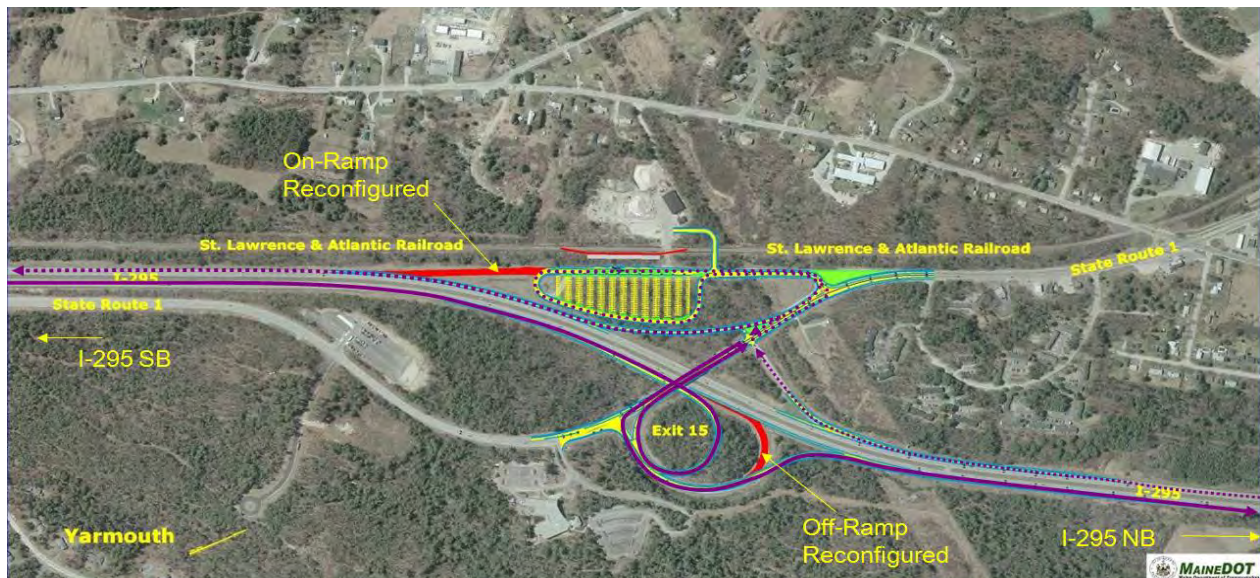


Figure 3-6: Offline Falmouth – Exit 10



Figure 3-7: Offline Yarmouth – Exit 15



To provide commuters using the Downeaster between Freeport/Brunswick and Portland with a stop that is not removed from the downtown, a new station at the site of the former Union Station on St. John Street would need to be built for this project. The express bus service would provide shuttle service to passengers needing access to employment centers in downtown Portland (except for the Maine Medical Center, which is within a 10 minute walk from the station on St. John Street). Commuters using the Downeaster would be provided with a five minute timed transfer to the shuttle service.

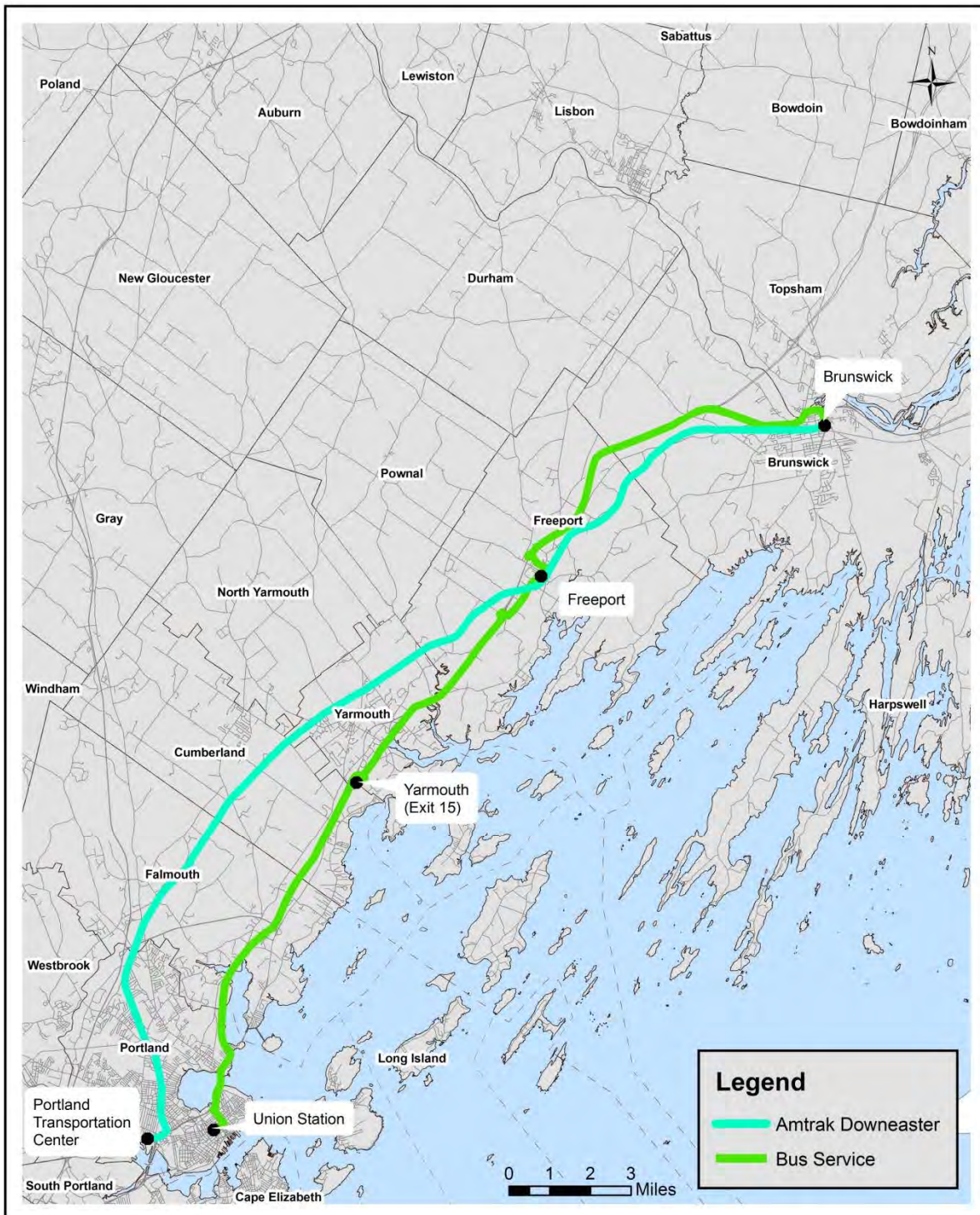
### **Coordinated Public Transport Service – TSM 2**

The CPTS TSM 2 option is almost identical to TSM 1, with the exception that there is no stop in Falmouth. It would provide 14 roundtrips between Brunswick, Yarmouth, and Portland, enabling passengers to travel between Portland and Brunswick, on either the train or on the express bus. Nine bus roundtrips to Brunswick would be provided, along with three Downeaster trips. Since Yarmouth would not be receiving Amtrak service, two short-turn roundtrips from Yarmouth would be provided for passengers operating at approximately the same time as the Downeaster service.

The Yarmouth stop would be at Exit 15, and would be an offline stop (Refer to Figure 3-7 for the offline Yarmouth exit).

In order to keep the overall bus trip time to a minimum, the Freeport bus stop would be located at the corner of Bow Street and US Route 1, approximately 500 feet from the Freeport train station. Passengers would be able park their cars, and purchase tickets at the Freeport train station and walk to the bus stop on Route 1. The Brunswick stop would also be located at the Downeaster train station on Maine Street. See Figure 3-8 for a map of the proposed service.

Figure 3-8: Coordinated Public Transport Service – TSM 2



Source: MaineGIS 2008

To provide commuters using the Downeaster between Freeport/Brunswick and Portland with a stop that is not removed from the downtown, a new station at the site of the former Union Station on Saint John Street would need to be built. The express bus service would provide shuttle service to passengers needing to access to employment centers in downtown Portland (except for the Maine Medical Center, which is within a 10 minute walk from the station on St. John Street). Commuters using the Downeaster would be provided with a five minute timed transfer to the shuttle service.

### 3.2.10 Operating Plans – TSM 1 and TSM 2

The operating assumptions and service plans describe information such as stop patterns, number of trips and headway for the CPTS options. They also provide a general description of where the service would operate, the primary service destinations, as well as how often or frequent service would be.

#### Coordinated Public Transport Service – TSM 1

Table 3-22 shows a conceptual schedule of the Coordinated Public Transport Service, including all connections to and from Downeaster Brunswick service. As shown in Table 3-22, in addition to providing commuter service, the CPTS has been programmed to provide supplemental Downeaster service between Portland and Brunswick. There are two connections to Boston-bound Amtrak trains in Portland (Amtrak #684 and Amtrak #688), and there is one connection to an outbound train in Portland (Amtrak #685, which terminates in Portland). These three connections increase the number of daily trips between Brunswick and Boston from six to nine. Each alternative would provide connections at Portland Transportation Center with 10 minute timed transfers.

