

**Draft Proposal for the
Re-introduction of Passenger Rail Service in
Southern New Hampshire**

January 5, 2007

By the Passenger Rail Task Force

*Office of Governor John Lynch
City of Manchester
Manchester Airport
Greater Nashua Chamber of
Commerce*

*Pan Am Railway
City of Nashua
Nashua Regional Planning Commission
Southern New Hampshire Planning
Commission*

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PROPOSAL FOR RE-INTRODUCTION OF PASSENGER RAIL SERVICE IN SOUTHERN NEW HAMPSHIRE

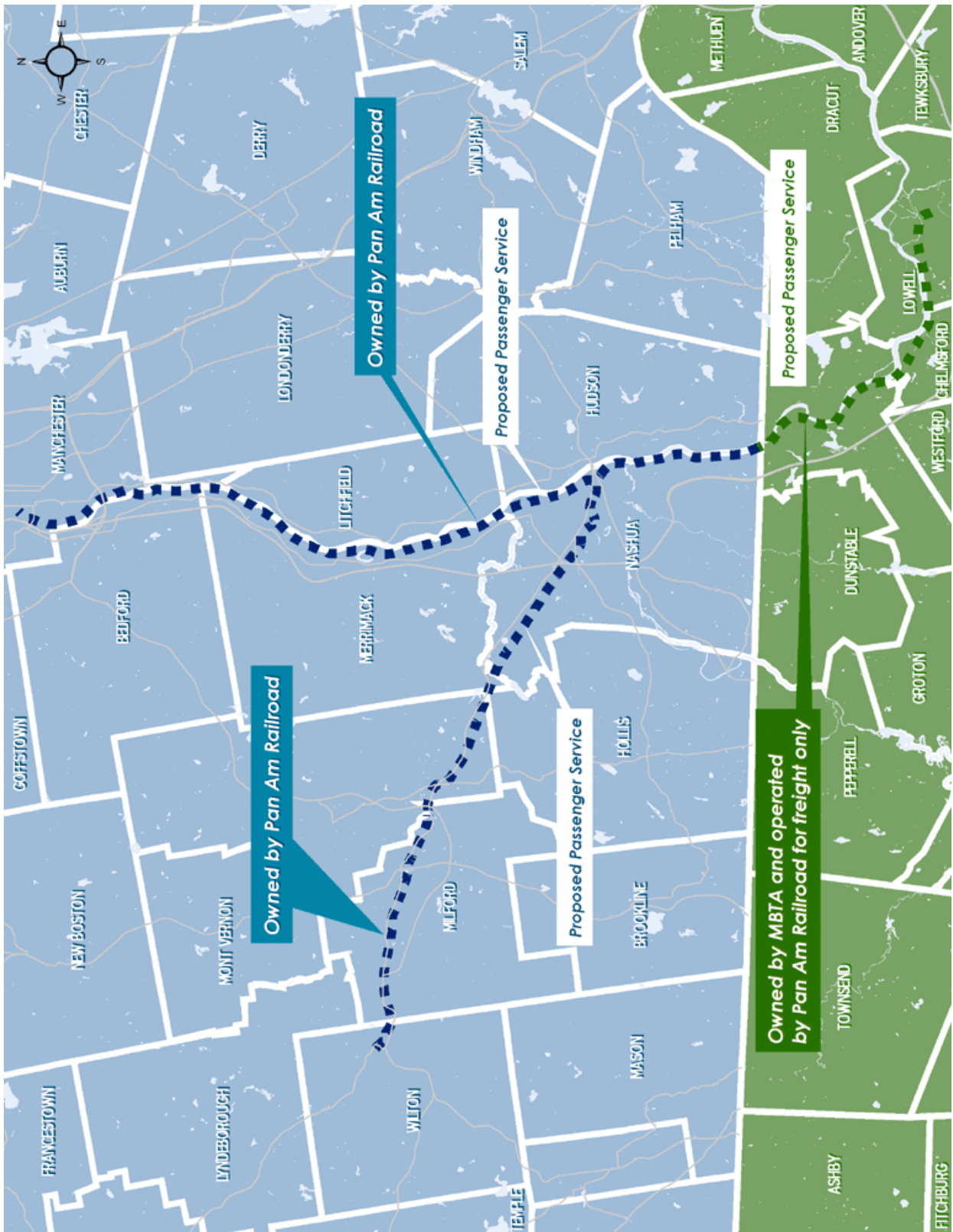
1. Introduction

The re-introduction of passenger rail service in southern New Hampshire has been identified as a top priority by the three most recent governors of the state of New Hampshire, by the cities of Nashua and Manchester, the chambers of commerce of the Manchester and Nashua regions, by the Citizens Advisory Committee for the NH DOT Long Range Transportation Business Plan and by both regional planning commissions. In addition, the typical citizen views rail service connecting Manchester and Nashua to Lowell and Boston as an obvious priority. Unfortunately, once the effort is made to move beyond the general feeling that passenger rail service is a good thing, a host of issues arise regarding the best way to actually re-introduce rail service in southern New Hampshire. Some of these issues include the following questions: How much service should be provided on a daily basis, a low number to allow the service to be introduced in the least expensive manner or a large number to capture the greatest possible ridership? Should that service extend only to Nashua, to Nashua and Manchester or even all the way to Concord? Who should be the operator of the service, Pan Am Railways or MBTA? Who should pay for the development of the service? Who should pay to subsidize on-going operations and maintenance? How can the need of the operator to minimize indemnification costs and the need to protect the rights of individuals to compensation for losses be balanced? None of these are easy questions. Alternative answers to these questions have led to divisions among the supporters of rail and in New Hampshire and been a critical factor in preventing previous rail proposals from moving forward.

In June 2006, Governor Lynch called together a group of stakeholders in passenger rail in New Hampshire to discuss the issues surrounding the re-introduction of passenger rail service in the southern portion of the state. The Governor, Pan Am Railway, Congressman Charlie Bass, as well as representatives of the cities of Nashua and Manchester and the Nashua Regional Planning Commission were present. At the meeting, the Governor stated that passenger rail service was a personal priority for him and that his perception was the proponents had spent far too long discussing the issues and too little time developing a workable proposal. He then charged the group to form a small task force and to develop a proposal that would be workable within the unique context of New Hampshire government and finance, including a schedule and an estimate of cost for both development and operation of the service.

