



Maine Department of
Transportation
**Transportation Research
Division**

Technical Report 04-05

Evaluation of Transit Route Development:

A Case Study of Downeast Transportation Inc.'s

Bucksport, Maine, Bus Route

August 2004



Final Report

Key Success Factors of Downeast Transportation Inc.'s Bucksport, Maine, Transit Route

Andrea Duquette
Martin Puckett
Sandra Tardiff

Submitted to
Kenneth Nichols, D. P. A.
Department of Public Administration
University of Maine at Orono

PAA 615: Advanced Methods of Analysis in Public Administration and Public Policy

June 7, 2004

Prepared for Office of Passenger Transportation
Department of Transportation
State of Maine



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1.0 Introduction

The number of journal articles, books, and research related to rural transit has increased somewhat in the past decade; however, there has been little transit research on rural Maine. Maine citizens rely heavily on personal vehicles for transportation due to variety of reasons mostly attributed to the rural character of Maine. Attempts to create transit systems have been limited, and implemented systems have had limited success. The Bucksport Public Transit route operated by Downeast Transportation Incorporated (DTI) has been a success, outliving other rural routes. The purpose of this study is to examine factors that have led to the success of this particular route. Interviews, surveys, and literature reviews have identified key factors that can be considered when developing transit routes in rural areas.

This research is completed primarily for the use of Maine Department of Transportation's Office of Passenger Transportation (OPT). OPT assists local bus companies in developing and funding local passenger bus service. One task involved in this role is reviewing requests for grant assistance. This study of the Bucksport Public Transit route has been undertaken to help expedite future reviews of funding requests.

1.1 Background

Bucksport, Maine, is a coastal town of 4,900 people in Hancock County, at the north end of Penobscot Bay. Bucksport was founded in 1764, as a port for shipping lumber, fish and other products. It has a mayor-town council (seven members) form of government. With a land area of just under 35,000 acres (or 55 square miles), Bucksport has a population density of about 90 people per square mile. The main employer of

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Bucksport is a paper mill, which manufactures paper for a wide range of magazines and catalogs.

The Maine State Planning Office (SPO) lists Bucksport as a regional service center. A service center is a municipality or group of municipalities identified by the SPO according to a methodology that includes four basic criteria, including level of retail sales, jobs-to-workers ratio, the amount of federally assisted housing and the volume of service sector jobs. By rule, regional service centers include communities that meet basic criteria, as well as portions of adjacent municipalities that meet certain criteria.

Bucksport, Maine, has a history of community involvement, illustrated by the formation of the Community Health Advisory Committee. This committee developed the Bucksport Health Plan, which identified a need for low-cost transportation for older adults. The Bucksport Transportation Subcommittee served as an advisory committee to the Community Health Advisory Committee, for a study that identified transportation needs and recommended transportation alternatives. That study, prepared for DTI, was made possible by a planning grant from the Maine Department of Transportation (MDOT). The subsidized transit route runs one day a week (on Wednesday) from 9:30 a.m. to 2:25 p.m. The route takes one half hour to complete, with a roundtrip fare of one dollar. For the same one-dollar fare, a taxi is available for individuals who live outside the transit route's compact area.

DTI has a 23-year-long working relationship with MDOT and is a small company, limited by a lack of equipment. The bus for the in-town Bucksport public transit route is used to operate the Ellsworth-to-Mount-Desert-Island route on Monday, Tuesday, Thursday and Friday. The Bucksport route operates on Wednesday because it

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is the only day that DTI has a bus available. Two bus drivers, a regular and alternate, operate this and other DTI routes.

1.2 Definitions

The following terms have these meanings within the report.

Bucksport Transportation Subcommittee: a committee of 17 volunteers that reports to the Bucksport Community Health Advisory Committee.

Compact Area: an area of a municipality with a high population density.

Compatibility: the extent to which bus travel is compatible with a consumer's values and certain needs.

Complexity: the rider's perceived difficulty of bus travel.

DTI: Downeast Transit Incorporated.

Higher-order Needs: social interaction such as community volunteering, recreation, and religious participation.

Life Maintenance Needs: the various essential needs of an individual (grocery shopping, banking, medical needs, pharmacy).

MDOT: Maine Department of Transportation

Relative Advantage: the advantages that bus travel offers over automobile travel; and, conversely, the advantages that automobile travel offers over bus travel.

Ridership Success: an average of ten riders per operating day for the Bucksport program.

Social Impact: the social context within which a transit company operates.

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Social Integration: the informal participation in social networks as well as formal social participation in community organizations and activities.

SPO: State Planning Office.

Transportation Exclusion: factors that limit the effectiveness of transit systems.

2.0 Literature Review

Rural transit studies are overshadowed by the multitude of urban transit studies. Many studies note the American reluctance to stray from the automobile as a reason for the limited usage of public transit. Many international studies were reviewed as they pertained to route design, marketing, and demographic make up, but they were of limited use because of the urban setting. The international studies proved useful, however, in the approach to attracting and retaining riders from other travel methods.

2.1 Demographics

Reviewing previous studies illuminates the requirement to develop a comprehensive, multifaceted approach to effectively assess a bus transit system. A study by Steven Alexander reveals startling figures and the need for public transit: nearly half of rural residents live in counties with no public transportation services. Only four percent of federal public transportation dollars provided by the Federal Transit Authority go to rural communities, even though, 36 percent of Americans continue to live in rural communities. Included in this group are 39 percent of the nation's elderly, 32 percent of the unemployed, 39 percent of those living below the poverty level and 43 percent of the

disabled. Four groups often need assistance but cannot drive and so must rely on family or friends:

The Elderly. As growing numbers of aging citizens retire in rural America, they bring with them new transportation challenges. Some of these problems include vision, mobility, and other physical problems that prevent them from driving and thus hinder their ability to access basic services and health care facilities.

The Unemployed. As the unemployed seek employment in service center communities, some must rely on public services to commute. With reliable public transportation, many could have access to training programs and ultimately gain employment.

The Disabled. Without transportation designed to meet specific needs, the disabled population is unable to travel to rehabilitation and treatment centers, or to the food market. They are also unable to travel to work.

Health Consumers. For those who lack transportation or cannot afford the cost of traveling to distant health care centers, services can be severely limited.

These issues demand a public transportation system that can match a variety of specific needs to required services, based upon identified demographic characteristics of rural areas. By identifying the needs, bus routes can be established, route frequency specialized, and marketing strategies can be developed. Good marketing practices recognizes different customer preferences and develops products and services accordingly (Alexander 1995 26).