**Table 3-22: Coordinated Public Transport Service Conceptual Schedule – TSM 1**

Inbound (South) Service	Amtrak	Maine DOT	Maine DOT	Maine DOT	Amtrak	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Amtrak	Maine DOT	Maine DOT	Amtrak	Maine DOT	Maine DOT	Maine DOT	Amtrak	Amtrak	
Trip No.	680	100	102	104	682	106	108	110	112	114	684	116	118	686	120	122	124	126	688	68X
Cycle	x	a	b	a	y	b	a	b	a	b	x	b	a	y	a	b	a	b	x	y
Brunswick	-	6:09 AM	6:44 AM	-	7:10 AM	-	-	8:31 AM	10:00 AM	-	12:55 PM	-	2:19 PM	-	4:58 PM	5:43 PM	7:02 PM	7:24 PM	-	10:05 PM
Freeport	-	6:23 AM	6:58 AM	-	7:25 AM	-	-	8:45 AM	10:14 AM	-	1:10 PM	-	2:33 PM	-	5:12 PM	5:57 PM	7:16 PM	7:38 PM	-	10:20 PM
Yarmouth (Exit 15)	-	6:31 AM	7:06 AM	7:21 AM	-	-	8:24 AM	8:53 AM	10:22 AM	12:36 PM	-	-	2:41 PM	-	-	-	-	7:46 PM	-	-
Falmouth (Exit 15)	-	6:36 AM	7:11 AM	7:26 AM	-	-	8:29 AM	8:58 AM	10:27 AM	12:41 PM	-	-	2:46 PM	-	-	-	-	7:51 PM	-	-
Portland PULSE	-	6:45 AM	7:20 AM	7:35 AM	-	-	8:38 AM	9:07 AM	10:36 AM	12:50 PM	-	-	-	-	5:31 PM	6:16 PM	-	-	-	-
Union Station	-	-	-	-	7:45 AM	7:50 AM	-	-	-	-	1:30 PM	1:35 PM	-	-	-	-	-	-	-	10:40 PM
Portland Transportation Center	5:55 AM	-	-	-	8:00 AM	-	-	-	-	-	1:45 PM	-	2:55 PM	3:05 PM	-	-	7:35 PM	8:00 PM	8:10 PM	10:55 PM
Congress & Forest	-	6:47 AM	7:22 AM	7:37 AM	-	7:56 AM	8:40 AM	9:09 AM	10:38 AM	12:52 PM	-	1:41 PM	-	-	5:33 PM	6:18 PM	7:43 PM	8:08 PM	-	-
ME Medical	-	6:52 AM	7:27 AM	7:42 AM	-	8:45 AM	9:14 AM	10:43 AM	12:57 PM	-	-	2:59 PM	-	-	5:38 PM	6:23 PM	7:46 PM	8:13 PM	-	-
Mercy Hospital	-	6:55 AM	7:30 AM	7:45 AM	-	7:58 AM	8:48 AM	9:17 AM	10:46 AM	1:00 PM	-	1:43 PM	-	-	5:41 PM	6:26 PM	7:48 PM	8:16 PM	-	-
State & Danforth	-	6:57 AM	7:32 AM	7:47 AM	-	8:00 AM	8:50 AM	9:19 AM	10:48 AM	1:02 PM	-	1:45 PM	-	-	5:43 PM	6:28 PM	7:50 PM	8:18 PM	-	-
Center Street	-	6:59 AM	7:34 AM	7:49 AM	-	8:02 AM	8:52 AM	9:21 AM	10:50 AM	1:04 PM	-	1:47 PM	-	-	5:45 PM	6:30 PM	7:52 PM	8:20 PM	-	-
Market & Middle	-	7:01 AM	7:36 AM	7:51 AM	-	8:05 AM	8:54 AM	9:23 AM	10:52 AM	1:06 PM	-	1:50 PM	-	-	5:47 PM	6:32 PM	7:55 PM	8:22 PM	-	-
Boston (North Station)	8:25 AM	-	-	-	10:25 AM	-	-	-	-	-	4:10 PM	-	-	5:35 PM	-	-	-	-	10:35 PM	-
Next Trip	681	101	103	105	683	107	109	111	113	119	685	115	117	687	121	123	125	127	689	-
Notes	DH from Market St to Union Sta		X-fer at Union Sta to local bus		DH from Market St to Union Sta		X-fer at Union Sta to local bus		X-fer at PTC for train to Boston		X-fer at PTC for train to Boston				X-fer at PTC for train to Boston					

Outbound (North) Service	Amtrak	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Amtrak	Maine DOT	Amtrak	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Amtrak	Maine DOT	Maine DOT	Amtrak	Amtrak		
Trip No.	68XO	101	103	105	107	109	111	681	113	683	115	117	119	121	123	685	125	127	687	689	
Cycle	y	a	b	a	b	a	b	x	b	y	a	a	b	a	b	x	a	b	y	x	
Boston (North Station)	-	-	-	-	-	-	-	9:05 AM	-	11:05 AM	-	-	-	-	-	-	5:00 PM	-	-	6:20 PM	11:20 PM
Portland Transportation Center	5:55 AM	-	-	-	-	-	-	11:30 AM	-	1:30 PM	-	-	-	-	-	7:25 PM	7:35 PM	-	8:50 PM	1:45 AM	
Congress & Forest	-	6:47 AM	7:22 AM	7:37 AM	7:56 AM	8:40 AM	11:23 AM	-	12:00 PM	-	1:41 PM	4:00 PM	4:45 PM	5:33 PM	6:18 PM	-	7:43 PM	8:08 PM	-	-	
ME Medical	-	6:52 AM	7:27 AM	7:42 AM	-	8:45 AM	-	-	12:05 PM	-	-	4:05 PM	4:50 PM	5:38 PM	6:23 PM	-	7:46 PM	8:13 PM	-	-	
Mercy Hospital	-	6:55 AM	7:30 AM	7:45 AM	7:58 AM	8:48 AM	11:24 AM	-	12:08 PM	-	1:43 PM	4:08 PM	4:53 PM	5:41 PM	6:26 PM	-	7:48 PM	8:16 PM	-	-	
State & Danforth	-	6:57 AM	7:32 AM	7:47 AM	8:00 AM	8:50 AM	11:26 AM	-	12:10 PM	-	1:45 PM	4:10 PM	4:55 PM	5:43 PM	6:28 PM	-	7:50 PM	8:18 PM	-	-	
Center Street	-	6:59 AM	7:34 AM	7:49 AM	8:02 AM	8:52 AM	11:28 AM	-	12:12 PM	-	1:47 PM	4:12 PM	4:57 PM	5:45 PM	6:30 PM	-	7:52 PM	8:20 PM	-	-	
Market & Middle	-	7:01 AM	7:36 AM	7:51 AM	8:05 AM	8:54 AM	11:31 AM	-	12:14 PM	-	1:50 PM	4:14 PM	4:59 PM	5:47 PM	6:32 PM	-	7:55 PM	8:22 PM	-	-	
PULSE	-	7:04 AM	7:36 AM	7:53 AM	8:07 AM	8:56 AM	11:34 AM	-	12:17 PM	-	1:53 PM	4:17 PM	5:02 PM	5:50 PM	6:35 PM	-	7:58 PM	8:25 PM	-	-	
Union Station	6:10 AM	-	-	-	-	-	11:40 AM	-	11:45 AM	-	-	-	-	-	-	-	-	-	-	9:05 PM	
Falmouth (Exit 15)	-	-	-	-	-	9:05 AM	-	-	12:26 PM	-	2:02 PM	4:26 PM	5:11 PM	5:59 PM	6:44 PM	-	8:04 PM	8:34 PM	-	-	
Yarmouth (Exit 15)	-	7:16 AM	-	-	8:19 AM	9:10 AM	-	-	12:31 PM	-	2:07 PM	4:31 PM	5:16 PM	6:04 PM	6:49 PM	-	8:09 PM	8:39 PM	-	-	
Freeport	6:35 AM	-	-	8:12 AM	-	9:18 AM	-	-	12:10 PM	-	2:15 PM	4:39 PM	5:24 PM	6:12 PM	6:57 PM	-	8:17 PM	8:47 PM	-	9:30 PM	
Brunswick	6:50 AM	-	-	8:26 AM	-	9:32 AM	-	-	12:25 PM	-	2:29 PM	4:53 PM	5:38 PM	6:26 PM	7:11 PM	-	8:31 PM	9:01 PM	-	9:45 PM	
Next Trip	682	104	106	110	108	112	115	684	114	686	118	120	122	124	126	688	-	-	-	68X	
Notes	DH from Market St to Union Sta		X-fer at Union Sta for train to Brunswick		X-fer at Union Sta for train to Brunswick				X-fer at PTC for train to Brunswick						X-fer at PTC for train to Brunswick						

Table 3-23 provides a summary of the number of trips operated per day. It shows that there are five AM peak hour trips and four PM peak hour trips.

**Table 3-23: Coordinated Public Transport Service – TSM 1 Trip Summary**

Type of Trip	No. of Trips
Brunswick Roundtrips	9
Downeaster to Brunswick Roundtrips	3
Yarmouth Short-Turns Roundtrips	2
Augmented Downeaster Brunswick Trips	3
Total AM Peak Arrivals	5
Total PM Peak Departures	4

**Coordinated Public Transport Service – TSM 2**

Table 3-24 shows a conceptual schedule of the coordinated Public Transport Service, including all connections to and from Downeaster Brunswick service. As shown in Table 3-24, and also like TSM 1, the CPTS has been programmed to provide supplemental Downeaster service between Portland and Brunswick. There are two connections to Boston-bound Amtrak trains in Portland (Amtrak #684 and Amtrak #688), and there is one connection to an outbound train in Portland (Amtrak #685, which terminates in Portland). These three connections increase the number of daily trips between Brunswick and Boston from six to nine. For all at the connections at Portland Transportation Center are provided with 10 minute timed transfers.

**Table 3-24: Coordinated Public Transport Service Conceptual Schedule – TSM 2**

Inbound (South) Service	Amtrak	Maine DOT	Maine DOT	Maine DOT	Amtrak	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Amtrak	Maine DOT	Maine DOT	Amtrak	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Amtrak	Amtrak
Trip No.	680	100	102	104	682	106	108	110	112	114	684	116	118	686	120	122	124	126	688	68X
Cycle	x	a	b	a	y	b	b	a	b	b	x	b	a	y	a	b	a	b	x	y
Brunswick	-	6:09 AM	6:44 AM	-	7:10 AM	-	-	8:31 AM	10:00 AM	-	12:55 PM	-	2:19 PM	-	4:58 PM	5:43 PM	7:02 PM	7:24 PM	-	10:05 PM
Freeport	-	6:20 AM	6:55 AM	-	7:25 AM	-	-	8:42 AM	10:11 AM	-	1:10 PM	-	2:30 PM	-	5:09 PM	5:54 PM	7:13 PM	7:35 PM	-	10:20 PM
Yarmouth (Exit 15)	-	6:30 AM	7:05 AM	7:21 AM	-	-	8:24 AM	8:52 AM	10:21 AM	12:36 PM	-	-	2:40 PM	-	-	-	-	7:45 PM	-	-
PULSE	-	6:47 AM	7:22 AM	7:38 AM	-	-	8:41 AM	9:09 AM	10:38 AM	12:53 PM	-	-	-	-	5:31 PM	6:16 PM	-	-	-	-
Union Station	-	-	-	-	7:45 AM	7:50 AM	-	-	-	-	1:30 PM	1:35 PM	-	-	-	-	-	-	-	10:40 PM
Portland Transportation Center	5:55 AM	-	-	-	8:00 AM	-	-	-	-	-	1:45 PM	-	2:55 PM	-	-	-	7:35 PM	-	-	8:10 PM
Congress & Forest	-	6:49 AM	7:24 AM	7:40 AM	-	7:56 AM	8:43 AM	9:11 AM	10:40 AM	12:55 PM	-	1:41 PM	-	-	5:33 PM	6:18 PM	7:43 PM	8:08 PM	-	-
ME Medical	-	6:54 AM	7:29 AM	7:45 AM	-	8:48 AM	9:16 AM	10:45 AM	1:00 PM	-	-	2:59 PM	-	-	5:38 PM	6:23 PM	7:46 PM	8:13 PM	-	-
Mercy Hospital	-	6:57 AM	7:32 AM	7:48 AM	-	7:58 AM	8:51 AM	9:19 AM	10:48 AM	1:03 PM	-	1:43 PM	3:02 PM	-	5:41 PM	6:26 PM	7:48 PM	8:16 PM	-	-
State & Danforth	-	6:59 AM	7:34 AM	7:50 AM	-	8:00 AM	8:53 AM	9:21 AM	10:50 AM	1:05 PM	-	1:45 PM	3:04 PM	-	5:43 PM	6:28 PM	7:50 PM	8:18 PM	-	-
Center Street	-	7:01 AM	7:36 AM	7:52 AM	-	8:02 AM	8:55 AM	9:23 AM	10:52 AM	1:07 PM	-	1:47 PM	3:06 PM	-	5:45 PM	6:30 PM	7:52 PM	8:20 PM	-	-
Market & Middle	-	7:03 AM	7:38 AM	7:54 AM	-	8:05 AM	8:57 AM	9:25 AM	10:54 AM	1:09 PM	-	1:50 PM	3:08 PM	-	5:47 PM	6:32 PM	7:55 PM	8:22 PM	-	-
Boston (North Station)	8:25 AM	-	-	-	10:25 AM	-	-	-	-	-	4:10 PM	-	-	5:35 PM	-	-	-	-	-	10:35 PM
Next Trip	681	101	103	105	683	107	109	111	113	116	685	119	117	687	121	123	125	127	689	-