Since receiving that charge from the Governor, the task force has met six times. During the course of the process it was recognized that additional parties needed to be added to the task force. Those that have been added include the Manchester Airport, Southern New Hampshire Planning Commission and the Greater Nashua Chamber of Commerce. The goal of the group has been to respond to the Governor's charge by developing a proposal that will result in re-introduction of passenger rail in southern New Hampshire using an approach that is consistent with the unique government and needs of the state. The following proposal is an attempt to respond to that charge.

Figure 1 - Location of Proposed Rail Shuttle Service



The proposed service plan, costs and schedule in this proposal are the work of Pan Am Railway, to whom the task force is indebted for their contribution. Other aspects of this proposal have been developed by other members of the task force.

2. Proposal

The rail service being proposed by the members of the Southern New Hampshire Rail Task force is as follows:

a Rail Shuttle

The proposed rail service will be a rail shuttle type service connecting southern New Hampshire locations with the current terminus of MBTA operations in Lowell.

Passengers will ride from New Hampshire locations to the Gallagher Terminal in Lowell and change trains to access the existing MBTA service. The service is proposed to be operated by Pan Am Railway.

The proposed rail shuttle will provide services along two corridors: The main service will be four round trips per day on the New Hampshire Main Line between Manchester downtown and Lowell. A feeder service will also be operated on the Hillsborough branch between Nashua and Wilton in the NH 101A corridor. Figure 1 on the previous page shows the proposed alignment for the New Hampshire Main Line service between Manchester and Lowell.

b Station Locations

Three station locations are proposed for service on the New Hampshire Main Line:

- i) Downtown Manchester – The City of Manchester proposes the redevelopment of a site in downtown with a transit oriented development that will blend commercial, office and residential uses. Figure 2 shows the location of the proposed station. Nearby uses include the Merchantsauto.com stadium, home of the New Hampshire Fisher Cats, Verizon Wireless Arena, the Manchester downtown and adjacent Millyard areas.
- ii) Manchester Airport – The Manchester Airport proposes a station site that will provide rail access to the airport. As shown on Figure 2, the station is proposed to be located immediately off Interstate 293 at Brown Avenue. This location will afford convenient bus shuttle access from the rail station to the airport for both air passengers as well as airport employees. The location immediately adjacent to I-293 will also provide easy commuter access from Manchester, Bedford, Londonderry, Auburn and Candia.
- iii) South Nashua – The City of Nashua proposes that the south Nashua station location for the Lowell-Nashua commuter rail project be utilized for the Southern New Hampshire Rail service. This location, shown on Figure3, is immediately adjacent to US 3 Exit #1 – Spit Brook Road. Surrounding land uses include several large office developments as well as thousands of high density residential units within easy walking distance of the station.

