



Technical Assistance for Regional Transportation Program of Portland, Maine

Lakes Region Transit Service Study

FINAL REPORT

Prepared for

**Regional Transportation Program, Inc.
Greater Portland Council of Governments
Community Transportation Association of America**

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Chapter 1 Review of Previous Studies and Transit Demand Analysis

Introduction

As the demographic, socioeconomic, employment, and seasonal characteristics of the region shift and change, the rural areas of Cumberland County find themselves in greater need for public transit to provide access to services and employment. In recent years, significant effort has already been put forth to develop transit service options to connect the outlying rural areas of Cumberland County to both Portland services and employment and to provide access to other service and employment destinations throughout the county. The most recent study and service implementation effort came from the 2001 Greater Portland Council of Government (GPCOG) *Windham to Portland Commuter Bus Study* and the following cooperative efforts through 2008 to get service in the region up and running.

Regional Transportation Program, Inc. (RTP), the designated public transportation service provider for most of Cumberland County, currently provides transportation for the elderly, disabled, low-income and other transit-dependent persons as well as the general public. However, the region is in need of greater access to services and employment, particularly in the Portland area, as evidenced by RTP's dramatic increase in demand for services. RTP recognizes the greatest need exists in the outlying rural areas furthest from Portland and requires technical assistance in furthering the analysis of the study area and moving the proposed bus service to eventual implementation. To this end, RTP has received funding from the Rural Passenger Transportation Technical Assistance Program administered by the Community Transportation Association of America (CTAA) to continue and update the previous work and move toward implementation. The Program is funded by the US Department of Agriculture, Rural Development, and is an Equal Opportunity Program.

The Lakes region wears many hats. It is home to both year-round residents and seasonal visitors. It has tourist attractions as well as year-round employment and services. Its residents need access to services and employment both in the more rural areas of Cumberland County and in Portland. The Lakes region experiences summer seasonal congestion due to the popular tourist destinations around Sebago Lake in Windham, Raymond and other adjacent towns, Long Lake from Naples to Bridgton, and Harrison and other lakes and attractions in the region. Additionally, the study area towns experience winter seasonal congestion with traffic from Portland and south along the Route 302 corridor through downtown Bridgeton onto Shawnee Peak ski area or north to Sunday River in Bethel.

The Lakes Region Transportation Coalition, along with other local interests, has created a conceptual bus service called the *Lakes Region Transit Service*. For this project, it is the goal of the study team to review, validate, update, and move forward from work that has already been completed with as little repetition as possible.

As noted, there has been recent study in the local area and bus service alternatives have been proposed. Other studies adjacent to the study area and overlapping the study area are also currently underway. The Gorham East West Corridor Study, which is looking at providing better connections between communities in western Cumberland County and the Maine Turnpike, will be ongoing during this project, and will be included in the regional analysis of transit needs. Also, the Portland North Alternative Modes Analysis, being conducted by Maine Department of Transportation (DOT) and AECOM, is underway and has resulted in proposed commuter bus service the Bath/Brunswick region, which will also take advantage of the impending Amtrak Downeaster extension to Brunswick Maine Street Station. Additionally, the Portland North study has also been expanded to look at intercity rail and bus options connecting Amtrak service in Portland to the Lewiston/Auburn area and further to Oxford and Bethel.

This study is designed to further the goals and vision of RTP and the Lakes Regional Transportation Coalition, while focusing on practical, implementable solutions in the near term. It is the intent of the study team to add value to the work that has been done to date in the region, using existing data and outreach results to the extent possible and focusing on updating key variables rather than reproducing work already accomplished. This study provides a detailed framework for the establishment of system service baselines and a foundation for growth.

Review of Previous Studies & Refinement of Service Concepts

This section reviews and summarizes the previous study and implementation efforts for transit service in the region then presents an overview of service concepts moving forward. The information from the previous study was from Census 2000 or 1990. This study uses information from more recent data sources including the 2009 American Community Survey and 2009 Local Employment Dynamics data from the US Census Bureau.

History

The *Windham to Portland Commuter Bus Study*, completed by GPCOG in 2001, which looked at providing feeder bus service from North Windham to Pride's Corner to feed into the Portland METRO fixed route system, recommended a Lakes Region Bus service in the corridor. However, other work was completed following the bus study. The timeline of relevant events was as follows:

- 2001: original *Windham to Portland Commuter Bus Study* (completed by GPCOG, at the request of the Town of Windham)
- 2004: Lakes Region Transportation Coalition formed
- 2007: GPCOG started a one-year implementation plan to secure funds for a Lakes Region Transit Service
- 2007: Town of Windham awarded a \$50,000 CDBG (Community Development Block Grant) grant from the Cumberland County Municipal Oversight Committee for capital equipment, marketing and fare passes for eligible patrons

- 2007: Portland Area Comprehensive Transportation Committee (PACTS) *Regional Transit Coordination Study*, conducted by GPCOG and Southern Maine Regional Planning Commission
- 2008: MaineDOT recommended using JARC funds
- 2008: Operating costs had to be adjusted to reflect increased fuel costs. After the close of the spring budget season, several municipalities had failed to allocate funding for the bus service
- 2008: JARC funds reallocated by MaineDOT and the Lakes Region Transit service was tabled for the time being¹.

As of 2008, five of the seven towns along the corridor had committed money to the transit service, including Windham, the town with the largest percentage of the population along the corridor. However, when the operating costs were revised to reflect increased fuel costs, the committed matching funds were no longer enough to cover the required match for federal funding.

The idea that the principal suburbs of Portland should have transit service into the city was not new. It had been discussed in studies during the 1990s as well, including the following:

- Cumberland County Commuter Bus Study (GPCOG, 1999)
- Greater Portland Transit District (METRO) Long-Range Planning Report (1994)
- Regional Transportation Advisory Committee, Region 6, 1998
- Greater Portland Transit District (METRO) Fixed-Route Study (GPCOG, 1999)

There are also forms of public transportation already operating in Cumberland County (and have been operating there for decades), as evidenced by the following excerpt from the 2001 Windham to Portland Commuter Bus Study:

The *Cumberland County Commuter Bus Study* inventoried area transit provided and stated that there are a total of three intercity bus/van services, four public transit operators, two commuter express bus services, two carpool/vanpool programs and five tour and charter companies currently operating in, or with trip ends in, Cumberland County.

All of these studies, discussion, and coordination efforts culminated in a transit service proposal and implementation plan. The service fell only \$32,000 short in local matching funds when the plan had to be tabled until 2010 when the project was re-opened by RTP.

The GPCOG proposed Lakes Region bus service was to be operated with one coach-style bus on weekdays between Bridgton and Portland via Route 115/202 and Exit 63/Gray on the Maine Turnpike. The route avoided Route 302 to minimize delays due to congestion. The proposed bus service was to be a contract operation at an estimated cost of \$75 per hour (then adjusted

¹ Greater Portland Council of Governments, 2010.

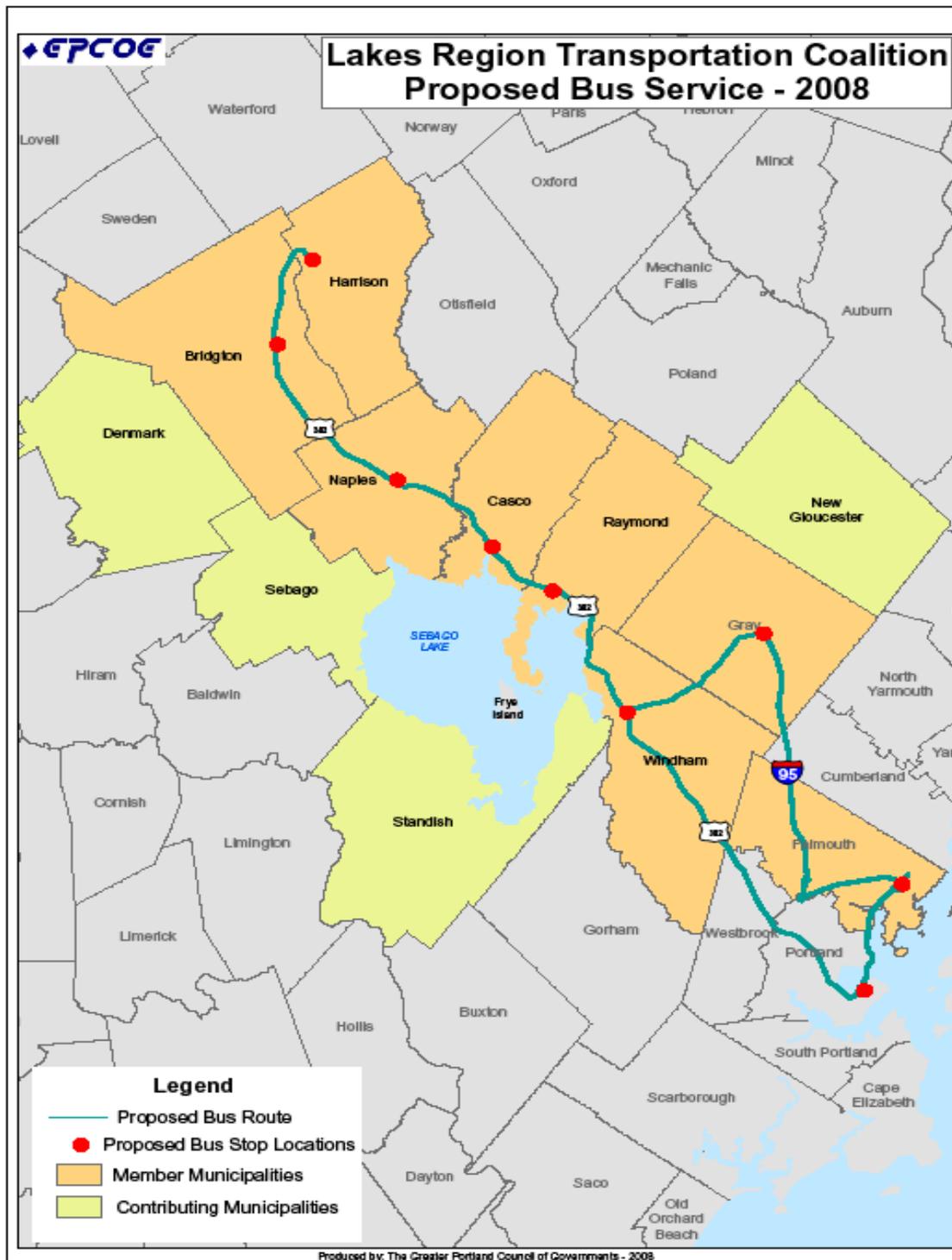
to \$90/ hour to account for increased fuel costs). The service would have been operated for 9.5 hours per day for 240 days per year. The service would have been operated from 6:30-11 AM and 2-6:30 PM with a half an hour built in for deadhead (non-operational buses going back and forth between the garage and the route). A map of the 2008 proposed bus service is provided as Figure 1-1. The proposed service schedule is provided in Table 1-1.

Table 1-1: 2008 Study Proposed Lakes Region Bus Schedule

Trip #	Bridgton ⁶	Naples	Windham	Gray	Portland	Direction
1	6:30	6:45	7:00	7:20	7:50	Inbound
2	9:20	9:05	8:50	8:30	8:00	Outbound
3	9:30	9:45	10:00	10:20	10:50	Inbound
4	3:20	3:05	2:50	2:30	2:00	Outbound
5	3:30	3:45	4:00	4:20	4:50	Inbound
6	6:20	6:05	5:50	5:30	5:00	Outbound

The proposed service was to be managed by Greater Portland METRO and operated with a contract to a private operator. The Lakes Transit Committee (LTC) was to make service adjustments, develop operating policies, and provide general oversight and guidance for the service. To ensure all interests were represented, the LTC was to be comprised of representatives of all participating communities along the route. Eight communities along the route (Bridgton, Harrison, Naples, Casco, Raymond, Gray, Windham, and Falmouth) would have shared the cost of the operating match proportionally based on population. Four other towns not immediately on the route (Denmark, Sebago, Standish, and New Gloucester) may have been willing to contribute to help support the service.

Figure 1-1: 2008 Proposed Lakes Region Transportation Coalition Bus Service



As noted, the proposed bus service was to be funded by federal Jobs Access and Reverse Commute (JARC) funds of \$100,000 along with municipal contributions (\$50,000 required to match the federal funds) and farebox revenue. The proposed bus service also had the CDBG

grant of \$50,000 for capital equipment, marketing and fare passes for eligible patrons. The proposed fare plan is provided in Table 1-2.

