Fall of 1996.

Contact: Seath Constable
Delaware Department of Transportation
Planning Department
PO Box 778
Dover, Delaware 19903
Phone: (302) 739-4644

Chicago, Illinois
Metropolitan Rail (Metra) is expanding its service on the Wisconsin Central line from Antioch to Union Station in Chicago. Initial service will operate within one hour windows on a single track with existing freight traffic. If ridership targets are met, Metra will propose constructing a second track so that service improvements can be made. When implemented, this will be the first new commuter rail line in the northeast Illinois region since 1926. The rail line stretches 53 miles from Antioch, past O'Hare Airport to Franklin Park, continuing on to Chicago Union Station. Twelve suburban stations are proposed. The new line will provide transfer opportunities to three other Metra lines. Metra's initial service plans call for three morning inbound trains, three midday trains, and three evening outbound trains. Morning and evening reverse commute service will be considered as demand for service increases. Metra projects 5,700 daily riders will use this new service, 40 percent of which will be new to Metra service. Operation of the Wisconsin Central line is expected to begin in late summer 1996.

Contact: Christopher Knapton, Director
Media Relations
METRA
547 West Jackson Blvd.
Chicago, Illinois 60661
Phone: (312) 322-6760

Massachusetts Bay Transportation Authority is currently working on six different projects that would extend rail service into the Boston metropolitan area. The region is home to approximately 4.5 million people.

Construction on a 9.6 mile extension from Ipswich to Newburyport will begin in 1996 with service scheduled for 1997. The extension is expected to bring 1,638 new riders each weekday. Construction costs are projected at $26 million, annual operating costs at $1.7 million, and revenue is projected to be $1.3 million.

The Boston-Framingham commuter line will be extended to Worcester with service beginning in December, 1996. The extension will add six stations and 23 miles to the existing route. Construction costs are expected to be $84.9 million and four additional trains will be purchased at a cost of $34 million. The new service is projected to bring 6,700 new trips per weekday, increase annual operating costs by $7.2 million, and generate $4.7 million in additional fare revenue.

Beginning in 1998 MBTA will construct a two-and-one-half-mile extension from Stoughton Commuter Rail Line to North Easton. This short extension is expected to begin operating in 1999 attracting up to 1,900 additional weekday passengers and relieving congested parking conditions at existing stations on the Attleboro and Stoughton lines. Construction costs are estimated at $16.2 million.

There are three lines (Plymouth, Middleborough and Greenbush) referred to as the Old Colony service that were discontinued in 1959. The Plymouth and Middleborough lines are now being restored at a cost of $480 million and service is expected to begin by the end of 1996. The Greenbush line is still in the permitting and design phases and is scheduled to begin construction in mid-1997 and service in 1999. Restoration costs for the Greenbush line are expected to be $215 million. Projected weekday ridership is 10,000 on the Middleborough line, 5,800 on the Plymouth line and 7,400 on the Greenbush line. Total operating costs for all three lines are estimated at $40.1 million while generating $19 million in new fare revenue. A feasibility study is also being done on the 20-mile extension of the Middleborough line to Buzzards Bay that has been proposed.

Extending commuter rail service into New Bedford, Fall River and Taunton has been proposed along the Attleboro Line. The preferred alignment was chosen based on a feasibility study, but local opposition resulted in a state legislature decision to revaluate alignment options. The 41-mile extension through Attleboro was chosen because it is expected to attract high ridership with reasonable capital costs and can be implemented quickly. As currently proposed, the project is expected to generate $9.2 million in annual revenue, cost $136 million and have weekday ridership of 7,900 daily passengers.

Contact: Clay Schofield
Massachusetts Bay Transportation Authority
Planning Department
Ten Park Plaza
Boston, Massachusetts 02116-3974
Phone: (617) 222-4478

New Jersey Transit has several commuter rail projects in different stages of development. Restoration of passenger service on the 41.6-mile New York, Susquehanna and Western Line is underway. An estimated $85-100 million will be needed for track upgrades and rolling stock. As proposed, five trains each during the morning and evening peak would provide service between 9 stations with ridership estimated at 3,900 daily trips in 2010.

A Draft Environmental Impact Statement for the West Shore Line will begin in Spring 1996. The 29-mile West Shore line would provide service between Hoboken, the Secaucus Transfer station, and West Nyack, New York. Ridership forecasts project approximately 18,000 daily trips in the year 2010.

The Port Authority of New York and New Jersey and the New York Metropolitan Transit Authority are working on a joint effort MIS to assess transit needs through midtown Manhattan. The Kearny Connection project involves constructing connector tracks between New Jersey Transit and Amtrak's Northeast Corridor. Direct service into mid-town Manhattan will start May 30, 1996. Groundwork is underway on the Secaucus Transfer project which will serve as the interconnecting node for all NJ Transit commuter rail lines in northern New Jersey. The new station will reduce travel times to and from midtown Manhattan by about 15 minutes. Environmental and engineering work for extending rail service to the Meadowlands Sports Complex will begin this year.

Contact: Marianne Stock
New Jersey Transit
One Penn Plaza East
Newark, NJ 07105
Phone: (201) 491-7102

III. Potential Commuter Rail New Starts

San Francisco, California:
The San Francisco Bay Area Rapid Transit District (BART) has completed an initial evaluation of a proposed regional commuter rail program. The program would provide an alternative to commuters who now travel in some of the most heavily congested corridors in the San Francisco Bay and Central Valley areas. Efforts are underway to establish intercounty funding and institutional arrangements among the five service counties (Solano,

Contra Costa, Alameda, San Joaquin and Santa Clara). BART is currently working with local, regional and state transportation officials to identify opportunities to initiate phased implementation of the program where passenger demand is sufficient and service is operationally feasible.

The program will be an essential component of an integrated regional public transportation network for the five-county region. Feeder bus services, station parking facilities, station area development, integrated fare systems, and off-peak service coordination are being incorporated into the program to ensure successful implementation. The 200-mile commuter rail system is expected to draw 3.7 million annual passengers by the year 2000. Annual revenue is projected to be $5.2-5.6 million.

Contact: David Kutrosky, Project Director
Passenger/Commuter Rail Program
BART
P.O. Box 12688 (MSQ-3)
Oakland, California 94604-2688
Phone: (510) 287-4859, Fax: 287-4760

Hartford/New Haven, Connecticut

Connecticut Department of Transportation is considering expanding service from New Haven to Hartford. A feasibility study was completed in the spring of 1994 but a special task force created by the legislature has recommended that a more detailed analysis be done. The 38-mile track is in good condition as it is currently being used by Amtrak. The feasibility study projected capital costs of $4.37, and annual operating costs of $2.5 million in addition to fare recovery revenue. Ridership estimated 2,000 daily trips would result from the service. A final decision will be made when the detailed analysis is completed.

On February 1, 1996 a two-year demonstration began extending commuter service 18 miles to New London along the New Haven-Old Sybrook Line. The extended service is limited to two morning and two evening trains. Service into New London will continue beyond the demonstration if there is sufficient demand.

Contact: Nita Gagne
Connecticut Department of Transportation
PO Box 317546
Newington, CT 06131-7546
Phone: (203) 594-2905

Tampa, Florida:
The Tampa Bay Commuter Rail Authority has completed a comprehensive ridership and feasibility study of service between Lakeland and Tampa. One million dollars in federal Section 3 funds has been secured for FY95 and FY96 to continue corridor development. As proposed, service would include three morning and three evening trains stopping at four stations along the 31-mile route. Commuter rail service could begin operating in the year 2000.

Contact:
Len Tria
Tampa Bay Commuter Rail Authority
5100 W. Kennedy Blvd
Suite 300
Tampa, Florida 33609
Phone: (813) 287-1960

Atlanta, Georgia:
In April of 1993, the Georgia Department of Transportation began a feasibility study, which identified potential corridors and operating plans for commuter rail service. Of the 12 lines studied, six were recommended for development. The study proposes two phases of development. Phase I would include the first three lines resulting in 158 miles of track with 20 stations operating in 12 different counties. Capital costs for Phase I are projected to be $245 million with annual operating costs of $9 million. 6,300 passengers are expected to use the line each day. Phase II would add 164 miles of track and 19 stations covering 10 counties. Capital costs for phase II are projected to be $265 million. Annual operating costs are projected to be $8 million. An additional 7,850 daily passengers would be added to the system. In all cases construction involves upgrades to existing freight rail tracks. All six lines would bring commuters into the downtown multimodal terminal to facilitate transfers to the subway or local bus system.

The next step is to initiate a MIS and identify funding sources so the project can be incorporated into the Constrained Long Range Plan (CLRP). With population projected to increase from 3.7 million in 1990 to 5.6 million by 2010, aggressive transportation control measures will likely be needed. Given the level of public support, expected regional growth and limited alternatives along the study corridors, it is expected that funding will eventually be identified. Service could begin four to five years after ground breaking.