Notes: DH from Market St to Union Sta; X-fer at Union Sta to local bus; DH from Market St to Union Sta; X-fer at Union Sta to local bus; X-fer at PTC for train to Boston; X-fer at PTC for train to Boston

Outbound (North) Service	Amtrak	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Amtrak	Maine DOT	Amtrak	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Maine DOT	Amtrak	Maine DOT	Maine DOT	Amtrak	Amtrak
Trip No.	68X0	101	103	105	107	109	111	681	113	683	115	117	119	121	123	685	125	127	687	689
Cycle	y	a	b	a	b	b	a	x	b	y	a	a	b	a	b	x	a	b	y	x
Boston (North Station)	-	-	-	-	-	-	-	9:05 AM	-	11:05 AM	-	-	-	-	-	5:00 PM	-	-	-	6:20 PM
Portland Transportation Center	5:55 AM	-	-	-	-	-	-	11:30 AM	-	1:30 PM	-	-	-	-	-	7:25 PM	7:35 PM	-	-	8:50 PM
Congress & Forest	-	6:49 AM	7:24 AM	7:40 AM	7:56 AM	8:43 AM	11:23 AM	-	12:00 PM	-	1:24 PM	4:00 PM	4:45 PM	5:33 PM	6:18 PM	-	7:43 PM	8:08 PM	-	-
ME Medical	-	6:54 AM	7:29 AM	7:45 AM	-	8:48 AM	-	-	12:05 PM	-	4:05 PM	4:50 PM	5:38 PM	6:23 PM	7:08 PM	-	7:46 PM	8:13 PM	-	-
Mercy Hospital	-	6:57 AM	7:32 AM	7:48 AM	7:58 AM	8:51 AM	11:24 AM	-	12:08 PM	-	1:26 PM	4:08 PM	4:53 PM	5:41 PM	6:26 PM	-	7:48 PM	8:16 PM	-	-
State & Danforth	-	6:59 AM	7:34 AM	7:50 AM	8:00 AM	8:53 AM	11:26 AM	-	12:10 PM	-	1:28 PM	4:10 PM	4:55 PM	5:43 PM	6:28 PM	-	7:50 PM	8:18 PM	-	-
Center Street	-	7:01 AM	7:36 AM	7:52 AM	8:02 AM	8:55 AM	11:28 AM	-	12:12 PM	-	1:30 PM	4:12 PM	4:57 PM	5:45 PM	6:30 PM	-	7:52 PM	8:20 PM	-	-
Market & Middle	-	7:03 AM	7:38 AM	7:54 AM	8:05 AM	8:57 AM	11:31 AM	-	12:14 PM	-	1:33 PM	4:14 PM	4:59 PM	5:47 PM	6:32 PM	-	7:55 PM	8:22 PM	-	-
PULSE	-	7:06 AM	7:38 AM	7:56 AM	8:07 AM	8:59 AM	11:34 AM	-	12:17 PM	-	1:36 PM	4:17 PM	5:02 PM	5:50 PM	6:35 PM	-	7:58 PM	8:25 PM	-	-
Union Station	6:10 AM	-	-	-	-	-	11:40 AM	11:45 AM	-	-	-	-	-	-	-	-	-	-	-	9:05 PM
Yarmouth (Exit 15)	-	7:18 AM	-	-	8:19 AM	9:16 AM	-	-	12:31 PM	-	1:53 PM	4:34 PM	5:19 PM	6:07 PM	6:52 PM	-	8:12 PM	8:42 PM	-	-
Freeport	6:35 AM	-	-	8:15 AM	-	9:26 AM	-	-	12:10 PM	-	2:03 PM	4:44 PM	5:29 PM	6:17 PM	7:02 PM	-	8:22 PM	8:52 PM	-	9:30 PM
Brunswick	6:50 AM	-	-	8:29 AM	-	9:37 AM	-	-	12:25 PM	-	2:14 PM	4:55 PM	5:40 PM	6:28 PM	7:13 PM	-	8:33 PM	9:03 PM	-	9:45 PM
Next Trip	682	104	106	110	108	112	115	684	114	686	118	120	122	124	126	688	-	-	68X	-

Notes: DH from Market St to Union Sta; X-fer at Union Sta for train to Brunswick; X-fer at PTC for train to Brunswick

Table 3-25 provides a summary of the number trips operated per day. It shows that there are five AM peak hour trips and four PM peak hour trips.

**Table 3-25: Coordinated Public Transport Service - TSM 2 Trip Summary**

Type of Trip	No. of Trips
Brunswick Roundtrips	9
Downeaster to Brunswick Roundtrips	3
Yarmouth Short-Turns Roundtrips	2
Additional Downeaster Brunswick Trips	3
Total AM Peak Arrivals	5
Total PM Peak Departures	4

### 3.2.11 Fleet Size – TSM 1 and TSM 2

For both TSM 1 and 2 options, fleet size (number of vehicles or rail consists) was determined based on projected service miles and hours. Fleet size was further modified to ensure that all projected riders would have a seat for their trip to Portland (or to the outer terminal for reverse commuting).

As in Phase I, express buses operating in the CPTS would be a 50-foot, 83-passenger double decker bus, currently employed by private companies such as Mega Bus. A double decker bus is assumed so as to minimize the number of peak period trips departing from Brunswick (AM peak) and returning to Brunswick in the PM peak. By reducing the required number of buses, the overall operating costs will be minimized as well. The double decker buses employed by MegaBus are approximately 18 inches taller than a conventional bus, and do not pose any clearance issues along the route between Portland and Brunswick.

Table 3-26 summarizes the fleet requirements for each option.

**Table 3-26: Vehicle Requirements for Each Service Option**

Vehicle	TSM 1	TSM 2
Double Decker Bus	3	3
DMUs	-	-
Maintenance of Way (MOW) Equipment <sup>17</sup>	-	-
Fleet Size	3	3

### 3.2.12 Bus Infrastructure Requirements for TSM 1 and TSM 2

For a highway running option to Brunswick, and with the Downeaster running to Brunswick, some infrastructure upgrades are required.

<sup>17</sup> Maintenance of Way equipment, often abbreviated as MOW, refers to the equipment used in performance of maintenance of railroad rights of way. It can include procedures from the initial surveying, clearing and grading of a right-of-way to its general upkeep and even eventual dismantling.

### **Road Upgrades**

For both TSM options, no modifications to I-295 are required. Additional support roadwork is required to provide access to the offline stations. Approximately 0.5 miles of new roadwork would need to be constructed for a Falmouth stop, and 0.2 miles for a Yarmouth stop (totaling to 0.7 miles for TSM 1 and 0.2 miles for TSM 2).

### **Signal Upgrades**

No traffic signal upgrades are required. However, a dispatching system would be required.

### **Fleet Requirements and Maintenance Facility**

Three double decker buses are required to offer service. Two buses would be directly used to operate the service and a third bus would be kept as a spare. A new maintenance facility will be required to maintain and repair the bus fleet.

### **Station Upgrades**

Three offline stops will need to be built at Falmouth, Yarmouth and Freeport. The Freeport stop would be built at the intersection of US Route 1 and Bow Street.<sup>18</sup> It would be located approximately 500 feet from the Freeport Downeaster station. Passengers can park and purchase their tickets at the Freeport train station, and then walk up to the stop on Route 1. The bus stop in Brunswick would be located at the Brunswick train station. No upgrades to Brunswick are anticipated.

In total, approximately 350 new parking spaces are required for TSM 1 compared to 300 new parking spaces for TSM 2. New parking ranges from 50 to 150 spaces per station.

Additionally, a train platform on Saint John Street in Portland would also be built. This would allow for passengers using the Downeaster between Freeport/ Brunswick and Portland to transfer to and from the downtown distribution loop. It is assumed that two ticket vending machines (TVM) would be installed at the former site of the Union Station, and no parking spaces are provided.

A total of 16 TVMs (two machines are included in the construction of Union Station) would need to be installed at the stations for TSM 1 (two machines are included in the construction of Union Station) and 14 TVMs for TSM 2. Four machines each are required at the PULSE Station near Monument Square in downtown Portland and the Brunswick Station. The remaining stations would get two TVMs each.

A Closed Circuit TV (CCTV) security system would need to be installed at all stations.

Table 3-27 provides a summary of the infrastructure upgrades required to implement the Coordinated Public Transport Service TSM 1 and TSM 2.

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<sup>18</sup> This will minimize the overall trip time for passengers heading to or from Brunswick.

**Table 3-27: Summary of Infrastructure Upgrades for Coordinated Public Transport Service**

Category	TSM 1		TSM 2	
	Units	Qty.	Units	Qty.
<b>Highway Work</b>				
Shoulder Widening	Lane Mile	0.0	Lane Mile	0.0
Rumble Strip Filling	Lane Mile	0.0	Lane Mile	0.0
<b>Stations</b>				
Online Highway Station	Each	0	Each	0
Vertical Circulation	Each	0	Each	0
Additional Support Roadwork	Mile	0.7	Mile	0.2
Offline Stop	Each	3	Each	2
Site Development	Each	3	Each	2
Parking Space	Each	350	Each	300
Ticket Vending Machine	Each	14	Each	12
Union Rail Station	Each	1	Each	1
Dispatching System	Each	1	Each	1
CCTV	System	1	System	1
Bus Maintenance Facility	Vehicle	3	Vehicle	3
50' Double Decker Bus (83-passenger)	Each	3	Each	3

### 3.2.13 Capital Costs

This section summarizes the capital and operating and maintenance (O&M) cost methodology and results for the alternatives being considered.

To understand the feasibility of the services identified, the cost of infrastructure construction required to operate the two service alternatives were estimated. A simple three-step process was used to estimate capital infrastructure costs.

#### Step 1) Estimated Quantities

The Service Design part of this document details the service requirements for offering commuter service to Brunswick. Service design provides a basis to determine the amount of infrastructure required to offer commuter service at the desired levels to downtown Portland. These requirements vary according to the alternative chosen.