Figure 2 - Proposed Manchester Station Locations

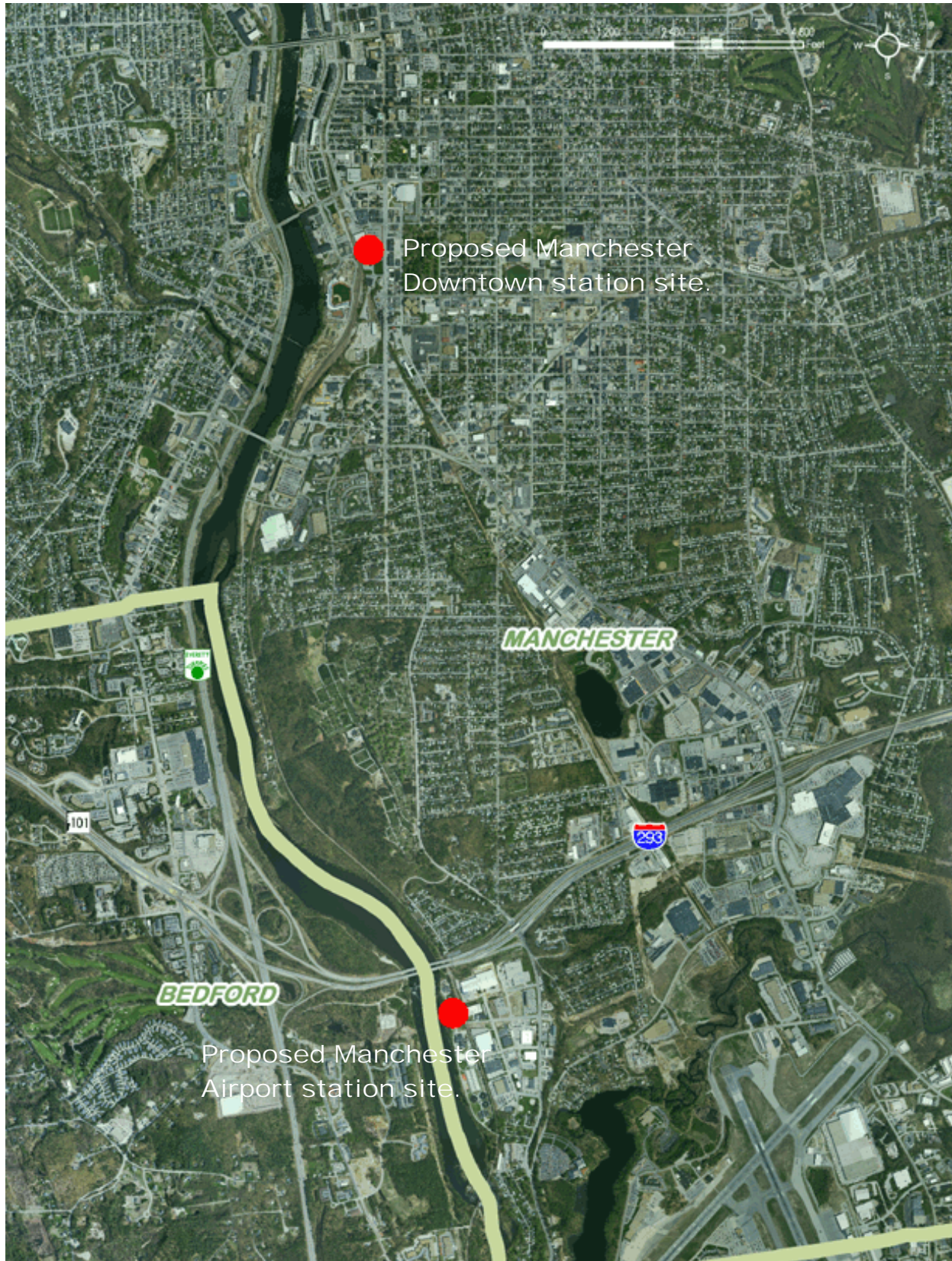


Figure 3 - Proposed South Nashua Station Site



c Proposed Schedule

Table 1, below, shows the proposed schedule for the Southern New Hampshire Rail Shuttle service. The schedule is oriented to commuters with three southbound morning trips and three northbound evening trips during peak commute hours. One mid-day round trip is proposed to serve non-commute riders needs. Project sponsors will seek to coordinate the proposed rail shuttle with existing commuter bus service from Nashua and Manchester. This will increase the frequency of trips and provide additional schedule options for riders. Schedules have not yet been developed for the feeder service between Wilton and Nashua on the Hillsborough Branch.

Table 1 - Proposed Schedule

Southbound				
Station	Train 3304	Train 3308	Train 3310	Train 3320
Manchester Downtown	5:20 am	6:20 am	6:50 am	11:07 am
Manchester Airport	5:32 am	6:32 am	7:02 am	11:19 am
South Nashua	5:55 am	6:55 am	7:25 am	11:42 am
Lowell	6:10 am	7:10 am	7:40 am	11:57 am
Connecting MBTA Train	6:20 am	7:22 am	7:50 am	12:07 pm
Northbound				
Station	Train 3317	Train 3327	Train 3331	Train 3335
Connecting MBTA Train	11:54 am	4:58 pm	5:59 pm	7:12 pm
Lowell	12:07 pm	5:08 pm	6:09 pm	7:22 pm
South Nashua	12:22 pm	5:25 pm	6:26 pm	7:37 pm
Manchester Airport	12:45 pm	5:48 pm	6:49 pm	8:00 pm
Manchester Downtown	12:57 pm	6:00 pm	7:01 pm	8:12 pm

d Proposed Fares

The fares for the proposed shuttle are shown in Table 2 on the following page. These fares have been estimated by calculating the per mile cost from Boston North Station to Nashua from the Lowell-Nashua Commuter Rail proposal and then calculating the fare for Manchester Airport and Manchester downtown. Fares for Boston North Station are based on existing MBTA fare for a single, one-way ride from Lowell to Boston. Likewise, fares for all other stops on the Lowell line (North Billerica, Alewife, Wedgemere, Winchester, Wilmington, Mishawum, Anderson RTC) are held to MBTA current fares. Parking is proposed to be free at all three stations for the Southern New Hampshire Rail Shuttle. Fares have not yet been developed for the feeder service on the Hillsborough Branch.

Table 2 – Proposed Fares

	Manchester Downtown	Manchester Airport	South Nashua	Lowell	Boston
Manchester downtown	-----	\$1.00	\$2.50	\$4.25	\$8.50
Manchester Airport	\$1.00	-----	\$1.50	\$3.25	\$7.50
South Nashua	\$2.50	\$1.50	-----	\$1.75	\$6.00
Lowell	\$4.25	\$3.25	\$1.75	-----	\$4.25
Boston	\$8.50	\$7.50	\$6.00	\$4.25	-----

e Rail Shuttle Forecast Ridership

Based on the above information about service frequency and cost, a travel demand forecasting model for the Manchester to Boston corridor was used to forecast ridership on the Southern New Hampshire Rail Shuttle. This travel demand model was developed by pbConsult to evaluate ridership and user benefits for the proposed extension of MBTA Commuter Rail service from Lowell to Nashua. The model uses a logit mode choice model based on utility equations developed by Central Transportation Planning Staff (CTPS). All assumptions and data for the model are consistent with CTPS practice. The model covers the corridor that will contribute ridership to the Southern New Hampshire Rail Shuttle and the MBTA Lowell line from Bow, New Hampshire to Boston. All the stops on both services were included in the model. The model also represents all of the connecting transit services including surface bus and subway. The base year for the model is 2000. Actual base year ridership on the Lowell line in 2000 was 5,847 average passengers per day in the southbound direction. The model forecasts ridership in 2000 on the Lowell line of 5,990, an error of 2.4%.

Using the model, ridership forecasts for an opening year of 2010 were produced. These forecasts showed that a total of 994 daily southbound boardings would result from implementation of the proposed rail shuttle service. Of these, 302 southbound riders could be expected to board at Manchester downtown, 412 southbound riders could be expected to board at Manchester Airport and 280 riders could be expected to board at South Nashua. It should be noted that these New Hampshire boarding figures include 578 riders that shift their boarding location from either Lowell or North Billerica to one of the New Hampshire stations.

Similarly, ridership forecasts were also prepared for a forecast year of 2025 to determine the long term ridership expectations. The 2025 forecasts showed that a total of 1,684 daily southbound riders would use the proposed rail shuttle service. Of these, 334 could be expected to board at Manchester downtown, 696 could be expected to board at Manchester Airport and 654 could be expected to board at South Nashua. It should be noted that these New Hampshire boarding figures include 701 riders that shift their boarding location from either Lowell or North Billerica to one of the New Hampshire stations.

3. Project Development Costs and Funding

Implementation of the Southern New Hampshire Rail Shuttle will require four main activities: 1) Improvements to trackage and associated infrastructure between Lowell and Manchester downtown, 2) Acquisition of engines and cars necessary to provide the service, 3) Development of stations including platforms, ticketing areas, passenger amenities and parking. The following describes the anticipated development costs and funding approach.

a Rail Shuttle Development Cost

Table 3 below summarizes the development cost for trackage and associated infrastructure between Lowell and Manchester downtown. These costs assume that all construction will be carried out by Pan Am Railways crews and contractors. Mechanical costs for rolling stock are approximate at this time due to the fact that there is currently no surplus equipment available. A detailed breakdown of the all project development costs prepared by Pan Am Railway can be found in Appendix A.

