ACADIA NATIONAL PARK ITS FIELD OPERATIONAL TEST

BUSINESS SURVEY

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16. Abstract

Using data from surveys of businesses during the Fall of 2002, this report describes local businesses; their perceptions of tourism and relationship to Acadia National Park as well as summer travel on Mount Desert Island and in Acadia National Park. The report also describes business perceptions of the Island Explorer bus system and awareness/use as well as the benefits associated with ITS components. Information was collected from businesses using a mail-back questionnaire. A total of 454 questionnaires were mailed to businesses. Businesses returned 257 usable questionnaires for a 60 percent response rate.

The survey of Mount Desert Island businesses confirmed the importance of tourism to the local economy. Businesses reported multiple benefits of being situated near Acadia National Park in terms of economic potential of attracting customers as well as other benefits to the community. Business managers are concerned about summer travel on Mount Desert Island and in Acadia National Park. Clearly, many business managers believe that the Island Explorer bus system helps to address some of their concerns about summer travel on Mount Desert Island and in Acadia National Park. In assessing the impact of ITS on businesses, the evaluation revealed that businesses perceive many important benefits to users but limited economic benefit to their own business. Further support of ITS within the business community might be built on illustrating the association between use of ITS, the Island Explorer, and length of stay.

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Executive Summary

In 2002, as part of the Acadia National Park Field Operational Test, Intelligent Transportation Systems (ITS) components were deployed to help visitors travel around Mount Desert Island and in Acadia National Park. Real time travel information was collected and integrated with Island Explorer buses and disseminated to visitors via an automated annunciator that transmitted an audio message and displayed the next bus stop on an electronic sign within the bus. Also, electronic signs displayed real time departure times of the next Island Explorer bus at the Visitor Center and Jordan Pond House bus stops in Acadia National Park and the Village Green in Bar Harbor located outside of the Park. Other traveler information was provided to visitors such as real time parking conditions at two popular destinations in the Park: Sand Beach and the Jordan Pond House. This information was available on the Acadia National Park web page and displayed on signs at the Visitor Center, Blackwoods Campground, and Seawall Campground. Using data from surveys of businesses during the Fall of 2002, this report describes local businesses; their perceptions of tourism and relationship to Acadia National Park as well as summer travel on Mount Desert Island and in Acadia National Park. The report also describes business perceptions of the Island Explorer bus system and awareness/use as well as the benefits associated with ITS components. Information was collected from businesses using a mail-back questionnaire. A total of 454 questionnaires were mailed to businesses. Businesses returned 257 usable questionnaires for a 60 percent response rate.

An important goal of the Field Operational Test of ITS at Acadia National Park is to reduce vehicle congestion in the Park. Reduced congestion will have the added benefits of increased mobility of visitors and residents, aesthetic and environmental benefits of fewer vehicles parked on roads, and safety benefits of less traffic and better emergency response. These factors will combine to provide a more positive visitor experience. The business survey was designed to obtain specific information on one of the six central evaluation objectives: productivity and economic vitality. The survey also was designed to collect information that could be used to assess awareness and use of the various ITS components. Key findings are presented below.

Tourism and the Environment

- The majority of business managers, regardless of business type, reported strong levels of agreement that tourism would continue to play a major economic role in the community (13% agree and 87% strongly agree) and that they supported tourism as having a vital role in their community (13% agree and 86% strongly agree). There were also strong levels of agreement of the need to plan for and manage the growth of tourism (20% agree and 72% strongly agree).

- Business managers reported many benefits their business or community realized being situated near Acadia National Park. A very high proportion of business managers reported the Park provided a "major contribution" in terms of "a natural setting in which your community takes pride" (86%), " a feeling that your community is a special place to live" (84%), "a chance to attract tourism dollars to my business and community" (83%), "a chance to experience unique recreation opportunities" (81%), and "a place to preserve/conserve various natural and unique ecosystems" (81%). The contributions realized by business managers being situated near Acadia National Park include many important benefits to the community including ecological, social, and economic values.

- Business managers are concerned about summer travel on Mount Desert Island and in Acadia National Park. The biggest problem reported was too many vehicles outside of the Park causing parking problems. Nearly half of the business managers (49%) rated this issue as a "big problem" and 23% rated this issue a "moderate problem." The second ranked problem was too many vehicles outside of the Park causing traffic congestion. Forty-three percent of the business managers rated this issue as a "big problem" and 27% a "moderate problem." Over two thirds of the business managers rated "big" or "moderate" problems in terms of too many vehicles inside of the Park causing parking problems. Nearly two thirds of the business managers rated "big" or "moderate" problems in terms of too many autos in the Park that impacts visitor experience. Business managers reported access of being more of a problem at attractions outside of the Park than inside of the Park.

- The recognition of too many automobiles impacting air quality ranked relatively high as compared to other problems related to travel on Mount Desert Island and in Acadia National Park. Over two-thirds of the business managers rated this issue a "big problem" or "moderate problem."