#### Step 2) Unit Costs

The unity costs used to estimate the construction costs for each alternative were gathered from a variety of sources. The majority of cost estimates were achieved through consultation with Jacobs' Traffic and



Rail Engineers and from cost estimates from previous commuter rail planning studies.<sup>19</sup> The unit cost estimates are listed in Table 3-28 for the Coordinated Public Transport Service.

**Table 3-28: Coordinated Public Transport Service (Bus Option) Capital Cost Elements**

Category	Units	Cost
<b>Highway Work</b>		
Shoulder Widening	Lane Mile	\$700,000 <sup>1</sup>
Rumble Strip Filling	Lane Mile	\$100,000 <sup>1</sup>
<b>Stations</b>		
Online Highway Station	Each	\$120,862 <sup>2</sup>
Vertical Circulation (elevator)	Each	\$134,291 <sup>3</sup>
Support Roadwork	Mile	\$53,717 <sup>4</sup>
Offline Station	Each	\$33,573 <sup>2</sup>
Site Development	Each	\$517,024 <sup>5</sup>
Parking	Each	\$ 3,000 <sup>6</sup>
Ticket Vending Machine	Each	\$89,962
Union Rail Station	Each	\$800,353 <sup>7</sup>
CCTV	System	\$275,000 <sup>7</sup>
Dispatching System	Each	\$284,363
<b>Facility</b>		
Maintenance Facility	Vehicle	\$200,665 <sup>2</sup>

Source:

1. AECOM independent Estimate. Received at Meeting between AECOM and Jacobs Engineering Group. July 21, 2010, in Boston, MA.
2. Harvard Transit Technology Assessment. Pg. 54. Includes a 200 ft x 15 ft asphalt pad adjacent to interstate shoulder.
3. Jacobs Engineering Group. (2008). Ruggles Station Platform Study. Prepared for: Medical Area Scientific Community Organization, pg. 73. Cost adjusted to Portland cost of living.
4. Jacobs Engineering Group Traffic Engineers Estimate. Based on 2009 MassHighway Department standard costs for brush clearing, new gravel and asphalt. The resulting value was adjusted to the Portland cost of living.
5. HNTB. (2005). Draft Cost Feasibility Study for Portland Commuter Rail Study. Prepared for the Northern New England Passenger Rail Authority (NNEPRA) and the Maine Department of Transportation, Office of Passenger Transportation.
6. AECOM independent estimate, June 10, 2009.
7. Jacobs Engineering Group independent estimate.

<sup>19</sup> HNTB. (2005) Draft Cost Feasibility Study for Portland Commuter Rail Study. Prepared for the Northern New England Passenger Rail Authority (NNEPRA) and the Maine Department of Transportation, Office of Passenger Transportation.

Step 3) Contingency and Support Costs

A 15% contingency factor was applied to the relatively predictable costs for roadway, track & signal upgrades, and new track construction. In addition to the contingency, various engineering and support costs were added to the cost estimates and are listed in Table 3-29 applied to costs for both options.

**Table 3-29: Various Support Costs**

Cost Item	Budgeted Amount
Contingency	15% of construction cost
Engineering and Construction Management	15% of construction cost
Administration	4% of construction cost
Insurance and Permitting	3% of construction cost

**Infrastructure Costs**

Using the operational and infrastructure needs described in the documents listed in Step 1 of the cost estimation process, the study team was able to calculate the expected capital costs for infrastructure construction. The findings of the three step estimation method are presented below in Table 3-30.

**Table 3-30: Estimated Infrastructure Costs**

Category	Cost (\$2009, millions)	
	TSM 1	TSM 2
Road & Signals	-	-
Track, Signal, & PTC	-	-
Stations	\$5.2	\$4.3
Maintenance Facility	\$0.6	\$0.6
Contingencies	\$2.1	\$1.8
<b>Infrastructure Total</b>	<b>\$7.9</b>	<b>\$6.7</b>

As shown in Table 3-30, the infrastructure upgrades required to offer the two TSMs are roughly half of the Integrated Rail Service.

**Rolling Stock**

Buses operating in the CPTS (TSM options 1 and 2) would be a 50-foot, 83-passenger double decker bus, currently employed by private companies such as Mega Bus. The fleet requirements and total rolling stock costs for each option are summarized in Table 3-31.

**Table 3-31: Vehicle Requirements and Rolling Stock Costs for each Service Option**

Vehicle	Cost per Unit	Fleet Size		Rolling Stock Cost	
		TSM 1	TSM 2	TSM 1	TSM 2
50' Double Decker bus (83-passenger)	\$625,000 <sup>20</sup>	3	3	\$1,875,000	\$1,875,000
<b>Fleet Size</b>		<b>3</b>	<b>3</b>		
<b>Total</b>				<b>\$1,875,000</b>	<b>\$1,875,000</b>

Source: Jacobs Engineering Group estimate.

Total capital costs for each option are shown in Table 3-32.

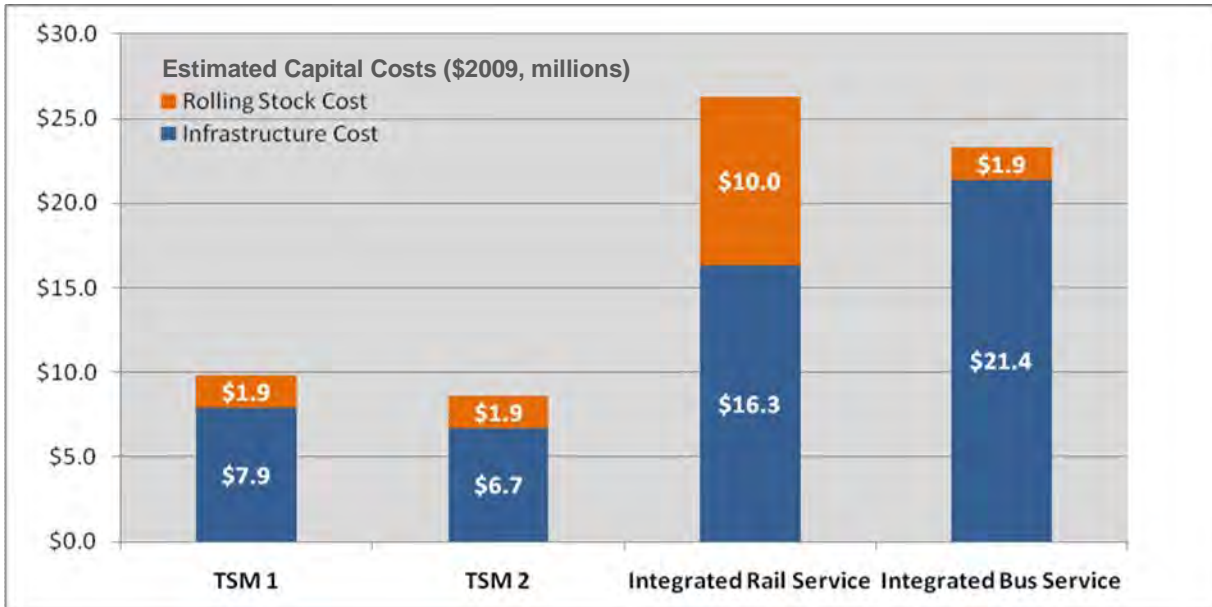
**Table 3-32: Total Capital Costs**

Category	Cost (\$2009, millions)	
	TSM 1	TSM 2
Road & Signals	-	-
Track, Signal, & PTC	-	-
Stations	\$5.2	\$4.3
Maintenance Facility	\$0.6	\$0.6
Contingencies	\$2.1	\$1.8
<b>Total Infrastructure Cost</b>	<b>\$7.9</b>	<b>\$6.7</b>
<b>Total Rolling Stock Cost</b>	<b>\$1.9</b>	<b>\$1.9</b>
<b>Total Capital Costs</b>	<b>\$9.8</b>	<b>\$8.6</b>

Figure 3-9 shows the comparison of the estimated annual capital costs of the TSM options, Integrated Rail and Integrated Bus services. As shown in the figure, total capital costs range from \$8.6 million to \$26.4 million, with each TSM costing approximately three times less than the integrated rail option.

<sup>20</sup> Derived from Mega Bus procurement document. Accessed May 14, 2010. Available: [http://www.busride.com/news.asp?N\\_ID=646](http://www.busride.com/news.asp?N_ID=646) of Business in 2008.

Figure 3-9: Estimated Capital Costs (\$2009, millions)



### 3.2.14 Operating Costs

#### Coordinated Public Transport Service – TSM 1 & TSM 2

Four categories of operating costs were estimated for the Coordinated Passenger Transport Service:

- Bus Transportation (Operators and Fuel)
- Maintenance of Equipment (MOE)
- Dispatching
- Administration

Whenever possible, data from local bus services were used in this analysis. In this instance, costs associated with operation of the Zoom Turnpike Express commuter bus service and Portland METRO service were used to represent the costs of various categories that would be seen with a potential express bus service to Brunswick.

Note: The costs associated with operating the Amtrak Downeaster between Brunswick and the Portland Transportation Center are not considered in this analysis because it is assumed that Brunswick stations will already be constructed and in operation as part of the Amtrak Downeaster extension project.

Bus Transportation Costs

Transportation costs include the direct costs for service provision including bus crews and propulsion energy and bus supplies. No weekend service is assumed. The following assumptions were used in transportation cost estimation:

The fully burdened<sup>21</sup> operator rate is of \$36.75/hour.<sup>22</sup> Overtime is charged at 1.5 times the fully-loaded rate, or \$55.13/hour. Extraboard staff costs \$36.75 per hour.

Preliminary crew rosters were developed for each of the service options.

Three (3) crews are required to offer fulltime express bus service. One crew operates in the morning peak, and first part of the midday service. A hot swap<sup>23</sup> takes place in Brunswick during the midday.

Due to operational constraints of the service, it is assumed that the other crew would work a split shift. The crew would be in service until approximately 1:00 pm, and then go onto release time until 4:45 PM.

Fuel costs are based on the December 2009 cost for diesel (\$2.33/gallon) in Maine.<sup>24</sup>

Two buses operate the service.

The derived fuel efficiency for a double decker bus is 6.17 mpg.<sup>25</sup>

Service Operates 254 days per year.

From the assumptions listed above, the annual transportation costs are shown below in Table 3-33.

**Table 3-33: Transportation Costs for all Bus Options**

<b>Transportation</b>	<b>TSM 1</b>	<b>TSM 2</b>
Operators	\$336,000	\$336,000
Fuel	\$61,000	\$59,000
<b>Total</b>	<b>\$397,000</b>	<b>\$395,000</b>

Since TSM 2 operates fewer miles than TSM 1 (since it does not stop at Falmouth), the Transportation costs for TSM 2 are slightly less than TSM 1.

<sup>21</sup> A fully-burdened labor rate is a rate which includes all the contractor costs necessary to convert an estimate of contractor hours to contractor dollars.