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2.2 Social Interaction

Transportation planning must include adequate consideration of the social impact of planning. As many studies point out, transportation policy frequently fails to include individuals as participants in a range of activities across different locations. The extent of transportation exclusion indicates the importance of accessible transport systems for equal opportunity for all people in society. Transportation advantages within a municipality must be a priority when establishing a transit system. Considering travel experiences is important in developing barrier free living (Church *et al.*, 1999; Hine *et al.*, 2000; Speak and Graham, 2000).

The important relationship between effective transportation and social integration has largely been ignored, Glasgow and Blakely explain, particularly regarding older people living in less-densely-settled rural areas (Glasgow 2000 97). Access to formal and informal activities is influenced by a properly designed transit system. Glasgow (2000) found that public buses serve the older population's needs for both life maintenance and higher-order needs. Suggested improvements include (a) improving physical accessibility, such as fewer steps on the bus and helpful drivers, (b) foul-weather shelters, and (c) better-designed schedules to accommodate elderly population activities.

2.3 Planning Factors

Transportation exclusion results from different factors that can be summarized as physical, temporal, economic, spatial, and psychological. Considering Maine's harsh climate, we would factor in environment due to the harsh winters. Physical factors are defined as the individual's personal health or disabilities (Church *et al.* 1999). Temporal

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3.0 Methodology

Several data-gathering techniques were used for the collection of data: One-on-one interviews with ridership employed convenience sampling and snowball sampling methods to enroll participants. In convenience sampling, participants are not chosen at random and instead are chosen as they enter the study area. Snowball sampling entails asking participants to name others who meet the study criteria until the desired sample size is met, thereby, creating a snowball effect. These methods provided an adequate sample size since the ridership has a small population to draw from. Cross-sectional surveys, consisting of five closed-ended questions and a four-point rating scale (a “Likert Scale”), also used convenience and snowball sampling for this reason. This design provided a portrait of the ridership at one particular time during the study. In addition, interview sessions conducted with the Transportation Sub-committee, local businesses, and DTI staff used an open-ended-question format. This form asks questions in which the response is open and allows participants to freely formulate specific responses to the questions asked.

Prior to beginning the research, the three co-principal investigators completed a mandatory training session on the Protection of Human Subjects of Research through the University of Maine. The University’s Human Subjects Review Board (HSRB) deemed the research proposal (See Appendix D) exempt from needing further HSRB review.

Preliminary research began with a meeting with the research sponsor, MDOT, and the transit route operator, DTI, in January 2004. The meeting provided the background and expectations of the study.

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Next, overall data was collected during a six-week period beginning in February of 2004. A total of 17 one-on-one interviews were conducted over a two-week period at the end of February and during the first week of March. Respondents were asked a series of seven open-ended questions. The interview sessions took place at the Senior Center adjacent to the Bucksport Square Apartments, a low-income housing complex. This site was chosen because it is the beginning of the bus route schedule, starting at 9:30 a.m., allowing the project interviewers to “mingle” and introduce themselves to riders waiting inside the dining room area to board the bus. It also allowed for easy access for boarding the bus and interviewing riders en-route, for interviewing the bus driver, and for taking part as a participant-observer.

The study used convenience sampling and snowball sampling methods to enroll participants to acquire an adequate sample size. Participants were enrolled as they boarded the bus and, later at the Senior Center during the Meals for Me, where participants provided names or pointed to individuals who were frequent riders. Riders were read the questions, and their responses were written down. This sampling procedure was later repeated at the Senior Center after the route’s busiest scheduled run at 10:30 a.m., which allows riders to arrive at the Senior Center in time for the Meals for Me. Interviews were conducted before and after lunch, with participants’ pointing out the next potential interview subject until the desired sample size was reached. This approach resulted in 17 rider interviews, which appears to be more than half of the basic ridership during that time period.

Surveys consisted of five closed-ended questions (See Table 2) and a 4-point Likert scale (See Table 3). Likert scaling is a one-dimensional scaling method measuring

pharmacy, a grocery store, a health center, and a bank. DTI staff provided the third interview session.

Key individuals were asked a series of open-ended questions to determine the perceived success factors of the transit. An open-ended question format allowed participants to give personal views of the transit. Business owners were asked a slightly different set of questions, asking what effect the transit had on businesses. When available, business managers or owners were interviewed.

An open discussion format was conducted with the Bucksport Healthy Communities Transportation Subcommittee during their monthly meeting at the Public Safety Building in the Town of Bucksport. Meetings generally occur on the second Thursday of every month. Committee members were asked a series of six open-ended questions that helped provide historical data and perceived successes (See 4.5 Group Interview). Six members were in attendance, including the Health Planning Director with the Bucksport Community Health Advisory Committee. Two members were absent and excused from attendance.

Lastly, DTI staff were interviewed and asked about past route failures, how the organization formed a relationship with the Maine Department of Transportation, and what role that relationship plays in route development.

4.0 Findings

Interviewing a variety of individuals in the community, including the ridership and individuals involved in the transit, allowed for a variety of perspectives and

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comments. The different methods used to obtain personal views created a comprehensive scope of the transit, and strengthened the research.

4.1 One-on-One Interviews

The participants of the one-on-one interview sessions were asked a series of seven open-ended questions. Of the 17 riders interviewed, 3 were male and 14 were female. Two of the 17 were single mothers, while the remaining majority were senior citizens 55 years and older. Only three owned vehicles.

The goals were to look at the day-to-day operations of the bus route and to uncover personal experiences and rider perceptions of success. Positive and negative comments made are summarized in Table 1, and are based on responses to the following questions:

- “Can you name one or two things that you like best about the Bucksport bus?”
- “Can you name one way that your life has changed since having access to the bus?”
- “Prior to having access to the bus, how did you meet those needs that are now being met?”
- “If the bus were not available, can you name one or two things that you’d miss most?”
- “What do you think has made the bus route so successful?”
- “How do you feel that the bus route can be improved?”
- “Will the change in seasons impact how and when you ride the bus?”

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Table 1. Positive and Negative Rider Responses of One-on-One Interviews

<i>Summary of Positive Comments</i>	<i>Summary of Negative Comments</i>
Inexpensive to use	Increase number of operation days
Sociability aspects	Increase hours of operations
Sense of independence	Fixed route limits access
Bus driver very courteous, helpful, and friendly	Inaccessible to individuals in wheelchairs
Driver stops upon request	
Convenient	

Few riders felt any improvements were needed other than increasing the number of days the bus operates or expanding hours to accommodate some riders – for example, to drop off and pick up children at the local Headstart. One respondent reported that she would like to ride the bus but is unable because of a regular Wednesday dialysis appointment that is not on the bus route. This respondent reported having to make alternative arrangements to get to her medical appointment. Another rider reported using the bus regularly since the implementation of the taxi service that picks up outside the compact area for the same one-dollar fare.