Island Explorer Bus System

Clearly, many business managers believe that the Island Explorer bus system helps to address some of their concerns about summer travel on Mount Desert Island and in Acadia National Park. Business managers reported important benefits in using the Island Explorer:

- The biggest benefit reported, regardless of business manager group type, was that the Island Explorer bus created less worry about driving and parking for tourists along busy roads. A similar high ranked benefit, regardless of business manager group type, was that the Island Explorer bus reduced tension and stress for people who would otherwise drive their own vehicle.

- There was general agreement that the Island Explorer bus helped to reduce the amount of vehicle pollution and improve air quality. Business managers that had customers who used the Island Explorer bus ranked this as the second ranked benefit in terms of their strength in beliefs it would be an outcome. There was general agreement the Island Explorer users would contribute to fewer total vehicles on the road and safer driving conditions.

- The perceived benefits of using the Island Explorer bus correlates with the relatively high proportion of business managers that reported customer use of the Island Explorer bus (64 percent). It should be noted that 69% of the business managers reported providing information related to the Island Explorer bus. This is particularly promising because the favorable attitudes towards the Island Explorer bus may continue to motivate businesses recommending to their customers as well as the potential of integrating ITS technologies.

Awareness and Usage of ITS

Nearly one-third of the business managers (61%) reported being aware of one or more of the ITS technologies. In general, there appeared to be much more reported awareness of the ITS technologies associated with the Island Explorer bus and in particularly the electronic bus departure signs (80%). In contrast there was much less reported awareness of the parking conditions at Sand Beach and Jordan Pond House with displayed signs (40%) or the Acadia National Park web page (25%). It is important to note that awareness and usage were far from uniform. One-half of the business managers that reported being

aware of any of the ITS technologies actually used the ITS technologies. The vast majority of business managers were not sure if customers used any of the ITS technologies. However, it is important to note there are many perceived benefits associated with the ITS technologies regardless of the awareness and current usage of ITS technologies. Business managers found important benefits in using ITS:

- Business managers reported that the users of the traveler information system involving the real-time parking conditions would make it easier for tourists to get around (78%). A high proportion of business managers thought the parking information would be help tourists to avoid parking problems and traffic congestion in the Park (84% and 81%, respectively) and to avoid large crowds (70%).

- Business managers reported that the users of the traveler information system involving the automated annunciator, and electronic departure sign for the Island Explorer bus information would make it easier for them to get around (95%). Ninety percent of the business managers thought that the Island Explorer bus traveler information helped to relieve uncertainty for users when the bus would arrive at the bus stop. Eighty-five percent of the business managers thought the Island Explorer bus traveler information helped to relieve uncertainty for users when to exit the bus. Finally, 90% of the business managers rated "strongly agree" or "agree" to the statement "providing the Island Explorer bus traveler information helps to improve the travel experience" (42% and 48%, respectively).

- An important goal of the ITS technologies was to enhance the visitor's experience and to divert visitors from using their private vehicles to using the Island Explorer bus. Most business managers thought the parking and Island Explorer traveler information would increase the likelihood that some tourists would ride the Island Explorer bus (86% and 93%, respectively).

Based upon these findings about the perceived benefits to users, the implication is that traveler information could be potentially useful to many businesses who were unaware of the ITS technologies and traveler information. However, equally important may be mechanisms that help businesses facilitate awareness of these types of traveler information sources to their customers.

Impact of ITS on the Local Economy

An expected benefit of the ITS technologies is that it will contribute to the productivity and economic vitality in the region. Specifically, the enhanced experience and increased mobility will contribute to longer visitor stays and attract a new car-less tourist segment. In general, there were strong levels of agreement among business managers (38% agreed and 45% strongly agreed) that the Island Explorer creates potential for a new segment of tourists who do not drive personal vehicles. A relatively high proportion of the business managers (87%) thought the Island Explorer traveler information helped tourists utilize time such as visiting shops before their bus arrives at the bus stop. However, it should be noted that there was a great deal of uncertainty among business managers in terms of their beliefs about whether visitors who use the Island Explorer tend to stay longer. Nearly half of all business managers (48%) neither agreed nor disagreed to one statement of the potential benefits of the Island Explorer "increases the likelihood that visitors will stay longer." Thirty-five percent of the business managers agreed that use of the Island Explorer bus increases the likelihood that visitors will stay longer. So regardless of the increased positive experiences that might result from customer use of the ITS technologies and probable use of the Island Explorer bus there might not necessarily be a perceived economic benefit to the business in terms of increased length of stay. This may have contributed to business manager reports of "neutral" to parking and Island Explorer traveler information being helpful to their business (48% and 30%, respectively).

Conclusion

The survey of Mount Desert Island businesses confirmed the importance of tourism to the local economy. Businesses reported multiple benefits of being situated near Acadia National Park in terms of economic potential of attracting customers as well as other benefits to the community. Business managers are concerned about summer travel on Mount Desert Island and in Acadia National Park. Clearly, many business managers believe that the Island Explorer bus system helps to address some of their concerns about summer travel on Mount Desert Island and in Acadia National Park. In assessing the impact of ITS on businesses, the evaluation revealed that businesses perceive many important benefits to users but limited economic benefit to their own business. Further support of ITS within the business community might be built on illustrating the association between use of ITS, the Island Explorer, and length of stay.