Contact:
Hal Wilson, Manager
Rail Transportation Program
Georgia Department of Transportation, Office of Intermodal Programs
276 Memorial Drive
Atlanta, Georgia 30303-3743
Phone: (404) 651-9215

New Orleans, Louisiana:
The Louisiana Department of Transportation is pursuing funding strategies to begin implementing the State Rail Plan. The plan calls for renovation of the downtown transportation center into a multi-modal station where a commuter rail line would provide service to the airport. The Department of Transportation has acquired the right-of-way for the 12-mile rail corridor to the airport. As proposed, airport bound passengers would be charged a premium to subsidize commuter fares. The estimated start-up date for commuter rail service is 2005.

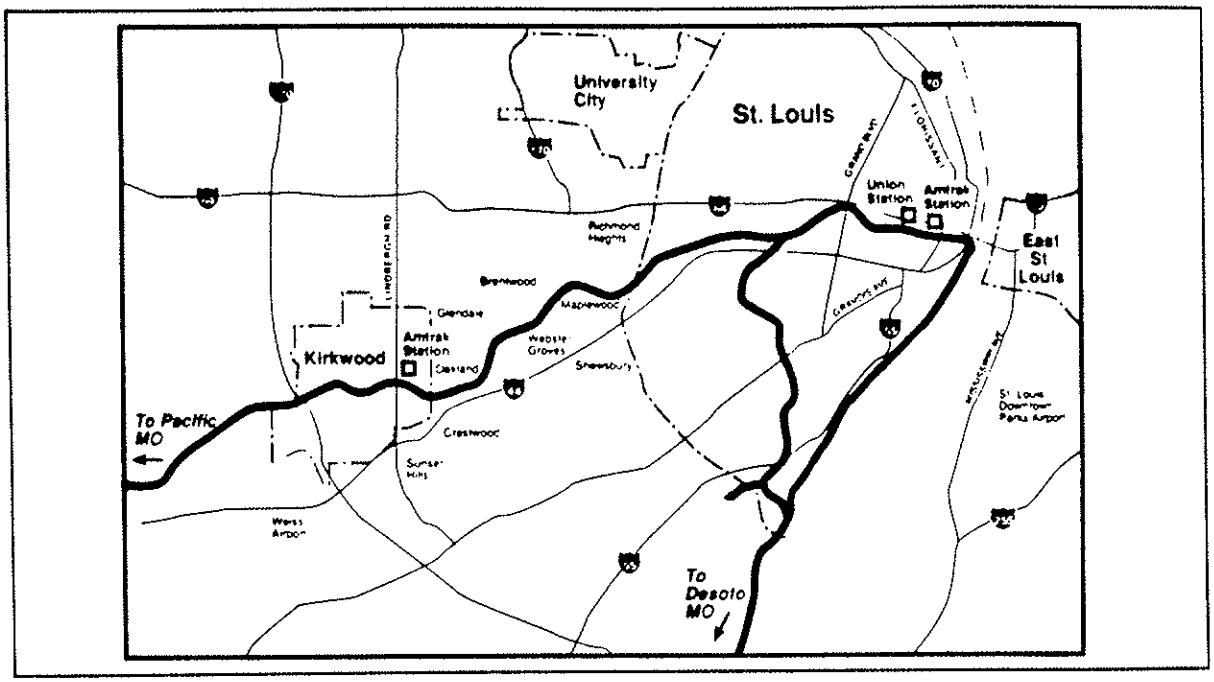
The second part of the plan involves service to Baton Rouge. Funds have been committed to provide passenger service from Texas to Florida under the tri-state agreement between Alabama, Mississippi and Louisiana. Part of that proposed service covers the 85-mile corridor from New Orleans to Baton Rouge. MK Centennial has been selected as the primary contractor to advance the State Rail Plan.

Contact: Robert Tannen, Vice President
F.R. Harris
1555 Poydras Street
Suite 1860
New Orleans, LA 70112
Phone: (504) 529-4533

St. Louis, Missouri:
Commuter rail service is being pursued in two transit corridors that parallel interstate highways. The Bi-State Development Agency contracted with Booz-Allen & Hamilton to provide financial and operations planning, coordinate public participation and assist with negotiations for rail lines. The I-44 rail corridor would stretch 34 miles and would provide service to 5,000 daily passengers in year three of operation. In the 39-mile I-55 corridor 4,800 daily riders are projected in year three. Service in both corridors would consist of five a.m. trains, five p.m. trains and two reverse commute trains. Both lines would terminate at the planned multimodal transportation center in downtown St. Louis.

A referendum was passed in August 1994 increasing the sales tax by a quarter of a cent to provide the $1.5 billion needed to fund the existing light rail system and start commuter rail. The Metropolitan Planning Organization has convened a Project Management Group for a Major Investment Study. Public meetings were underway but have been postponed temporarily until another MIS that would impact the same transit corridors is completed. A final recommendation will be made as soon as the public meetings are finished and if the project is approved, final design and construction will begin.

Contact: Susan Stauder
Bi-State Development Agency
707 N 1st Street
St. Louis, Missouri 63103
Phone: (314) 982-1594

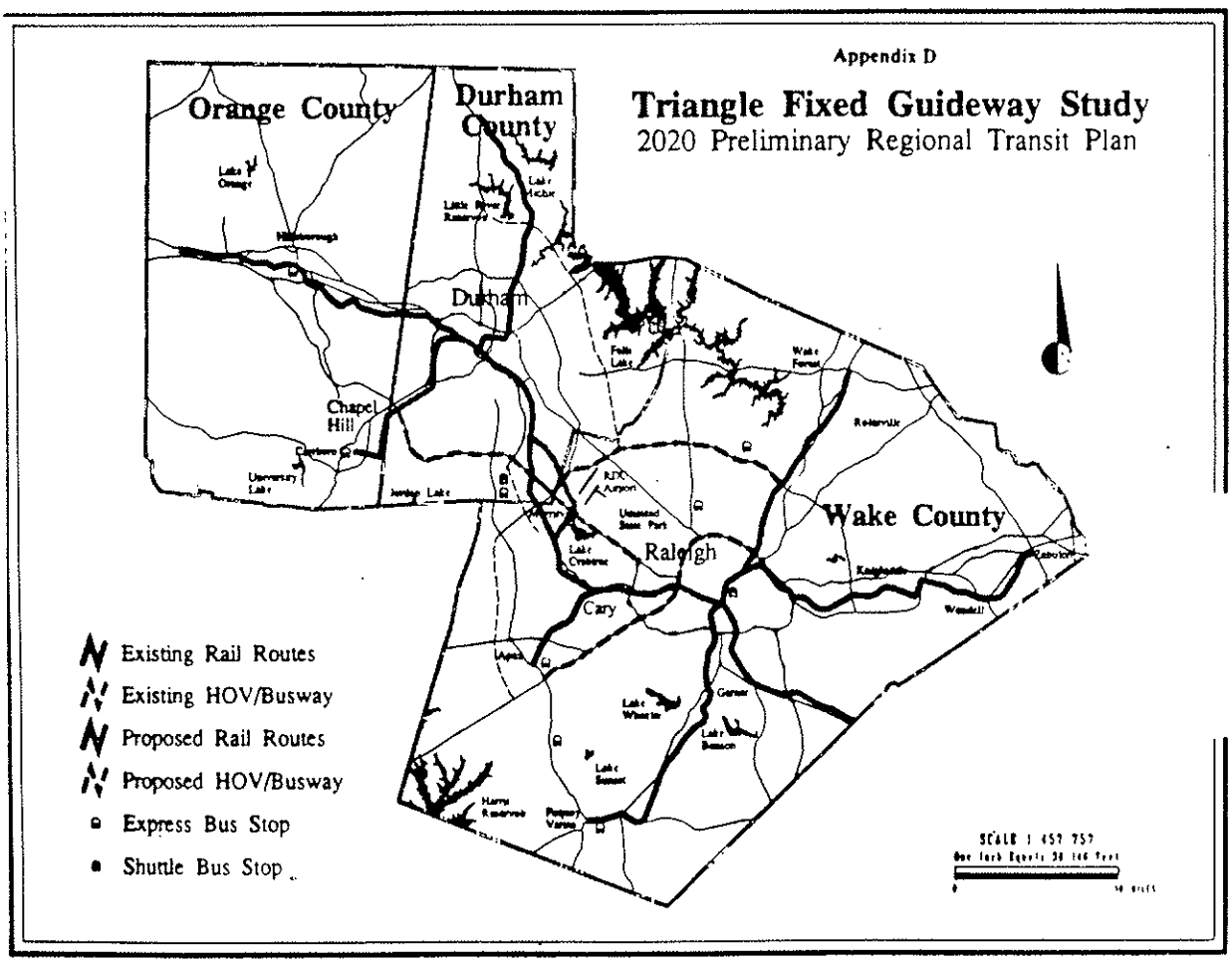


Research Triangle, North Carolina:
The Triangle Transit Authority (TTA) has completed a systems planning study that evaluated fixed guideway transit alternatives for various corridors in the Research Triangle region (Wake, Durham, and Orange Counties). The resulting *Regional Transit Plan* recommends the development of a regional rail transit system in three phases, along with expanded regional, local, and feeder bus services (See Figure Four). Phase I of the project includes the operation of regional rail (using self-propelled diesel railcars-DMUs) on existing railroad rights-of-way between Durham and Raleigh, including stops in Research Triangle Park and Cary. Phase I also includes rail service from downtown Raleigh to North Raleigh and shuttle service to the airport. Phase II includes an extension of the North Raleigh service, a connection to RDU International Airport, and some type of fixed guideway service between Durham and Chapel Hill (to be determined by a Major Investment Study). The long-term Phase would include extensions of the rail system to outlying communities, as ridership grows on the regional bus service.