Overall, rider attitudes leaned toward the positive. Question 1 asked respondents to name one or two things that they like best about the Bucksport bus. The most frequent response to this question was that the bus stops wherever riders want and need to go, followed by the driver’s being very courteous, helpful, and friendly. Surprisingly, only one respondent replied that the bus allowed for a sense of independence. The driver’s pleasant personality and helpfulness is a recurring aspect. From the responses, some of the responses can be categorized as motivators (or satisfiers) that have an effect of pleasing the riders when they occur, but are not missed when absent. Examples: help

with carrying heavy items to the door, friendly social atmosphere, and a courteous driver. Responses taken for granted and missed when not sufficiently present, are referred to as hygiene (or dissatisfiers) factors. The prevalent dissatisfier is the inability for the driver to stop for all riders' requests, a limitation based on bus schedule time constraints. (Social scientist Frederick Herzberg labeled this as the "motivation/hygiene theory.")

In contrast, riders responded that they would miss the loss of independence most when asked what they would miss if the bus were not available (in Question 4). Comments such as the following were common: "I don't like to ask people for rides, I like the independence." Therefore, there could be some ambiguity in how respondents, leading to a weakness in the study, interpreted Questions 1 and 4. When asked how riders met needs prior to having access to the bus, the majority responded that they had to ask family and friends for rides.

A later question asked what the respondent felt contributed to the overall success of the bus route. Overwhelmingly, riders responded that the bus driver's helpfulness and pleasant demeanor made the bus route successful. Another frequent response was that accessibility to the bus enabled respondents an opportunity to get out and socialize. Additionally, two recurrent responses worth noting are that bus riders enjoyed the convenience that the bus offered, as well as the one-dollar fare. The taxi, for the same subsidized one-dollar fare, picks up one elderly gentleman who lives outside the compact area.

Finally, all respondents replied that changes in seasons, including the thought of warmer weather ahead, would not change their level of ridership.

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4.2 Surveys

Surveys were distributed to bus riders on two different weeks, with two separate sets of respondents. Prior to taking the survey, participants were asked if they had previously responded to the survey. Participants first were asked to complete the survey as they rode the bus and, later, before and after the Meals for Me program. Participants requesting assistance had the questions read to them and their answers were written down.

The first section included a series of five questions, with a variety of possible answers, in which the participants were asked to check the answer that best fit their situations as illustrated in Table 2.



Table 2: Bus Ridership Survey Questions

1. What was the purpose of the bus trip today?

Medical/Dental	<input type="checkbox"/>	Shopping/Errands	<input type="checkbox"/>	School	<input type="checkbox"/>
Social/Recreational	<input type="checkbox"/>	Work	<input type="checkbox"/>	Other	<input type="checkbox"/>
Work	<input type="checkbox"/>				

2. How often do you ride the bus?

Once a Month	<input type="checkbox"/>	Three Times a Month	<input type="checkbox"/>
Twice a Month	<input type="checkbox"/>	Every Wednesday	<input type="checkbox"/>

3. How would you have made your most recent trip if the bus was not available?

Driven by Neighbor	<input type="checkbox"/>	Would not have	<input type="checkbox"/>	Taxi	<input type="checkbox"/>
Driven by Family Member	<input type="checkbox"/>	Driven by Friend	<input type="checkbox"/>	Other:	<input type="checkbox"/>

4. How many automobiles are available for use in your household?

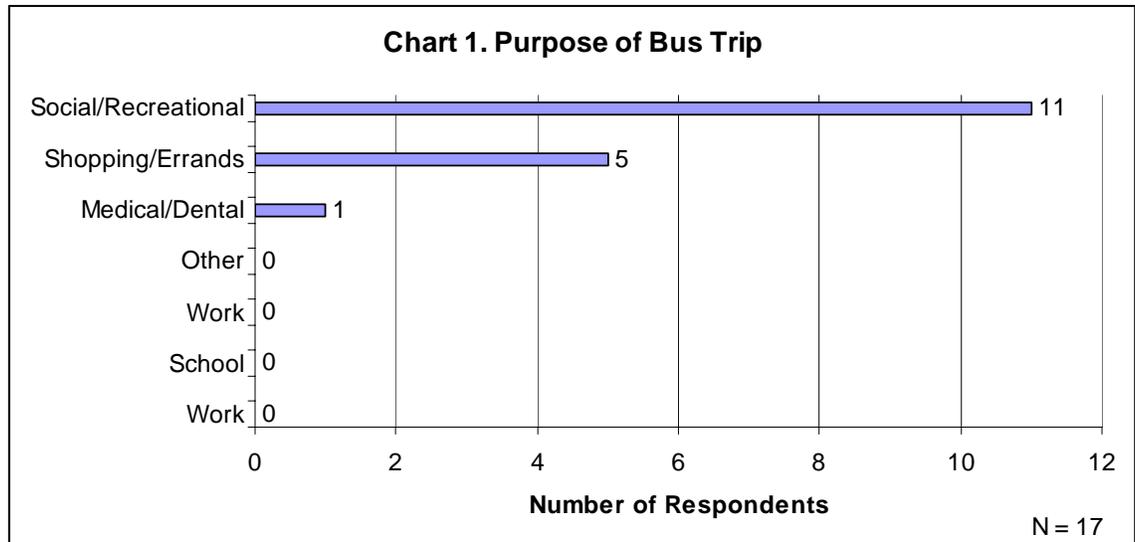
None	<input type="checkbox"/>	Two	<input type="checkbox"/>
One	<input type="checkbox"/>	Three or more	<input type="checkbox"/>