1.0 INTRODUCTION AND BACKGROUND

Acadia National Park is part of the U.S. National Park System, which has as its dual mission the preservation of natural and cultural resources and providing visitors with a meaningful and pleasant experience. Acadia hosted 2.5 million recreation visits in 2001, making it one of the most-visited National Parks in the peak summer months of July and August[1]. Tourism dominates the regional economy, and the attraction of Acadia National Park is a major contributor to the tourism industry.

The popularity of Acadia National Park and the growth of tourism on Mount Desert Island are not without problems. During the peak tourist season, roadway congestion is the norm, and parking at trailheads and beaches has become increasingly difficult. Lengthy traffic delays and noise and air pollution often detract from the experience visitors have come to enjoy, and they also threaten the Park's natural and cultural resources.

To relieve traffic congestion, Acadia National Park has turned to public transportation as the preferred approach for both protecting the aesthetic and natural resources of parklands and providing a quality visitor experience. With support from public and private funding sources, in 1999 the Island Explorer bus service was launched to provide free transportation during the tourist season on Mount Desert Island. The success of the service in its first season led to expand the service for the 2000 summer.

The U.S. Department of Interior, the parent organization for the National Park Service, and the U.S. Department of Transportation are collaborating on the use of technology, including Intelligent Transportation Systems (ITS), to address transportation problems in National Parks. Acadia was chosen for a Field Operational Test of ITS to assess the effectiveness of ITS in helping to solve those problems. Science Application International Corporation was selected by the U.S. Department of Transportation to work with the National Park Service and local stakeholders on Mount Desert Island to design and deploy the ITS Field Operational Test.

The U.S. Department of Transportation selected Battelle Memorial Institute to conduct an independent evaluation of the Field Operational Test to assess the benefits from the ITS technologies and identify lessons learned from the experience that might be applied to other National Parks. In all, there were seven components of the evaluation. Section 1.1 provides an overview of the overall evaluation strategy while the remainder of the report discusses one component of the independent evaluation, Business Surveys, in more detail.

1.1 Overview of the Overall Evaluation Strategy

The Intelligent Transportation Systems deployed at Acadia National Park integrates different components that support the region's needs for transit management, traffic management, and traveler information. The components are interrelated and depicted in Figure 1.1.1. The relationship between the individual system components, the functional requirements, the system elements, and the needs addressed are shown in Table 1.1.1. Further elaboration can be found in the Acadia National Park ITS Field Operational Test: Strategic Plan. Based on the collective feedback of the stakeholders, the overriding impact of the ITS technologies should be to reduce vehicle congestion in Acadia National Park. Reduced congestion will have the added benefits of increased mobility of visitors and residents, aesthetic and environmental benefits of fewer vehicles parked on roads, and safety benefits of less traffic and better emergency response.