The proposal also includes the development of three stations. Detailed cost estimates for the stations have not been prepared at this time. Cost for these stations has been estimated to be \$10 million each based on estimates prepared for the Nashua Commuter Rail station design.

Table 3 - Rail Shuttle Development Costs

Manchester to Lowell	
Transportation	\$347,619
Track	\$24,573,518
Communication and Signal	\$9,725,577
Bridges and Structures	\$2,213,015
Layover Facilities	\$4,922,803
Support	\$562,459
Equipment (8 locomotives, 16 coaches)	\$5,100,406
Stations (Manchester, Manchester Airport and Nashua)	\$30,000,000
Total	\$77,445,396
Wilton to Nashua	
Transportation	\$347,619
Track	\$12,043,610
Communication and Signal	\$6,659,301
Bridges and Structures	\$234,000
Layover Facilities	\$4,922,802
Equipment	\$1,960,000
Stations (two stations at undetermined locations)	\$10,000,000
Total	\$36,167,333
TOTAL RAIL SHUTTLE DEVELOPMENT COSTS	\$113,612,729

b Project Development Funding

Table 4 shows the anticipated sources of funds for development of the rail shuttle. Currently, \$25.8 million are committed for rail development in southern New Hampshire. Additional funds required will include a new federal earmark of \$65.1 million and \$22.7 million in local funds toward station development.

Table 4 - Project Development Funding for Rail Infrastructure and Rolling Stock Funding Source

Committed Congestion Mitigation Air Quality Funds	\$21,500,000
Committed Federal New Starts Funds	\$4,300,000
New Federal earmark	\$65,090,183
Match (local contributions to station development)	\$22,722,546
Total	\$113,612,729

4. Annual Operations Expense and Revenue

a Annual Operation Expenses

A critical aspect of the development of a rail or transit service is the long term analysis of operating costs and revenues. Annual operation and maintenance costs, operating reserves and capital replacement make up a large portion of the life cycle cost of any transit system. As noted above, it is anticipated that Pan Am Railway will be the operator of rail shuttle from Manchester downtown to Lowell. Table 5 depicts operating costs estimated by Pan Am Railway for the proposed service.

Table 5 - Average Annual Operating Expenses

Cost Category	
Transportation	\$3,258,932
Track	\$994,799
Communication and Signal	\$389,170
Bridge and Structures	\$477,697
Mechanical	\$3,370,064
Total	\$8,490,662

The operating expenses shown in the above table do not include anticipated operating expenses for the Nashua-Wilton service on the Hillsborough Branch. At this time an operating plan has not yet been developed. Detail for the operating expenses can be found in Appendix A.

b Estimated revenue

Revenue to fund on-going operation of the Southern New Hampshire Rail Shuttle is expected to come from three sources: Operating subsidy from CMAQ funds for the

first six years, fares and an operating subsidy from the state of New Hampshire. Table 6 below shows projected revenues for the first seven years of operations.

Table 6 - Estimate Revenue (in millions)

	Congestion Mitigation Air Quality Funds	Fare box	State/Other	Total
Year 1	\$5.00	\$2.40	\$1.00	\$8.40
Year 2	\$4.50	\$2.50	\$1.65	\$8.65
Year 3	\$4.00	\$2.70	\$2.21	\$8.91
Year 4	\$3.00	\$2.75	\$3.43	\$9.18
Year 5	\$2.00	\$2.80	\$4.66	\$9.46
Year 6	\$1.00	\$2.90	\$5.84	\$9.74
Year 7	\$0.00	\$3.00	\$7.03	\$10.03

5. Critical issues

Before the above proposal can be implemented, certain critical issues must be addressed. Two of the main issues are legislative authorization for the formation of a rail authority and a limitation on liability. In addition, it is also imperative that the proposed station locations in downtown Manchester and south Nashua be secured

a Rail Authority

In virtual every situation in this country in which passenger or commuter rail is operated by a government, that organization is an independent authority or organization of some type. There are several reasons for this. The operation of a rail system requires the government agency to have special authorities or powers that are often not available to existing government organizations such as a state Department of Transportation, or a general purpose city or county government. Rail authorities often have union or contracting issues that conflict with the interests of other types of governments and compel the formation of a separate entity. In addition, rail operators have special requirements regarding liability that are most often dealt with through the formation of a separate entity. All of the above issues are considerations within the state of New Hampshire. As a result, the task force is recommending that a priority for the upcoming biennium be the passage of special legislation authorizing the formation of a New Hampshire Rail Authority.

b Liability Limitation

It is particularly critical that this new entity be given a cap on yearly liability claims. One of the major variable costs of operating a passenger rail system of any type is indemnification. Proponents of the extension of the MBTA Lowell line to Nashua determined that if no liability cap were in place, the cost of indemnification would double the cost of operating the service. The states of Maine, Massachusetts and Vermont have all adopted liability caps of \$75 million per year for their rail systems.

c Securing Station Locations

Both the downtown Manchester and south Nashua stations are proposed to be located in areas that are attracting a high level of interest by private developers. This is a positive indication that rail service to these locations will be successful. However, it also makes it difficult to secure the station locations that are necessary for the passenger rail service. Private developers are able to move much more quickly than state and local governments have been able to act with regard to developing the rail service. Developers have indicated interest in incorporating rail stations into their projects, but are not willing to wait for lengthy process state and local government process to play out. As a result, without some type of action very soon, it is possible that the best station locations in Manchester and Nashua could be developed without provision for the rail stations. It appears likely that the station site in south Nashua has already been lost in this manner. Other options are available for locating the south Nashua station. But some action is necessary in the short term to secure the preferred station sites.