5. What best describes where you live?

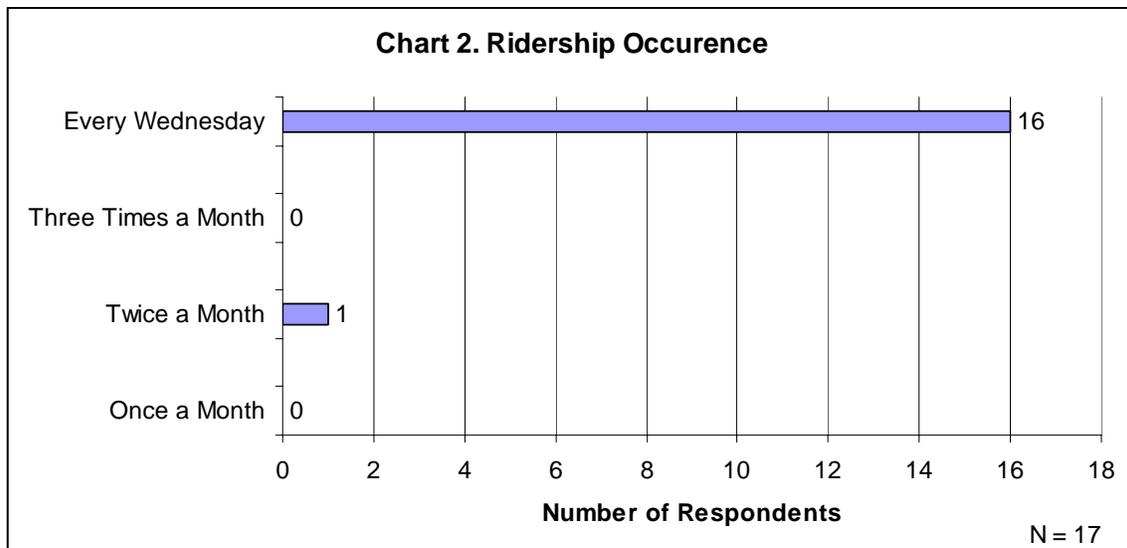
Own Home	<input type="checkbox"/>	Special Housing	<input type="checkbox"/>	Other	<input type="checkbox"/>
Nursing Home	<input type="checkbox"/>	Apartment	<input type="checkbox"/>		

The first question asked, “What was the purpose of your trip today?” The majority (64 percent) of riders surveyed answered social/recreation, the second most popular response (31 percent) was shopping/errands. Only one individual responded

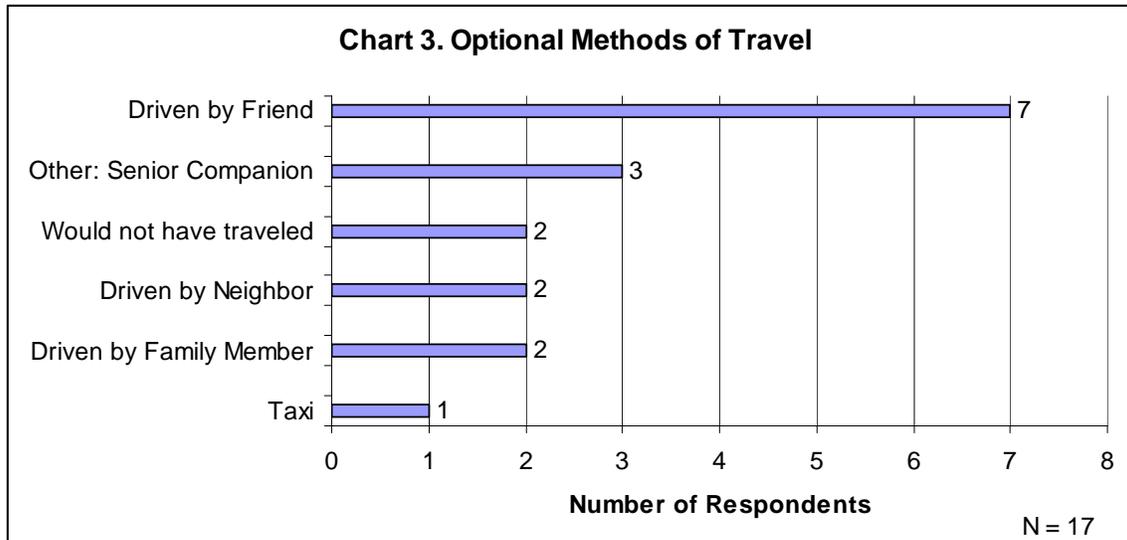
medical/dental (Chart 1). This chart illustrates the importance social interaction of the Bucksport's transit.



Question 2 asked, “How often do you ride the bus?” 16 riders (94 percent) answered “every Wednesday,” while only one rider answered “twice a month” (Chart 2). The riders are very dedicated to the bus; the bus driver knows many on a first-name basis.

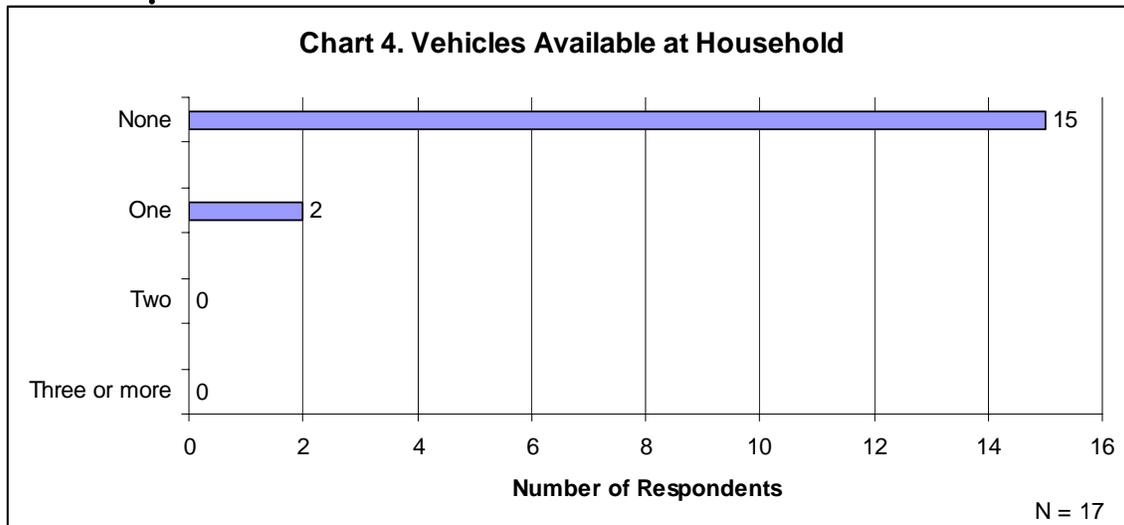


Question 3, “How would you have made your most recent trip if the bus was not available,” received a range of responses (Chart 3). The largest response (42 percent) came from “driven by a friend.” The second most popular response was the “other” category, which, upon further questioning, was a volunteer for the Senior Companion program.