Ridership on the Phase I and II rail service is estimated at approximately 16,000 by the year 2020. Estimated capital costs are $150 million for Phase I and $250 million for Phase II. Estimated starting date for Phase I is 2002.

Resolutions in support of the Regional Transit Plan concept have been passed by the governing bodies of the region's three counties and thirteen municipalities. Letters of support have been written by the Governor, major employers, chambers of commerce, and universities. Funding sources will be evaluated in consultation with the North Carolina General Assembly. The TTA is continuing the study process, including preliminary engineering and station area guidelines. Access to the railroad lines is being negotiated with Norfolk Southern and CSX Railroad.

Contact: Kelly Goforth
Triangle Transit Authority
PO Box 13787
Research Triangle Park, NC 27709
Phone: (919) 406-1710



Cleveland, Ohio:
A recently completed Northeast Ohio Commuter Rail Feasibility Study evaluated commuter rail services proposed in the long-range plan. The Metropolitan Planning Organization is assessing three state studies in eight corridors. The most promising is a 62-mile commuter rail project from Canton through Akron into Cleveland. In February, 1996 the Ohio Rail Development Commission voted unanimously to designate the commuter line as its top passenger service priority in the state construction budget. Capital cost estimates range from $60 to $167 million with the state share yet to be determined. Patronage forecasting studies project 3,000 average daily passengers on the four daily trains. Weekday peak service only will be provided.

The state is discussing major rehabilitation of a freeway bridge which connects the neighborhoods to the south with downtown Cleveland. Over 100,000 car trips are made over this bridge each day. If the rehabilitation proceeds, it will shut the bridge down for over three years. This is further reason to implement commuter rail service and may provide congestion mitigation funding from the Federal Highway Administration.

Contact: Richard Enty, Long Range Planner
Regional Transit Authority
615 Superior Avenue West
Cleveland, Ohio 44113
Phone: (216)566-5260

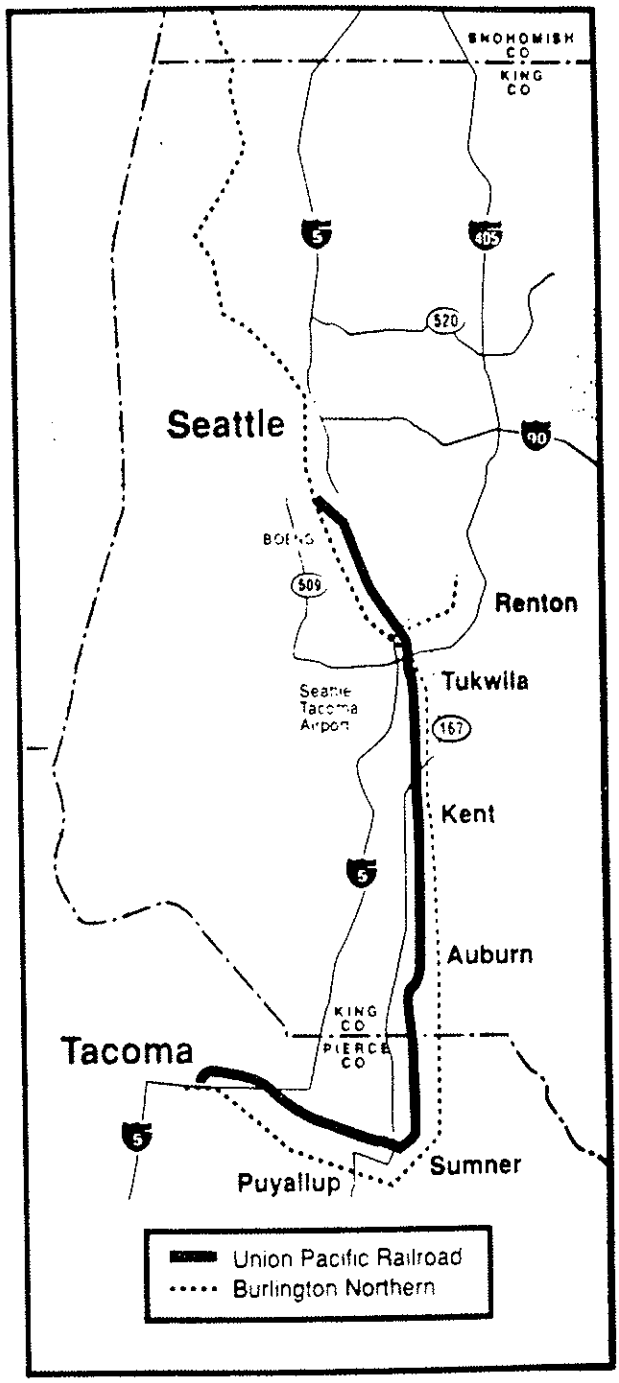
Seattle, Washington:

The Washington State Legislature established the Central Puget Sound Regional Transit Authority (RTA) to plan and implement a three-county high capacity transit system. Made up of the urbanized portions of King, Pierce and Snohomish counties--including the major cities of Seattle, Tacoma and Everett respectively-- the RTA includes an area with a current population of 2.2 million projected to grow to 3 million over the next fifteen years. The region, in part due to geographic constraints imposed by mountains and water, has some of the most severely congested highways in the U.S.

On March 14, 1995, the voters rejected the RTA's plan and financing package (53% voting "no"). That $6.7 billion, 16 year plan would have been funded through a 0.4 percent sales tax and a 0.3 percent motor vehicle excise tax. Among many other transit projects, the plan included the implementation of all-day commuter rail service in the 80-mile Everett-Seattle-Tacoma corridor. The capital cost of the commuter rail components of the system plan was $547 million.

A six week commuter rail demonstration program began January 28, 1995. Service ran from Everett to Seattle for two weeks and Tacoma to Seattle for two weeks. The RTA also ran numerous special excursion trips to sporting and cultural events throughout the region. The demonstration program resulted in 16,600 commuter trips and 52,500 excursion trips. Cars were leased from GO Transit, crews contracted through Burlington Northern and Union Pacific. Funding for the demonstration project was from the Washington Attorney General in Oil Overcharge Funds and the FTA.

Currently, the RTA is developing a revised proposal for placement on the ballot in 1996. Though likely to be somewhat shorter in duration (approximately 10 years) and lower in total cost, the revised plan will still include a commuter rail component. If successful, this second ballot measure would then fund a three to four year commuter rail start-up.



Contact: David Beal, Manager
Regional Transit Authority
821 Second Ave, MS 151
Seattle, WA 98104-1598
Phone: (206) 684-1883

IV. Areas Evaluating the Feasibility of Commuter Rail

Denver, Colorado:
An environmental assessment and feasibility study have been completed for implementation of a 24-mile commuter rail system from downtown Denver to the new Denver International Airport. Unfortunately, the delay of the airport's opening eliminated funding options for commuter rail as the city dedicated its funds to the airport with little left for other projects. The JDR Group is working on an updated financial and technical review that will be finished by Fall, 1996. As originally proposed, ridership was projected at 8,000 passengers per day, but the projections will be updated in the current study. Upon completion of the study, JDR is expected to propose joint development of the rail project. An airport tax may be considered to fund the

government portion of the joint development. Union Pacific is willing to sell to the city a portion of its unused corridor needed to complete the commuter rail system. The city intends to lay new track and contract service through Union Pacific or Amtrak. According to sponsors, this project has had tremendous community support. If commuter rail is implemented it will begin service within three to five years.