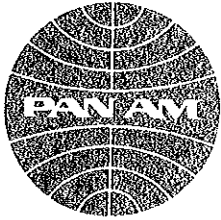
6. Tasks and Schedule

The following describes the major tasks that must be completed prior to starting the proposed rail shuttle service:

- Meet with Federal Transit Administration Regional Director and secure support for rail shuttle proposal (January/February 2007)
- Request support of Congressional delegation (January/February 2007)
- Authorizing Legislation for Rail Authority (January to June 2007)
- Formation of Study Committee to Address Liability Issue (January to June 2007)
- Secure Manchester and Nashua station sites (January to June 2007)
- Attain Federal Earmark (July to December 2007)
- Funding commitment by Manchester, Nashua and Manchester Airport for station development (July to December 2007)
- Legislation limiting rail liability (January to July 2008)
- Complete Federal Environmental Assessment (January to July 2008)
- Secure additional CMAQ funds (January to July 2008)
- Begin construction (October 2008)
- Purchase locomotives and coaches (January to July 2009)
- Begin rail shuttle service (July 2010)

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Appendix A



PAN AM RAILWAYS
IRON HORSE PARK
NO. BILLERICA, MA 01862



MANCHESTER, NH TO LOWELL, MA COMMUTER RAIL ESTIMATE

CONSTRUCTION COSTS

TRANSPORTATION	\$347,619.23
TRACK	\$24,573,518.00
COMMUNICATION & SIGNAL	\$9,725,576.90
BRIDGE & BUILDING	\$2,213,014.60
LAYOVER FACILITIES	\$4,922,802.70
SUPPORT	\$562,458.72
* MECHANICAL	\$5,100,406.00
TOTAL	\$47,445,396.15

AVERAGE ANNUAL OPERATING EXPENSES

TRANSPORTATION	\$3,258,932.00
TRACK	\$994,799.00
COMMUNICATION & SIGNAL	\$389,169.87
BRIDGE & BUILDING	\$477,697.28
MECHANICAL	\$3,370,063.83
TOTAL	\$8,490,661.98

* This estimated cost will be subject to change. At this time there is no surplus passenger equipment available.

**PROPOSED PASSENGER SCHEDULES
MANCHESTER - LOWELL**

SOUTHWARD

Train	3304	3308	3310	3320
Manchester	0525	0625	0655	1112
South Nashua	0555	0655	0725	1142
Lowell	A0610	A0710	A0740	A1157
Connecting Train	304	308	310	320
Lowell	0620	0722	0750	1207

NORTHWARD

Train	3317	3327	3331	3335
Lowell	1207	1708	1809	1922
South Nashua	1222	1725	1826	1937
Manchester	1252	1753	1854	2007
Connecting Train	317	327	331	335
Lowell	1154	1658	1759	1912

Pan Am Railways

TRANSPORTATION START-UP TRAINING ESTIMATE

Labor

Management	\$31,561.92
Hourly Labor	\$155,879.29
70% Overhead	\$109,115.50
Total	\$296,556.72

Other Expenses

Personal / Travel / Misc.	\$51,062.51
Total	\$51,062.51

TOTAL \$347,619.23

Pan Am Railways

TRACK CONSTRUCTION ESTIMATE

NOTE This Estimate Is Established Using a Concept Plan Developed By Transportation and Signal Departments on December 20, 2002 and Revised on January 29, 2003

CPN-1 to CPN-9			
DESCRIPTION	UNIT	QUANTITY	SUBTOTAL
Install 132# CWR from CPN-1 to MA / NH State Line	Track Feet	36,489	\$1,964,873.69
Install Either 112# / 115# Relay CWR - Control Cooled - from State Line to CPN-	Track Feet	15,351	\$559,130.85
Install Crossties	EA	11,450	\$1,214,250.34
Reconstruct Rail/Highway at-grade Xings	EA	7	\$353,493.55
Reconstruct Turnout	EA	16	\$56,811.46
Surface & Align Track (3" Lift)	Track Mile	10.9	\$207,791.08
Vegetation Management	LS	1	\$37,874.31
Drainage Improvements	LS	1	\$57,455.33
		<u>SUBTOTAL - TRACK:</u>	<u>\$4,451,680.61</u>
CPF-WA			
Install #15 Crossover	EA	1	\$315,619.24
		<u>SUBTOTAL - TRACK:</u>	<u>\$315,619.24</u>

CPF-WA to CPF-NC

	UNIT	QUANTITY	SUBTOTAL
Install 112# / 115# Relay CWR on the #1 and on the #2 Track	Track Feet	26,400	\$716,834.42
Install Crossties	EA	6,100	\$646,893.19
Construct #10 Turnouts	EA	2	\$189,371.54
Rehabilitation of Track 1 @ Middlesex Yarc	LS	1	\$568,114.63
Surface & Align Track	Track Mile	5.0	\$95,317.01
Improve Vertical Alignment	LS	1	\$421,912.23
Vegetation Management	LS	1	\$50,499.08
Drainage Improvements	LS	1	\$56,811.46
Fencing	LS	1	\$31,561.92
Track Retirement	LS	1	\$15,149.72
Pole Line Removal	LS	1	\$22,724.59
			<u>SUBTOTAL - TRACK:</u> \$2,815,189.80

CPF-NC to CPN-1

Reconstruct Turnouts	EA	4	\$555,489.86
Install 132# CWR from CPN-1 to MA / NH State Line	Track Feet	6,072	\$327,486.52
Install #15 Turnouts	EA	2	\$315,619.24
Construct Track from CPF-NC to CPN-1	Track Feet	2,100	\$257,166.56
Install Crossties	EA	800	\$84,838.45
Surface & Align Track	LS	1	\$58,578.93
Vegetation Management	LS	1	\$15,780.96
Drainage Improvements	LS	1	\$4,418.67
Fencing	LS	1	\$31,561.92
			<u>SUBTOTAL - TRACK:</u> \$1,650,941.12

RELOCATION OF CPF-9 (NEW CPN-8)

Relocate Switch & Construct Track	Track Feet	2,260	\$308,418.07
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Fiber Optic Apportionment	LS	1	\$315,619.24
	SUBTOTAL - TRACK:		\$624,037.31

CPN-8 to NASHUA (NEW CPN-11)