[1] National Park Service web page: www2.nature.nps.gov/npstats/parkrpt.cfm

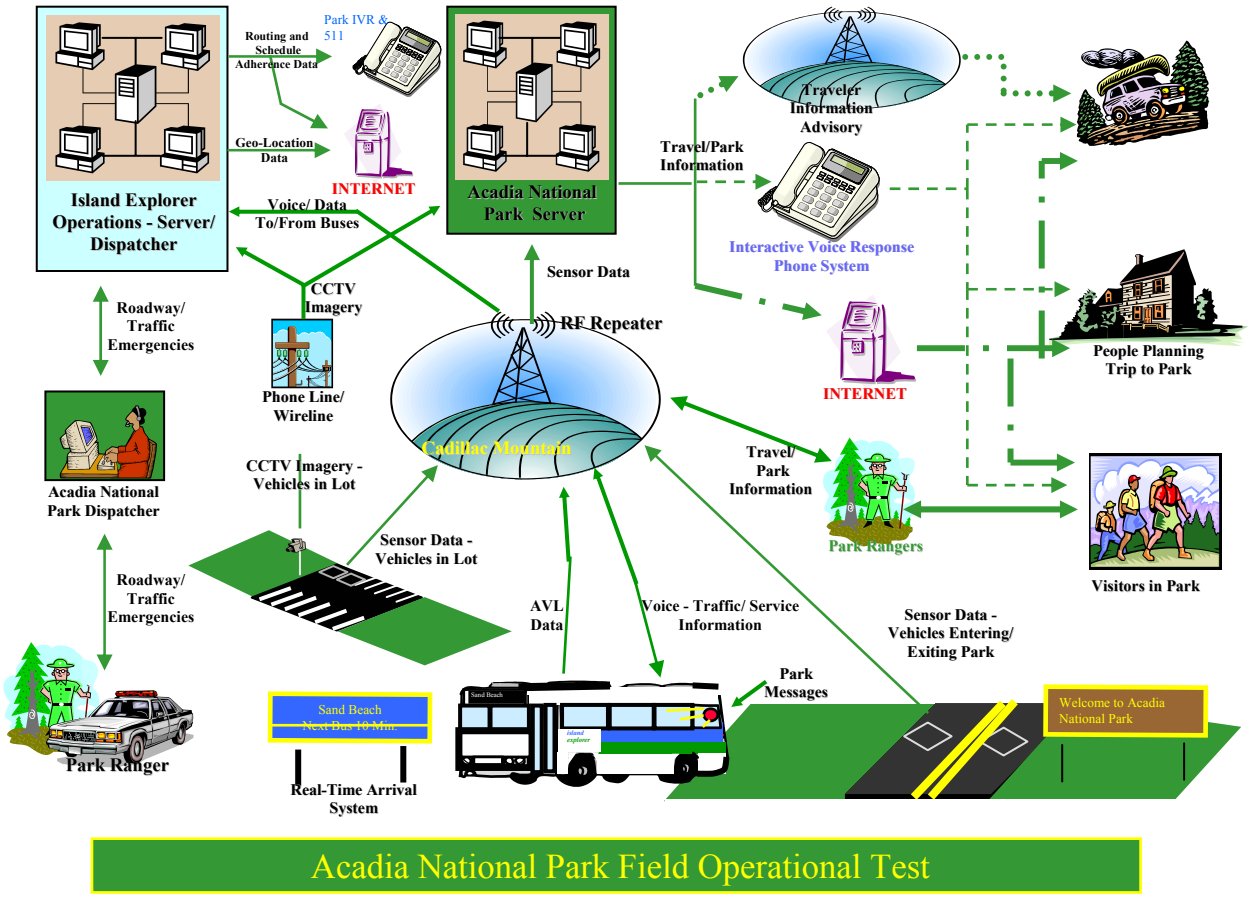

Figure 1.1.1: System Architecture for ITS FOT at Acadia National Park

The evaluation strategy was developed in cooperation with local partners and representatives from the state and federal Departments of Transportation. Despite the differences in the participant make-up of the workshop, the conclusions were very similar. There was considerable agreement among participants that customer satisfaction and mobility were higher in priority than the other goals. However, other evaluation goal areas (safety, efficiency, productivity and economic vitality, and energy and environment) also held some level of importance among the stakeholder organizations.

The overall evaluation approach was based on several evaluation tests that combined primary and secondary data collection and analyses. Visitor on-site interviews, mail-back questionnaires to visitors and local areas businesses, personal interviews, direct observation, and system and historical data analysis were performed. The visitor and business surveys collected primary data on user awareness and satisfaction. Personal interviews with Island Explorer and Acadia National Park staff provided in-depth perspectives on issues affecting deployment and use of the technology. The systems data from the ITS components was used to document the type, content, and sources of information made available through the various input systems and characterize the use of various user interfaces by stakeholders. Business manager responses are the subject of this report, and findings of the other tests are reported elsewhere.

Table 1.1.1: ITS System Components

System Component	Functional Requirements	System Elements	Needs Addressed
Island Explorer Two-way Voice Communications	Transmit and receive to/from/between vehicles and dispatch center	Transceivers; vehicle and base station Repeater to amplify signal	Improved efficiency Improved safety Real time traffic information for park staff, reduce crush load conditions, incident detection
AVL for Island Explorer	Compute and transmit vehicle location Integrate vehicle locations with departure signs, display vehicle locations[2], integrate into enunciator	Vehicle transmitter TCP/IP Network Connectivity, GPS Transceiver, GIS Applications, Travel Time Applications	Improved efficiency and performance Decreased use of POV's Improved safety and response Real time updates Increase ridership
Departure Sign for Island Explorer	Transmit location Compute departure Transmit to departure signs	Display sign, Software, Wireless/Wireline Communications	Improved scheduling information Increase ridership
Automated Annunciator for Island Explorer	Determine location Automatically play next stop and other pertinent announcements	Vehicle annunciator	Improve efficiency Reduce delays Increase safety Improve visitor experience
Passenger Counter for Island Explorer	Auto-count boardings/ dismounts at selected stops, Store information	Sensor to perform counts Data storage	Increase efficiency Improve planning Increase data options Reduce vehicle crush loads
Parking Lot Monitoring[3]	Record number of vehicles entering and exiting, provide slow scan video of parking area[4], transmit data, display video, store data from vehicle counts	Counting sensor Video camera Display monitor Wireless/wireline communications TCP/IP network connectivity	Decreased use of POV's Provide planning data Information for Rangers Decreased Response times
Automatic Ranger/Vehicle Geo-Location[5]	Determine location +-10 meters, transmit same to server, display locations on map	Transmitting unit GPS Transceiver Repeater for signal GPS/GIS Software	Information for Rangers Exact locations of Rangers Decreased response times Improved visitor safety, security
Entrance Traffic Volume Recorder[6]	Record and transmit number of vehicles entering and exiting, store data	Counting sensor Transmission unit	Count vehicles Provide Planning Data Decrease use of POV's
Traveler Information System	Collect and integrate data, disseminate data to appropriate audience	Interactive telephone messaging system[7], web page, parking status signs	Increase availability and display options of information, Decrease use of POV's, Improve visitor experience

[2] Not operational during the Field Operational Test
[3] Observation was used as an alternative to automated parking monitors as a way to communicate parking lot status to visitors through the website and specially created parking status signs
[4] Eliminated from the Field Operational Test
[5] Eliminated from the Field Operational Test
[6] Not operational during the Field Operational Test
[7] Not operational during the Field Operational Test

1.2 Objectives of the Business Surveys

An important goal of the Acadia National Park ITS technologies is to reduce vehicle congestion in the Park. Reduced congestion will have the added benefits of increased mobility of visitors and residents, aesthetic and environmental benefits of fewer vehicles parked on roads, and safety benefits of less traffic and better emergency response. These factors will combine to provide a more positive visitor experience and therefore contribute to the productivity and economic vitality of Mount Desert Island and Acadia National Park.