<sup>22</sup> Derived from 2009 Zoom Turnpike Express Data. Received electronically from Mr. Ed Clifford, Zoom Turnpike Express General Manager. March 9, 2010.

<sup>23</sup> Hot swapping means replacing system components without shutting down the system.

<sup>24</sup> Cost for No. 2 Diesel for the State of Maine. Available: [http://www.eia.doe.gov/emeu/states/oilprices/oilprices\\_me.html](http://www.eia.doe.gov/emeu/states/oilprices/oilprices_me.html). Site accessed on May 14, 2010.

<sup>25</sup> "Mega Bus Implements Double Decker Fleet to Meet Demand for Low Cost Travel." Available: <http://us.megabus.com/implementns-double-decker-fleet-to-meet-demand.aspx>. Site Accessed on March 9, 2010.

Maintenance of Equipment (MOE) Costs

The mechanical costs include labor and materials for fleet maintenance. It is assumed that Maine DOT would maintain the selected vehicles at the same rates as observed on the Zoom Turnpike Express. It is also assumed that a double decker bus is maintained at a cost similar to a single level bus. See Table 3-34 for the vehicle maintenance unit costs.

**Table 3-34: Maintenance of Equipment (MOE) Unit Costs**

Equipment	Cost
Annual Bus Labor Costs <sup>26</sup>	\$18,000
Annual Bus Materials (Parts) Costs <sup>27</sup>	\$16,000

Using the costs and assumptions listed above, the estimated MOE expenses for express bus service are shown in Table 3-35. The estimated annual MOE expense was determined to be approximately \$0.1 million for both TSM 1 and TSM 2, since both options have the same fleet size.

**Table 3-35: Estimated Annual Maintenance of Equipment (MOE) Costs for TSM 1 and TSM 2**

Category	Unit Cost	Fleet Size	Total Cost
Annual Vehicle Labor	\$18,000	3	\$54,000
Vehicle Materials	\$16,000	3	\$48,000
<b>Annual MOE Expense</b>			<b>\$102,000</b>

Dispatching Costs

Portland METRO states that their annual dispatching costs are approximately \$100,000.<sup>28</sup> It is assumed that this would be the same cost for dispatching the express bus commuter service. It is further assumed that the commuter service could be dispatched using the METRO facilities.

Administrative Costs

Administration costs include revenue collection and accounting, marketing, personnel, training and safety costs. These costs are estimated at the same cost as those reported by the Zoom Turnpike Express. In this case, the administration cost was determined to be 23.6% of the Transportation, Maintenance of Equipment (MOE), Maintenance of Way (MOW), and Dispatching costs.<sup>29</sup>

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<sup>26</sup> Derived from 2009 Zoom Turnpike Express Data. Received electronically from Mr. Ed Clifford, Zoom Turnpike Express General Manager. March 9, 2010.

<sup>27</sup> Ibid.

<sup>28</sup> Conversation with Tom Ridge, Sr., dispatcher at Portland METRO. September 24, 2009.

<sup>29</sup> Derived from 2009 Zoom Turnpike Express Data. Received electronically from Mr. Ed Clifford, Zoom Turnpike Express General Manager. March 9, 2010.

Total Estimated Annual Operating Costs

Table 3-36 summarizes the forecast annual operating expenses for the Coordinated Passenger Transport Service.

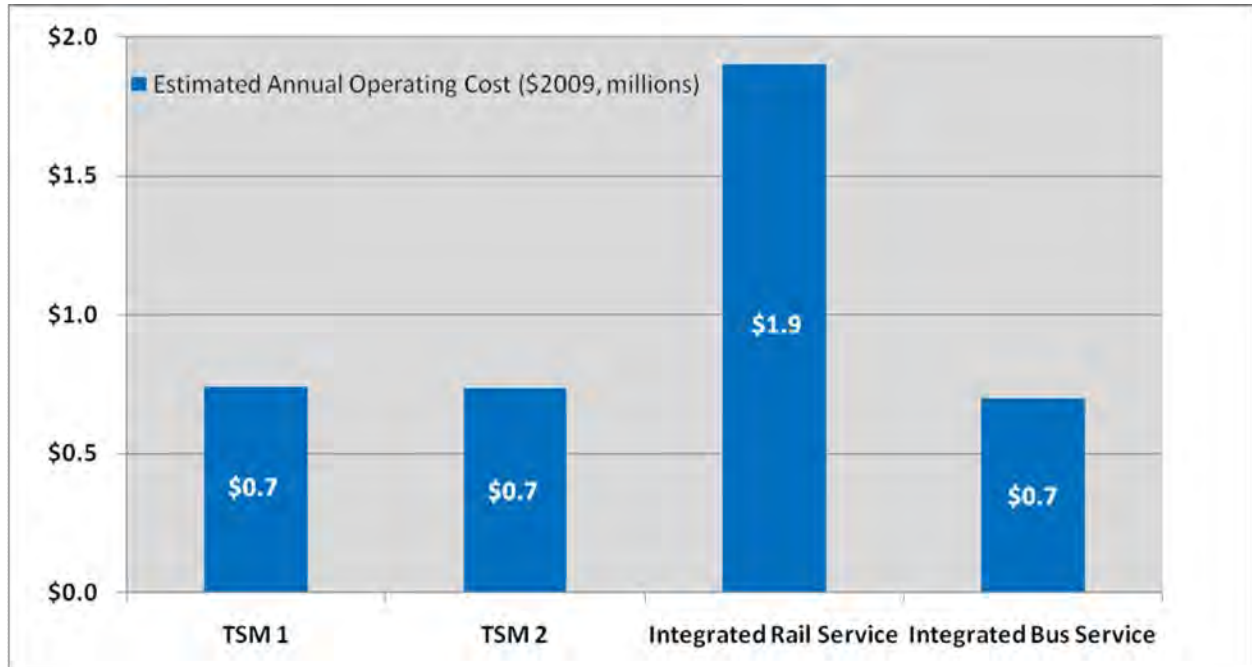
**Table 3-36: Summary of CPTS Annual Operating Costs**

<b>Category</b>	<b>TSM 1</b>	<b>TSM 2</b>
Transportation		
Operators	\$336,000	\$336,000
Fuel	\$61,000	\$59,000
Maintenance of Equipment	\$102,000	\$102,000
Dispatching	\$100,000	\$100,000
Administration (23%)	\$141,000	\$141,000
<b>Total</b>	<b>\$740,000</b>	<b>\$738,000</b>

Due to the similarity of the two options, the estimated annual operating cost for the two express bus options is approximately the same at \$740,000, as shown in Table 3-36. The principal difference between the two is that TSM 1 stops in Falmouth, whereas TSM 2 does not. Overall, the biggest cost driver associated with the CPTS option is the bus transportation costs, which are estimated at approximately 50% of the total overall operating expense.

Figure 3-10 shows the comparison of the estimated annual operating costs of the TSM options, Integrated Rail and Integrated Bus services. The estimated annual operating cost is approximately three times greater for the commuter rail service than the TSM options and Integrated Bus Service at \$1.9 million.

Figure 3-10: Estimated Annual Operating Costs (\$ millions)



### TSM Option Ridership

A detailed ridership analysis that utilized a transportation ridership model developed for the project study area was undertaken to identify the movements and quantities of potential riders that would be attracted by each alternative. The results were forecasted to the year 2035 for each of the TSM alternatives, and included the Amtrak intercity trips as well.

The results of the analysis indicated that the TSM 1 option would attract 665 boardings per weekday versus 557 boardings for TSM 2. On an annual basis assuming 254 annual operating days (weekday service only), that amounts to approximately 169,000 boardings for TSM 1 as opposed to approximately 141,000 boardings for TSM 2. The main difference is that TSM 2 has one less bus stop, as it does not serve Falmouth like TSM 1 does.

### Summary

The summary comparison of TSM 1 and TSM 2 options are shown below in Table 3-37.



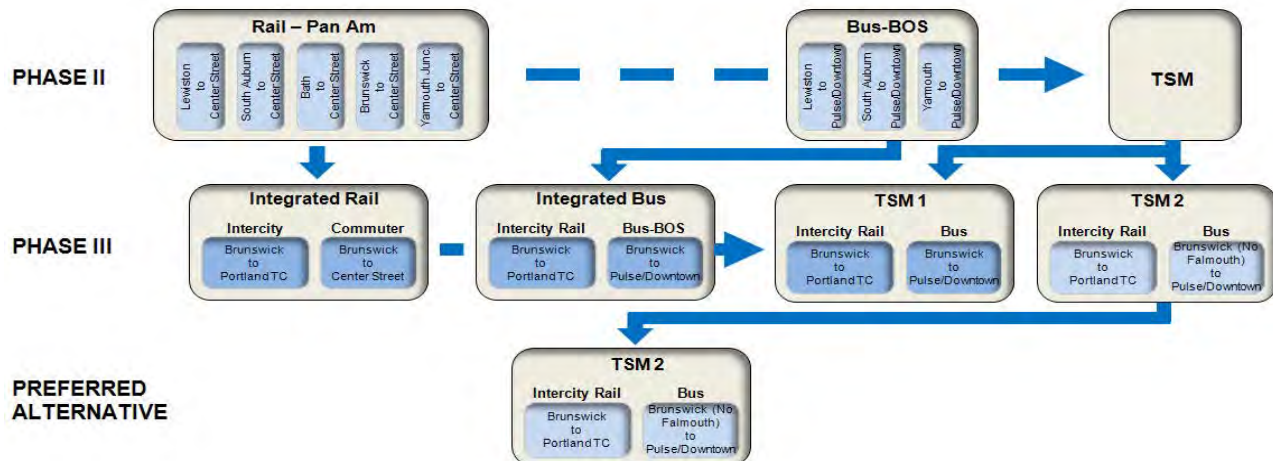
Table 3-37: Comparison of TSM 1 and TSM 2 Options

Option	TSM 1	TSM 2
Weekday Boardings	665	557
Annual Operating Days	254	254
Annual Boardings	168,910	141,478
Annual Operating Costs	\$740,467	\$ 737,710
Capital Costs	\$9,800,000	\$8,600,000
Operating Costs/Boarding	\$4.38	\$5.21
Capital Cost/Boarding	\$58.01	\$60.78

### 3.3 Phase III Analysis and Recommendations

After review of the TSM 1 and 2 alternatives, and feedback from stakeholders and other public input, it was determined that TSM 2 would be selected as the preferred alternative. This option would provide a high level of flexibility, favorable ridership, and constitutes a reasonable and more feasible investment in capital and operating funds that would provide a much needed option for improving mobility within the Portland North study area. It also maximizes other transportation investments proposed for the study area and provides an opportunity to build support for transit service that could grow and expand as ridership improves. The alternatives development and screening process is shown in Figure 3-11 provided below.