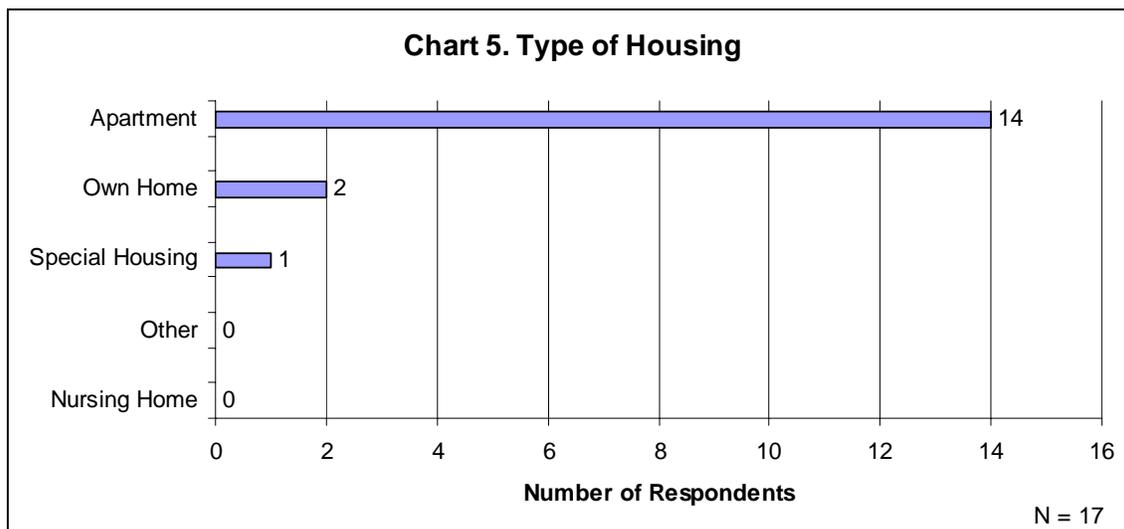


Question 4 asked, “How many automobiles are available for use in your household?” Fifteen of the participants (88 percent) selected “none,” which illustrates a need for other means of transportation (Chart 4). Only two individuals had a vehicle available at their household.

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The final question asked participants, “What best describes where you live?” Fourteen (88 percent) responded they were living in apartments, while two lived in their own homes (Chart 5). These apartments were part of the two main apartment complexes in Bucksport within the transit route.



The second half of the survey consisted of nine opinion statements illustrated in Table 3.

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Table 3: Bus Service Rating Scale

	Very Good	Good	Fair	No Opinion
The hours of service that the bus runs is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The cost to ride the bus is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The timeliness of the bus is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The driver's courtesy skills are ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The driver's communication skills are ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The bus' condition inside is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The bus' condition outside is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The comfortness of the bus is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The service area of the bus is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This section, using a four-point Likert scale, asked participants to rate the overall bus service. Only 11 participants completed this part of the survey. All 11 of the participants' answers were the same. Each participant selected "very good" for every one of the nine statements. One reason for the lower response rate was due to the riders' meeting and needing to get off at their scheduled bus stops.

4.3 Bus Driver Interview

The "regular" bus driver has been driving the bus since the route's beginnings. His response to the first interview question, "What do you think are the key elements that have made this bus route a success?" was that two or three people in town fought for the

bus system. The Health Planning Director and others secured funding for the bus and told the town's people to "use it or lose it." The one-dollar roundtrip fare and the convenience of the bus also helped. The driver also felt as though he has built a rapport with riders. (Rider responses confirm the bus driver is "friendly and helpful.")

The driver commented that he is able to make unscheduled stops and can "go off the beaten path" a little; but, because of time constraints, he cannot deviate more than one half a mile, for example. When asked what he felt would be taken away from riders if they were unable to ride, the driver responded, "Not getting out for banking, shopping, and socialization for Meals for Me. A lot of people would be hurt by not being able to get to the drugstore to buy their prescriptions." The driver noted that ridership does not change with the seasons, except on cold, bad winter days when ridership is down. The driver sees the same riders each week, 90 percent are repeat riders who go to meals at the Senior Citizen Center. When asked about the taxi service, the driver commented that he has not noticed a change in ridership since implementation of the taxi service that picks up outside the compact area. He acknowledged that it was too early to tell since, at the time of the interview, the taxi service was only four weeks old.

4.4 Interview with Downeast Transit Inc.'s Staff

According to MDOT, to meet goals for ridership success, the bus needs to average ten riders a day. According to DTI staff, this route met that goal the very first day of operation. To help understand better why the in-town Bucksport route has been successful, it is necessary to look at similar nearby rural routes that have failed. The

project's interview with DTI staff shed insight on past failures and compared those to Bucksport's success.

An earlier example of route failure is Lamoine, which began service in March of 1988. Two nursing students from the Bangor area evaluated community health needs and found that the town lacked adequate transportation for the elderly. Local citizens signed a petition stating that there was interest in riding public transit, and the town agreed to support a bus route. DTI began operating bus service one day a week, on Wednesday, in conjunction with service to Ellsworth. According to DTI staff, ridership was minimal, from zero to seven passengers a month; in 1991, DTI withdrew service.

A route was established in the town of Franklin in 1989. At its peak, ridership totaled six passengers a month. The town supported the bus route for one year and, in February of 1992, DTI cancelled the route.

The DTI staff determined Lamoine and Franklin lacked the active community involvement that made Bucksport a success. The towns' council and select people handled the organizing efforts. In contrast, Bucksport has one individual, separate from town government, who has pushed the project through, along with having an overseeing transportation subcommittee investing time and energy in to the route's success. Bucksport has active community involvement and one individual worker to push the project. DTI commented that a town needs someone like that to encourage riders to "use it or lose it."

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4.5 Group Interview: Bucksport Transportation Subcommittee

The group interview with the Bucksport Transportation Subcommittee was the initial meeting to determine key individuals and factors in the development of the transit route. The Transportation Subcommittee, with a total of 17 members, reports to the Bucksport Community Health Advisory. Members represent a diverse group and include Bucksport residents as well as representatives from the town council, Eastern Agency on Aging, the area Community Action Program, a Home Health Nurse, Bucksport Economic Development Director, Downeast Transportation Inc, Bucksport Community Concerns, and the Health Planning Director. Members are not appointed and, instead, volunteer to serve on the committee based on their interest or professional affiliation on transportation issues.

When asked the question, “What was the major catalyst for the development of the transit route,” there were four responses:

1. Health Planning Director, paid administrator for the Bucksport Community Health Advisory Committee.
2. Bucksport Community Health Advisory Committee, a coalition of residents and organizations working to implement the recommendations set forth in the Bucksport Health Plan.
3. Select Board and town manager involvement
4. Seniors very active in community

All were viewed as contributors; however, having a Health Planning Director as the major catalyst was the most frequent response. The Health Planning Director serves

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as the administrator for the many committees; some of her duties include organizing meetings, developing agendas, and keeping correspondence.