The business survey was designed to obtain specific information on one of the six central evaluation objectives: productivity and economic vitality. For example, business managers were asked to assess the benefits their customers may derive from using the ITS technologies and related visitor experience. It was of interest to determine if the ITS technologies contributed to increased positive experiences and consequently influence use of the Island Explorer bus and length of stay. Specific hypotheses related to this goal area are presented in 5.0 Discussion section of the report. The survey also was designed to collect information that could be used to assess business awareness and use of the various ITS components. The questionnaire used to obtain this information is presented in Appendix A.

2.0 OVERVIEW OF STUDY DESIGN AND METHODS

Information was collected from businesses during two different time periods: a preliminary on-site interview with a small sample of businesses during the Fall of 2000; and a more extensive questionnaire mailed to a larger sample of businesses during the Fall of 2002. Fall time periods were purposively chosen after the busy summer season to optimize the likelihood of businesses agreeing to participate in the on-site interview and to increase the mail-back questionnaire response rates. The on-site interview was designed as a preliminary study to assess the perceptions of private businesses on transportation issues in and around Acadia National Park and the Island Explorer Bus System. Interviews were conducted with managers and owners of hotels, motels, campgrounds, bed and breakfasts, and in town stores. The results of the on-site interview helped with the design process of a large-scale self-administered, mail-back questionnaire that was sent to a sample of Mount Desert Island businesses. The administration of the business survey was delayed one year due to complications in the deployment of the ITS components in the summer of 2001.

The self-administered mail-back questionnaire was sent to Mount Desert Island businesses that were members of the Bar Harbor Chamber of Commerce or Southwest Harbor / Tremont Chamber of Commerce. The collected addresses were reviewed and only Mount Desert Island businesses were included for sending mail-back questionnaires. The business addresses were entered into a separate database for survey administration and tracking of returned surveys. The initial mailing included a questionnaire with a cover letter and postage-paid business reply envelope. One week after the first mailing, a postcard reminder/thank you postcard was sent to every business. Three weeks after the initial mailing, a follow-up mailing was sent to those who did not respond. A second follow-up questionnaire was sent to those who still had not responded 6 weeks after the initial mailing. A careful record of respondents and non-respondents of the mail-back questionnaire were maintained to reduce the burden of respondents receiving follow-up mailings. Information from the mail questionnaires was entered and converted to a database suitable for analysis.

The remainder of this section provides a summary of three main aspects of the study design: Target population, Selection of Mount Desert Island Businesses, and the Mail-back Questionnaire. Additional details on the sampling design and methodology are contained in "Acadia National Park ITS Field Operational Test: Test Plan for Business Survey."

2.1 Target Population

To evaluate the impact of ITS deployments on businesses in the community information was collected from businesses. In order to assess the benefits of ITS, the population was further segmented into businesses that reported customers who used the Island Explorer bus as compared to those businesses that reported customers had not used the Island Explorer bus. For example, it was of interest to determine whether the perception of business manager's ease of travel differed for those who reported customers that used the bus as compared to businesses that reported customers did not use the Island Explorer bus. In addition, the population was further segmented into businesses who were "aware of and using" components of the ITS deployment and those who were "unaware of or not using" deployed components. For example, it was of interest to determine whether the perception of business manager's ease of travel who were "aware of and using" ITS as compared to those who were "unaware of or not using" ITS. Therefore, a broad spectrum of businesses on Mount Desert Island was targeted for the evaluation.

2.2 Selection of Mount Desert Island Businesses

As indicated above in Section 2.0, the selection of Mount Desert Island businesses for the mail-back questionnaire was determined by membership in two Chamber of Commerce organizations on Mount Desert Island. The reason for including both Chamber of Commerce organizations was to represent diverse types of businesses and different locations around Mount Desert Island. The University of Maine evaluators contacted the directors of the Bar Harbor Chamber of Commerce and Southwest Harbor / Tremont Chamber of Commerce and gave a brief explanation of the Acadia National Park ITS Field Operational Test. An explanation was given in terms of the value of obtaining feedback from local area businesses, specifically on summer travel and awareness of the deployed ITS components. Both Chambers agreed to share their mailing lists for the purposes of the evaluation of the Acadia National Park ITS Field Operational Test. A hard copy of the business mailing addresses was sent to the Parks, Recreation and Tourism program at the University of Maine. The collected addresses were reviewed and only Mount Desert Island businesses were included for sending the mail-back questionnaires.