Install 112# / 115# Relay CWR on the #1 and on the #2 Track	Track Feet	6,336	\$351,958.38
Install Crossties	EA	1,600	\$169,676.90
Rearrange Switches @ Nashua & South-E	EA	6	\$486,053.63
Surface & Align Track	Track Feet	5	\$23,482.07
Vegetation Management	LS	1	\$7,574.86
	SUBTOTAL - TRACK:		\$1,038,745.84

CPN-11 to CPN-18

Install CWR	Lin. Feet	36,960	\$1,726,462.49
Install Crossties	EA	9,100	\$965,037.39
Reconstruct Rail / Highway Crossings	EA	7	\$378,743.09
Rehabilitation of Main Line Turnouts	EA	4	\$227,245.85
Surface & Align Track	Track Mile	7.0	\$136,347.51
Vegetation Management	LS	1	\$39,136.79
Drainage Improvements	LS	1	\$50,499.08
Pole Line Removal	LS	1	\$35,349.35
	SUBTOTAL - TRACK:		\$3,558,821.55

CPN-18 to CPN-20

Install CWR	Lin. Feet	21,120	\$986,550.00
Install Crossties	EA	5,500	\$583,264.36
Rehabilitation of Main Line Turnouts	EA	4	\$227,245.85
Surface & Align Track	Track Mile	2.0	\$78,273.57
Vegetation Management	LS	1	\$12,624.77
Drainage Improvements	LS	1	\$25,249.54
SUBTOTAL - TRACK:			\$1,913,208.08

CPN-20 to (NEW) CPN-27

Install CWR	Lin. Feet	35,904	\$1,677,134.99
Install Crossties	EA	8,900	\$943,827.78
Reconstruct Rail / Highway Crossings	EA	5	\$189,371.54
Rehabilitation of Main Line Turnouts	EA	3	\$170,434.39
Surface & Align Track	Track Mile	7.0	\$128,772.65
Vegetation Management	LS	1	\$44,186.69
Drainage Improvements	LS	1	\$37,874.31
Pole Line Removal	LS	1	\$37,874.31
SUBTOTAL - TRACK:			\$3,229,476.66

CPN-27 to Manchester Station @ Depot Street

Install New Turnouts	EA	2	\$151,497.24
Install Crossties	EA	1,200	\$127,257.68
Install Relay CWR	Lin Foot	5,200	\$144,427.36
Surface & Align Track	LS	1	\$19,694.64
Vegetation Management	LS	1	\$3,787.43
Drainage Improvements	LS	1	\$5,049.91
SUBTOTAL - TRACK:			\$451,714.26

Manchester Station To (NEW) CPN-32

Install Crossties	EA	4,500	\$477,216.29
Rehabilitation of Rail / Highway Crossing (Depot St. Granite St. & Pleasant St. to be Done By NHDOT)	EA	5	\$227,245.85
Surface & Align Track	LS	1	\$83,323.48
Vegetation Management	LS	1	\$12,624.77
Drainage Improvements	LS	1	\$18,937.15
			<hr/>
		SUBTOTAL - TRACK:	\$819,347.55

(NEW) CPN-32 to (NEW) CPN-34

Install Turnouts	EA	2	\$252,495.39
Construct New Passing Siding Track	Track Feet	8,900	\$1,292,145.17
Construct Lay Over Tracks	LS	1	\$956,957.54
Site Work	LS	1	\$122,460.27
Fiber Optic Allotment	LS	1	\$126,247.70
			<hr/>
		SUBTOTAL - TRACK:	\$2,750,306.06

Other Project Costs

Rail Pick Up	EA	2	\$220,933.47
Tie Pick Up	EA	8,900	\$340,868.78
Welded Rail Plant Start Up	LS	1	\$63,123.85
Work Equipment Initial Capital Costs	LS	1	\$329,506.49
			<hr/>
		SUBTOTAL - TRACK:	\$954,432.58

TOTAL PROJECT COST: \$24,573,518.00

Pan Am Railways

C&S CONSTRUCTION ESTIMATE

DESCRIPTION	COST
RECONSTRUCT 10 EXISTING CONTROL POINTS	\$3,205,600.00
INSTALL 2 NEW CONTROL POINTS	\$620,000.00
RECONSTRUCT 9 EXISTING WAYSIDE SIGNAL LOCATIONS	\$330,000.00
INSTALL 3 NEW WAYSIDE SIGNAL LOCATIONS	\$399,976.90
RECONSTRUCT 17 EXISTING GRADE CROSSINGS	\$2,500,000.00
INSTALL 10 NEW GRADE CROSSINGS	\$2,185,000.00
INSTALL 1 NEW DEFECT DETECTOR	\$35,000.00
CONTROL OFFICE UPGRADES AND CUTOVER SUPPORT	\$50,000.00
TRACK DEPARTMENT SUPPORT	\$400,000.00
TOTAL	\$9,725,576.90

Pan Am Railways

BRIDGE & BUILDING CONSTRUCTION ESTIMATE

F

<u>Description</u>	<u>Total</u>
Bridge Repairs	\$1,122,050.39
Culvert Repairs	\$112,895.74
Switch Heaters	\$820,294.40
Signs / Mile Posts / Markers	\$85,339.66
Signal Power Support	\$29,036.97
1/2-Ton Pick-up Truck	\$25,249.34
Private Crossing Gates	<u>\$18,148.11</u>
 Total Material	 \$2,213,014.60

This estimate does not include any costs associated with stations, fiber optic relocation, engineer's fees, or permitting.