Table 1-2: 2008 Study Proposed Lakes Region Bus Fare Schedule

Fare Types	Bridgton	Windham	Gray
One Way Fare	\$ 5.00	\$ 4.00	\$ 3.00
Monthly Pass ^g	\$ 50.00	\$ 45.00	\$ 40.00
Free Fare	Seniors 65+, Disabled Americans		

Tickets and passes would have been available at town halls along the route. Towns would be reimbursed by METRO at \$5 per sale of monthly passes.

The community needs identified during the 2008 study included helping seniors to remain independent, helping low income families get to work, reducing traffic congestion along the Route 302 corridor, improving air quality in the region, and providing alternative modes of transportation for shopping trips.

Lessons Learned from Previous Study

Several important pieces of information emerged from the previous study effort(s). First, demand exists for transit service in the Lakes Region, both throughout the region and between the region and Portland. A feeder bus service to meet Greater Portland METRO at Prides Corner in Westbrook from the Lakes Region was estimated to attract 200 people per day. Second, implementing bus service in the region requires a collaborative effort and funding agreement between federal, state and regional agencies, stakeholders, and municipalities. Third, it was determined that one bus operating on weekdays would be adequate to meet the needs of the region for the time being. Fourth, a couple of routing options were possible based on the agreements made and operating environment at the time of the study – one option was to operate a feeder service from the Lakes region to Prides Corner only and one was a corridor service operating from Bridgton to Portland along Route 302 and the Maine Turnpike.

Moving forward, this study will update the information from the previous study (below), aid in the formation of partnerships to support and fund the service, and bring all of this information together into a proposed bus service given the current operating environment and goals of the study participants.

Transit Demand

Transit demand is determined for an area based on the number of people living in an area, the socioeconomic characteristics of the people living in an area, the types of transportation available in the area, the major employment destinations both in the area of interest and for the people living in the area (commuting patterns), and the number and location of other healthcare, shopping, service, etc. destinations both in an area and those utilized by area residents beyond the study area.

In this section, a short description of existing transit service in the area will be provided. Next, demographic and socioeconomic characteristics of the population of Cumberland County are presented along with employment characteristics and commuting patterns in the region. The results of a Mobility Gap analysis are discussed including estimations of fixed route, paratransit and commuter transit demand in the region. Also, an analysis of local and regional peer transit systems is completed as reference for potential transit service in the area. Finally, public outreach is summarized as it pertains to the amount and types of transit service demand identified by local stakeholders in the area.

Existing Transit Service

Transit service is currently provided in the region by RTP, Senior Transportation Program (STP) and Greater Portland METRO (to Westbrook). RTP provides a variety of paratransit services throughout Cumberland County, except in the Brunswick area where Coastal Trans is the transit service provider. RTP is a non-profit, United Way agency that provides curb-to-curb bus service throughout the study corridor and into the Portland/South Portland metropolitan area. RTP provides service for the general public and for MaineCare and ADA (Americans with Disabilities Act) eligible riders. RTP crisscrosses the Lakes Region daily with both their buses and vans and their volunteer and family drivers. In 2009, RTP provided 148,504 trips on 671,142 miles and 54,062 hours of service throughout Cumberland County (not just the study area)². In 2009, RTP operated 33 vehicles in maximum service.

STP coordinates and reimburses volunteer drivers for seniors who need rides in the northern portion of the study corridor. STP is based in Bridgton and Bridgton clients dominate the requests for rides. Other towns with clients who regularly use STP rides are Naples, Casco, Raymond, Sebago, and Baldwin. In 2007, it was estimated that 70,000 miles would be driven as part of STP's program.

Greater Portland METRO provides fixed route bus service throughout Portland and its immediate surroundings. Greater Portland METRO extends out into Westbrook to the Prides Corner park and ride lot on Route 302, which is the closest the service gets to the Lakes Region.

² National Transit Database.

http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2009/agency_profiles/1069.pdf, 2009.

GO Maine carpools and vanpools also run in the region. According to data provided by GO Maine in April 2011, 242 commuters registered with GO Maine commute from the Lakes Region down the Route 302 corridor for work. Maine Medical Center, LL Bean Northport Contact Center, Unum, and the University of Southern Maine (USM) are the most popular Portland destinations of Lakes Region GO Maine residents.

In the context of the larger region, South Portland Bus provides service around South Portland and into downtown Portland. ShuttleBus Intercity service also provides service to downtown Portland from Biddeford, Saco, Old Orchard Beach, Scarborough and South Portland. Also, the ZOOM Turnpike Express connects Biddeford and Saco with downtown Portland. Amtrak intercity passenger rail service to Boston is operated from the Portland Transportation Center and will extend along the coast to Brunswick in the near future.

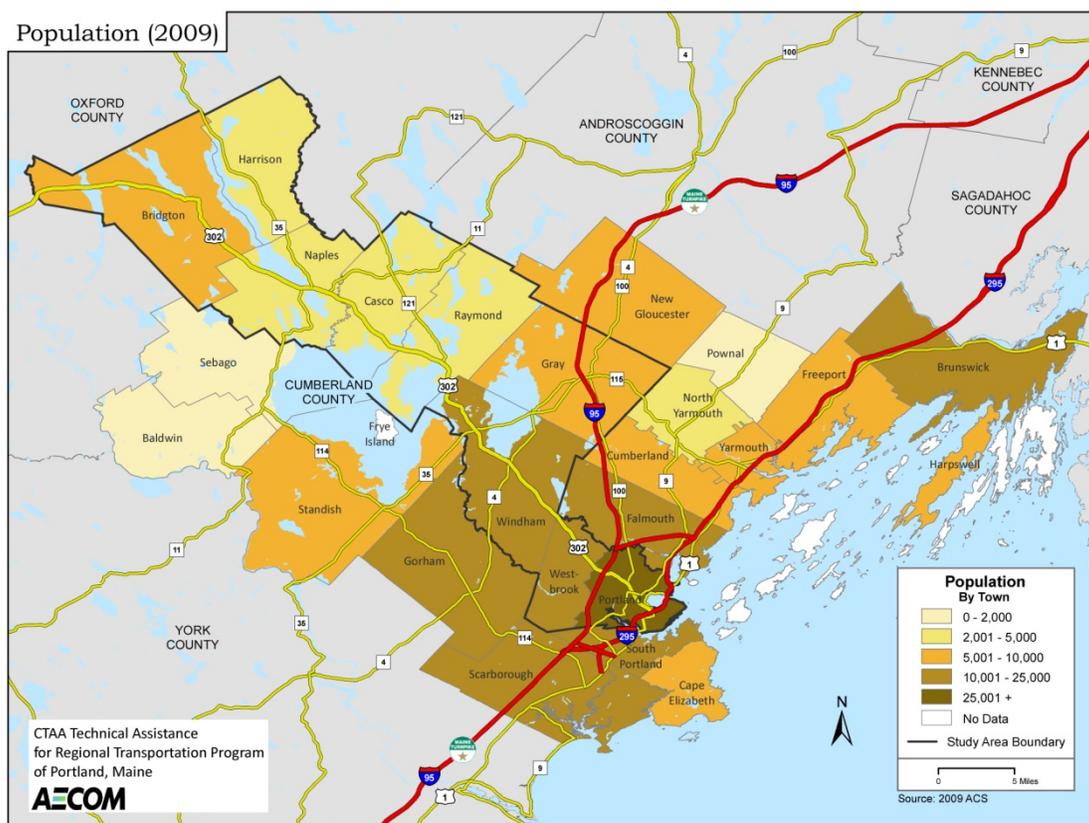
Demographic, Socioeconomic, Employment and Commuting Profile

This section provides an overview of the resident population of Cumberland County in terms of total numbers of people, distribution of people, and distribution of segments of the population more likely to use public transportation. Population segments more likely to use public transportation include senior citizens, youths, people living below the poverty level, and households without vehicles. These characteristics taken together create a transit score for a given geography, which gives a view of relative likelihood of transit service success in a region. The transit score is then compared with employment and commuting patterns to get a view of common origin and destination pairs and overall transit demand. Sources of data include the 2000 and 2010 Census data, 2009 data from the American Community Survey (ACS) and 2009 data from the Longitudinal Employer-Household Dynamics (LEHD) dataset (both also produced by the US Census Bureau).

Demographics

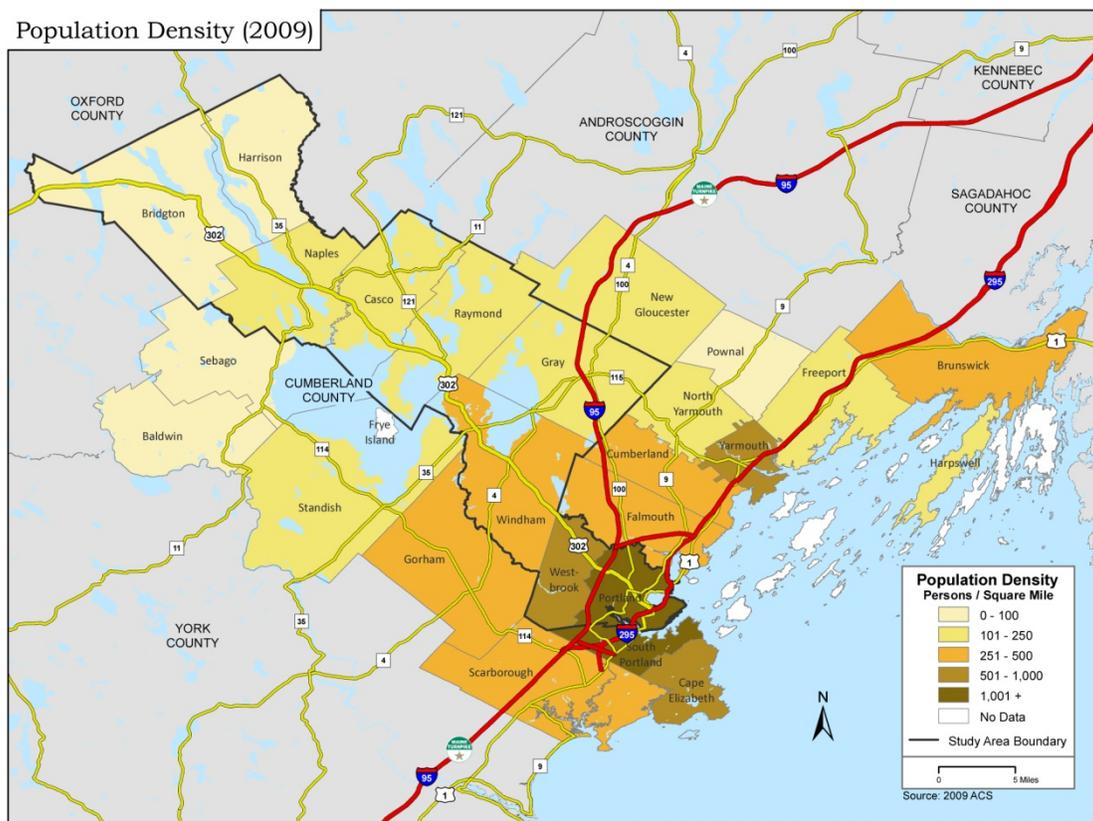
Cumberland County population by municipality is mapped in Figure 1-2 from the 2009 American Community Survey (ACS) from the US Census Bureau. Portland, the largest city in Maine, has the highest total population. Municipalities surrounding Portland also have high population figures, including Windham and Westbrook in the study corridor, as does Brunswick. Total population figures by municipality from Census 2010 are listed later in Table 1-3.

Figure 1-2: 2009 Population



Another way to look at population is to look at population density, the concentration and distribution of residences throughout the county. Most of the population in the region is concentrated in Portland. Population densities are also high in municipalities adjacent to Portland including Westbrook, South Portland and Cape Elizabeth. A secondary ring of higher densities extends in all directions away from Portland and includes Scarborough, Gorham, Windham, Falmouth and Cumberland.