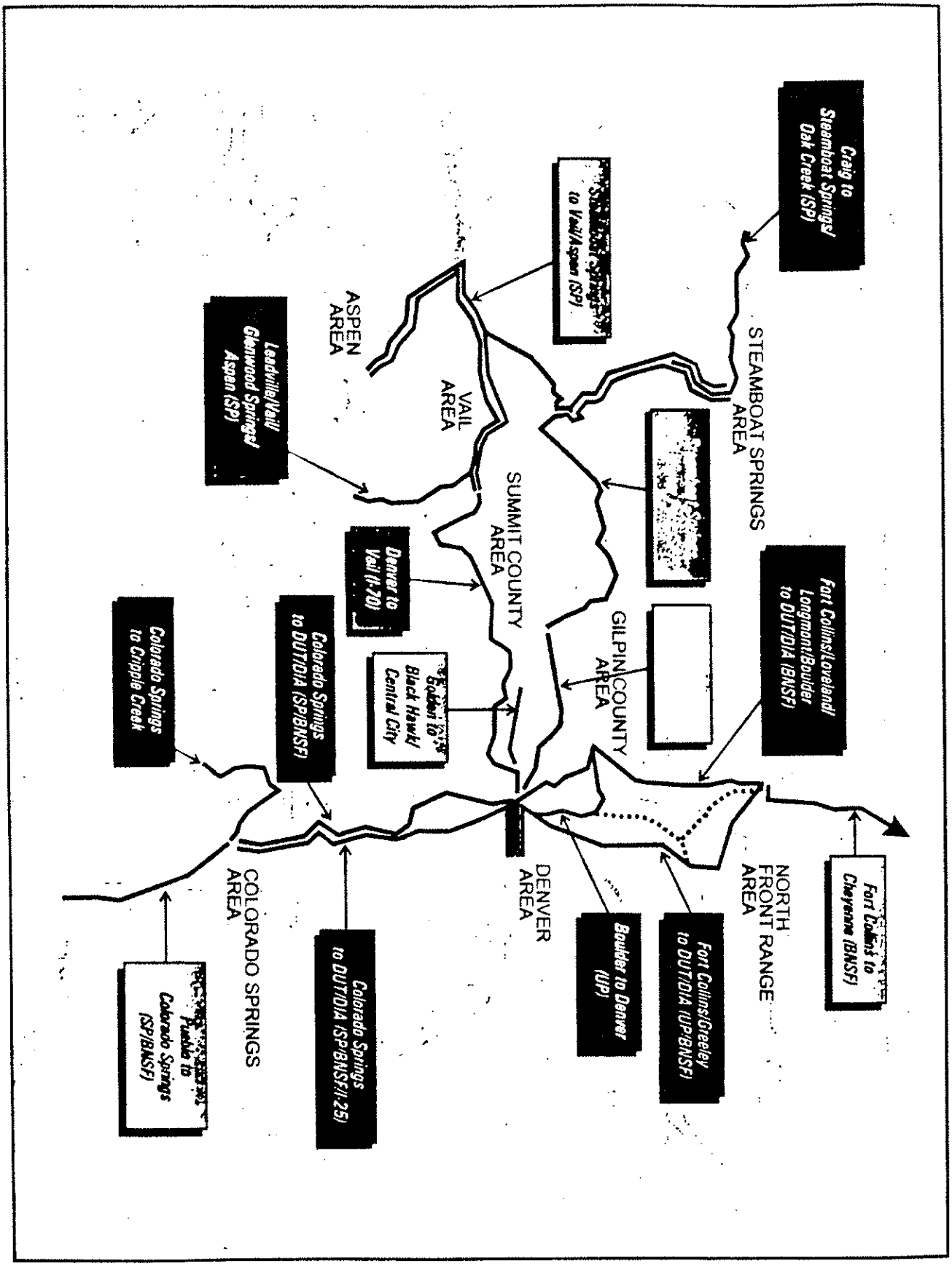
Contact: Terry Rosapep
City/County of Denver
1600 Blake Street
Denver, Colorado 80202-2470
Phone: (303) 640-3958

State of Colorado:
The State of Colorado developed a statewide transportation plan which identified potential commuter rail corridors. A passenger rail feasibility study will be completed by the end of 1996. The study will identify a group of high priority rail corridors from the 15 corridors that have been proposed. Most of the corridors identified have existing tracks and would require upgrading. Funding will be sought for commuter rail development along the high priority corridors. The proposed airport rail project is preceding separately because an MIS is already underway. Ridership forecasts will assume integration of the projects.

Contact: Dave Ruble
Colorado Transportation Department
4201 E. Arkansas Avenue, Room 274
Denver, Colorado 80222
Phone: (303) 757-9201

Jacksonville, Florida:
A preliminary transit study was completed for the area three years ago. The Jacksonville Transportation Authority is currently conducting a transit system feasibility study, which will include commuter rail. The Authority expects the study results in one year.

Contact: Roger Sharp
Jacksonville Transportation Authority
100 N. Myrtle Ave.
Jacksonville, FL 32204
Phone: (904) 630-3181


Craig to Steamboat Springs/ Oak Creek (SP)
STEAMBOAT SPRINGS AREA
to Vail/Aspen (SP)
VAIL AREA
ASPEN AREA
Leadville/Vail/ Glenwood Springs/ Aspen (SP)
SUMMIT COUNTY AREA
Denver to Vail (I-70)
Colorado Springs to Cripple Creek
Colorado Springs to DUT/DIA (SP/BNSF)
Golden to Black Hawk/ Central City
GILPIN COUNTY AREA
Fort Collins/Loveland/ Longmont/Boulder to DUT/DIA (BNSF)
Fort Collins to Cheyenne (BNSF)
NORTH FRONT RANGE AREA
Fort Collins/Greeley to DUT/DIA (UP/BNSF)
Boulder to Denver (UP)
DENVER AREA
Colorado Springs to DUT/DIA (SP/BNSF/I-25)
COLORADO SPRINGS AREA
Colorado Springs (SP/BNSF)

Orlando, Florida:
A 1992 feasibility study identified corridors for rail development. A Regional Systems Plan was just completed which includes commuter rail in the long-range plan 10 to 15 years in the future.

Contact: Mark Hardgrove
Central Florida Regional Transportation
LYNX
1200 W. South Street
Orlando, Florida 32805
Phone: (407) 841-2279

Johnson County, Kansas:
As a result of astronomical growth in the county, and the increasing number of commuters, utilizing the I-35 corridor, Johnson County began a commuter rail feasibility study as a means of traffic congestion mitigation. Burlington Northern rail tracks run parallel to I-35. Currently, the study is concentrating on the track area from southern Johnson County into Kansas City's (Missouri) Union Station. Union Station is in the early stages of a project which will incorporate a multi-modal transportation facility alongside other station development.

Phase I, Part A was the basic feasibility portion of the study that looked at initial capital cost estimates, potential environmental problems, operating costs and ridership estimates and projects. Phase I, Part B of the study will further investigate the potential commuter rail operation, along with additional ridership evaluations, cost evaluations, and potential start-up and operation funding sources. The study is expected to be completed by July, 1996.

Phase II of the study, when and if executed, would be the final configuration of the actual system, including operating negotiations, capital equipment orders, etc. Staff feels that commuter rail could be a viable solution for the county within the next several years.

Contact: Alice Amrein, Transportation Director
Department of Public Works
1800 West 56 Highway
Olathe, Kansas 66061
Phone: (913) 782-2640

Detroit, Michigan:
The Michigan Department of Transportation (MDOT), in cooperation with the Southeastern Michigan Council of Governments (SEMCOG), has retained DeLeuw Cather & Company to develop a plan for implementing regional commuter rail service in the Detroit area. The study will also provide the basis for developing additional rail services to supplement existing intercity rail passenger services and, in the future, to be part of a collection/distribution system for high speed rail service in the Detroit-Chicago corridor.

Seven lines extending 30-60 miles from the Detroit Amtrak station are being studied. Areas where service is proposed include Pontiac, Ann Arbor, Flint, Toledo, Monroe, Mount Clemens, Detroit Metropolitan Airport, and downtown Detroit. Since the proposed routes would operate on existing track, costs would be less prohibitive than the heavy rail previously proposed. Preliminary service proposals include four trips in and two reverse trips during the morning peak, one mid-day train and four evening trips out and two reverse trains. The report will consist of a series of technical documents, a popular report, a short and long-range plan to the year 2020 and an analysis of demonstration project opportunities. The study will be completed in August of 1996.

Contact: Robert Kuehne, Project Manager
MDOT
Bureau of Transportation Planning
Third Floor
425 Ottawa
Lansing, Michigan 48909
Phone: (517) 335-2926, FAX: (517) 373-9255

Jackson, Mississippi:
The South Rapid Rail Transit Commission is working to implement daily 403(b) rail service from Mobile, Alabama to New Orleans, Louisiana. The project will primarily attract tourists to the dockside gambling in Mississippi. Sponsors anticipate running one train per day. Plans for a three month demonstration project scheduled to begin in September, 1996 may have to be postponed until an agreement can be reached with CSX to allow use of the tracks. Amtrak has agreed to provide and operate equipment. Mississippi, New Orleans and Alabama will each contribute $185,000 to fund the demonstration project.

Contact: Mike Merry
Mississippi Transportation Department
PO Box 1850
Jackson, MS 39215-1850
Phone: (601) 359-7910

Lake and Ashtabula Counties, Ohio:
In May of 1996, LAKETRAN will issue an RFP for a feasibility study of commuter rail service between Ashtabula and Lake Counties and downtown Cleveland. This corridor parallels I-90 to the east of Cleveland, and is served by both Conrail and Norfolk Southern. The proposed rail line could run anywhere from 30-66 miles.