To the second question, “Who was involved in the development and transformation of the transit route?” the two answers were:

1. Community Health Advisory Committee
2. Community Health Director

Further discussion revolved around the history of citizen interaction within the community, specifically the elderly population.

The third question asked, “How has the transit route changed from the original design?” The group reported that the transit route has changed from the original design in three ways. The bus would now stop at non-scheduled points, at rider request. One such stop is at the post office. The second change reported was the implementation of a taxi service that connects the transit to individuals who live outside of the compact area. The cost of the taxi is subsidized and has the same one-dollar fare, which serves as the fare for the bus as well. The final change had to do with the fare. Initially, the Transportation Subcommittee’s goal was to completely subsidize the transit at no cost to riders. The riders viewed this idea unfavorably; they wanted to pay for and support the bus route, and not take access to public transportation for granted. It soon was decided to charge a roundtrip fare of one-dollar.

Question 4 had the most responses from the group: “What factors can you attribute to the success of the transit route?” Listed in order:

1. Drivers are very helpful, help riders on and off

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4.6 Key Individual Interviews

Key individuals interviewed were business people located near the transit stops and the Bucksport town manager. The downtown businesses saw a slight increase in foot traffic, but, for the most part, were not heavily affected by the transit service. The health center reported seeing an increase on the day the transit operated, which leads to more than one individual at a time stopping to seek medical help. Likewise on Wednesdays, a shortage of physicians created a problem with scheduling appointments for those who want to take advantage of the Wednesday route. This issue of “grouping” also occurred at the bank and the supermarket, but was easily handled by staff and employees.

The Bucksport town manager attributed two main factors to the success of the transit system. The first was the need for an individual in the community to aid the transit process. It was critical that there be a certain individual to act as liaison between the public and the transit company. The second factor was identifying the specific transportation needs of the community. The town manager believed that the transportation study properly matched the community needs with the appropriate transit design.

5.0 Analysis of Findings

It may be difficult to access the key elements that have made the in-town Bucksport transit route a success by looking only at the day-to-day operations of the bus route. This success story has equally to do with good community development and organizing efforts by key individuals in town. Nevertheless, rider responses to interview questions clearly show that this route serves the life maintenance and social integration

needs of elderly citizens -- a success factor that cannot be ignored. This is in agreement with Glasgow and Blakely, who also found that access to formal and informal activities is influenced by properly designed transit systems (2000). The majority of riders are seniors 55 and older, and findings show that the bus route's busiest scheduled run, 10:30 a.m., allows seniors to arrive in plenty of time for the Meals for Me at the Senior Center located adjacent the Bucksport Square Apartments. When participants were asked what they felt contributed to success, a frequent response was the opportunity for socialization; one gentleman pointed out riding the bus to the Meals for Me has allowed him to socialize with people he had not otherwise seen in thirty or so years.

Bucksport has three subsidized housing complexes located on the route schedule and in the compact area, and a senior population of 22.8 percent. The majority of senior riders boarded at one of the three apartment complexes, making stops at downtown locations that allowed them to shop for groceries, do banking, pick up prescriptions drugs, and attend the Wednesday Meals for Me. This allows for equal access to life maintenance needs as defined by Church *et al* (1999).

In comparing Bucksport to Lamoine, Bucksport has a history of active community involvement. The Senior Center is a focal point for active Senior Citizens. In contrast, Lamoine's over-55 population is 25.4 percent, with no subsidized housing or senior center. Therefore, Lamoine's route failure could be three-fold: (1) the lack of an active senior community; (2) the lack of strong leader or key community member to follow up after the initial assessment, petitioning, and implementation of a bus route in the town; and (3) the inability to match transit to the physical design of the municipality.

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In Bucksport, the life maintenance needs of an individual are located in a rather small area. This allows for a trip schedule of less than one half-hour. Many rural towns in Maine do not have a hospital, grocery store, bank, pharmacy, and downtown shops all within a short distance that would allow a reasonable trip schedule.

Bucksport has a history of proactive community involvement, and it is here that the successes for this route are found. A weakness of this study is the insufficient investigation into what impact community organizing efforts have on the success and failure of public transit routes. This warrants further investigation and research.

This project turned out to be a study of public transport for the elderly population more so than addressing other ridership such as the disabled, unemployed, and low-income. Much research has been published about transportation needs for these groups; however, it is difficult to find literature on rural public transit systems in general.

The key elements of success are not found mostly in the day-to-day operations, as indicated earlier, but within the efforts of the Bucksport community since 1995.

Bucksport has had active community involvement with surrounding towns since 1995, beginning with the Bucksport Area Healthy Communities Coalition. The Coalition's initial goals were to improve access to community health needs. A community needs assessment was completed in 1996, and in 1998 the Town of Bucksport endorsed the group's efforts by providing administrative support. The Healthy Communities of Bucksport was re-chartered as the Bucksport Community Health Advisory Committee. The town directed the group to (1) develop a comprehensive health plan; (2) evaluate the effectiveness and efficiency of local health systems; and (3)



6.0 Recommendations

In conclusion, this study has as much to do with strong community organizing and development efforts as it does a study of public transit. Further study would be useful to answer the following questions:

- (1) How do combined community efforts impact the sustainability of community projects such as the success of the Downeast Transit Inc.'s in-town Bucksport public transit route?
- (2) How does strong leadership, such as overseeing and organizing events, affect transit success?
- (3) How much community involvement is required to sustain a rural public transit route? At what levels? For how long?

Following are three groups of recommendations appropriate to the organizations involved in the daily operations of the Bucksport public transit route.

6.1 Recommendations for the Bucksport Healthy Communities Coalition

- **Attract a wider representation of the population.** The subcommittee could improve long-term chances of success by attracting community members from a slightly younger age bracket who can bring in additional perspectives and can assume leadership responsibilities over time. The transportation subcommittee, which came about after years of a successful attempt at developing the Healthy Communities Coalition, is currently made up primarily of seniors who do not have alternative means of transportation.

- **Coordinate with area health professionals for better access to physicians on Wednesdays.** Since fewer physicians at Bucksport Family Medicine are available on Wednesdays, coordinating with the health center and the health services community for better physician availability may increase ridership.
- **Consider both life maintenance and higher-order needs.** Transit systems need to deliver access to a wide variety needs. The Bucksport Transit allowed access to essential needs as well as social interaction within the community. Transit routes and schedules should provide service to popular community events, which will attract new riders.