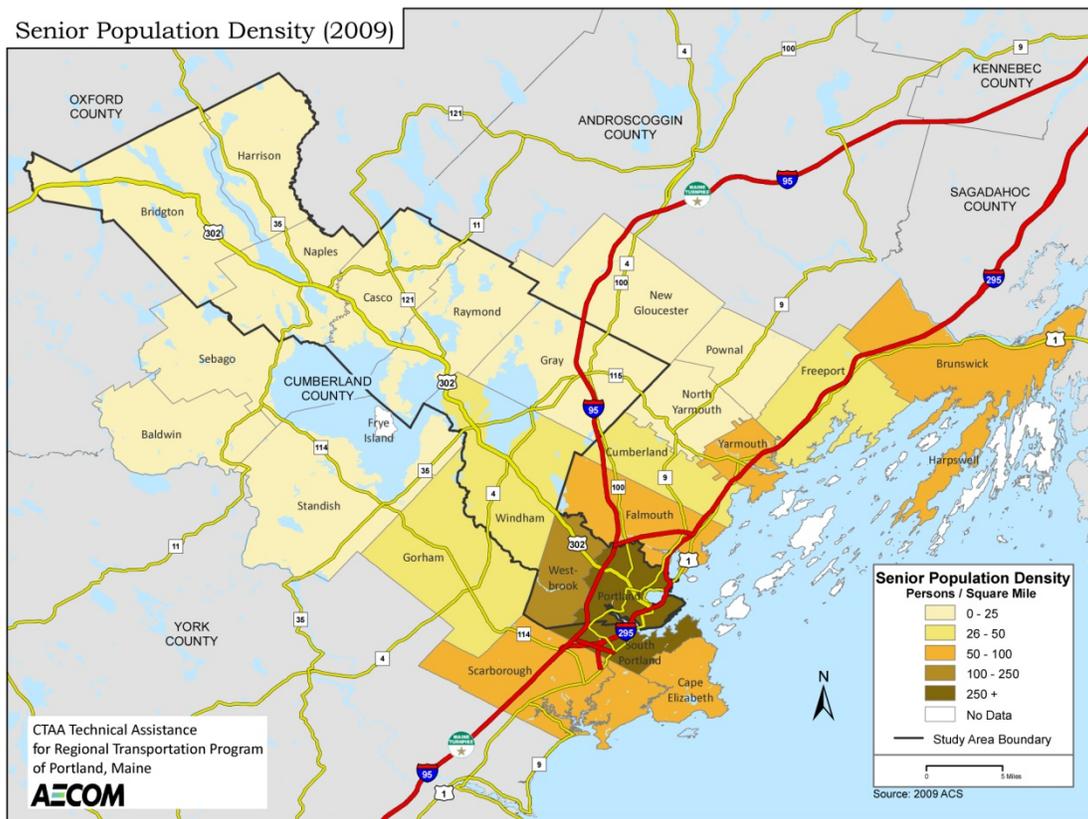
Figure 1-3: 2009 Population Density



For the younger and older segments of the population, age directly impacts mobility, and thus impacts transit usage. Identifying where these populations are concentrated can indicate areas of potential transit demand. Youth and senior populations are discussed in the following sections.

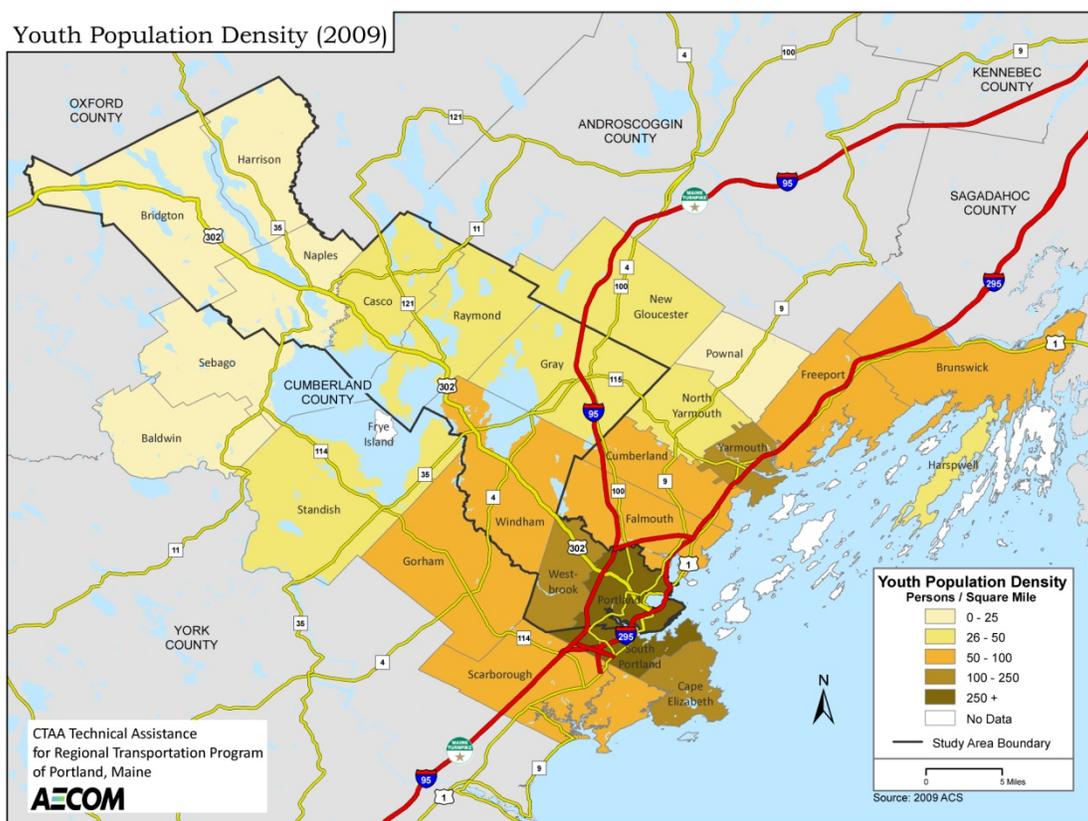
Senior citizens tend to locate in the more urban areas, where access to health care, services and activities are readily available. The senior population is also growing as the baby boomer generation enters the senior citizen category. Figure 1-4 displays the distribution of senior citizens (aged 65 and older) in the region. Senior citizens are concentrated in Portland, South Portland, and Westbrook and to a lesser degree in the suburban coastal towns.

Figure 1-4: 2009 Senior Population Density



The youth population is another market that is more dependent on transit services. Until the age of 16 youth are ineligible to drive, making them dependent on others or on non-motorized modes, such as walking and biking, for their mobility. Once youth turn 16, limited incomes often restrict their ability to own and maintain a vehicle. Figure 1-5 shows the distribution of youths (aged under 18) in the region. Youths are concentrated in the more urban and coastal municipalities in the region.

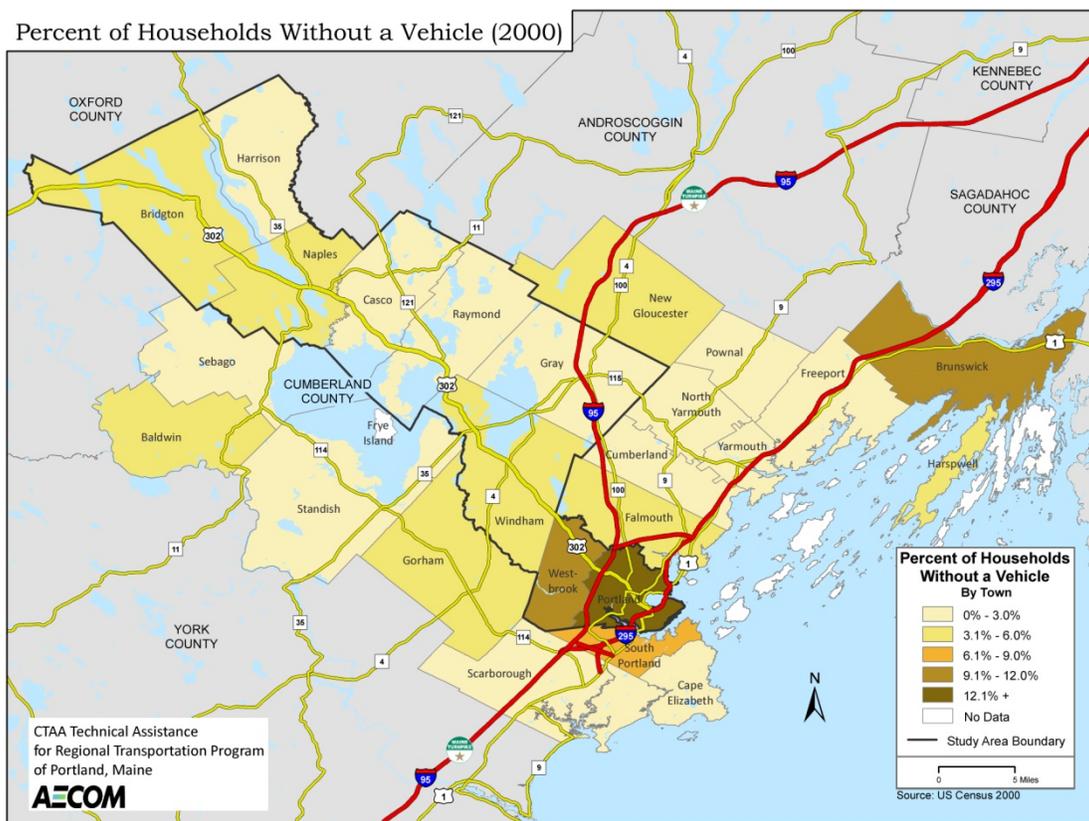
Figure 1-5: 2009 Youth Population Density



such as employment and commutation characteristics, are also essential. The next sections deal with the material and behavior characteristics of the people living in Cumberland County.

Households without vehicles are generally dependent upon alternative forms of transportation including walking, bicycling, family or friends with vehicles, and public transportation. Figure 1-7 shows the percentage of households without vehicles available from the 2000 Census. More recent data was not available at the time of the study. Zero-car households are concentrated in the most urban areas – Portland, Westbrook, and Brunswick. Without public transportation available in the study corridor, and with the suburban development patterns prominent in the region, personal vehicles are necessary to get residents to their destinations.

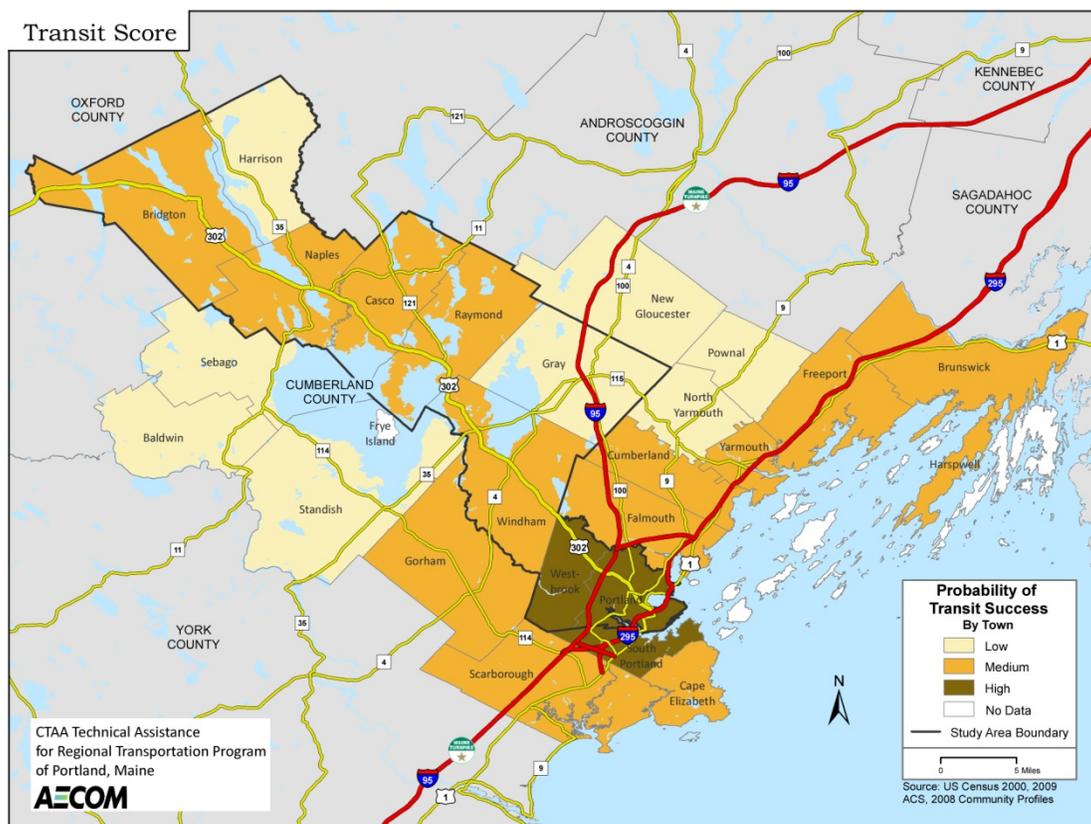
Figure 1-7: 2000 Percent of Households without a Vehicle



The transit score is an accumulation of all of the previous demographic and socioeconomic characteristics of the study area population used to look at overall probability of transit success based on the characteristics of the resident population. Used in conjunction with major employers, trip generators and travel patterns in the area, an overall view of transit potential can be visualized.