Pan Am Railways

LAYOVER FACILITIES DETAILS

F

<u>Description</u>	<u>Total</u>
Metal Track Pan	\$1,181,678.43
Walkway Grates	\$199,976.35
Track Pan Piping	\$26,178.72
O/W Separator	\$126,247.70
Drainage Structures / Piping	\$201,996.31
Earth Working Equipment	\$302,994.47
Building / Foundation	\$1,199,353.11
Electrical	\$441,866.94
Plumbing	\$66,280.04
Permitting	\$63,123.85
Pavement 4.5" Base, 1.5" Top	\$161,950.54
Office Building / Warm Storage	\$236,714.43
Security Fence	\$18,179.67
Construction Oversight	\$123,091.50
Containment Tank Drainage	\$68,173.76
Miscellaneous	\$138,872.47
TOTAL	\$4,556,678.29
Rehabilitate 2 Bridges	\$70,698.71
11.7 Acres of Land - Hooksett, NH	
2007 Real Estate Value Up To	\$295,419.61
Total for Layover Facility	\$4,922,802.70

The new facility is pending Army Corp. review due to proximity of Merrimack River

Pan Am Railways

ENGINEERING SUPPORT SERVICES

Item #	Survey	Unit	Quantity	Total
	Labor	CD	80	\$48,479.12
	70% Overhead	%		\$33,935.38
	Material	LS		\$1,262.48
	Equipment	Day	80	\$11,109.80
	Other	LS		\$1,262.48
	Subtotal			\$96,049.25
Item # 2	Inspection			
	Labor	MD	240	\$48,479.12
	70% Overhead	%		\$33,834.38
	Equipment	Day	240	\$33,329.39
	Subtotal			\$115,642.89
Item # 3	Office Support			
	Labor	MD	320	\$64,638.82
	70% Overhead	%		\$45,247.17
	Material	LS		\$1,262.48
	Equipment	LS		\$1,262.48
	Other	LS		\$1,262.48
	Subtotal			\$113,673.43
Item # 4	Project Management			
	Labor	MD	320	\$95,948.25
	70% Overhead	%		\$67,870.76
	Material	LS		\$1,136.23
	Equipment	Day	320	\$44,439.19
	Other	LS		\$126.25
	Subtotal			\$209,520.68
Item # 5	Accounting			
	Labor	MD	80	\$16,159.71
	Overhead 70%	%		\$11,311.79
	Subtotal			\$27,471.50
	Total Engineering Support Services			\$562,458.72

Pan Am Railways

EQUIPMENT ACQUISITION ESTIMATES

DESCRIPTION	Unit	Quantity	Price	Total
Purchase Locomotive	EA	8	\$441,866.94	\$3,534,935.49
Paint Locomotive	EA	8	\$10,099.82	\$80,798.53
Purchase and Install Hot Start Layover System	EA	8	\$15,149.72	\$121,197.79
Purchase and Install Radio and Telemetry equipment	EA	8	\$6,312.38	\$50,499.08
Freight Expenses onto Pan Am System	EA	8	\$2,524.95	\$20,199.63
Purchase and Install Containment Tank	EA	8	\$3,787.43	\$30,299.45
			TOTAL	\$3,837,929.96

DESCRIPTION	Unit	Quantity	Price	Total
Purchase Coach	EA	16	\$50,499.08	\$807,985.25
Paint Coach	EA	16	\$12,624.77	\$201,996.31
			TOTAL	\$1,009,981.57

DESCRIPTION	Unit	Quantity	Price	Total
Purchase Service Truck (Sand and Lube Oil)	EA	1	\$227,245.85	\$227,245.85
Purchase Light Maintenance Pick Up	EA	1	\$25,249.54	\$25,249.54
			TOTAL	\$252,495.39

Total Mechanical Department Start-Up \$5,100,406.00

Pan Am Railways

Annual Operating Expense Estimate

Transportation	\$3,258,932.00
Engineering	\$1,861,666.20
Mechanical	\$3,700,246.75

Total Annual Operating Expense: \$8,820,844.94

(of which \$1,530,172 is accrual for Infrastructure and Equipment)

Pan Am Railways

ANNUAL OPERATING EXPENSE - TRANSPORTATION

Labor		
	Management	\$63,123.85
	Hourly Labor	\$995,917.57
	Total	\$1,059,041.42
Related Labor		
	Health and Welfare	\$107,941.78
	Pension	\$631.24
	Payroll Taxes	\$272,173.62
	Total	\$380,746.64
Other Expenses		
	Personal Travel	\$21,180.58
	Uniforms	\$6,628.00
	Public Utilities	\$40,525.51
	Release Facilities	\$18,179.67
	Total	\$86,513.76
Train Fuel		\$1,680,244.47
Trackage Expense		\$52,385.22
	TOTAL	\$3,258,932.00

Estimate Annual Cost – Track Maintenance

The proposed service will cover approximately 2 miles of Pan Am's Freight Main Line and 27.5 miles of Pan Am's Northern Main Line located between Lowell, MA and Manchester, NH for a total of 29.5 miles. These costs will be broken down into an anticipated annual accrual cost per mile along with a cost per mile for compliance inspections and appropriate remedial action, and then totaled to project the annual cost.

- **Crossties:** \$10,200.00 per year
The track structure on the Freight Main Line will be constructed using cut-spike on wood tie construction. The Northern Main Line will be constructed using direct fasteners (pandrol) on wood ties. It is anticipated that we will maintain a tie condition of 80% with high quality (fit) ties. Due to service demands and track geometry we can expect a tie life of 20 years. The crosstie replacement cycle is estimated on a five-year basis.
- **Rail:** \$4,345.00 per year
The track will be constructed using controlled cooled, relay, welded rail. The anticipated life of the relay CWR is expected to be about 50 years. Although annual rail inspection will be performed and certain rails will require immediate change out it should be less than 1 rail per mile per test. The expected rail replacement cycle for CWR sections is anticipated to be on a ten-year cycle.
- **Rail Grinding:** \$3,785.00 per year
The project will make use of high-quality relay (fit) rail. To meet service requirements and maintain track speeds, we must take into consideration the typical freight traffic patterns and how they affect track geometry. For these reasons it is proposed that a 2-pass grinding operation be done on a 3-year cycle.
- **Track Surface and Alignment:** \$2,025.00 per year
Track performance supports a surfacing cycle of 3 years.
- **Rail / Highway At-Grade Crossings:** \$1,580.00 per year
The average crossing surface life is 12 years.
- **Switches and Turnouts:** \$3,160.00 per year
The predicted life of turnouts will be about 15 years.
- **Vegetation Management:**
Chemical application annually. \$151.50
Mechanical cutting every 5 years. \$656.50
- **Track Inspections** \$88,625.00
This includes the additional inspection required to accommodate the service.