6.2 Recommendations for DTI

- **Schedule alternative/additional days.** Physicians are not always available to see patients at Bucksport Family Medicine on Wednesdays; therefore, an alternative to a Wednesday route schedule could be initiated to capture a larger ridership. Of the riders interviewed, only one got off at the health center, and this was for a routine procedure not performed by a doctor. However, not having access to physicians at the health center on the day the public transit operated did not seem to be an issue for other riders.
- **Develop marketing strategies.** This is a feasible way to increase ridership and to attract those populations not included in the study in order to sustain long-term success of the in-town Bucksport Public Transit Route.
- **Consider both life maintenance and higher-order needs.** Transit systems need to deliver access to a wide variety needs. The Bucksport Transit allowed access to

essential needs as well as social interaction within the community. Transit routes and schedules should provide service to popular community events, which will attract new riders.

6.3 Recommendations for the MDOT

- **Advise interested communities to establish a transit committee.** The Bucksport Transportation Committee was effective in designing the transit and doubled as a grass roots effort to market the transit system. Individuals on the committee not only identified possible riders by reviewing tax maps, but also invited them to try the transit out.
- **Advise interested communities to designate a community transit administrator.** As illustrated in the literature review and discovered in the interviews, having an indefatigable champion – an individual in the community to interact and organize a transportation committee – is an important aspect of the success of designing and improving a rural transit system. This individual also interacts with the local government and MDOT, serving as a liaison.
- **Establish and promote transit-planning grants:** A transit system must be able to match a variety of needs to required services. By identifying population needs, routes can be established, route frequency specialized, and marketing strategies developed. As illustrated in Bucksport’s example, the consultant was effective in identifying community needs and presented many strategies which included bus schedules, route designs, and costs.

- **Advise interested communities to work with neighboring communities to share equipment and other costs:** Small communities would have considerable difficulty in funding and maintaining the transit equipment and staffing required to operate a local bus system, even with assistance from state grants and other funding sources. Pooled resources among several communities can make the investment and ongoing expense more achievable. To the extent that nearby communities share transit system planning and costs, the proposed transit service becomes more realistic. Jointly submitted grant applications can be especially desirable.
- **Advise interested communities to design routes that allow riders access to life maintenance and higher-order needs.** Plan a transit route that can provide riders access to a variety of essential needs. Reasonable round-trip schedule to complete route also needs to be a consideration of route design.
- **Promote the use of a checklist (See Appendix B) to assist in the process of grant review using the Bucksport Public Transit as a model of best practice; make that checklist available to potential applicants.** A checklist can help evaluators be consistent in their consideration of grant applications. It can also serve as a guide for *applicants* as to what evaluators consider important components of the grant application.

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Appendix B: Review Checklist for Rural Transit Route Grant Applications

	Consideration	Yes	Some-what	No	Un-known	Point Value
1	Does the community have a transit administrator or equivalent position?					
2a	Does the community have a transit committee?					
2b	If so, does the makeup of the transit committee reflect community demographics?					
3	Is the community coordinating with neighboring communities about sharing equipment and other costs?					
4	Has the community used a transit planning grant to assess needs, potential routes, and other factors?					
5	Population needs					
6	Have those populations and their needs been factored in with respect to routes? Route frequency? Marketing? Cost estimates?					
	Note: This is a partial list to illustrate possible methods to use this report's recommendations.					



Appendix C: Professional Credentials

Researcher: Martin Puckett

Martin Puckett has served as town manager of Sangerville from 2000 to 2004 and has been involved in regional transportation initiatives to address the unique characteristics of Maine’s demographics. Martin is interested in innovative public transportation methods to serve a variety of individuals, and compete with America’s reliance and love of the automobile. He earned his Bachelor of Arts degree in Public Management in 1999 from the University of Maine and, this spring, earns his Master of Public Administration degree.

Researcher: Andrea Duquette

Andrea Duquette has worked at Target Technology Center, located on Godfrey Drive in Orono, since 2002. As a graduate assistant, she has become experienced in conducting research for several companies. Working to promote economic development within the state of Maine Andrea understands the need and importance of public transportation. She received her Bachelor of Science degree in Business Administration with a concentration in Accounting and, this spring, earns a degree in Master of Public Administration from the University of Maine.

Researcher: Sandra Tardiff

Sandra Tardiff is a graduate student in the Master of Public Administration Program at the University of Maine. Her areas of interest include sustainable community development and practices. In the past, Sandra has worked as a community organizer for low-income people and as a caseworker for people with developmental disabilities and mental health issues. She has served as a steering committee member for the Peace and Justice Center of Eastern Maine since 2001 and plans to pursue a career in sustainable development and planning.

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Appendix B: Human Subjects Review Board Application

1. Summary of Proposal

The proposed study of the Bucksport transit route will serve the purpose of identifying and examining what key factors have contributed to the success of this particular transit route. The Maine Department of Transportation (MDOT) has requested the assistance of graduate students from the University of Maine’s Public Administration Methods of Analysis class in carrying out this study. Therefore, this is the intended purpose – to assist the MDOT in an evaluation of transit route development with a focus on the Bucksport bus route. The three graduate students will work in conjunction and under the supervision of Dr. Kenneth Nichols, Associate Professor of Public Administration.

The overarching purpose of this study will not only serve to identify key factors of success, but may help to assess the extent to which proposals by other local transit agencies are likely to be successful, and if this success can be replicated elsewhere. It is MDOT’s desire to use these findings as an aid in making funding decisions, with the hope of streamlining the process of grant review by helping reviewers more quickly identify and eliminate marginal proposals. The results of this study may also serve as an example of best practice or as a basis for improved guidelines for proposals.

The scope of our proposed study is to interview individual bus passengers, bus drivers, and key individuals in the community whom were instrumental in helping the bus route to get going. A focus group will be completed consisting of members from MDOT, Down East Transit Inc. (DTI), and Bucksport local officials. Bus passengers will also be surveyed.

2. Personnel

Everyone named in this application has completed the mandatory training on the Protection of Human Subjects of Research. All are graduate students enrolled in the MPA program and in PAA 610 & 615: Methods and Advanced Methods of Analysis in Public Administration and Public Policy.

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3. Subject Recruitment:

As reported from DTI, riders vary in age, but typically are in the older age bracket. Subjects surveyed will not be referenced by name but by coded means to ensure confidentiality.