Figure 3-11: Alternative Development and Screening Diagram



## **Chapter 4 Public Involvement Process and Agency Coordination**

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The MaineDOT worked with the Androscoggin Valley Council of Governments (AVCOG) and the Greater Portland Council of Governments (GPCOG) to provide public outreach and technical assistance as appropriate for MaineDOT's Portland North Alternative Modes Transportation Project. The Public Participation Plan for the Portland North Alternative Modes Transportation Project forms the basic framework for achieving an interactive dialogue between community decision-makers, the MaineDOT, stakeholders, municipalities, AVCOG, GPCOG, and citizens. The objectives of the dialogue include the following objectives:

- Residents of the Androscoggin and Cumberland County become fully aware of the Project planning process;
- The public has opportunities to provide their input to the MaineDOT, AVCOG, GPCOG, and their towns<sup>1</sup>;
- The public has access to relevant technical information and any analyses performed throughout the planning process;
- The MaineDOT, stakeholders and participating municipalities have input from the broadest range of perspectives and interest in the community as possible; and
- Such input is elicited through a variety of means (electronic, printed, and oral) in such a way that it may be carefully considered.

### **4.1 Outreach Program**

#### **4.1.1 Public Coordination**

MaineDOT implemented the following actions to ensure that public meetings allow for an open discussion of the relevant issues at hand and that public hearings allow for appropriate testimony:

- An agenda was established that clearly defined the purpose of each stakeholder and public meeting, the items to be discussed, and any actions that may be taken.
- The scheduled date, time and place were made convenient to encourage maximum participation by Androscoggin and Cumberland County residents;
- The meeting was conducted in an orderly fashion by a clearly identifiable facilitator from MaineDOT to ensure that all attendees have an opportunity to offer comments, discuss issues or provide feedback;
- Opening remarks were provided (by the facilitator) that clearly outlined the purpose of the meeting, the procedures that the attendees should use for offering input during the meeting and how the public input would be used was described;
- As appropriate, an overview of documents or proposals to be considered was discussed;

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<sup>1</sup> Staff also worked with Mid-Coast Council for Business Development and Planning (MCBDP) to ensure participation with Brunswick, Bath and Topsham.

- All persons attending the meeting who desire to participate should be allowed to do so. However, specific factors, such as the meeting purpose, number in attendance, time, considerations, or future opportunities to participate, may require that appropriate time constraints be applied. These time constraints were clearly outlined by the facilitator as needed;
- All attendees were encouraged to sign-in using a provided sign-in sheet;
- Summaries of the meetings were made available as soon as possible following the meeting via the devoted website to the project; and
- Special arrangements were made under the provisions of the American with Disabilities Act (ADA) with sufficient advance notice.

### **4.1.2 Agency Coordination**

#### **Public and Stakeholder Meetings**

MaineDOT held four (4) public meetings at a number of locations to bring attention to the planning effort. MaineDOT and the Consultant (AECOM) worked closely with AVCOG to select locations convenient and accessible to the public, and suitable to the material being presented. Meetings were generally held in either the Portland or Lewiston/Auburn area.

MaineDOT staff convened a series of stakeholder meetings<sup>2</sup> between March 2008 and December 2009 and their staff worked with MaineDOT and the Consultant on the development of a comprehensive stakeholder list. In both regions the meeting location determined which agency (AVCOG or GPCOG) took the lead in organizing and documenting the meeting.

#### **General Public Relations & Newsletters**

AVCOG and GPCOG provided general public relations throughout the planning process, including preparation of newsletters and distributing them to stakeholder, official, interest groups and the general public, as appropriate. As of this writing, two newsletters were prepared and distributed in May 2008 and March 2009. AVCOG and GPCOG's websites direct internet traffic to the Portland North Alternative Modes Project website which is part of the larger MaineDOT website.<sup>3</sup>

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<sup>2</sup> Although described as stakeholder meetings, all meetings were open to the public.

<sup>3</sup> Portland North Project. <http://www.maine.gov/mdot/portlandnorth/>

Figure 4-1: Front Page of Project Newsletter

MaineDOT, AVCOG and GPCOG

Spring 2009



## PORTLAND NORTH ALTERNATIVE MODES PROJECT

Implementation of Commuter Services either via Passenger Rail or Bus Rapid Transit between Portland – Brunswick and Portland – Auburn.

**INSIDE THIS ISSUE:**

Route Alternatives: Pg.1

Portland Locations: Pg.2

**Websites:**

MaineDOT Portland North Project  
<http://www.maine.gov/mdot/portlandnorth/>

FTA  
[www.fta.dot.gov/planning/newstarts/Planning\\_environment\\_222.html](http://www.fta.dot.gov/planning/newstarts/Planning_environment_222.html)

AVCOG  
[www.avcog.org](http://www.avcog.org)

GPCOG  
[www.gpcog.org](http://www.gpcog.org)

**Project Update:**

- Development of Purpose and Needs
- Development of Preliminary Changes
- Application and Development Of Transportation Models
- User Preference Surveys
- Development of FTA Initiation Report

**Schedule:**

- Phase 1 Screening (April '09)
- Refined Alternatives (July '09)
- Detailed Costs, Impacts Ridership (Aug '09)
- Section of Preferred Alternatives (Jan. '10)
- Small Starts Analysis (Mar. '10)

At the second Portland North Alternative Modes Project stakeholders meeting (2/11/09), AECOM provided an update on tasks accomplished since the last meeting:

1. Development of Purpose and Need
2. Development of Preliminary Alternatives
3. Application and Development of Transportation Models
4. User Preference Surveys
5. Development of FTA Initiation Report

Three options are being considered to provide a transit link between downtown Portland and Auburn or Brunswick.

Two of these are rail options would either utilize the Saint Lawrence and Atlantic (SLA) or Pan American Railway (PanAM) right-of-way. The third is a Bus Rapid Transit option that would use roadways such as I-95 to reach Auburn and I-295 to reach Brunswick. A partial-build segment providing rail or bus service to Yarmouth from Portland was also explored.

**Brunswick (Bath)**  
Service Stats  
22 roundtrips per weekday  
Service headways (30/60 min. for peak/off peak)  
Arrive in Portland 6:45AM  
Depart Portland 10:55 PM


Terminal locations  
SLA – Brunswick (Downeaster), Bath Station, Freeport Station, Yarmouth, Falmouth, Portland.  
Pan Am – Brunswick (Downeaster), Bath Station, Freeport Station, Yarmouth Jct, Cumberland, Falmouth, and Portland.  
Express Bus – Brunswick, Freeport, Yarmouth, Falmouth, Monument St.

**South Auburn Services (Lewiston)**  
Service Stats  
22 roundtrips per weekday  
Service headways (30/60 min. for peak/off peak)  
Arrive in Portland 6:45  
Depart Portland 10:55 PM

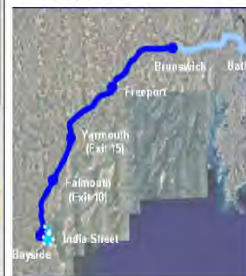


Terminal locations  
SLA – Auburn Intermodal, Auburn Station, Lewiston Station, Pinelands East, Yarmouth Jct, Falmouth, Portland.  
Pan Am – South Auburn, Pinelands West, Lewiston Station, Cumberland, Falmouth, Portland.  
Express Bus – South Auburn, Auburn Stop downtown, Lewiston, Gray, Falmouth, Monument Sq.

**Yarmouth**  
Service Stats  
22 roundtrips per weekday  
Service headways (30/60 min. for peak/off peak)  
Arrive in Portland 6:45AM  
Depart Portland 10:55 PM

Terminal locations  
SLA – Bayside or India, Yarmouth Station and Falmouth Station  
Pan Am – Center St or Union and Yarmouth Jct, Cumberland Station, and Falmouth Station  
Express Bus – Monument Sq, Yarmouth (exit 15) and Falmouth (exit 10)



This picture shows three rail route options suggested by AECOM

## 4.2 Summary of Outreach Activities

A summary list of public and stakeholder meetings with dates, times and locations during the Portland North Alternative Modes planning process is provided below:

**Table 4-1: List of Public and Stakeholder Meetings**

Date of Meeting	Meeting Topic	Items covered in the Meeting	Venue
December 13, 2010	Project Closeout Public Meeting	<ul style="list-style-type: none"> <li>- Alternatives Analysis (Phase 1 and 2)</li> <li>- Bus on Shoulder Operations</li> <li>- Integrated Bus and Rail Options</li> <li>- TSM Alternatives/ Phase 3</li> <li>- Recommended Alternative</li> <li>- Potential Funding Sources</li> </ul>	Brunswick Town Hall AVCOG Office
May 4, 2010	Public Meeting for the Portland North Small Starts Alternative Modes Study	<ul style="list-style-type: none"> <li>- Progress Update and Summary of Alternatives (Phase 1 and 2)</li> <li>- Study Area Express Bus Routes</li> <li>- Ridership Projections (Regional Model Structure)</li> <li>- Preliminary Costs</li> <li>- Phase 2 Alternatives (Bus and Rail)</li> <li>- Small Starts</li> <li>- Amtrak Extension Feasibility Study</li> </ul>	Brunswick Town Hall
April 28th, 2010	Public Meeting at Abromson Center	<ul style="list-style-type: none"> <li>- Progress Update and Summary of Alternatives (Phase 1 and 2)</li> <li>- Study Area Express Bus Routes</li> <li>- Ridership Projections (Regional Model Structure)</li> <li>- Preliminary Costs</li> <li>- Phase 2 Alternatives (Bus and Rail)</li> <li>- Small Starts</li> <li>- Amtrak Extension Feasibility Study</li> </ul>	University of Southern Maine (USM), Portland
March 30, 2010	Public Meeting	<ul style="list-style-type: none"> <li>- Progress Update and Summary of Alternatives</li> <li>- Ridership Projections (Regional Model Structure)</li> <li>- Preliminary Costs</li> <li>- Phase 2 Alternatives (Bus and Rail)</li> <li>- Small Starts</li> <li>- Amtrak Extension Feasibility Study</li> </ul>	Brunswick Town Hall AVCOG Office