A cover letter with a business address and greeting to the business manager explained that the researcher was part of team looking at transportation on Mount Desert Island for the National Park Service and the U.S. Department of Transportation. The researcher informed the business manager that currently underway was a study of visitors and residents who traveled during the summer in the vicinity of Acadia National Park. The purpose of the visitor study was to assess satisfaction with transportation services and travel conditions while visiting Acadia National Park and surrounding towns. In addition to obtaining feedback from visitors the researcher felt it was equally important to obtain viewpoints from individuals that manage different area businesses.

The selected Mount Desert Island businesses and business managers were asked to complete the enclosed questionnaire as completely and accurately as possible and to return it in a self-addressed stamped envelope. Business managers were told that they had been selected as part of a sample of different area businesses and that their participation was important to ensure representation of a broad spectrum of business viewpoints. They were made aware that the questionnaire had an identification number for mailing purposes only; and that their responses would be held in the strictest confidence. They were told that their name and the business managed would never be associated with their responses. Business managers were informed that there would be no penalties for not answering some or all of the questions, but since each interviewed business represented many others who would not be surveyed, their cooperation was extremely important.

2.3 Mail-back Questionnaire

A mail survey was used to conduct the self-administered questionnaire to the sample of Mount Desert Island businesses. The Total-Design Method (TDM), a standardized methodology consisting of questionnaire construction and survey implementation was utilized as a guide for the mail survey (Dillman 1978)[8]. Below is a description of the mail survey components including: 1) the questionnaire; 2) a cover letter of explanation; 3) an envelope for sending the mail survey; 4) a stamped envelope for returning the questionnaire; and 5) organization of sending the mail survey.

The business questionnaire was divided into four sections. The first section of the questionnaire examined perceptions of tourism and the role of Acadia National Park to tourism and quality of life in the community. The second section of the questionnaire examined transportation issues and the Island Explorer Bus system. Information was obtained to distinguish businesses that had customers who utilized

[8] Dillman, Don A. 1978. Mail and Telephone Surveys. New York: John Wiley and Sons. 325 p.

the Island Explorer Bus. All businesses, regardless of customer use, assessed the potential benefits of the Island Explorer Bus and its contribution to improving travel conditions inside Acadia National Park and communities outside of the park. The third section of the questionnaire examined the impacts of deployed components of the ITS Field Operational Test. The final section of the questionnaire requested background information such as type of business, location of business, and length of time operating during the year. Technical review provided by transportation experts, park staff, stakeholders outside of the park, and the directors of the chamber of commerce assisted in the development of types of questions, the sequence of questions, and wording of the final questionnaire. A copy of the mail survey is contained in Appendix A. The questionnaire had a cover page with the title of the survey and the final page of the questionnaire contained an open-ended section for comments, a thank you for completing the questionnaire, and instructions to return the survey.

A cover letter as described above was sent with the questionnaire to explain the purpose of the survey to the respondents and to encourage a high response rate. The University of Maine logo with the Parks, Recreation & Tourism program was professionally reproduced on high quality bond paper. A software program merged the name and address of the respondent on each cover letter. The content of the letter will contain the following: 1) identification of the organization conducting the study; 2) an explanation of the purpose of the study; 3) the importance of why the respondent needed to answer the questionnaire; and 4) an explanation to the respondent that the information provided would be held in the strictest confidence. A hand written signature of the principal investigator was applied to all cover letters.

A high quality bond #10 envelope was used to mail the questionnaire, cover letter, and a #9 business reply envelope. The mailing envelope color and texture matched the cover letter. The logo of the University of Maine and address of the Parks, Recreation & Tourism program was professionally reproduced on the upper left corner of the envelope. Computerized mailing labels were used to place business addresses on envelopes. Regular postage stamps as opposed to mechanical stamping were used to mail the surveys. The extra details given to the envelope and cover letter were done to emphasize the difference of this mail survey from other mail surveys more common to American households.

A plain white #9 business reply envelope was mailed with the questionnaire and cover letter and used by respondents to return the completed questionnaires. A return mailing address was printed on the business reply envelope. The right corner of the envelope stated NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES. An account (business reply postage) was established with the University of Maine so that postage was charged only if respondents used the envelope for returning questionnaires. A bar code printed on each business reply envelope indicated the appropriate account to charge when the envelope was returned to the University of Maine. A substantial amount was saved in postage costs by using this method.

Approximately four to five students were used to organize components of the self-administered questionnaire 2-3 days prior to the initial mailing of surveys. Cover letters were merged with the data listing of names and addresses. Signatures for the cover letters were hand written in blue ink. An identification number was placed on the last page of the questionnaire to monitor returns. The postage stamps were pre-fixed in the upper right corner of the envelope.

A system was created to monitor returned questionnaires and also to facilitate additional mailings of the self-administered questionnaire. A master data table contained the following: 1) unique respondent ID number; 2) name and address; 3) mailing Number One, Number Two, and Number Three; and 4) notes and the non-deliverable questionnaires. A unique identification number was permanently assigned to the respondent for the duration of the mail survey. The number was written on the last page of the questionnaire and used to monitor returns. The name and address of each respondent was cross-referenced with the questionnaire identification number. A date was recorded when the completed

questionnaire was received at the University of Maine and noted in the applicable mailings Number One, Number Two and Number Three boxes. Notes were recorded on data sheets describing outcomes such as non-deliverables of the initial mailings.