Direct Observations

To aid in becoming familiar with who is riding the bus and for what reasons, all three researchers will ride the buses at various times to observe the surroundings and settings. Taking notes as an individual “bus rider” will provide feedback from an outsider’s perspective. The viewpoints of the three-group members will be recorded as objectively as possible.

Personal Interviews

Three types of personal interviews will be conducted for this study. They include interviews with bus drivers, bus riders, and key stakeholders or informants whom were instrumental in helping the bus route to get going.

Convenience sampling will be used for interviewing bus riders. The interviews will be conducted with bus riders at varying times and at random. No particular individuals will be targeted or singled out. We will use an open-ended question format in order for bus riders to give personal feedback. Interviews with key informants and stakeholders, such as administration from MDOT and DTI, will also be conducted in order to share their thoughts about the Bucksport bus route. These key informants will be able to share with us the changes that have occurred over time. Conducting interviews with all parties involved in creating and maintaining the bus route will provide us with administrative information that bus drivers and riders are unaware of.

Focus Group

A focus group will be held for some of the key informants and administration. The focus group will invite these various people to share their thoughts and opinions of the Ellsworth to Bucksport bus route. The focus group intends to involve those that have worked with this route in the past and those that are currently involved in the process. Those involved will share their experiences as well as perception. The focus group will only be held if time permits.

Surveys



Surveys will be made available on all route schedules to those riders getting on the bus. Attached to each survey will be a brief letter explaining why the survey is being conducted. The letter will explain that riders have the option to choose not to participate and that the rider's anonymity will be protected.

The Likert Scale will clearly identify passenger likes and dislikes and will only require a few minutes of the rider's time, creating more willingness to participate in the survey.

Time Line

The project will begin January 16, 2004, and conclude by May 10, 2004. Tentative dates:

	Activity	Target Dates
	Confirm research design and develop data-gathering instruments	Jan. 26, 2004
	Construct and confirm sampling frame	Feb. 9
	Acquire approval from Human Subjects Review Board and pretest instruments	Feb. 23
	Conduct data-gathering and complete background research	Mar. 22
	Analyze findings and draft report	April 12
	Complete deliverables: Report, exec. summary, handout, display board, graphics presentation	May 10

4. *Informed Consent Form:*

You are being invited to participate in a research project conducted by Andrea Duquette, Sandra Tardiff, and Martin Puckett (to be referred to as the "investigators"), who are graduate students in the Department of Public Administration Department at the University of Maine. The purpose of the research is to develop and obtain information from different perspectives, concerning the Bucksport bus transit.

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What is required of participants?

If you decide to participate, you be asked to take part in a “Focus Group,” where you will exchange your experiences and perceptions regarding this issue.

Risks

Except for your time in the focus group, there are no foreseeable risks to you.

Benefits

The information obtained in the “Focus Group” will be used to create a case study, whereby key factors are identified that will serve as a model for other transit routes. This information may later be used by the Maine Department of Transportation to guide grant parameters for future transit systems.

Confidentiality

In the resulting case study, the responses you provide will not be associated directly with you by name. You will be identified by your role with respect to the role in the development in the transit system. Any notes, information, or documents will be stored in a locked file cabinet at the investigator’s home, for no longer then two years, and then destroyed.

Due to the fact the case study is part of a graduate course, which the investigators are enrolled in; it will be shared with the professor, class students, and other participants. At your request a copy of the entire report will be provided to you, at no charge.

Voluntary

Participation is voluntary. If you agree to participate, then you may discontinue your participation at any time. You may also skip any questions you do not wish to answer or discuss. No monetary benefit attaches to your participation, nor would any penalty attach to your withdrawal.

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Contact Information

If you have any questions about this study please contact the following:

Andrea Duquette

E-mail:andrea.duquette@umit.maine.edu.

Tel.207.215-3444

Sandra Tardiff

Email:sandra_tardiff@umit.maine.edu

Tel.207.866.3059

Martin Puckett

24 East Side Road

Hancock, ME 04640

Email:martpuck@yahoo.com

Tel.207.949.0531

Faculty Advisor:

Professor Kenneth Nichols, D.P.A.

Department of Public Administration, University of Maine

5754 North Stevens Hall, Room 225C

Orono, ME 04469-5754

Email:ken.nichols@umit.maine.edu

Tel.207.581.1875

Questions about your rights as a research participant, contact:

Gayle Anderson

Assistant to the University of Maine's Protection of Human Subjects Review Board

Office of Research and Sponsored Programs

Corbett Hall

Orono, ME 04469-5717

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Email: gayle.anderson@umit.maine.edu

Tel. 207.581.1498

Your signature below indicates that you have read and understand the information above.
You will receive a copy of this form.

Thank you for your participation.

Signature

Date

Name Printed

5. Confidentiality

In the resulting case study, the responses provided will not be associated directly to subjects. Subjects will be identified by their role with respect to the development in the transit system. The key focus group meeting will be with key individuals from MDOT, DTI, and Bucksport officials. Any notes, information, or documents will be stored at the investigator’s home, for no longer then two years, and then destroyed.

6. Risks to Subjects: There are no foreseeable risks to any of the individuals involved.

7. Benefits: The information obtained in the “Focus Group” will be used to create a case study, whereby key factors are identified that will serve as a model for other transit routes. This information may later be used by the Maine Department of Transportation to guide grant parameters for future transit systems. There is no monetary reward or compensation for taking part in the survey.



Driver Questions

1. What changes have you seen over time with this bus route?
2. What do you see as the key attributes to the buses success?
(Program/design, advertising, need)
3. Are there any particular requests that you cannot fulfill for the riders?
4. Are there any extra accommodations that you will make for riders? (Drop off at house, or particular location, wait a few minutes extra.)
5. Do you feel that you have developed a personal relationship with the riders?
6. What do you feel would be taken away from the riders if they were not able to ride the bus? (What do you see as their biggest loss?)

Focus Group Questions

1. What was the major catalyst for the development of the transit route?
2. Who was involved in the development and transformation of the transit route?
ie: Stakeholders, Elected Individuals, Community Members
3. How has the transit route changed from the original design?
4. What factors can you attribute to the success of the transit route?
5. What were some failures of the transit route? How were they fixed?
6. How has the transit adapted to fit the specific needs of Bucksport?

Rider Questions

1. Name one or two things that you like best about the Bucksport Bus
2. Name one way that your life has changed since having access to the bus.
3. Prior to the bus how did you meet those needs that are now being met?
4. If the bus were not available, name one or two things that you'd miss most?
5. What do you think has made this route so successful?
6. How can the bus route be improved?

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