Figure 1-8 is a map of relative probability of transit success based on the demographic and socioeconomic profile of the resident population. Obviously Portland and its surrounding communities have the greatest probability of transit success given their urban development. However, it should be noted that all of the municipalities along the Route 302 corridor have at least a moderate probability of transit success. Within the study area, Gray and Harrison are the only municipalities with low probability of transit success.

Figure 1-8: Transit Score (Compiled from 2000 and 2009 data)

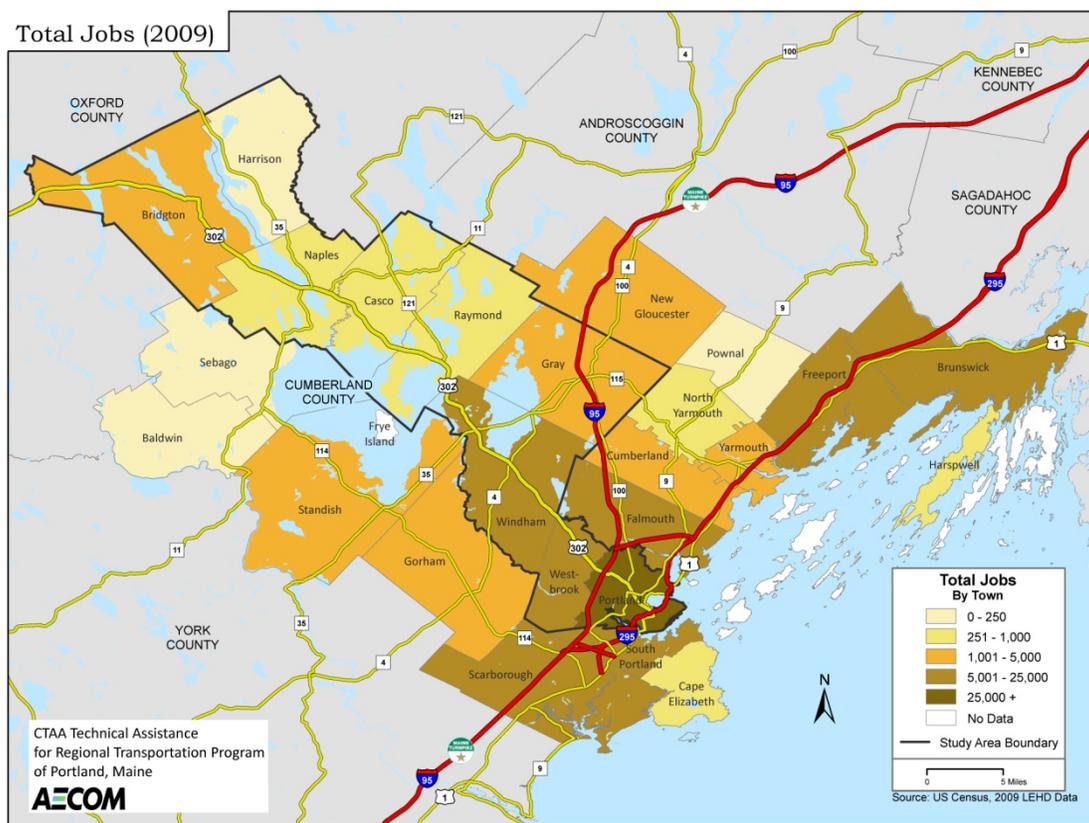


Employment

Employment is a key factor in transportation and transit discussions because the trip to work is the most frequent and most important trip taken by most people. Large employers are also destinations for significant numbers of people, which make them important to transit service.

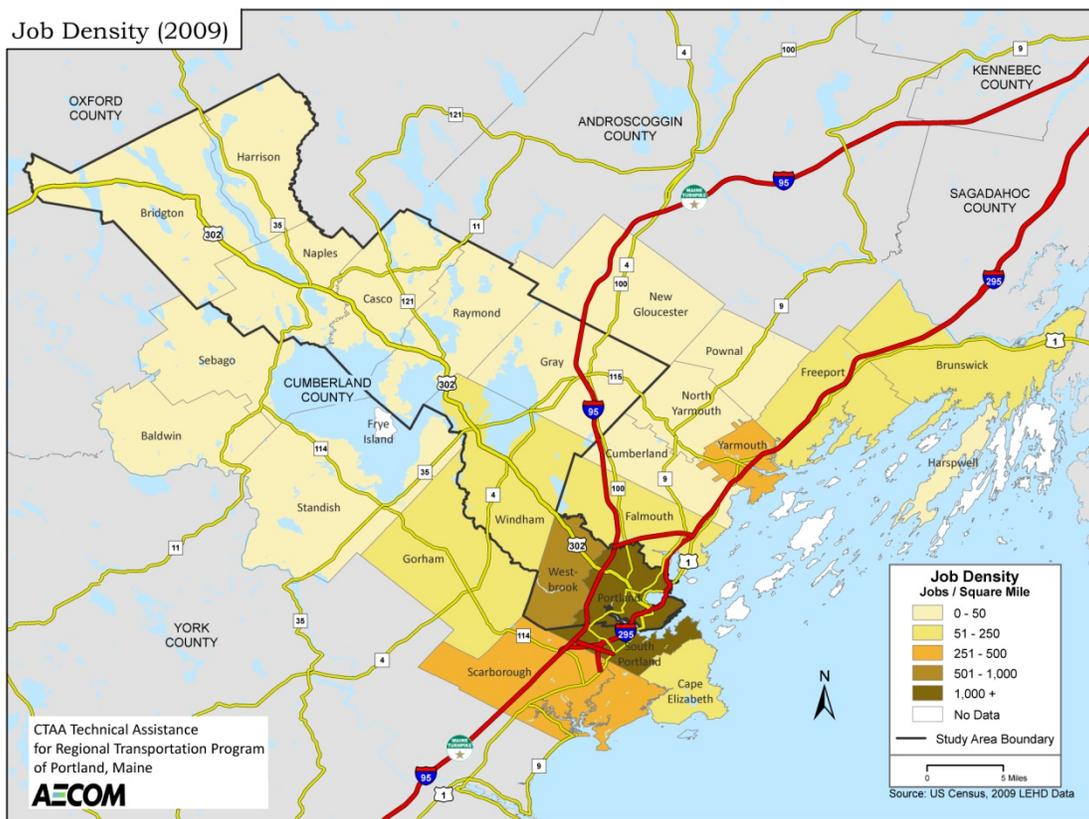
Figure 1-9 shows the number of jobs per municipality from the 2009 LEHD dataset from the US Census Bureau. The highest numbers of jobs are found in Portland, again, the largest employment center in Maine. Other municipalities with high numbers of jobs in the region are Westbrook, Windham, and South Portland.

Figure 1-9: 2009 Jobs



Like resident population figures, jobs can also be described using densities to show distribution and concentrations of employment. Figure 1-10 maps job density from the 2009 LEHD dataset. Jobs are concentrated most heavily in Portland and South Portland. Westbrook also has a high density of jobs. Windham has a moderate level of job density and the other study corridor towns have lower job densities.

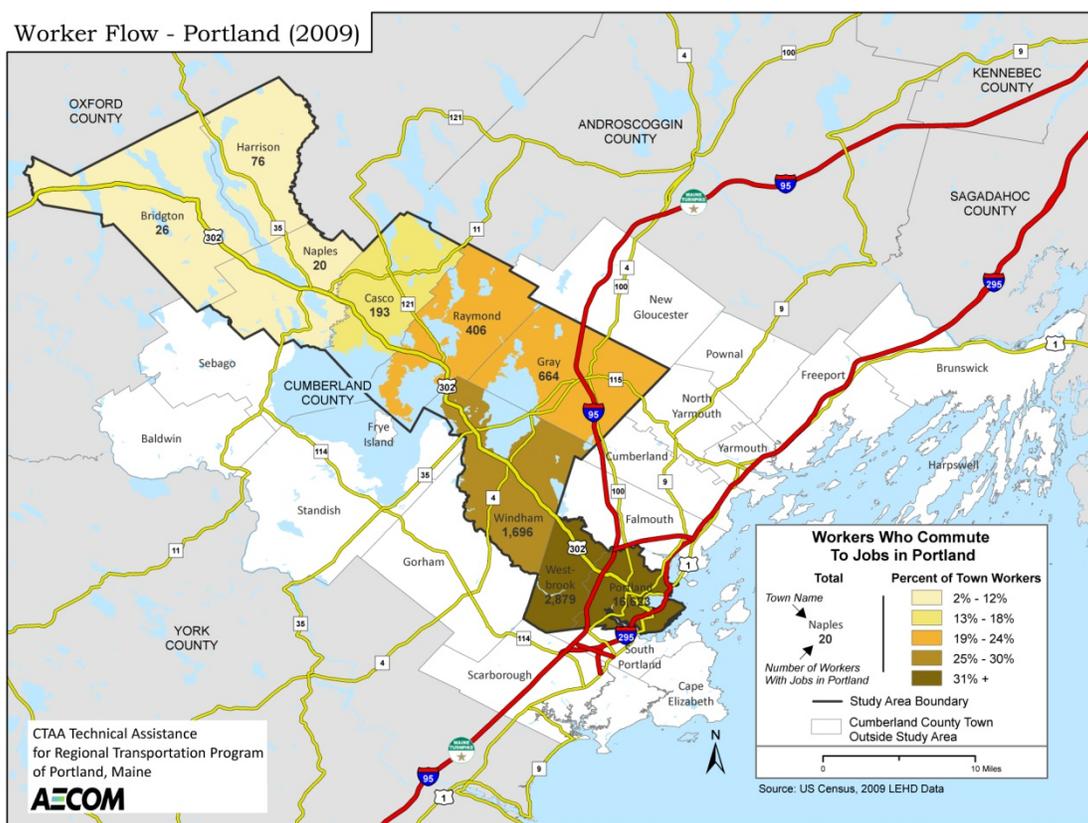
Figure 1-10: 2009 Job Density



Commuting

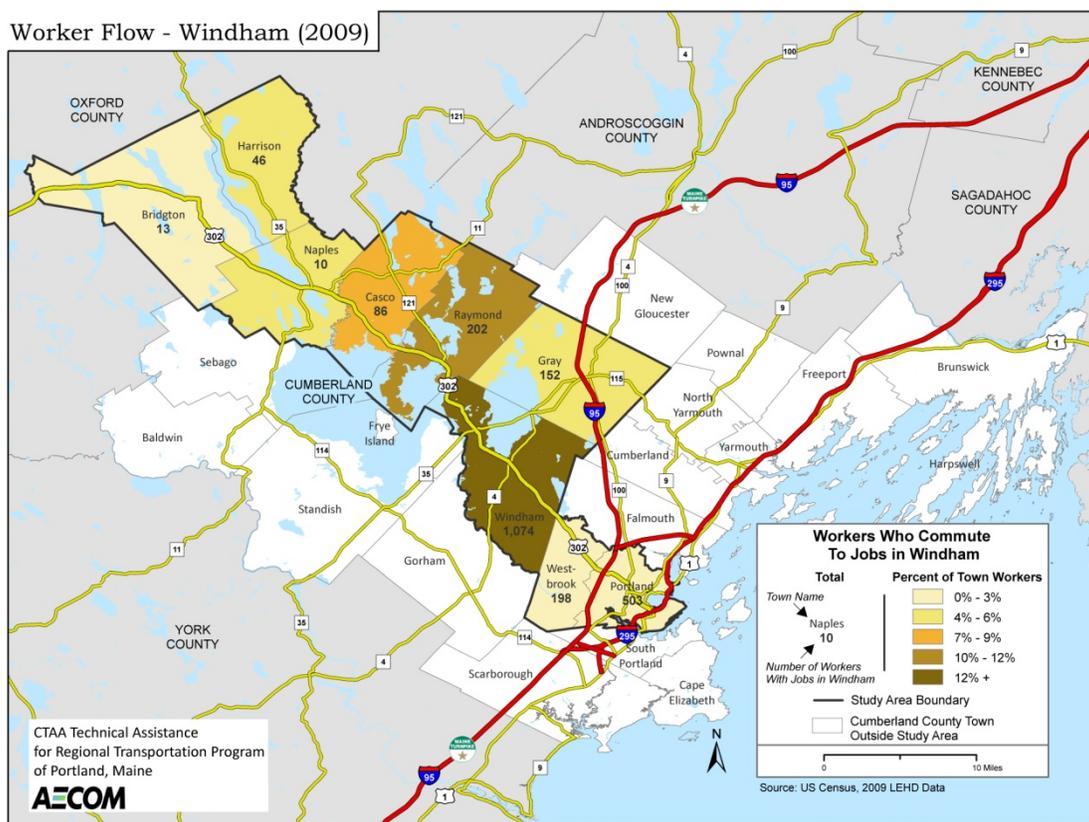
The trips to and from work are the most frequent types of trips that people take on a daily basis. How people make these trips is of great interest to transit service providers. Figure 1-11 shows worker flow between study area residences and the City of Portland from the 2009 LEHD. Most people in the study area who commute into Portland for work live in Portland, Westbrook, and Windham. Significant numbers of people also commute into Portland from Gray, Raymond and Casco. The number of people who commute daily to Portland drops off dramatically north of Casco.