<b>Date of Meeting</b>	<b>Meeting Topic</b>	<b>Items covered in the Meeting</b>	<b>Venue</b>
December 10, 2009	Stakeholder Alternatives, Modeling and Cost update	<ul style="list-style-type: none"> <li>- Progress Update and Summary of Alternatives</li> <li>- Ridership Projections (Regional Model Structure)</li> <li>- Preliminary Costs</li> </ul>	AVCOG Office
December 10, 2009	Portland Area Comprehensive Transportation Committee (PACTS)/Stakeholder Alternatives, Modeling and Cost update	<ul style="list-style-type: none"> <li>- Small Starts Parameters</li> <li>- Schedule</li> </ul>	GPCOG Office
June 30, 2009	Town of Brunswick Stakeholder Coordination Meeting	<ul style="list-style-type: none"> <li>- Summary of Project</li> <li>- Station Issues (Feedback) – Yarmouth and Brunswick Service Statistics, Brunswick Station</li> <li>- Summary of Small Starts Process , Criteria and Ratings</li> <li>- Preliminary Screening Criteria (Feedback)</li> </ul>	Brunswick Town Hall
June 16, 2009	Town of Cumberland Stakeholder Coordination Meeting	<ul style="list-style-type: none"> <li>- Summary of Project</li> <li>- Station Issues (Feedback) – Yarmouth Service Statistics, Cumberland Station</li> <li>- Summary of Small Starts Process , Criteria and Ratings</li> <li>- Preliminary Screening Criteria (Feedback)</li> </ul>	Cumberland Town Hall
June 16, 2009	Town of Yarmouth Stakeholder Coordination Meeting	<ul style="list-style-type: none"> <li>- Summary of Project</li> <li>- Station Issues (Feedback) – Yarmouth Service Statistics, Yarmouth Station</li> <li>- Summary of Small Starts Process , Criteria and Ratings</li> <li>- Preliminary Screening Criteria (Feedback)</li> </ul>	Yarmouth Town Hall
June 16, 2009	Town of Freeport Stakeholder Coordination Meeting	<ul style="list-style-type: none"> <li>- Summary of Project</li> <li>- Station Issues (Feedback) – Yarmouth and Brunswick Service Statistics, Freeport Station</li> <li>- Summary of Small Starts Process , Criteria and Ratings</li> <li>- Preliminary Screening Criteria (Feedback)</li> </ul>	Freeport Town Hall
June 15, 2009	Town of Falmouth Stakeholder Coordination Meeting	<ul style="list-style-type: none"> <li>- Summary of Project</li> <li>- Station Issues (Feedback) – Yarmouth Service Statistics, Falmouth Station</li> <li>- Summary of Small Starts Process , Criteria and Ratings</li> <li>- Preliminary Screening Criteria (Feedback)</li> </ul>	Falmouth Town Hall

<b>Date of Meeting</b>	<b>Meeting Topic</b>	<b>Items covered in the Meeting</b>	<b>Venue</b>
June 15, 2009	Town of Lewiston Stakeholder Coordination Meeting	<ul style="list-style-type: none"> <li>- Summary of Project</li> <li>- Station Issues (Feedback) – Yarmouth and Auburn Service Statistics, Auburn and Lewiston Stations</li> <li>- Summary of Small Starts Process , Criteria and Ratings</li> <li>- Preliminary Screening Criteria (Feedback)</li> </ul>	AVCOG Office
May 27, 2009	City of Portland Stakeholder Coordination Meeting	<ul style="list-style-type: none"> <li>- General Overview of Project and Service Statistics</li> <li>- Potential Portland Stations (Summary of Terminal Options)</li> </ul>	Portland City Hall
May 24, 2009	Railroad Coordination Meeting with SLR (Stakeholder Meeting)	<ul style="list-style-type: none"> <li>- Other Issues</li> </ul>	St. Lawrence & Atlantic Railroad
March 24, 2009	General Stakeholder Progress Meeting	<ul style="list-style-type: none"> <li>- Summary of Alternatives (Routes, Stations)</li> <li>- Key Issues Discussion (Service Design, Stations and Stops, Modes, Community Concerns, others)</li> </ul>	GPCOG Office
March 24, 2009	General Stakeholder Progress Meeting		AVCOG Office
March 20, 2009	Railroad Coordination Meeting with Pan Am Railways (Stakeholder Meeting)		PTC
February 11, 2009	General Stakeholder Progress Meeting	<ul style="list-style-type: none"> <li>- Project Update,</li> <li>- Presentation of service alternatives, route alternatives, and Portland terminal alternatives</li> <li>- Travel distances and times,</li> </ul>	GPCOG Office
February 11, 2009	General Stakeholder Progress Meeting	<ul style="list-style-type: none"> <li>- Comparable Routes (Shore Line East and Zoom Turnpike Express Bus)</li> <li>- Aggregate Rail Ridership Forecasting Model,</li> <li>- Project Timeline</li> </ul>	AVCOG Office
May 28, 2008	General Stakeholder/Kickoff Meeting	<ul style="list-style-type: none"> <li>- Background (Existing transit services, ridesharing, population &amp; Employment, commuting patterns, Study area Volumes),</li> </ul>	AVCOG
May 27, 2008	General Stakeholder/Kickoff Meeting at Falmouth	<ul style="list-style-type: none"> <li>- Purpose and Need,</li> <li>- Alternatives Overview (Rail, Bus, and Transportation Systems Management alternatives),</li> <li>- Preliminary Evaluation Criteria.</li> </ul>	Town Hall

<b>Date of Meeting</b>	<b>Meeting Topic</b>	<b>Items covered in the Meeting</b>	<b>Venue</b>
March 20, 2008	Stakeholder Coordination Meeting at Freeport	<ul style="list-style-type: none"><li>- Purpose of Study, Scope of Study,</li><li>- Summary of Prior Alternatives,</li><li>- FTA Small Starts Process,</li><li>- Public Participation,</li><li>- Study Schedule</li></ul>	Town Hall



### **4.2.1 Project Working Group**

The stakeholder group is provided below:

- Chris Andreasson, President, Vermont Transit
- Stacey Benjamin, Maine State Planning Office
- Peter Butler, Federal Transit Administration (FTA)
- Deborah Cabana, Town Manager, Gray
- Christine Charette, Town Manager, Town of Durham
- Patrick Christian, Executive Director, Western Maine Transportation Services, Inc.
- Rick Cloutier, Manager, Auburn-Lewiston Municipal Airport
- William Crain, Selectman, Pownal
- Wayne Davis, Chairman, Train Riders Northeast
- Craig Denekas, Vice President, Libra Foundation
- Jay Duncan, Vice President, AECOM Transportation (Consultant Project Manager)
- John Duncan, Executive Director, PACTS
- Dawn Emerson, Town Planner, Yarmouth
- David Fink, President, Pan Am Railways
- Don Garrish, City Manager, Brunswick
- Ray Goss, General Manager, SLR
- Lucien Gosselin, Executive Director, Lewiston-Auburn Economic Growth Council
- Joseph Gray, City Manager, Portland
- Mark Hasselmann, Right of Way & Environmental Programs, Federal Highway Administration (FHWA)
- Alex Jaegerman, Chief Planner, Portland
- Robert Kahn, Architect, TrainRiders
- Dana Knapp, Maine Operations Manager, Concord Coach  
Rosemary Kulow, Town Manager, New Gloucester
- Donna Larson, Town Planner, Freeport
- Chris Mann, Planning, MaineDOT
- Jeffrey Monroe, Director, Portland Ports and Transportation
- Charles Morrison, Executive Director, Androscoggin County Chamber of Commerce
- Nate Moulton, The Office of Freight and Business Services (OFBS), MaineDOT
- Phil Nadeau, Chairman, Lewiston Assistant City Manager
- Carla Nixon, Town Planner, Cumberland

- Marika O'Brien, Event Coordinator, Pinelands
- Dale Olmstead, Town Manager, Freeport
- Gordon Page, VP & Director of Passenger Operations, Maine Eastern Railroad (MERR)
- Nathan Poore, Town Manager, Falmouth
- Patricia Quinn, Executive Director, Northern New England Passenger Rail Authority (NNEPRA)
- Jamie Robinson, Safety & Training Manager, SLR
- Susan Moreau, MaineDOT (Proponent Project Manager)
- Rebecca Schaffner, Town Planner, New Gloucester
- William Shane, Town Manager, Cumberland
- Bruce Sleeper, Attorney, TrainRiders
- Laurie Smith, Acting City Manager, City of Auburn
- Amanda Stearns, Town Planner, Falmouth
- George Thebarger, Contract Planner, Gray
- Robert Thompson, Executive Director, AVCOG
- Bob Thorpe, President, Lewiston-Auburn Railroad Company
- Nathaniel Tupper, Town Manager, Yarmouth
- Conrad Welzel, Maine Turnpike Authority
- Matti Gurney, Planning Director, GPCOG

#### **4.2.2 Technical Advisory Committee**

In addition to soliciting opinions from the public about the study, the project team also relied on the expertise of a Technical Advisory Committee to help guide the project. The Technical Advisory Committee included the following members:

- Maine Department of Transportation
- Northern New England Passenger Rail Authority (NNEPRA)
- Greater Portland Council of Governments (GPCOG)
- Androscoggin Valley Council of Governments (AVCOG)
- Pan Am Railroad
- St. Lawrence & Atlantic Railroad (SLR)
- Lewiston-Auburn Railroad
- Maine Turnpike Authority (MTA)
- AECOM Transportation.



## **Chapter 5 TSM 2 Proposed Financial Plan**

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### **5.1 Introduction**

This chapter discusses potential funding sources and strategy for the Transportation Systems Management Option #2 (TSM 2), the preferred alternative.

### **5.2 Existing Funding Environment**

The Maine Department of Transportation (MaineDOT) Bureau of Transportation Systems Planning distributes to 21 rural and small urban transportation systems federal financial support from the Federal Transit Administration (FTA) (currently about \$5.4 million in non-urbanized area funding and \$4.48 million in urban area funding) as well as state money (currently about \$0.5 million).

Combined federal/state funds can be used to pay for 90% of capital costs (95% for clean-fuel vehicles if funding is available), 90% of administrative costs, and 60% of the operating deficit<sup>1</sup>. MaineDOT's financial support is for the purpose of providing general public transportation and typically accounts for a small portion of each provider's overall budget. MaineDOT is appointed by the Governor to receive all FTA funds and manage their distribution.

In order to best coordinate services, MaineDOT's policy is to support a statewide system of demand response providers and to support fixed route systems that request support and meet 4 funding requirements. The 21 transit systems supported by MaineDOT fall into one of three different categories:

- Regional transportation systems.
- Fixed route transit systems.
- Transit systems supporting the tourist industry.

The proposed TSM 2 financial plan discussed below expands an innovative addition to this program: it proposes a service that may be funded with 100% combined state and federal funds.

### **5.3 Federal Transit Administration**

The Federal Transit Administration (FTA) partners with MaineDOT on a wide range of projects and services. For the TSM 2, the Federal New Starts Program was considered for capital assistance, and Federal non-urbanized area formula funding (Section 5311) was considered for operating assistance. MaineDOT was advised that the project would not qualify for the New Starts program, but FTA funding may play a role in capital assistance from other FTA programs and in operating assistance as described in the capital and operating plans, below.