Contact: Dale Madison, Director of Development
LAKETRAN
555 Lake Shore Boulevard
Painesville, Ohio 44077
Phone: (216)350-1000

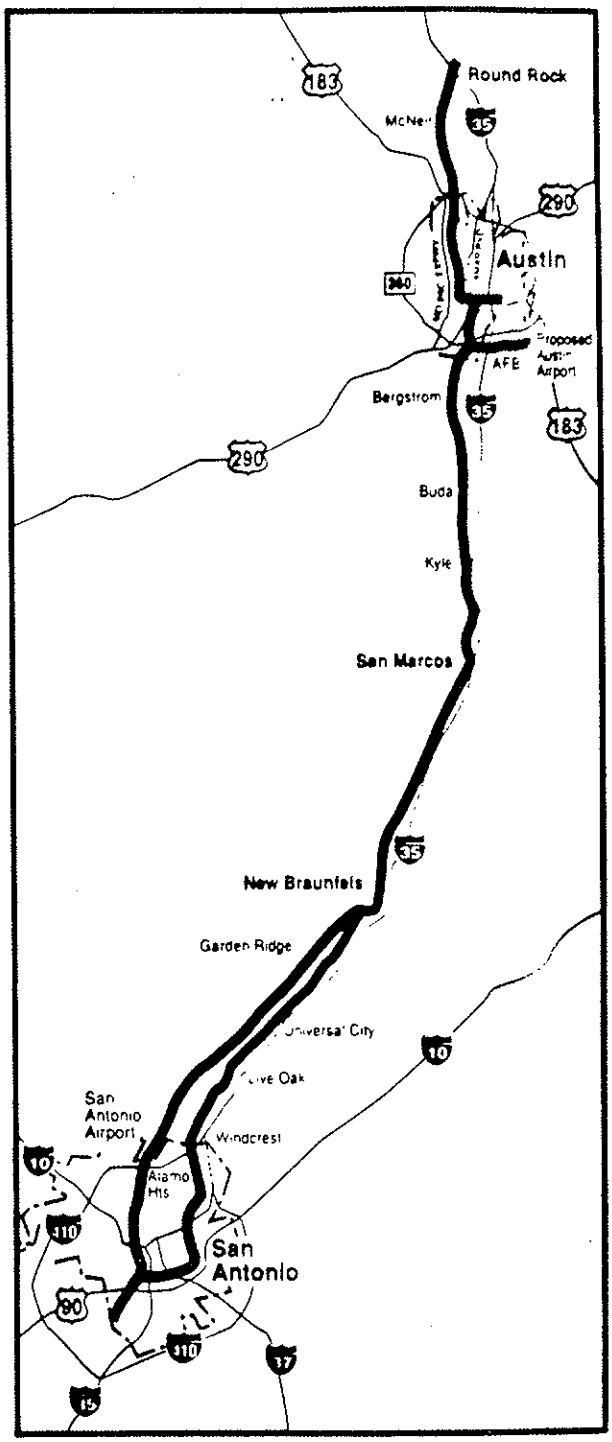
Oklahoma City, Oklahoma:
The Oklahoma legislature directed the Oklahoma Department of Transportation to provide Oklahoma and Tulsa counties with transit service. A route evaluation was done by Amtrak to determine commuter rail feasibility, track condition, signals, scheduling, crossings, etc. The report is due by the end of 1994. The Oklahoma Department of Transportation will take the results of the feasibility study to the legislature for possible 403(b) subsidy funding. If approved, commuter rail service will be provided from St. Louis through Tulsa, into Oklahoma City.

Contact: Joe Kyle
Oklahoma Department of Transportation
Traffic Engineering
200 NE 21st
Oklahoma City, Oklahoma 73105
Phone: (405) 521-4203

Nashville, Tennessee:
The city began a nine-month transit feasibility study in February, 1995. Ultimately, sponsors would like to develop a light rail system within Nashville with which commuter rail service would connect. Commuter rail service, if implemented, is five to ten years away. The study is 80 percent funded by federal funds, 10 percent state, and 10 percent local.

Contact: Bob Babbitt
MTA
130 Nestor
Nashville, Tennessee 37210
Phone: (615) 862-6147

Austin/San Antonio, Texas:
Union Pacific lines operate through some of Austin and San Antonio's main activity centers forming a direct link along the 90-mile corridor connecting these two cities. Commuter rail could ease regional congestion along I-35 and allow it to serve better as a main NAFTA corridor. A number of promising efforts are being made to determine the project's future. A one day demonstration ride was organized for elected officials and community leaders. The benefits of pursuing the proposed commuter rail line will be discussed during a special joint meeting of the Austin and San Antonio MPO's. A proposal has already been drafted by the state legislature that would create a governing body to oversee commuter rail operations. Also at the state level, TXDOT is sponsoring an Origin and Destination study that will include an analysis of potential commuter rail ridership. Furthermore, if Austin relocates its airport to the former Bergstrom Air Force Base, plans would also include a light rail connecter service to the commuter rail. While no decisions have been made, the level of activity indicates that there is some interest in pursuing the project.



On the long term planning horizon, freight traffic has grown so much that TXDOT is conducting a MIS on a proposed eastern bypass corridor that would include a toll road and freight rail line as an alternative to expanding the highway system between the two cities.

Contact: Cynthia A. Robinson,
Planner
Metropolitan Transit
800 West Myrtle
San Antonio, Texas 78212
Phone: (210) 227-5371 ext 5300

Madison, Wisconsin:
In February, 1996 the Dane County Board of Supervisors completed a commuter rail feasibility study. An east-west urban corridor from Middleton to East Towne contains a significant number of work and event destinations, including state government offices, the University of Wisconsin campus, and a new downtown convention center. The study corridor went from Mazomanie to Sun Prairie. Capital cost estimates are $30 to $50 million, operating costs would likely be $3-6 million and farebox revenues are expected to cover 25-50 percent of operating costs. Ridership estimates are not yet available. The report recommends adopting commuter rail into the long range planning process and hiring a consultant to pursue the process to implementation. Inclusion of the proposed North/South line from DeForest to Stoughton in the long range plan was also recommended.

Contact: Tim Saterfield, Policy Analyst
210 Martin Luther King Boulevard
Room 118, City County Building
Madison, Wisconsin 53709
Phone: (608)267-5758

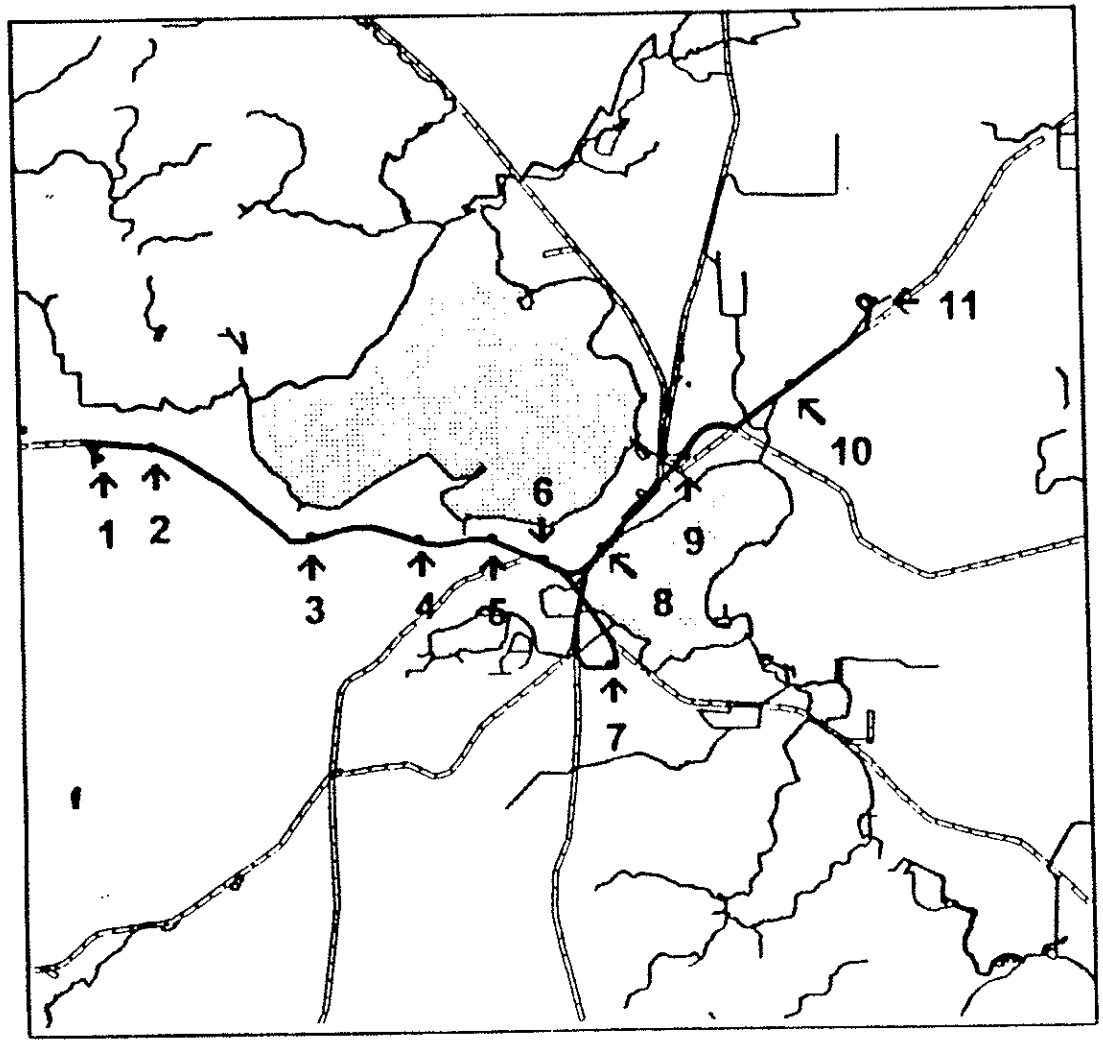
Milwaukee, Wisconsin:
The Southeastern Wisconsin Regional Planning Commission has adopted a new regional transportation system plan which identified the potential for commuter rail service in six corridors of southeastern Wisconsin. In 1996 feasibility studies will be initiated on three of those corridors covering 30 miles from Kenosha and Racine to Milwaukee. In response to budget short falls, a $0.05 per gallon increase in the gas tax was proposed in 1995 by the Governor to fund transportation projects. The gas tax proposal was defeated, and as a result, funding for commuter rail projects is not expected to be available in the near future. While there is certainly interest in the projects, action is not likely unless legislation is passed enabling the region to collect dedicated funding.