Figure 1-11: 2009 Worker Flow into Portland



Commuters also travel in the reverse direction from the most common pattern of travel into Portland (or only travel a portion of the trip). Figure 1-12 shows 2009 worker flow into Windham. Most people who commute to Windham from the study area also live in Windham, but more than 100 people per day commute to Windham from Raymond, Gray, Westbrook and Portland (500 people per day).

Figure 1-12: 2009 Worker Flow into Windham



Mobility Gap Analysis

The mobility gap methodology is used to identify what amount of service is required to provide an equal amount of service to households that have access to vehicles and those that do not. The National Personal Transportation Survey (NPTS) provides data that allow for calculations to be made relating to trip rates. Separate trip rates are generated for various regions throughout the United States to help account for any locational inequities. Trip rates are also separated by general density and other factors such as age.

Maine is part of Division One, the New England Region. Trip rates for zero-vehicle households in the New England Region were not determined in the study because of a lack of an adequate sample size. Because of this fact, the national average is used. For households with at least one

vehicle, the trip rate was 5.4 daily trips, while zero-vehicle households represented 3.3 daily trips. The mobility gap is calculated by subtracting the daily trip rate of zero-vehicle households from the daily trip rate of households with at least one vehicle. Thus, the mobility gap is represented as 2.1 household trips per day.

To calculate the transit need for each municipality, the number of zero-vehicle households is multiplied by the mobility gap number. Table 1-3 shows this information broken out by each community within Cumberland County. In total, 19,465 daily trips need to be provided via transit to make up for the gap in mobility.

Table 1-3: Mobility Gap by Municipality

Municipality	2010 Population	2010 Households	No Vehicle	One Plus Vehicle	Mobility Gap	Transit Need
Baldwin	1,551	493	25	468	2.1	53
Bridgton	5,374	1,924	111	1,813	2.1	233
Brunswick	21,877	8,150	735	7,415	2.1	1,544
Cape Elizabeth	8,813	3,488	69	3,419	2.1	145
Casco	3,733	1,327	20	1,307	2.1	42
Cumberland	7,513	2,548	69	2,479	2.1	145
Falmouth	10,668	3,948	141	3,807	2.1	296
Freeport	8,188	3,065	81	2,984	2.1	170
Frye Island	71	-	-	-	2.1	-
Gorham	15,511	4,875	262	4,613	2.1	550
Gray	7,496	2,637	56	2,581	2.1	118
Harpswell	5,247	2,340	106	2,234	2.1	223
Harrison	2,132	920	23	897	2.1	48
Long Island	242	87	9	78	2.1	19
Naples	3,640	1,297	59	1,238	2.1	124
New Gloucester	5,453	1,761	60	1,701	2.1	126
North Yarmouth	3,541	1,118	5	1,113	2.1	11
Portland	63,153	29,715	5,476	24,239	2.1	11,500
Pownal	1,582	565	8	557	2.1	17
Raymond	4,627	1,616	42	1,574	2.1	88
Scarborough	19,017	6,462	105	6,357	2.1	221
Sebago	1,583	584	8	576	2.1	17
South Portland	23,824	10,047	771	9,276	2.1	1,619
Standish	9,919	3,205	85	3,120	2.1	179
Westbrook	16,373	6,863	676	6,187	2.1	1,420
Windham	16,651	5,522	175	5,347	2.1	368
Yarmouth	8,152	3,432	92	3,340	2.1	193
TOTALS	275,931	107,989	9,269	98,720		19,465

Source: Census 2010, ACS 2009

Fixed Route Transit Demand

In order to analyze whether the existing transit service is meeting the community's needs based on the type of service, the study team created a fixed-route demand model. The model format is based on household vehicle ownership, average walking distance to bus stops, and frequency of operation. The basic approach is described in the paper *Demand Estimating Model for Transit Route and System Planning in Small Urban Areas*, Transportation Research Board, 730, 1979. This model incorporates factors for walking distance, distance traveled on the bus, and frequency of service or headway.

As an element of the development and assessment of the general public transit service provided within Cumberland County, the study team developed a fixed-route model for the service area based on existing service. The point of this analysis is to develop a basis for evaluation of the existing and future transit services. The calibrated fixed-route model for the county was then applied to the outlying municipalities that are currently not being served. It was assumed that new service may serve 50 percent of households within these areas. These data are shown in Table 1-4.

The model reflects the existing population based on population estimates for Cumberland County. Basic trip rates were adjusted to reflect the level of ridership for existing services. The percentage of households with transit access was determined by the number of households within one-quarter mile of the transit service. Note that the fixed-route model does not include demand for the paratransit service due to the ADA requirements. The model shows about 5,800 daily trips could potentially be captured if all of the outlying municipalities were served. This is an increase of approximately 1,600 trips when compared to existing services.

Table 1-4: Potential Fixed Route Transit Demand

Municipality	Total	# of		% of HHlds	HHlds Served		Basic Transit		Walk	Walk		Headway	Headway		Daily Transit		Daily
	# of HHlds	HHlds with		with	by Transit		Trip Rates		Distance	Factor			Factor	Trips		Trips	
	2010	0 Auto	1 Auto	Access	0 Auto	1 Auto	0 Auto	1 Auto	(ft)	0 Auto	1 Auto		(min)	0 Auto	1 Auto	0 Auto	1 Auto
Baldwin	493	25	137	50%	12.5	68.5	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	2.0	12.2	14
Bridgton	1,924	111	707	50%	55.5	353.5	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	9.0	63.1	72
Brunswick	8,150	735	3,236	50%	367.5	1,618.0	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	59.5	288.8	348
Cape Elizabeth	3,488	69	869	50%	34.5	434.5	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	5.6	77.6	83
Casco	1,327	20	402	50%	10.0	201.0	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	1.6	35.9	37
Cumberland	2,548	69	600	50%	34.5	300.0	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	5.6	53.6	59
Falmouth	3,948	141	999	60%	84.6	599.4	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	13.7	107.0	121
Freeport	3,065	81	961	50%	40.5	480.5	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	6.6	85.8	92
Frye Island	0	0	0	50%	0.0	0.0	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	0.0	0.0	0
Gorham	4,875	262	1,318	50%	131.0	659.0	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	21.2	117.6	139
Gray	2,637	56	699	50%	28.0	349.5	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	4.5	62.4	67
Harpswell	2,340	106	823	50%	53.0	411.5	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	8.6	73.5	82
Harrison	920	23	291	50%	11.5	145.5	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	1.9	26.0	28
Long Island	87	9	31	50%	4.5	15.5	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	0.7	2.8	3
Naples	1,297	59	444	50%	29.5	222.0	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	4.8	39.6	44
New Gloucester	1,761	60	367	50%	30.0	183.5	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	4.9	32.8	38
North Yarmouth	1,118	5	227	50%	2.5	113.5	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	0.4	20.3	21
Portland	29,715	5,476	13,155	90%	4,928.4	11,839.5	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	798.4	2,113.4	2,912
Pownal	565	8	130	50%	4.0	65.0	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	0.6	11.6	12
Raymond	1,616	42	292	50%	21.0	146.0	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	3.4	26.1	29
Scarborough	6,462	105	1,946	50%	52.5	973.0	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	8.5	173.7	182
Sebago	584	8	156	50%	4.0	78.0	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	0.6	13.9	15
South Portland	10,047	771	4,087	75%	578.3	3,065.3	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	93.7	547.1	641
Standish	3,205	85	793	50%	42.5	396.5	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	6.9	70.8	78
Westbrook	6,863	676	2,640	75%	507.0	1,980.0	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	82.1	353.4	436
Windham	5,522	175	1,497	50%	87.5	748.5	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	14.2	133.6	148
Yarmouth	3,432	92	1,136	50%	46.0	568.0	0.3	0.20	1,200	0.90	1.05	60	0.6	0.85	7.5	101.4	109
	107,989	9,269	37,943		7,201	26,015									Estimated Weekday Ridership		5,810

Source: Census 2010, 2009 ACS

ADA Paratransit Demand

Estimating the demand for ADA complementary paratransit service is an important part of the transit demand process. *TCRP Report 119: Improving ADA Complementary Paratransit Demand Estimation* established a demand estimation tool developed from statistical analysis of transit systems across the country. The model uses the peer comparison data along with multiple factors to help predict paratransit ridership. The input variables include population, percentage of households below the poverty line, and fare. The model predicts that 162,313 annual trips will need to be provided within the county to meet the demand. This breaks down to roughly 450 daily trips. As noted earlier, both RTP and STP are providing paratransit service throughout the region and are providing a large percentage of these daily trips. As noted, RTP provided 148,504 trips in Cumberland County in 2009. These trips are total trips in Cumberland County, not just the Route 302 study corridor.

Commuter Demand

The demand estimation technique established by the Transit Cooperative Research Program (TCRP) Project B-36 involves applying a trip rate to the number of workers traveling between counties for work. The resulting formula is as follows:

Commuter trips by transit from County A to County B = 0.012 x person work trips

This formula breaks down to roughly one transit trip for every 83 trips into the region for work. Since most individuals need to make two commute trips daily, this breaks down to roughly one transit trip for every 42 workers traveling to the county for work. Census Local Employment Dynamics (LED) data were used to determine how many individuals were commuting to the two municipalities within the study area that have the greatest amount of employment. Tables 1-5 and 1-6 show the number of commuters to Portland and Westbrook, with the associated demand estimate for municipalities that ranked within the top 10 municipalities providing commuters to the employment centers. The most prominent of these are people commuting between Portland and South Portland, and individuals traveling between Portland and Westbrook.

Table 1-5: Daily Commute Demand to Westbrook

Daily Commute Demand to Westbrook		
Place	Count	Demand
Portland	1,677	40
South Portland	674	16
Saco	368	9
Biddeford	294	7
Lewiston	251	6
Gorham	178	4
Old Orchard Beach	169	4
North Windham	161	4
Scarborough	154	4

Source: LSC, 2011.

Table 1-6: Daily Commute Demand to Portland

Daily Commute Demand to Portland		
Place	Count	Demand
South Portland	4,958	119
Westbrook	3,347	80
Saco	1,714	41
Biddeford	1,317	32
Lewiston	963	23
Old Orchard Beach	907	22
Auburn	649	16
Scarborough	640	15
North Windham	629	15

Source: LSC, 2011.

Peer Community Analysis

This section of the chapter examines the system performance of peer communities in comparison to RTP. Knowing the average operating costs and performance statistics related to the peer systems allows RTP to gauge how other transit systems in similar communities operate. Performance statistics such as cost per passenger and ridership per revenue-hour are good measures of efficiency.