The methodological literature on follow-up mailings suggests that it is an effective method for increasing return rates in mail surveys (Babbie 1992)[9]. The timing of follow-up mailings is important and The Total Design Method was used as a guide for sequencing follow-up mailings (Dillman 1978)[10]. The completed questionnaires returned to the University of Maine were processed on a daily basis. A careful record of respondents and non-respondents were maintained to reduce the burden of respondents receiving follow-up mailings. After the initial mailing, a postcard reminder was mailed in one week to all respondents. The purpose of the postcard was to remind the respondent to fill out and return the questionnaire and to thank him or her if the completed survey had been already filled out and mailed back. The first follow-up mailing of a replacement questionnaire was mailed three weeks after the first mailing. The second replacement questionnaire was sent six weeks after the first mailing. The same detail to components of the self-administered questionnaire for the first mailing was used in preparing the two follow-up mailings. The mail surveys contained a new copy of the questionnaire, business reply envelope, and slightly different cover letters. Signatures on the cover letters were hand written. A data table was used to calculate response rates throughout phases of the mail survey.

A codebook was produced for each data collection instrument. The codebook defined variables in terms of type, location within the data file, field width, and description of variable. The data was then electronically keyed into an Excel™ spreadsheet. The Excel™ spreadsheet defined an acceptable range of values for each variable to improve the accuracy of data entry. In addition, a random check of entered data was compared with corresponding questionnaires to assess the accuracy of data entry. All errors or questions were flagged during the electronic data entry and researched to correct answers entered into the database. The Excel™ file was converted to a database suitable for analysis. The resulting data was analyzed using the Statistical Package for the Social Sciences SPSS™.

[9] Babbie, Earl. 1992. The practice of Social Science Research. 6th Edition, Belmont, CA: Wadsworth Publishing. 493 p.

[10] Dillman, Don A. 1978. Mail and Telephone Surveys. New York: John Wiley and Sons. 325 p.

3.0 RECRUITMENT RESULTS

3.1 Recruitment and Participation

Originally, recruitment was to proceed using only the Mount Desert Island businesses listed as members of the Bar Harbor Chamber of Commerce and the Southwest Harbor / Tremont Chamber of Commerce. This approach, however, proved to be a little cumbersome. For example, different businesses were listed but owned or managed by a single business manager. Adjustments were made to administering surveys when business managers reported receiving duplicate surveys for different businesses.

A total of 454 business surveys were mailed to Mount Desert Island businesses. Of the 454 surveys mailed to businesses, 14 were not deliverable. A total of 7 unusable questionnaires were returned. These included surveys not filled out because the business had been sold and surveys that had missing identification numbers. A total of 257 usable questionnaires were returned, providing an overall response rate of 60 percent. Table 3.1.1 shows the number of completed business surveys and business location on Mount Desert Island. Altogether, the largest proportion of returned business surveys were from downtown Bar Harbor. The proportion of completed business surveys reflects the relative density of where businesses are located on Mount Desert Island. Thirty-three businesses did not reveal the location of their business (13 percent). A few respondents belonged to the Chamber of Commerce but stated they did not own a business. Finally, the completed business surveys and their reported business location represent 13 distinct geographic areas around Mount Desert Island.

Table 3.1.1: Completed Survey and Business Location on Mount Desert Island

N=257; percentages do not equal 100 due to rounding		
Mount Desert Island	**Completed Surveys**	**Distribution**
	Number	**%**
Downtown Bar Harbor	95	37
Southwest Harbor	46	18
Unknown	33	13
Salisbury Cove/Parkadia	21	8
Route 3 Motels	13	6
Bernard/Bass Harbor	13	6
Manset/Seawall	8	3
Hulls Cove	7	3
Town Hill/Indian Point	6	3
West Tremont	5	2
Otter Creek/Blackwoods	3	1
Somesville	3	1
Northeast Harbor	2	<1
Seal Harbor	2	<1
Grand Total	**257**	**100**

4.0 SUMMARY OF SURVEY RESPONSES

The returned questionnaires were coded and the information was entered in a computer using a standard statistical package (SPSS). Frequency distributions and cross-tabulations were calculated for the coded data, and responses to open-ended questions were categorized and summarized. We have organized the reporting of this data into four sections: 1) demographic of business owners; 2) tourism and Acadia National Park; 3) summer travel of Mount Desert Island and in Acadia National Park; 4) Island Explorer bus system; and 5) awareness and usage of ITS components.

4.1 Demographics of Business Managers and Businesses

The vast majority of business managers (89%) reported that their principal residence was on Mount Desert Island (Figure 4.1.1). Nine percent of the business managers indicated that their principal residence was in Maine but not on Mount Desert Island. Four percent of the business manager reported their principal residence was not in Maine. A few of the business managers reported more than one principal residence.

N=243; percentages do not equal 100 due to respondents reporting more than one principal residence.