Annual cost per year for the 29.5 mile segment \$994,799.00

(Of which \$646,353.00 is an accrual for Infrastructure Rehabilitation)

ANNUAL LABOR EXPENSE

1 Signal Maintainer = \$450 Per Day

9 New Crossings to be installed. Approximately
½ day per crossing per month for maintenance.

$$\$225 \times 9 = \$2025 \times 12 = \$24,300$$

13 control points to be installed or receive technology upgrades.
2 days per month for maintenance for this new technology.

$$\$900 \times 13 = \$11,700 \times 12 = \$140,400$$

Maintenance on 5% of material installed = \$224,469.87

Total Maintenance Cost \$389,169.87

Pan Am Railways

B&B DEPARTMENT ANNUAL LABOR EXPENSE

Includes Right-of-Way and Layover Facility

F

<u>Description</u>	<u>Total</u>
4 Electrician x 40 hours Per Week	\$972.11 Per Week
1 Mechanic x 40 Hours Per Week	\$950.39 Per Week
1 Supervisor x 10 Hours Per Week	\$30.30 Per Hour
<hr/>	
1 Electrician x 52 weeks x \$770.00	\$50,549.58
1 Mechanic x 52 weeks x \$752.80	\$49,420.92
1 Supervisor x 52 weeks x \$240.00	\$15,755.51
Labor Overhead 70%	\$81,008.10
<hr/>	
Total Labor	\$196,734.11
Utilities Expense	\$230,359.12
Electrical Miscellaneous Material – 20% Labor	\$39,346.36
Total Annual Cost - B&B	\$477,697.28

(Of which \$11,257.69 is an accrual for Structures rehabilitation)

Pan Am Railways

MECHANICAL DEPARTMENT ANNUAL EXPENSE

<u>Description</u>		<u>Total</u>	
4 Machinists x 40 hours Per Week	=160 Hours x \$24.54 Per Ho	\$3,926.40	Per Week
4 Electricians x 40 hours Per Week	=160 Hours x \$19.44 Per Ho	\$3,926.40	Per Week
4 Carmen x 40 Hours Per Week	=160 Hours x \$19.44 Per Ho	\$3,926.40	Per Hour

Annual Labor Expense

Assistant Manager	\$55,550.00
Machinists - 52 Weeks x \$3,926.40 Per Week	\$204,172.80
Electricians - 52 Weeks x \$3,926.40 Per Week	\$204,172.80
Carmen - 52 Weeks x \$3,926.40 Per Week	\$204,172.80
Labor Overhead 69.71%	\$465,710.48
Total Labor	\$1,133,778.88

Annual Equipment Material Expense

8 Locomotives x \$145,184.85 / Year / Locomotive	\$1,161,478.80
16 Coaches x \$73,223.66 / Year / Coach	\$585,789.31
Total Annual Cost - MECHANICAL	\$3,370,063.83

(Of which \$489,016.84 is an accrual for Equipment Rehabilitation)



PAN AM RAILWAYS
IRON HORSE PARK
NO. BILLERICA, MA 01862



NASHUA / WILTON COMMUTER RAIL ESTIMATE

CONSTRUCTION COSTS

TRANSPORTATION	347,619.23
TRACK	12,043,610.00
COMMUNICATION & SIGNAL	6,659,301.60
BRIDGE & BUILDING	234,000.00
LAYOVER FACILITIES	4,922,802.70
*MECHANICAL	1,960,000.00
TOTAL	26,167,333.53

* This estimated cost will be subject to change. At this time there is no surplus passenger equipment available.

AVERAGE ANNUAL OPERATING EXPENSES

* Operating expenses are unknown as the operating plan has yet to be determined.

Pan Am Railways

TRANSPORTATION START-UP TRAINING ESTIMATE

Labor

Management	\$31,561.92
Hourly Labor	\$155,879.29
70% Overhead	\$109,115.50
Total	\$296,556.72

Other Expenses

Personal / Travel / Misc.	\$51,062.51
Total	\$51,062.51

TOTAL \$347,619.23

Pan Am Railways

Track Construction Estimate

Cross Tie Replacement	EA	33,400	\$75.26	\$2,513,684.00
CWR Rail Replacement	FT	154,388	\$24.91	\$3,845,551.74
Switch or Turnout Replacement	EA	17	\$55,616.08	\$945,473.36
Bridge Timber Replacement	EA	335	\$371.00	\$124,285.00
Surface & Align Track	Track Mile	16	\$82,973.95	\$1,327,583.22
Reconstruct Rail/Highway at-grade Xings	EA	27	\$51,057.00	\$1,378,539.00
Passing Siding MP 3.7 to MP 5.7	LS	1	\$1,908,493.68	\$1,908,493.68
				<hr/> SUBTOTAL - TRACK: \$12,043,610.00

Pan Am Railways

C&S CONSTRUCTION EXPENSE

DESCRIPTION	Unit	Quantity	Price	Total
Reconstruct Standard SCX-1 AC/DC Type AHCP	EA	9	\$210,125.65	\$1,891,130.85
Install New Standard SCX-1 AC/DC Type AHCP	EA	19	\$236,000.00	\$4,484,000.00
Install New Approach Signal at Nashua & Milford	EA	2	\$71,042.69	\$142,085.38
Control Office Modification	L/S	1	\$50,000.00	\$50,000.00
Track Department Support	L/S	1	\$92,085.37	\$92,085.37

TOTAL

\$6,659,301.60

Pan Am Railways

LAYOVER FACILITIES DETAILS

<u>Description</u>	<u>Total</u>
Metal Track Pan	\$1,181,678.43
Walkway Grates	\$199,976.35
Track Pan Piping	\$26,178.72
O/W Separator	\$126,247.70
Drainage Structures / Piping	\$201,996.31
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Security Fence	\$18,179.67
Construction Oversight	\$123,091.50
Containment Tank Drainage	\$68,173.76
Miscellaneous	\$138,872.47
TOTAL	\$4,556,678.29
Rehabilitate 2 Bridges	\$70,698.71
Estimated Cost of Land Acquisition	\$295,419.61
Total for Layover Facility	\$4,922,802.70