Table 1-7 displays the performance statistics for the peer communities. This information was taken from the most recently available (2009) National Transit Database (NTD). The table displays information on annual passenger trips, revenue hours, and performance statistics such as ridership per hour and cost per passenger.

Looking at the passenger trips per capita for the peer systems shows the relative trip rate for the population being served. The peer systems provide a large range of values regarding passenger-trips per capita. The average value for the peer systems is 0.60 passenger trips per capita. RTP is very close to the peer average.

Ridership is often a function of the level of service that is provided. In order to standardize this relationship, looking at the productivity of the system is often a reliable measure. Riders per revenue hour for RTP was 2.8 trips per hour of service, higher than the peer group average of 2.37 riders per hour.

Examining the number of amount of service in revenue miles is another way to look at productivity. Instead of looking at just the revenue miles, looking at the passengers per mile is a better measure of productivity. The average for all of the peer systems is 0.17 passengers per revenue mile traveled. Riders per mile for RTP was higher than the peer average at .22 passengers per revenue mile.

The cost per passenger-trip is another effective measure of evaluating performance. The lower the cost per rider, the more cost-effective the system is operating. The average for all of the peer systems is \$22 per passenger. This is the actual cost, not accounting for fare revenue collected. RTP operates at a much lower cost per rider than the average – at \$15 per passenger.

Table 1-7: Peer Community Comparison of Demand Response Service Statistics

Peer Community Comparison												
Agency		City	State	Service Area Population per 2009 NTD Data	Demand Response Passengers	Revenue Hours	Revenue Miles	Operating Cost	Riders/ Hour	Riders/ Mile	Riders/ Capita	Cost/ Rider
Full Name	Acronym											
Regional Transportation Program	RTP	Portland	ME	265,612	148,504	54,082	671,142	\$2,300,672	2.75	0.22	0.56	\$15
Manchester Transit Authority	MTA	Manchester	NH	143,500	11,645	7,323	61,071	\$508,277	1.59	0.19	0.08	\$44
Chittenden County Transportation Authority	CCTA	Burlington	VT	85,889	37,405	21,796	294,195	\$912,775	1.72	0.13	0.44	\$24
Broome County Public Transit		Binghamton	NY	165,000	107,417	41,081	627,519	\$2,418,396	2.61	0.17	0.65	\$23
Erie Metro Transit Authority	EMTA	Erie	PA	189,872	250,655	109,378	1,254,104	\$4,904,595	2.29	0.20	1.32	\$20
Stark Area Regional Transit Authority	SARTA	Canton	OH	378,098	139,214	59,402	1,063,428	\$4,832,267	2.34	0.13	0.37	\$35
Valley Transit	VT	Appleton	WI	252,477	162,410	70,420	945,909	\$2,473,290	2.31	0.17	0.64	\$15
<i>Average</i>				<i>202,473</i>	<i>122,464</i>	<i>51,567</i>	<i>707,704</i>	<i>\$2,674,933</i>	<i>2.37</i>	<i>0.17</i>	<i>0.60</i>	<i>\$22</i>
<i>Source: NTD, 2009</i>												

Stakeholder Input and Public Outreach

Local stakeholders including transit providers, major employers, and agency representatives have first-hand anecdotal information on actual transit demand in an area. They generally also have information on the types of service needed, destinations that need service, and degree of transit dependency. This input is used to validate and localize the broader statistical analysis of demand.

As regional planners and local stakeholder groups already had significant discussion and conducted considerable public outreach in previous study efforts, public input will be limited at for this phase of the study. Outreach for this study included meetings with the study advisory committee, whose participants represented interested towns and agencies and individual meetings with town managers. Meetings were held with or attended by representatives of the following during the study: RTP, GPCOG, Maine DOT, Cumberland County, Town of Windham, Town of Bridgton, and the Town of Naples. At the time of the study, GPCOG and RTP also reported on the study at regional transportation meetings and workshops.

Chapter 2 Service Alternatives

Using the information from the previous study in the area and the transit demand analysis conducted as part of this study, potential services tailored to meet the needs of the community are developed, discussed and analyzed in this chapter.

Transit Markets

Demand for transit service in the Lakes Region comes from a variety of origins and requires different types of services. From the demographic and socioeconomic analysis of the resident population and the stakeholder input compiled as part of previous study, the characteristics of the population are such that some form of transit service is warranted in all of the towns along the Route 302 corridor except for Harrison and Gray (as seen in Figure 1-8 – the cumulative demographic and socioeconomic profile of the region). The density of the population decreases with distance from Portland, but is at least 100 people per square mile for all corridor communities except Bridgton and Harrison. The percentage of people living below the poverty level in each corridor community is at least 8%, some much higher. These characteristics contribute to high demand for service, as is seen by the large number of paratransit rides and requests for additional service from RTP as well as the rides being provided by Senior Transportation Program (STP) in the northern section of the corridor.

The mobility gap analysis estimated that there is need for 160,000 annual paratransit trips in Cumberland County. In 2009, RTP alone provided 148,500 trips. More of these trips were covered by volunteer drivers and other smaller paratransit services such as STP. However, demand for additional paratransit trips continues to exist.

Jobs in the region are concentrated in Portland, South Portland and Westbrook. From the Lakes Region corridor, more than 3,000 workers commute daily to Portland, most from Casco and south. Commuters from other communities beyond the study corridor also use Route 302 and the Maine Turnpike to commute to work in Portland, Westbrook and South Portland. From the mobility gap analysis, it was estimated that there is demand for 425 daily fixed route transit trips in the study corridor alone, not including communities adjacent to the corridor whose residents also travel through the corridor for work.

As a result of these analyses and through discussion with the advisory committee for this study, it was determined that the target audience for the Lakes Region Bus Service should be commuters and the service alternatives are created and should be judged based on their ability to meet this goal. Meeting the demand of non-work trips will also be discussed in the following sections and could gain more focus as a service is established and patterns emerge.

Organizational Options

In the region, there are three transit service providers – RTP, STP, and Greater Portland METRO. In the larger region, South Portland Bus, ShuttleBus, ZOOM Turnpike Express, and Amtrak provide potential connections in Portland. RTP provides paratransit service throughout the study corridor. STP coordinates volunteer rides for seniors in the northern portion of the study corridor. Greater Portland METRO provides fixed route service in Portland and adjacent communities including Westbrook, but not throughout the Lakes Region.

The local towns where the service is being provided should provide both input and funding for the service. Other private funding partners, most likely major employers/attractors of Lakes Region residents should also have a forum for providing input. Regionally, GPCOG and Portland Area Comprehensive Transportation Committee (PACTS) would be involved in the planning, funding, and monitoring of the service moving forward. Maine DOT would provide the link to federal and state funding sources.

At this time, it makes the most sense for RTP to operate the service as they are already operating in the study corridor, they have the operating experience, they are currently meeting all Federal Transit Administration (FTA) requirements and are well versed in federal reporting, and they took the lead in continuing to study the possibility of bus service in the Lakes Region. As another benefit, some of the people who currently use RTP paratransit service could use the proposed fixed route service to reach their destinations, thus freeing up time and vehicles for RTP to provide additional paratransit trips to cover that gap. Moving riders from paratransit service to fixed route service also results in increased cost efficiency as paratransit trips are far more expensive to provide than fixed route trips on a per-customer basis. Oversight of the service should be accomplished through a collaboration of regional stakeholders including, but not limited to, the towns where the service is being provided, GPCOG, Cumberland County, and Maine DOT.

Service Alternatives

Four service alternatives exist based on previous study, the demand analysis undertaken as part of this study, local knowledge, and national experience with transit planning in similar environments. These four service options also have sub-alternatives based on where the service would begin and end. In all cases, it is the goal of the service, based on discussion and agreement with the study advisory committee, to first serve commuters. To that end, service would operate primarily during peak periods for all options, with a mid-day trip for other purposes and for nontraditional shift times. A guaranteed ride home program would also be offered for all service alternatives for cases where a person who used the bus to get into Portland needs to get back home due to extenuating circumstances at a time when the bus is not operated. The four service alternatives are as follows:

- Route 302 to Prides Corner to meet Greater Portland METRO service

- Route 302 to downtown Portland to the Greater Portland METRO PULSE
- Route 302 to the Maine Turnpike (Gray Exit) to downtown Portland/METRO PULSE
- Route 302 to Portland, circulate downtown, round back around to Route 302

The buses could begin the trip to Portland from several locations in the corridor. Furthest north, the service could be started in downtown Bridgton or further south on the Causeway in Naples, at the Naples park and ride lot, or in downtown Windham at the mall park and ride Lot. Table 2-1 lists some potential service options that give an idea of the range of service that could be provided based on the demand for service in the area and the amount of funding available.

Table 2-1: Potential Service Options

Daily Roundtrips	AM Trips	PM Trips	Mid-day Trips	Bridgton-Portland	Windham-Portland
				Daily Operating Hours	
3	2 inbound, 1 outbound	2 outbound, 1 inbound	None	9-10	3
2	1 inbound	1 outbound	1 inbound, 1 outbound	5-6	2
1	1 inbound	1 outbound	None	2	1

This range of service options is further used in the following section to produce a range of cost projections based on the amount and type of service provided. A single round trip per day would be inexpensive to provide, but would severely limit the pool of potential riders. On the other end of the scale, the corridor does not have enough demand for transit service to warrant more regular service every half hour throughout the day. Something in the middle of these two extremes that allows people who work the most common shift times at the major employers in Portland with mid-day connections for non-work trips maximizes the draw from the potential rider pool. As noted, provision of the fixed route service would also cover some trips that are currently covered by paratransit service and would allow the paratransit service to have additional resources available to meet the increasing demand for such service.

These potential options have been created to allow the study advisory committee and local stakeholders to see a range of possibilities. A recommendation on the appropriate level of service for the specific needs and goals of the region is presented following the cost discussion.

Cost Projections

Assuming an hourly operating rate of \$80 per hour³ for 255⁴ days per year, the cost to operate the potential services at the frequencies and to the destinations listed in Table 2-1 ranges from \$20,000 annually for a single daily trip (one trip into Portland in the morning and one trip out of Portland in the afternoon) from Windham to Portland to \$200,000 annually for a full-fledged

³ Rate quoted by RTP, July 2011.

⁴ 255 days corresponds to 260 weekdays per year minus an average of 5 holidays when the service would not be operated

service operating several trips throughout the day up and down the entire corridor⁵. It will be up to the involved stakeholders to choose a service option that best fits the needs of the region by balancing enough service to create a successful, useful, sustainable service with a budget that is both reasonable and sustainable. A recommendation based on experience, the transit demand analysis, and the local environment is made in the following section.

Capital costs come from a different funding pool, are generally needed upfront and are not required annually. Depending on the number of stops (including signs, benches, shelters) needed, the type of vehicle purchased for the service, the amount and type of brochures and schedules ordered, the type of AVL hardware (vehicle location software and hardware) installed, and ADA access requirements, capital costs range from \$350,000-\$450,000.

Benefits of Transit Service

It is widely acknowledged that transit service is beneficial to alleviating traffic congestion, reducing air pollution, generating economic development, and providing access to employment⁶. In Cumberland County, bus service along the Route 302 corridor provides commuters with alternatives to single-occupancy vehicles, provides mobility to people without the means or ability to use an individual vehicle, reduces the demand for parking downtown and meets the long-time goal of the region to connect suburban communities with the metropolitan center, all while reducing traffic congestion and roadway wear on heavily-utilized Route 302 and the Maine Turnpike and reducing air pollution.

Local communities who financially support transit service also have the added benefit of participating in the Maine DOT reimbursement program for transit funds. Three years after providing funds for local transit service provision, communities receive their transit investment back from the State to be used in their local roadway maintenance and improvement fund. This program encourages local communities to support transit while providing funding to maintain roadways being used by buses.

The benefits of transit service grow the longer the service is operational as a rider base grows and economic development impacts are realized. Being able to sustain the service for the long-term is paramount to realizing the benefits of transit in the region. Sustaining the service involves securing multi-year investments from funding partners including both communities and private investors, and fostering a strong group of transit supporters in the region. Both of these elements should also be utilized to create a strong marketing campaign that cultivates a positive public image of the service. Sustaining the service is also dependent on the quality of the service, which should provide direct links between residents and their destinations, work or otherwise, and be affordable, comfortable and reliable.