### **5.4 Description of the Project**

The TSM 2 builds upon the \$35+ million railroad investment that will extend the Amtrak Downeaster intercity service north of Portland to Freeport and Brunswick, Maine. The new Portland North service would provide 14 roundtrips between Brunswick, Yarmouth, and Portland, enabling passengers to travel

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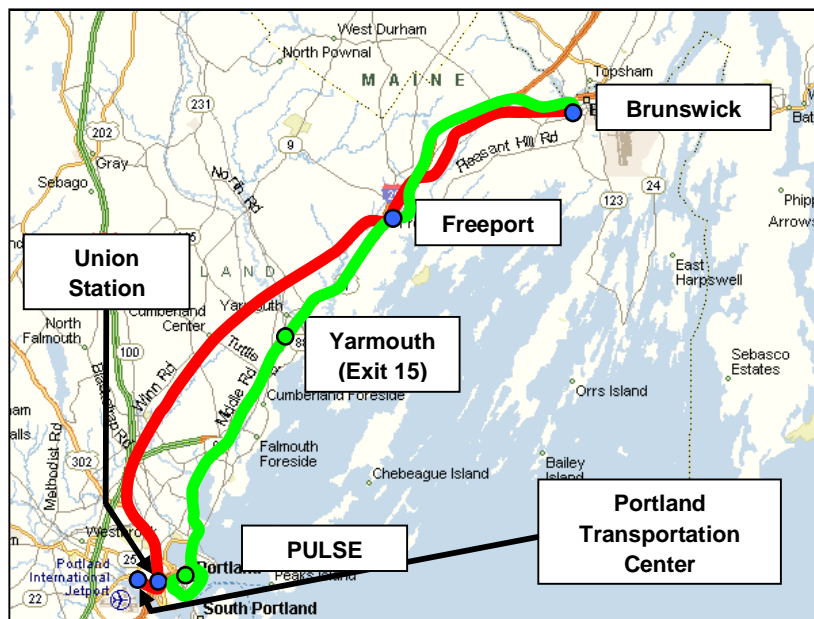
<sup>1</sup> Operating deficit is defined as the difference between revenue generated by the service and the total cost of operating the service, which is often a negative number (or deficit).

between Portland and Brunswick, on either the train or on the express bus. Nine bus roundtrips to Brunswick would be provided, along with three Downeaster trips.

In addition, since Yarmouth would not be receiving Amtrak service, two short-turn roundtrips from Yarmouth are provided for passengers and would run at approximately the same time as the Downeaster operates. The Yarmouth stop would be offline at Exit 15 on Interstate 295.

In order to keep the overall bus trip time to a minimum, the Freeport bus stop would be located at the corner of Bow and US Route 1, approximately 500 feet from the Freeport train station. Passengers would be able to park their cars, purchase tickets at the Freeport train station, and walk to the bus stop on Route 1. The Brunswick stop would also be located at the proposed Downeaster train station on Maine Street. See Figure 5-1 for a map of the proposed service.

**Figure 5-1: Proposed TSM 2 Service**



To provide commuters using the Downeaster between Freeport/Brunswick and Portland access to the downtown, a new station at the site of the former Union Station on St. John Street would need to be built where Amtrak trains could embark and disembark passengers. An express bus service would then provide shuttle service between the Union Station stop and employment centers in downtown Portland (except for the Maine Medical Center, which is within a 10 minute walk from the station on St. John Street).

Commuters using the Downeaster would be provided with a five minute timed transfer to the shuttle service. Table 5-1 below sets out the total number of vehicle trips on the Coordinated Public Transport Service.

**Table 5-1: TSM 2 Trip Summary**

Type of Trip	No. of Trips
Brunswick Roundtrips	9
<i>Downeaster</i> to Brunswick Roundtrips	3
Yarmouth Short-Turns Roundtrips	2
Additional Downeaster Brunswick Trips	3
Total AM Peak Arrivals	5
Total PM Peak Departures	4

Source: AECOM 2010

## 5.5 Capital Plan

The capital cost was estimated to be \$8.6 million in 2010 dollars as set out in Table 5-2 below. As indicated previously, any costs related to the Amtrak Downeaster service would not be borne by this project, as they would already be in place and covered under other funding sources. All costs noted below are related to bus elements.

**Table 5-2: Potential TSM 2 Capital Costs**

Cost Category	TSM 2 Capital Cost (\$2009, millions)
Road & Signals	-
Track, Signal, & PTC	-
Stations	\$4.3
Maintenance Facility	\$0.6
Rolling Stock	\$1.9
Contingencies	\$1.8
<b>Total Capital Costs</b>	<b>\$8.6</b>

Source: AECOM 2010

### 5.5.1 Revenue for Capital

MaineDOT has been advised that the project would not qualify for the FTA New Starts funding program because the specific plan for bus operation on the highway would not constitute a fixed guideway, as is required for the New Starts program. Therefore, the Department continues to explore other Federal discretionary program opportunities.

#### In-Kind Participation: Real Estate

A potential and applicable source of funds are in-kind sources. These include land that is currently in public ownership where no funds would be needed to acquire and utilize them to implement the proposed project. There are two potential parcels that fall into this category that are currently owned by the MaineDOT that are planned to be used for parking and bus station purposes. These are listed in Table 5-

3 below. It is our understanding that these parcels are entirely publicly owned and have not been funded with Federal funds, and that the state would not require compensation for their use in the TSM 2 project. If Federal funding is included in the program at a future date, these parcels would be considered as in-kind contributions to the project and their value would be counted as eligible non-federal match for the federal funds. The use of these parcels can offset the cost of the project either in the amount of their value or in the amount of the estimated cost of the parking spaces.

**Table 5-3: Portland North Station Parcel Information - Potential In-kind Contributions**

<b>Station</b>	<b>Parcel ID</b>	<b>Size (acres)</b>	<b>Owner</b>	<b>Value</b>
Brunswick	U16-10	5.8	State of Maine	<b>\$363,000</b>
Yarmouth	007-001	8.9	State of Maine	<b>\$630,600</b>
<b>Total</b>				<b>\$993,600</b>

Sources: Towns of Brunswick and Yarmouth Assessor's offices, 2010.

### **State Bond**

MaineDOT participates in the proceeds from the issuance of state bonds, and the TSM 2 program is an eligible use. If Federal capital funding is identified, bond proceeds would be the principle source of matching funds. Without federal capital funding, bond proceeds would be the primary source of state capital funding.

### **Local Funding Possibilities**

The TSM 2 project provides substantial transportation, land use, and economic benefits to the communities served. While local funding, or the use of state and/or federal funds allocated to the local communities, may be warranted and feasible in the future, no sources of local funding have been identified to date.

## **5.6 Operating Plan**

The operating expense in 2010 dollars was estimated to be approximately \$740,000<sup>2</sup> per year, as noted in table 5-4 below.

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<sup>2</sup> "Updated Portland North Meeting Service Options," memo from Jacobs to Jay Duncan, December 15, 2010.

**Table 5-4: Potential TSM 2 Operating Costs**

Category	TSM 2
Transportation	
Operators	\$336,000
Fuel	\$59,000
Maintenance of Equipment	\$102,000
Dispatching	\$100,000
Administration (23%)	\$141,000
<b>Total</b>	<b>\$738,000</b>

### 5.6.1 Revenue for Operating

#### Fare Policy and Revenue

The fares are assumed to be \$0.85 per boarding plus \$.05 per mile.<sup>3</sup> This is the revenue level in 2010 dollars that was used to estimate the ridership levels.

Ridership is projected to be 557 per day. The total daily revenue is projected at \$1,213 dollars of which \$229 is estimated to be attributable to Amtrak trips. Assuming conservatively that all the Amtrak trip revenue is not credited to the TSM 2 project, the daily fare revenue is \$984<sup>4</sup>, and the annual revenue for 254 service days is estimated at \$249,936.

#### Federal Funding

FTA allocates funds to Maine for transit in non-urbanized on an annual basis. In 2010 the program for Maine was \$5,408,282. These funds when used for operating assistance must be matched with non-federal revenues on a 50-50 basis. Half of the net operating cost (after deducting fare revenues) is planned to be funded with Section 5311 funds, while the other half of the net operating costs is planned to be funded by the state, as described below.

The use of non-urbanized area funds is restricted to intercity bus service and service for non-urbanized areas. Its use for service that enters urbanized areas (such as Portland) is subject to these restrictions. Subject to clarification by FTA, the service may operate closed-door<sup>5</sup> within the Portland urbanized area.

#### State Funding

The state has limited funding and has recently experienced revenue shortfalls. An illustrative source of state funding for the non-federal share of the assistance required for TSM 2 is State Transit Aviation and Rail (STAR) Account.

<sup>3</sup> Marc Warner, Warner Transportation, conversation January 31, 2011.

<sup>4</sup> Marc Warner, Warner Transportation, conversation January 31, 2011.

<sup>5</sup> "Closed-door" in this context is used to mean only dropping off passengers in the inbound direction and only picking up passengers in the outbound direction, so that service is not provided from an urbanized area origin to an urbanized area destination.



The STAR Transportation Fund is an enterprise account established by the Legislature within the MaineDOT. Annual fees, approximately \$2 million (collected under Chapter 457, Part GGG), must be deposited into the STAR Account to support activities to manage transit, aeronautics and rail transportation. Money disbursed from the account may be used for the purpose of purchasing, operating, maintaining, improving, repairing, constructing and managing the assets of the STAR Transportation Fund including buildings, structures and improvements, and equipment.<sup>6</sup>

Revenues to the STAR account are all dedicated to that account by the Legislature and include railroad taxes, aviation fuel taxes, airport fees and taxes, propane fuel taxes, and miscellaneous fees.

**Innovative Funding**

Private sources of funding have been increasingly used for innovative transit projects in recent years. The most similar example may be the Health Line, in Cleveland, Ohio, which provided \$6.25 million from hospital resources for the naming rights. This line operates through a densely developed area, so similar revenues are unlikely for TSM 2; nevertheless, ways to offset the operating deficits with private participation would continue to be of interest.

**Local Funding**

There are significant economic, land use and transportation benefits from initiating the TSM 2 service. While local assistance for the service may be warranted and found to be feasible in the future, it is not included in the plan at this time.

**5.7 Conclusion**

A proposed funding plan for TSM 2 capital cost and operating deficit is set out in this chapter, as summarized in Table 5-5 below.

**Table 5-5: Proposed TSM 2 Funding Plan**

<b>TSM 2 Sources and Uses of Funds (thousands of 2010 Dollars)</b>	
<b>Sources and Uses of Operations Funds</b>	
Farebox Revenue	\$250
Section 5311 Funds	\$244
State Funds	\$244
<b>Total Revenue</b>	<b>\$738</b>
<b>Operating Expense</b>	<b>\$738</b>
<b>Sources and Uses of Capital Funds</b>	
In-Kind Assistance	\$994
Bond Proceeds	\$7,606
<b>Total Capital Revenue</b>	<b>\$8,600</b>
<b>Total Capital Cost</b>	<b>\$8,600</b>

Source: AECOM 2010

<sup>6</sup> Findings and Recommendations Report, Task Force on Passenger Rail Funding, First Session of the 123<sup>rd</sup> Legislature's Joint Standing Committee on Transportation, January 2007

Sources of funding that more directly reflect the beneficiaries of the service or that draw on the resources of the private sector may be available to the project in the future. As the project develops and the implementation schedule is established, the proposed revenues and expenditures identified in this report (which are all stated in constant 2010 dollars) should be updated to reflect inflation and changes in unit costs.