Amtrak proposed eliminating the Hiawatha service from Chicago to Milwaukee, but the state was able to successfully negotiate continuing Amtrak service, although reduced from eight daily trains to six, until October 1997. Wisconsin has considered seeking private operators to take over Amtrak service, but with the reduced service, 1995 ridership down 27 percent. The State of Wisconsin pays 75 percent of Hiawatha service costs with the State of Illinois paying the remaining 25 percent.

Contact: Kenneth R. Yunker, Assistant Director
Southeastern Wisconsin Regional Planning Commission
PO Box 1607
Waukesha, Wisconsin 53187-1607
Phone: (414) 547-6721

Preliminary Commuter Rail Stops

Dane County, Wisconsin



- Potential Rail Stops
- Corridor #1
- Railroads
- Hydrography
- Lakes/Major Rivers

1 = Greenway Center
2 = Middleton Depot
3 = Whitney Way/Hill Farms
4 = Univ. Bay/Hospital
5 = Babcock/Camp Randall/Ag. & Eng
6 = Kohl Are na/East Campus
7 = Coliseum
8 = Monona Terrace
9 = Schenks Corners/Yahara
10 = Hwy. 30 & 51
11 = East Towne

N
W E
S

1 0 1 2 Miles

Prepared for the Dane County Commuter Rail Task Force by Todd Dary with assistance from Dane County Land Information Office, 08-15-95
Source: U.S. Census Bureau, 1990 Tiger Files

V. Status of Commuter Rail in Other Areas

Santa Fe, New Mexico:
Commuter rail service between Albuquerque and Sante Fe has been studied repeatedly since 1972. A total of 9 reports have been completed including an Environmental Impact Statement, technical report, financial assessment and ridership projection. It was last studied in 1994. The goal is to connect Sante Fe and Albuquerque using the existing Sante Fe right-of-way, but within this 60-mile distance, four Native American properties are crossed, thus complicating negotiations. Furthermore, the interstate median needed to complete the route is scheduled for roadway expansion by the Department of Transportation. However, public support is growing for commuter rail, but will have to wait until the population densities improve.

Contact: Dan Stolver
New Mexico Department of Transportation
Railroad Planning Section
PO Box 1149
Sante Fe, New Mexico 87504
Phone: (505) 827-1572

Deadwood, South Dakota:
Commuter rail is under consideration between Rapid City and Deadwood, where actor Kevin Costner is locating a resort. Service would include 40 miles of existing track and 20 miles of new track. Existing commuter equipment would be rebuilt for use on the tracks.

Contact: Terry Kranz
Dunbar Corporation
South Dakota
(605) 578-1111

Memphis, Tennessee:
Based on a feasibility study completed years ago, commuter rail service using existing trackage in the Poplar and Cordova Corridors would not provide an attractive enough service to be cost-effective. With the commuter rail alternative eliminated, construction began on a five mile downtown light rail loop which will be completed in Spring of 1997. By 1999 a 2.5 mile extension to the Medical Center will link the two major employment centers.

A commuter rail line south to Tunica, Mississippi (an emerging gambling area) has been discussed. This idea is still in the conceptual stages and is only likely to progress if highway construction projects do not alleviate heavy traffic conditions along the route.

Contact: Thomas Fox
Memphis Area Transit Authority
1370 Levee Road
Memphis, Tennessee
Phone: (901) 722-7160

Houston, Texas:
Plans for a 60-mile commuter rail system have been suspended for a couple of years. The preliminary engineering study for two rail lines has been completed, which found ridership projections too low to justify the major investment. Furthermore, the current budget will allow for no further development. Any dedicated funds have been transferred to bus service. Burlington Northern is very interested and continues to pursue the possibility of offering commuter rail service. Union Pacific, which operates a small portion of the needed corridor, will consider allowing service, given the right conditions.

Contact: Houston, Texas 77208-1429
Phone: (713)

Salt Lake City, Utah:
Over 80 percent of Utah's population lives within an 80 mile north/south corridor between Ogden and Provo. Commuter rail has been mentioned in long range transportation studies and thoroughly discussed throughout the region, but plans currently include light rail and commuter bus service. Construction of a 15-mile light rail system will begin in 1997 with a year 2000 target completion date. The city will move to protect the current right-of-way for future commuter rail opportunities if they become available as a result of the Union Pacific/Southern Pacific merger.

Contact: Mick Crandle
Wasatch Front Regional Council
420 West 1500 South
Suite 200
Bountiful, Utah 84010
Phone: (801) 292-4469

Projects on Hold Indefinitely

Anchorage, Alaska:
No commuter rail exists today and is highly unlikely for the future. If employed it would be between Anchorage and Wasilla, a bedroom community about 45 miles outside of Anchorage. Given the extreme conditions of Alaska, the 45 mile drive would take over two hours to travel by train without the expensive upgrades and constant maintenance to operate over permafrost and varying grade. A lack of population density prohibits such intense investment. Both Fairbanks and Juneau are considering light rail systems within the city

(approx 10-15 mile systems) but again, the areas lack the needed capital and densities to implement.

Alaska Rail Road is running excursion trains at a profit, in partnership with the cruise lines. They run three lines, two of which are operating at a profit largely due to the intensive marketing campaign promoting tourism in the state. ARR is a $9 million business, moving half-a-million people between May and September. ARR also hauls freight.

Contact: George Erickson, Vice President of Marketing
Alaska Rail Road
Anchorage, Alaska
Phone: (907) 265-2428

Phoenix, Arizona:
A recently completed feasibility study developed two commuter rail proposals; one is rail service from Phoenix to outlying suburbs, the second is an intercity rail service connecting Phoenix with Tucson and Nogales. The rail demonstration project that was planned to mitigate anticipated travel demand for the 1995 Superbowl has been postponed indefinitely because of insufficient funding. An estimated $1.5 million is needed to proceed with the demonstration project. Southern Pacific owns two thirds of the existing trackage and according to the sponsors is anxious to start a commuter rail service. Burlington Northern's merger with Santa Fe may help. The project is on hold indefinitely unless a general consensus is reached and funding identified.

Contact: Michael Margrave
Margrave, Clemins & Verburg
9201 East Camelback Road
Suite 330
Scottsdale, Arizona
Phone: (602) 994-2000

Calgary, Alberta, Canada:
The City of Calgary has been considering implementing commuter rail for two years. A five month demonstration project will provide service between Anderson Station and a temporary platform on Avenue South. No fee will be charged during the demonstration. The project will help mitigate traffic during a $25 million highway interchange project and connect with the existing light rail service. Funding is being sought to extend the light rail service the needed 4.5 miles.

Contact: Bob Erwin
Calgary Transit
Phone: (403) 277-9800

Dartmouth, Novia Scotia, Canada:
The Metropolitan Authority completed a feasibility study of proposed commuter rail between the cities of Halifax and Windsor Junction or Bedford. In February of 1996 the Authority concluded that funds were not available and the project should not proceed. Capital costs were projected to be $1.5 million, with $2.5 million in operating costs and ridership of 1,519 passengers per day. Annual revenue was expected to be $878,000. Proposed service was to include five morning trains, five mid-day trains and five evening trains. In April, 1996 four municipalities will merge and although public survey results showed 87 percent local support for the project, increasing taxes throughout the region has become unpopular.