⁵ Another benefit of RTP operating the service is that the vehicle can be parked at the RTP garage in Portland and the driver can be used for driving other paratransit services when the fixed route is not in service.

⁶ Victoria Transport Policy Institute. *Transit Demand Management Encyclopedia*, 2011.

Preferred Alternative

After evaluating the service alternatives and discussing the options with the advisory committee and stakeholder group, the route operating along Route 302 from Naples south through Windham and circulating through downtown Portland is the recommended service alternative. This route is recommended for the following reasons:

- The route maximizes the benefit of a 'single seat ride' by directly serving several major destinations
- The route provides a straight link between the Lakes Region and downtown Portland
- The route serves most of the largest employers of Lakes Region residents based on GO Maine registrations
- The route allows connection to Greater Portland METRO and other transit services in the larger region

It is important to note that this preferred alternative is a baseline for starting fixed route service in an area that currently does not have such service. Based on the transit demand analysis completed as part of this study and the analysis completed as part of the previous studies, bus stops are not placed in Bridgton, Harrison or Gray at this point in time given the goal of this service plan. It was determined that this service would begin as primarily a commuter service into Portland and has the potential to expand and serve other uses as the service is established. Even though a direct service link is not proposed in these communities at this time, residents of these communities and other communities beyond the study corridor are certainly encouraged to use the service by driving to a park and ride stop location.

An implementation plan including operations, management and organization, capital, and financial plans for the preferred alternative are provided in the following section.

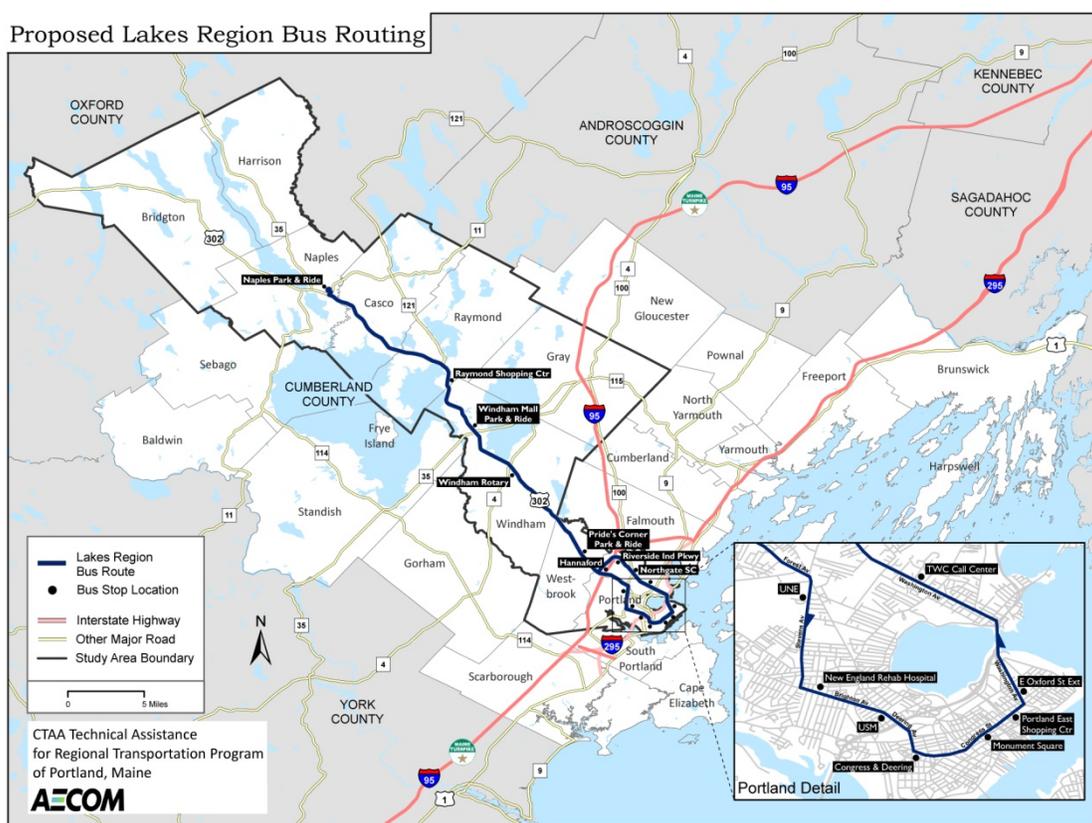
Chapter 3 Service Plan & Service Goals

This section contains a service plan for operating the preferred alternative including operations, management and organization, financial planning, capital program, and implementation plan. This service plan is intended to create a baseline new service that will introduce transit to the region, provide mobility options for commuters and others in the corridor, and provide enough flexibility that the service can be expanded and modified as development occurs, higher demand is established and quantified, and seasonal opportunities are identified.

Operations

The preferred route will be operated primarily along Route 302, but will provide service to destinations and trip generators in Portland through a downtown loop off of Route 302. Figure 3-1 is a map of the proposed routing for the Lakes Region bus service.

Figure 3-1: Proposed Lakes Region Bus Route



The map shows the routing and the proposed bus stops. Some of the bus stops are existing Greater Portland METRO stops. Some are existing park and ride locations and some are popular

destinations. One location (the Windham rotary location) would need to be developed into a park and ride lot. The location is town-owned and is available for conversion to a park and ride lot at the time of this study. All of the bus stops would need signage and some would require benches and/or shelters. Bus stops are proposed for the following locations:

- Naples: American Legion park and ride lot
- Raymond: Prime Meat Market/shopping center
- Windham: Big Lots/Windham Mall
- Windham: Town-owned land near rotary
- Westbrook: Prides Corner park and ride & METRO transfer
- Portland: University of New England (Stevens Avenue)
- Portland: New England Rehabilitation Hospital (Brighton Avenue)
- Portland: University of Southern Maine (Brighton Avenue)
- Portland: Congress Street & Deering Avenue
- Portland: METRO Pulse/Monument Square
- Portland: Portland East Shopping Center
- Portland: Washington Ave & East Oxford Street Extension
- Portland: TWC Call Center (Washington Avenue)
- Portland: Northgate Shopping Center (Auburn Street)
- Portland: Riverside Street & Riverside Industrial Parkway
- Portland: Hannaford on Riverside Street

Bus stops can be added or removed based on whether or not communities supply financial support for the service.

The service will be operated on weekdays during commuting peak periods as well as during the mid-day period for non-work trip purposes and to give commuters options. A proposed schedule for the service is provided in Table 3-1. The service would accommodate the common shift start times in Portland of 7:00 AM and 9:00 AM.

Table 3-1: Proposed Lakes Region Bus Service Schedule

Naples Park & Ride	Portland (PULSE)	Naples Park & Ride	Revenue Hours	Revenue Miles
5:30 AM	6:30 AM	7:30 AM	2	59.9
7:30 AM	8:30 AM		1	29.4
	11:30 AM	12:30 PM	1	30.5
12:30 PM	1:30 PM		1	29.4
	3:30 PM	4:30 PM	1	30.5
4:30 PM	5:30 PM	6:30 PM	2	59.9
TOTAL			8	239.6

The service will be operated for eight revenue hours daily and require the service of at least two licensed and trained drivers. It is possible for one driver to operate the bus for a split shift because of the time between runs or multiple drivers could be used on normal shifts and they

would be available to drive other vehicles in the RTP fleet for paratransit services during the downtime on the Lakes Region service. If possible, the operation of the service would be most efficient if the bus was stored overnight and on weekends at a facility in the Lakes Region to minimize the deadhead time and mileage.

The bus will operate the eight hours on weekdays traveling approximately 240 revenue miles per service day. Annual totals on revenue hours and revenue miles would be 2,040 and 61,200, respectively.

Management and Organization

The preferred service provider is Regional Transportation Program (RTP), the Maine DOT and Maine Department of Health and Human Services (DHHS) recognized service provider for Cumberland County. RTP is already providing paratransit service throughout the study corridor and is a United Way agency. RTP has trained and licensed drivers and operations staff. With additional training for drivers and staff on fixed route service operations, and potentially hiring additional drivers to operate the service, RTP is ready to operate the service.

In order for the bus service to succeed, it needs a strong support group of interested parties in the region. A group of regional supporters and funding partners should be assembled to monitor and modify the service as necessary, working with RTP.

Financial Plan

The cost to operate the service annually is estimated based on the number of revenue hours the service is operated. Again assuming an \$80 per hour rate for operation of the service by RTP, and 255 operating days per year, **the service would cost \$163,000 annually**. Funds should also be set aside for the production of schedules, maps, brochures and advertising of the service. The cost of the marketing, advertising, and service description material production varies based on the amount, quality and duration of the various items. An estimated range of cost for the startup of a new transit service in a region of this size is \$8,000-\$12,000⁷.

From the previous study, the manner in which the share of funding supplied by each participating community was determined, the percentage of total population in the region, was accepted and deemed fair by the participating communities. To that end, the population numbers in Table 3-2 from Census 2010 can be used in determining share based on the number of communities that end up participating and the availability of private funds. For example, if the four communities with service operating along Route 302 through them were the only participants, Windham would contribute a 59% share, Raymond a 15% share, and each Naples and Casco a 13% share. However, if other communities or private funding partners agree to support the service, those shares would be reduced.

⁷ Cost estimate based on a similar recent startup of the new transit service in Brunswick Maine. Cost ranges of various items came from the *Marketing Plan for Brunswick Explorer* by Transit Marketing LLC, 2009.

Table 3-2: 2010 Population by Municipality

Communities with Direct Service	
Naples	3,872
Casco	3,742
Raymond	4,436
Windham	17,001
Adjacent Communities	
Bridgton	5,210
Harrison	2,730
Gray	7,761
Standish	9,874
New Gloucester	5,542
Sebago	1,719

Source: US Census Bureau, 2010, County Subdivisions

Funding options for the operation of the service exist from federal and state sources, which require a local and/or private match of a certain percentage of the requested funds. Example funding sources include:

- Jobs Access and Reverse Commute (JARC) from Federal Transit Administration (FTA), requires a 50% match
- New Freedom (FTA), must benefit persons with disabilities
- Congestion Mitigation and Air Quality Improvement (CMAQ) from FTA and Federal Highway Administration (FHWA)
- CDBG/Windham – limitations on use for operations, but can be used for fare passes and marketing materials (\$50,000)
- Private partners/major employers
- Municipalities

RTP and its regional support network should work with Maine DOT to determine the appropriate funding source(s) and a sustainable longer term funding plan. Farebox revenue will also contribute to funding the service. The previous study projected an estimated 200 boardings per day would be possible based on the proposed transit service. Using a much more conservative estimate of 100 people using the service per day, and a reduced rate of \$2.50 per trip to factor in the various fare media (discussed below), for 255 days per year, the service could produce farebox revenue of \$63,750 annually.

Fare Policy

To generate revenue from the service while offering an affordable means of transportation, starting fares should be \$5 or \$4 one-way for the general public depending on the boarding location/destination with half price fares available to seniors and persons with disabilities. The CDGB funds from Windham can be used to supplement the discounted fares for eligible patrons. Due to the length of the trip and the associated cost to operate the service, local bus service fares do not apply to the commuter service. However, free or low-cost transfers to

Greater Portland METRO routes should be arranged. Weekly and monthly unlimited use passes should also be made available at a sufficient discount so as to encourage users to purchase these passes instead of single rides. These passes should also be made available for purchase at a couple of convenient locations along the corridor.

Capital Program

To start the service, one bus will be utilized for operations (with a second spare bus required to maintain service in case of breakdowns). Waiting shelters and benches at some bus stops will be needed as the service area experiences challenging weather conditions year-round. Also, signs will be needed to point drivers to park and ride locations and at bus stops to provide riders with scheduling and other information.

Due to the commuter type of trip being taken on the bus, it should provide a comfortable ride and amenities for the longer trip such as internet (WiFi) access. The bus service needs to be able to be marketed to entice commuters to use the bus instead of their individual vehicles so that they can use their commute time for non-driving activities. The cost to purchase such a bus varies based on the size of the bus (i.e. the number of passengers it seats) and the amenities ordered. The range of costs for a bus that operates commuter service is \$150,000-\$200,000. Based on ridership estimates from previous work and the transit demand analysis from this study, the bus should be able to seat approximately 25 passengers. Vehicle location hardware and software as well as Americans with Disabilities Act (ADA) access equipment also need to be purchased and installed. The estimated range of capital costs to startup the service is \$350,000-\$450,000.

The commuter service would not be operated at a high frequency, so waiting benches and shelters, both for the winter weather and the summer heat, should be installed and constructed. Some of the proposed bus stops for the service already have amenities because they are also Greater Portland METRO stops. The costs of amenities and signs depend on the size, materials used in construction, and quantity of items purchased.

Funding options for capital investments include federal and state funds and local and private investments. Major employers or trip generators could be asked to put up a bench or a shelter in front of their establishment for riders to use. Example sources for capital funds include the following:

- New Freedom (FTA), must benefit persons with disabilities
- Bus and Bus Facilities (FTA 5309, 5318)
- Congestion Mitigation and Air Quality Improvement (CMAQ) from FTA and FHWA
- CDBG/Windham (\$50,000)
- Private partners/major employers
- Municipalities

Again, RTP and its regional support network should work with Maine DOT to determine the appropriate funding source for capital purchases.

Implementation Plan

The implementation of the service is projected for July 1, 2012. This date corresponds to the beginning of the new fiscal year for municipal budgets. There are steps that need to be taken in order to ensure implementation on the projected date. The steps are outlined below and should be flagged with intermediate deadlines to gage progress towards the goal of service implementation. Short-term implementation of the final service plan for RTP and its Lakes Region advisory committee involves the following components to establish service and continue planning/operations in the next year and beyond:

- Adopt a Lakes Region Bus service plan
 - Route alignment
 - Bus stops (and flag stop policy)
 - Schedule and operating hours
- Develop a funding plan
 - State and federal sources
 - Local match
- Develop a capital plan
 - Identify and procure an appropriately sized and priced bus
 - Finalize placement and quantity of benches and shelters
 - Order bus stop signs, benches, and shelters
- Develop an operations plan
 - Driver schedules
 - Dispatch procedures, responsibilities and equipment
 - Access agreements with local facilities as needed
 - Assign responsibilities for plan components
 - Administrative lead for centralized information
 - Outreach to stakeholders, mobilization of supporters and public marketing plan
- Implementation
 - Install bus stop signs, shelters and benches
 - Create and distribute schedules and informational materials
 - Add service information to the RTP website and other regional transportation sites
 - Driver and dispatch training
 - Marketing

The implementation of the Lakes Region bus service in one year is an ambitious schedule and requires teamwork from the involved agencies and a clear and goal-oriented plan of action. Items that require longer times to achieve such as the purchase of a bus and securing funding should be first priority and set in motion as soon as possible.

Service Benchmarks and Goals

Starting a new transit service does not produce instant results. It takes time for transit ridership, awareness, and comfort/acceptance to build. The following information is to be used as a guide in evaluating the success of the new service.

Monitoring Program

To be able to evaluate system goals and benchmarks, an effective monitoring plan should first be in place. A monitoring program is important in terms of gauging whether the goals of the community are being accomplished and that the service is both effective and efficient. Without specific measures, success is difficult to measure from year to year. There are a few basic performance measures which help to address efficiency and effectiveness of any transit agency. The way to monitor service and apply and evaluate performance measures is discussed in this section.

Monitoring of service should continue on a daily basis, with some recommendations for how to change specific data collection procedures. Data collection is essential to evaluate the service performance and to determine if changes should be made in the service delivery. This section provides information on data collection, databases, and standard reports which should be prepared. Data to be collected fall into three basic categories—ridership, on-time performance, and financial information.

Ridership

Passenger boarding data should be collected continually on a time-specific basis. There is a trade-off between data collection efforts and the value of information. It is just as easy to collect too much data as it is to collect insufficient data.

Passenger boardings should be recorded daily by route, fare category, and by trip. One goal all transit agencies should strive for is the implementation of Intelligent Transportation Systems, such as Mobile Data Terminals (MDTs) and Automatic Passenger Counters (APCs). These systems include features such as recording each passenger by fare category as they board. This capability should be programmed into the software as it is implemented. Mobile Data Terminals also allow both data and voice communication between operator and dispatcher. It is similar to having an alphanumeric pager on the dashboard. Often for smaller agencies, this technology is not feasible due to the high cost. In any event, passenger data can still be collected and recorded by drivers for numerous variables. Passenger data collection should also include:

- Twice each year, a full boarding and alighting count should be completed. If passenger boardings are counted using the APCs and integrated with Automatic Vehicle Location (AVL), the data can be recorded automatically. If it must be done manually, this is a

more intense effort and will require the use of additional personnel. Passenger counts are recorded for passengers boarding and alighting by stop for a full day. This information records the passenger activity at individual stops and is useful to determine if stops are appropriately placed and what amenities should be provided. If a stop has little or no activity, it would not warrant a bench or shelter and may not even be appropriate as a designated stop. This allows the transit agency to review their system on a biannual basis.

- An onboard passenger survey should be conducted periodically. We recommend that a survey be conducted six months after service changes have been implemented. Following that, passenger surveys should be conducted at least every two years. Survey instruments with questions appropriate for the service should collect information about passenger demographics, trip characteristics, and perceptions of the transit service. These data collection efforts allow the system to get important feedback from actual consumers, as well as collecting valuable data related to their demographics and trip purpose.

On-Time Performance

With any transit system, it is important to monitor on-time performance. An on-time performance goal should be established. For instance, an attainable on-time goal of 95 percent for the service may be considered for system changes. Minor adjustments to routes may be needed to ensure that schedules and headway adherence can be maintained.

To record on-time performance, drivers should report actual arrival and departure times at designated bus stops along the routes and at major stops. It should be emphasized that drivers should not leave prior to a scheduled stop time to make up time along a route. Leaving early could cause riders to miss a bus.

The dispatcher should then record this information so that the number of trips running late can be determined. This effort should continue for the first three months of service. After that, on-time data should be checked randomly to ensure that performance remains acceptable. Any service changes also warrant a revised look at on-time performance.

Financial Data

Financial data are required to evaluate performance measures such as the operating cost per hour of service and the cost per passenger-trip. Financial monitoring should continue as part of the performance monitoring program. Important data to collect and report include operating revenue by source, farebox revenue by fare category, maintenance costs, gas and oil expenditures, and employee-related costs (including salary and benefits).

Database Formats

Several options are available for storing the data. The recommended approach is to set up databases in Microsoft Access or Excel to record passenger data. A separate database should be set up for routine passenger data and a second for the boarding and alighting counts. Passenger count data can be entered directly into the database using the capabilities of the passenger counters. Onboard survey data can be entered into a database such as Access or a spreadsheet program such as Excel.

Transit staff should provide performance reports on a schedule, typically monthly or quarterly. The report should include performance data for the current period, the same period in the previous year, year-to-date performance, and the prior year-to-date performance. Information that should be reported includes:

- Passenger boardings by route
- Passengers per revenue-hour by route
- Total passengers by fare category
- Total passengers
- System passengers per revenue-hour
- Operating cost
- Cost per passenger

The average fare should be calculated and reported based on operating costs and passenger counts. While this seems like a lot of data, proper collection and storing of the data makes this information easy to assemble and provides a great deal of use for disseminating information. Additionally, an annual report should be compiled and presented. The information for these reports can be easily generated from the databases and the accounting system.

Performance Measures

Transit performance measures serve as a guide to find out how a transit system performs. Performance measures define the types of data to be collected and give the tools necessary to identify transit system deficiencies and opportunities.

It is worth noting that criteria used for the selection of performance measures include the following:

- Be easily measurable
- Have a clear and intuitive meaning so that it is understandable to those who will use it and to non-transportation professionals
- Be acceptable and useful to transportation professionals
- Be comparable across time and between geographical areas
- Have a strong functional relationship to actual system operations so that once changes occur in system operations, changes to the system can readily be determined

- Provide the most cost-effective means of data collection
- Where appropriate, be based on statistically sound measurement techniques
- Be consistent with measures identified for other systems

Recommended performance measures include:

- **Passengers/Hour:** Number of total monthly and annual passengers divided by the corresponding revenue-hours
- **Cost/Trip:** Total expenses divided by total annual one-way trips
- **Subsidy/Trip:** Total expenses minus fare revenue divided by total annual one-way trips
- **Late Trips:** The percentage of fixed-route trips which operate late or are missed should be recorded and reported. The recommended standard for late trips is any trip that is more than five minutes behind schedule.
- **Service/Road Calls:** Vehicle breakdowns are inevitable. This measure tracks the distance traveled between mechanical breakdowns. Although frequent occurrences can create disruptions in a transit system, it is important to track the frequency and type of mechanical failures of each vehicle in addition to monitoring a fleet's age. Monitoring of vehicle breakdowns is one method of reducing system disruptions and may allow an agency to improve monitoring of vehicle replacement schedules and preventative maintenance practices. Data collection efforts should include date, time of day, type of failure, age of vehicle, vehicle number, vehicle mileage, and how the situation was rectified. Monitoring of these items will allow an agency to recognize repeated types of mechanical breakdowns; breakdowns related to vehicle type, age or mileage; and assist with preventative maintenance programs. Wheelchair lift failures should also be monitored. Data should be included in the monthly report.
- **Accidents/1,000 miles:** Measure of driver safety. Accidents must be defined as a standard.
- **Cost/Revenue-Hour:** An excellent indicator of efficiency is cost per revenue-hour of service. Costs per hour should be analyzed by route and compared to overall system averages.

Service Benchmarks

The aforementioned performance measures can be used to create benchmarks for service operation. The benchmarks will help the service provider track progress and set goals for the performance of the route. These benchmarks should be seen as short-term goals that should be re-evaluated at set intervals—at least every five years—to ensure that the expectations for the route are consistently evolving. If a specific benchmark has been greatly exceeded during the first two years of operation, the criteria should be changed to provide a progressive target for the service. The following benchmarks were determined by the base type of service (com-muter), and by examining peer and national standards:

- Eight to 12 passengers per revenue-hour of service.
- \$7.50 - \$9.00 cost per passenger-trip (unsubsidized).
- 95 percent on-time performance.
- Less than 2.5 preventable accidents per 100,000 vehicle-miles.
- Less than 0.1 reportable accidents per 100,000 vehicle-miles.
- Cost per revenue-hour should not exceed \$90 by more than ten percent.

Goals

For transportation planning purposes, a goal is defined as a purpose or need that should be attained to address a transportation issue. An objective is a specific, measurable method or activity that is designed to achieve the identified goal. Please note that many of the above service benchmarks have been included as objectives to meet specific goals as well.

Goal #1: Provide high-quality, customer-oriented service

Objective 1.a: Distribute a rider survey a minimum of once every two years to obtain input from system users on the quality of service.

Objective 1.b: Operate service during peak commuting periods to ensure individuals with traditional work hours can use the route.

Objective 1.c: Operate fixed routes with a 95 percent on-time rate as defined by never leaving a scheduled stop early and being no later than five minutes behind the scheduled arrival time at each stop along the route.

Objective 1.d: Make schedules available in English, Spanish, and Braille formats.

Objective 1.d: Track performance measures at least annually and adjust performance measures at least once every five years.

Goal #2: Provide efficient, effective, and safe services

Objective 2.a: Provide fixed-route service with an average productivity of eight to 12 passengers per service-hour.

Objective 2.b: Increase service area commensurate with growing demand and need within the Lakes Region.

Objective 2.c: Ensure operations have fewer than 2.5 preventable accidents per 100,000 vehicle-miles.

Objective 2.d: Ensure operations have fewer than 0.1 reportable major incidents per 100,000 vehicle-miles (one reportable major accident every 1,000,000 vehicle miles).

Goal #3: Promote the transit service

Objective 3.a: Work with local employers, educational institutions, and medical facilities to promote the use of the transit system, leaving educational and promotional materials with them.

Objective 3.b: Participate in marketing and promotion of services, including coordinating with other organizations.

Objective 3.c: Ensure that promotional materials, schedules, and pamphlets share a similar aesthetic, creating an easily recognizable brand for the service.

Alterations

All goals and benchmarks should be mutually agreed upon by RTP staff, their board of directors, and the Lakes Region advisory committee. Changes to the goals and service benchmarks are inevitable, and they should be examined annually to make sure that any necessary changes may be made. As the route evolves, the purpose of the route or the areas being served may be altered. The benchmarks and goals would then have to be updated to reflect the new mission of the route or the performance measures the agency wishes to achieve.

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