Contact: Roel Vis, Schedule Planner
Metropolitan Authority, Transit Division
200 Ilsley Avenue
Dartmouth, Nova Scotia B3B IVI
Phone: (902) 421-6600

Ottawa, Ontario, Canada:
The Transportation Commission completed in November, 1994, an evaluation of a two line commuter rail service and projected ridership proposed by Canadian Pacific Rail Services and a cost/benefit analysis of implementing commuter rail. The proposed commuter rail system would service 17 stations every 15 minutes during peak hours. Off-peak service would run one train per hour per direction. Projected capital costs were $57-$96 million, annual operating costs were $14-$17 million and revenues were $3.2-$3.7 million. Ridership estimates were between 8,000 and 9,300 daily riders. If the project proceeds, a commuter rail system could be operational within two to four years. No decision has been made, and the project has been put on hold indefinitely until the Regional Council finds answers to outstanding financial, political and operational questions.

Contact: Gabriel Aha, Communication Supervisor
Transportation Commission
Regional Municipality of Ottawa-Carleton
Ottawa-Carleton Centre
Cartier Square, 111 Lisgar Street
Ottawa, Ontario K2P 2L7
Phone: (613) 560-2068

APPENDIX C

Glossary/List of Abbreviations

GLOSSARY/LIST OF ABBREVIATIONS

American Public Transit Association (APTA): Trade association representing the transit industry in the United States and Canada.

Americans with Disabilities Act (ADA): The transportation related elements of ADA define the responsibilities of and requirements for transportation providers to make transportation accessible to individuals with disabilities. The United States Department of Transportation published the Final Rule on Transportation for Individuals with Disabilities on September 6, 1991 (49 CFR Parts 27, 37, and 38.) The Final Rule should be consulted for complete definitions.

Amtrak: The National Railway Passenger Corporation. United States intercity passenger rail and contract commuter rail operator.

Average Fleet Age: The cumulative years active revenue vehicles are in service divided by the sum of all active revenue vehicles.

Average Weekday: A representative weekday in the operation of the transit system computed as the mathematical average of several typical weekdays selected at random throughout the year.

BC Transit: Vancouver, British Columbia's transit authority responsible for the new start commuter rail service "West Coast Express."

Bi-Level Passenger Cars: Passenger cars with two floors for seating.

Burlington Northern (BN): Freight operator and track owner.

CalTrain Commuter Rail: Name of commuter rail service provided by the Peninsula Corridor Joint Powers Board for the San Francisco area.

Canadian National Railway (CN): Freight operator and track owner.

Canadian Pacific Railway (CP): Freight operator and track owner.

Capital Improvement Program (CIP): A program of improvements or additions to rolling stock and facilities, scheduled to be implemented within a number of years. Proposed system improvements are identified by funding and source, year, and purpose.

Clean Air Act (CAA): The 1990 amendments to the CAA require states and regions to enact plans and programs that improve air quality through establishing regional emissions budgets and then requiring, among other things, that the regional transportation plan conform to the established budget.

Commuter Rail: Passenger rail service operated on the equivalent of heavy freight railroad tracks to serve regional commuting needs. Depending on the operator, service may be all day or only during peak hours, use electric or diesel locomotives, single-level,

or bi-level railcars, high or ground-level platforms, and a traditional fare collection by conductors or barrier-free proof-of-payment. Generally, commuter rail systems are integrated with other regional transit providers to permit transfers throughout the metropolitan region.

Congestion Mitigation and Air Quality (CMAQ): Funding program included in the Intermodal Service Transportation Efficiency Act of 1991. In areas with air quality problems, funds are set aside for regions to allocate for projects that reduce congestion or otherwise improve air quality, and thus, may be available to a new start commuter rail project for capital and start-up operations.

Connecticut Department of Transportation (ConnDot): Commuter rail provider serving the Connecticut shore line between Old Saybrook and New Haven. The service is also referred to as ShoreLine East.

Consist: Equipment that comprises a train (i.e., locomotives and coaches). Refers to the actual rolling stock rather than the service it provides.

Contract Operator: Independent organization (private or public) performing all or some operating and maintenance functions.

CSX Transportation: Freight operator and track owner.

Davis Bacon Act: Labor regulations applicable to all federally funded construction projects. Davis Bacon regulations require compensation equal to prevailing local union wage rates. Other work rules are also established.

Deadhead (miles/hours): The miles/hours that a vehicle travels when out of revenue service.

Directional Miles (track miles, route miles): Mileage in each direction over which public transportation vehicles travel while in revenue service. Directional route miles are a measure of the tracks, not the service carried on the tracks. For example, a one-mile segment of track over which trains operate in both directions are two directional route miles regardless of the number of trains that used all or part of that segment.

Dispatching: Scheduling of trains.

Enforceable Liquidated Damages: Penalties assigned for delivery delays that are directly attributable to contractor performance.

Evasion Rate: Percentage of passengers who ride transit service without paying the required fare.

Excursion Trains: Non-commuter service scheduled to run for special occasions, such as sporting events.

Farebox Recovery Rate: Percentage of operating costs covered by passenger fares

collected.

Feasibility Study: Initial research needed to assess the viability of a project. May be conducted by an outside consultant and typically includes patronage forecasts, operating requirements, preliminary cost estimates, and institutional analysis.

Federal Railroad Administration (FRA): Within the United States Department of Transportation, administers the Federal Railway Act, among other activities. FRA assesses user fees on all railroads to support the Administration and is responsible for federal safety rules and regulations for public and private rail operations.

Federal Transit Administration (FTA): Within the United States Department of Transportation, formerly known as the Urban Mass Transportation Administration (UMTA), the FTA administers the Federal Transit Act, as amended, and provides grants to support commuter rail capital and operating costs.

Federal Transit Administration Section 3 Assistance: Funds obtained through Section 3 of the Federal Transit Act, as amended. This section enables Congress and the Secretary of Transportation to make discretionary capital grants to states and local public entities to finance specific types of public transportation projects. Section 3 funds are usually divided among rail modernization, new rail starts, bus planning and other projects, including transportation of elderly and disabled individuals.

Federal Transit Administration Section 9 Assistance: Funds obtained through Section 9 of the Federal Transit Act, as amended. This section governs the distribution of the public transit capital and operating block grant appropriations made by Congress each year among urbanized areas across the nation. Funds are distributed according to a formula that takes into account the size of the area served and the amount of service provided.

Feeder bus: Bus transport servicing or "feeding" passengers, typically to rail travel (commuter rail or heavy rail), over relatively short distances.

Federal Employees Liability Act (FELA): Governs the compensation of injured railroad employees.

FICA or Railroad Retirement: Required payments or accruals to the Federal social security or railroad retirement fund made by the employer on behalf of the employee. This category may also include Public Employee Retirement System payments (PERS).

Floating Stock: Extra rolling stock used a back-up for revenue service.

GO-Transit: Provincial transit authority for Toronto, Ontario, operating multi-modal bus and commuter rail services.

Guaranteed Ride Home: Customer service program that provides transportation home, typically by taxi, to a transit patron if a personal emergency occurs during a time of day that transit service is not available.

Headway: Time interval between transit revenue vehicles passing a specified location.

Heavy Rail: Transit service using rail cars with motive capability, driven by electric power usually drawn from a third rail, configured for passenger traffic and usually operated on exclusive rights-of-way. Utilizes generally longer trains and consists of longer station spacing than Light Rail.

Interstate Commerce Commission (ICC): Regulates transportation between states, including provisions used by Amtrak to gain access to terminals of freight railroads.

In-Kind Match: Local funding provided in a form other than cash (e.g., real estate, equipment, or volunteer labor). Different government programs require different levels of contribution. What is considered acceptable as an in-kind match varies.

Indemnification: Guarantee to protect party from claims or damages.

Intermodal: Interface between two different travel forms.

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA): Federal law that authorizes funds for transportation projects and allows for flexibility in the use of funds between modes. ISTEA shifted the focal point of decision making about federal transportation funding from the professionals at the state Departments of Transportation to a shared responsibility between the state and Metropolitan Planning Organizations. The MPOs in turn are charged with opening up the process to include all modes, all levels of government and the public.

Joint Powers Board: Regional special-purpose authority, sometimes used to operate commuter rail services (e.g., in the Los Angeles and San Francisco areas).

Light Rail Transit: A fixed-guideway mode of urban transportation utilizing predominantly reserved but not necessarily grade-separated rights-of-way. It uses primarily electrically propelled rail vehicles, operated singularly or in trains. A raised platform may or may not be required for passenger access.

Limited Time Easement Condemnation: Government securing by force of law access to freight rail rights-of-way for certain portions of the day.

Linked Passenger Trips: A linked trip is a trip from origin to destination on the transit system. Even if a passenger must make several transfers during a journey, the trip is counted as one linked trip on the system. A passenger who rides three vehicles on his journey to work, for example, takes one linked trip on the system, but three Unlinked Passenger Trips (UPT) because the passenger rode on three different vehicles.

Long Island Railroad (LIRR): Officially known as the MTA-LIRR, serves as the commuter rail provider serving Long Island, New York to Manhattan. LIRR began service in 1834 and is now the largest commuter rail operator in North America.

Maryland Rail Commuter (MARC): Maryland's Mass Transit Administration operates

the commuter rail MARC commuter rail service between the Baltimore region, Western Maryland and Washington, D.C.

Major Investment Study (MIS): An examination of multimodal transportation options within traffic corridors. Large investments that are federally funded must be chosen as the result of an MIS.

Massachusetts Bay Transportation Authority (MBTA): Commuter rail provider for the Boston, Massachusetts area, as well as bus, light rail, and heavy rail.

Metra: Commuter rail provider for the Chicago area.

Metro-North Railroad: Officially known as MTA-Metro North Commuter Railroad, this commuter rail provider serves the New York area.

Metrolink: The Los Angeles area's commuter rail service provided by the Southern California Regional Rail Authority (SCRRA), a five-county Joint Powers Board.

Metropolitan Planning Organization (MPO): The area-wide agency responsible for conducting the continuous, cooperative and comprehensive urban transportation planning process. It is also the single, region-wide recipient of the federal funds for transportation planning purposes. Together with the state, it carries out the planning and programming activities necessary for federal capital funding assistance. The MPO is designated by agreement among the various units of local government and the Governor.

Mid-Day Service: Service provided during the period of time between the end of the AM peak travel period and the beginning of the PM peak travel period.

Montreal Urban Community Transit Corporation (MUCTC): Montreal, Quebec's commuter rail provider. Also referred to as Societe De Transport De La Communate Urbaine De Montreal (STCUM).

Multimodal: Employing several transportation services.

Municipal Slow Zones: Local zoning requirements or safety-related restrictions applying within municipalities to reduce train operating speeds.

New Jersey Transit (NJ Transit): Commuter rail provider based in Newark, New Jersey with the primary destination of New York City. Also operates bus service.

New Start Criteria: Federal Transit Administration requirements governing which new transit systems will qualify for federal funding.

Northern Indiana Commuter Transit District (NICTD): Commuter rail service provider from Northern Indiana to Chicago. Also referred to as the South Shore Line.

Northern Virginia Transportation Commission (NVTC): One of two partners in the operation of the Virginia Railway Express (See PRTC).

On-Time Performance: Percentage of trains that arrive according to schedule as defined by a window of arrival (typically 15 minutes).

Operating Expenses: All expenses associated with the operation of an individual mode by a given operator. Operating expenses exclude reconciling items such as interest expenses.

Operation Lifesaver: A grassroots organization that provides public information and education program to help prevent and reduce crashes, injuries and fatalities and improve driver performance at public and private highway-rail grade crossings.

Passenger Miles: A measure of service utilization which represents the cumulative sum of the distances ridden by each passenger. For example, ten passengers riding in a vehicle for two miles equals 20 passenger miles.

Passenger Trips: See Unlinked Passenger Trips

Peak Period: Period of greatest travel demand. On systems operating all day, the time(s) of the day and day(s) of the week when additional services are provided to handle higher passenger volumes. The period begins when base headways are reduced and ends when headways return to normal.

Performance Bonds: Financial instrument to ensure satisfactory completion of the contract.

Platform Time: Time during which an operator operates the revenue vehicle, either in revenue service or in deadheading, including lay over periods in the vehicle at a rest point.

Potomac and Rappahannock Transportation Commission (PRTC): One of two partners in the Virginia Railway Express. (See NVTC).

Proof-of-Payment: A barrier-free ticketing system in which the patron is responsible for having a valid ticket, which may be confirmed randomly by the conductor.

Push Pull Cars: Train cars that may operate in either the in-bound or out-bound direction without the need to turn the train.

Rail-Diesel Cars: Train cars that are independently powered by diesel engines.

Rail Overhaul: The scheduled rebuild or replacement of major subsystems on revenue producing rail cars and locomotives.

Railway Labor Act: Federal law that, among other requirements, provides a mechanism for responding to rail labor disputes.

Railway Labor Executive Association (RLEA): 18 separate unions associating for purposes of lobbying and collective bargaining.

Railroad Retirement Board: Among other responsibilities, determines whether commuter rail operators must cover their employees under the terms of the Railroad Retirement System.

Regional Surface Transportation Program (RSTP): Funding program included in ISTEA that sets aside a portion of Surface Transportation Program monies to be allocated by the MPO.

Revenue Miles/Hours: Miles/hours a vehicle travels while in revenue service.

Revenue Service: A vehicle is in revenue service when the vehicle is available to the general public. Vehicles operated in free fare service are considered to be in revenue service.

Revenue Vehicles: The rolling stock used in providing transit revenue service for passengers.

Ridership Forecast: Number of passengers projected to ride the proposed transit service.

Ridesharing: Multi-occupant use of a private or public vehicle.

Rights-of-way: Real estate upon which transportation services operate.

Rolling Stock: Revenue vehicles used in providing transit service for passengers.

Route Miles: See Directional Miles

Safe-Harbor Leases: Provision of United States Tax Code that formerlly permitted transit vehicles to qualify for tax-advantaged transactions that produced additional revenue for transit systems. Cross border leases are still available, and produce gains by qualifying transactions for foreign tax advantages.

Sale/Leaseback: Financial transaction whereby equipment title is passed to the lessor who in turn leases the equipment back to the lessee. The lessee becomes the owner at the completion of the agreement.

Santa Fe Railroad: Freight operator and track owner primarily in southwestern and central United States.

Section 15: A part of the Federal Transit Act, requires systems to provide data using common definitions, as a condition of receiving FTA Section 9 financial assistance.

Southeastern Pennsylvania Transportation Authority (SEPTA): Commuter rail provider based in Philadelphia, Pennsylvania.

Southern California Regional Rail Authority (SCRRA): Joint Powers Board operating Los Angeles's Metrolink commuter rail.

Southern Pacific Railroad: Freight operator and track owner primarily in the west and central United States.

Sweeper service: Evening commuter rail service to accommodate rush hour commuters who have stayed late.

Tariff: Written specification of fare levels and structure, as well as special circumstances such as: discounts, free passes, and penalties. Public hearings are generally required to adopt a tariff as well as for each time it is changed.

Tax-Increment Financing: Assessments of local property taxes reflecting increased value from a transit project with the proceeds used to help finance the project.

Ticketing and Fare Collection: All activities associated with fare collection and counting activities including supervision and clerical support. Includes printing, distributing, selling and controlling of tickets, tokens and passes; pulling and transporting vaults to counting facilities; counting and auditing of fare collection; and, providing security for the fare collection process.

Ticket Vending Machine (TVM): Component of the fare collection system that sells the fare media to transit patrons.

Track Miles: The number of tracks per one-mile segment of right-of-way (ROW). Thus, for a heavy rail system, a one-mile segment of ROW with three sets of track running side by side is reported as three-track-miles. Miles of track are measured without regard to whether or not rail traffic can flow in only one direction on the track. All track is counted, including yard track (which is excluded from directional route miles.)

Transportation Control Measures (TCM): Activity or program by an MPO that encourages the travelling public to rely less on the automobile and use the automobile more efficiently.

Transportation Improvement Program (TIP): A staged, multi-year, intermodal program of transportation projects which is consistent with the metropolitan long-range plan. Projects that receive federal funds must be included in an approved TIP.

Transportation Management Association (TMA): Local, public-private partnerships, sponsoring employer-based initiatives to reduce the use of single-occupant vehicles.

Tri-County Commuter Rail (Tri-Rail): Commuter rail provider located in Ft. Lauderdale, Florida.

Track Geometry Car: Used to determine horizontal and vertical track geometry.

Union Pacific: Freight owner and track operator in the west and central United States.

Unlinked Passenger Trips: The number of passengers who board public transportation revenue vehicles. A passenger is counted each time he/she boards a vehicle, even

though he/she may be on the same journey from origin to destination.

Vanpool: A voluntary commuter ride sharing arrangement, using vans with a seating capacity greater than seven persons (including the driver), which provides transportation to a group of individuals traveling directly from their homes to their regular places of work within the same geographical area, and in which the commuter/driver does not receive compensation beyond reimbursement for his or her costs of providing the service.

Virginia Railway Express (VRE): Commuter rail provider serving Northern Virginia into Washington, D.C.

Resources:

- "Glossary of Transit Terminology," American Public Transit Association, Washington, D.C. (July 1994).
- "Glossary of Transit Terms For Section 15," Federal Transit Adminstration, United States Department of Transportation, Washington, D.C. (November 1992).