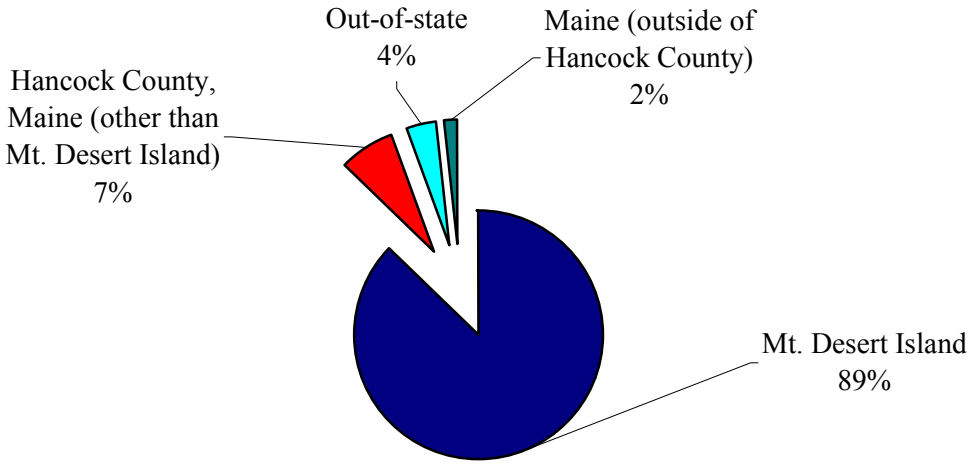

Figure 4.1.1: Principal Residence of Business Managers

Figure 4.1.2 shows the number of years that business managers have resided in the Mount Desert Island area, including Hancock County, regardless of how many years managing their business. Approximately 50% of the survey respondents reported residing in the Mount Desert Island area for more than twenty years. Twenty-five percent reported residing between one and ten years. Five percent reported less than a year. A large proportion of the survey respondents (86%) reported being Year-round residents of Mount Desert Island (Figure 4.1.3). The most common respondent age groups were 51-55 age groups (24%) and another 32% of respondents were in the 41-50 age groups (Figure 4.1.4). Business managers were asked if they regularly access the world-wide-web/Internet once a week or more often either at home or at work. Figure 4.1.5 shows that most business managers (84%) use the world-wide-web on a regular basis.

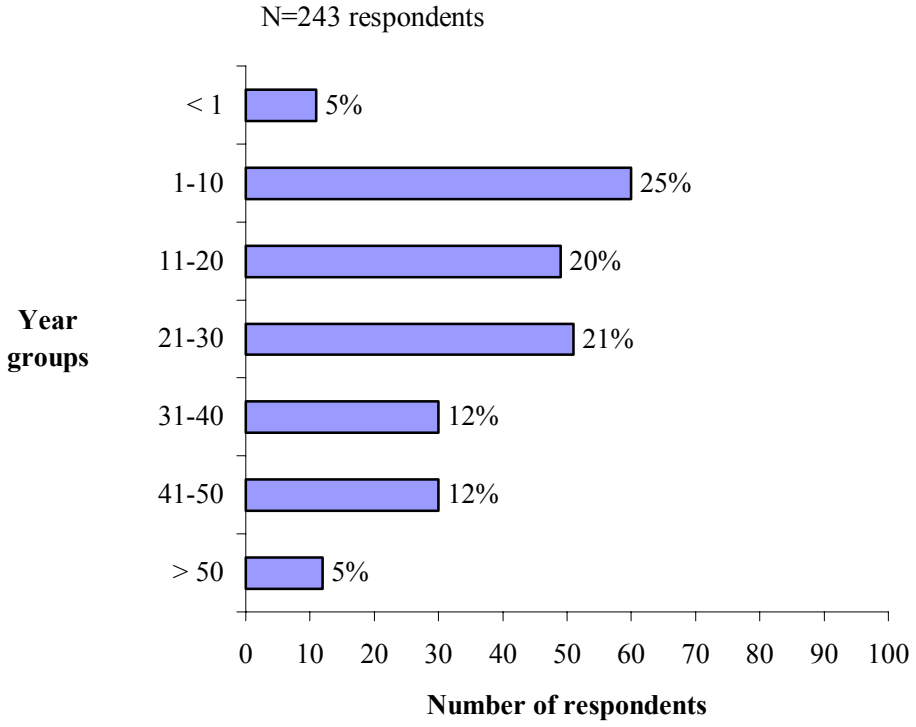

Figure 4.1.2: Number of Years that Business Managers have Resided in the Mount Desert Island Area

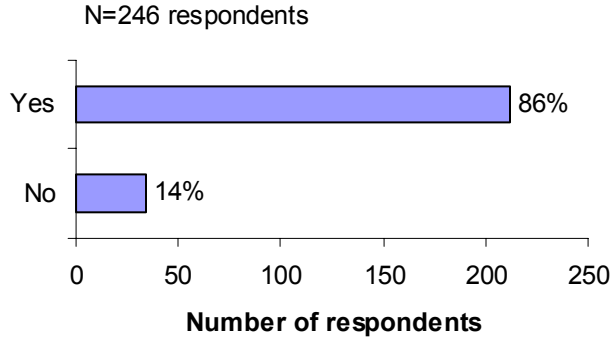

Figure 4.1.3: Business Managers who are Year-round Residents of Mount Desert Island

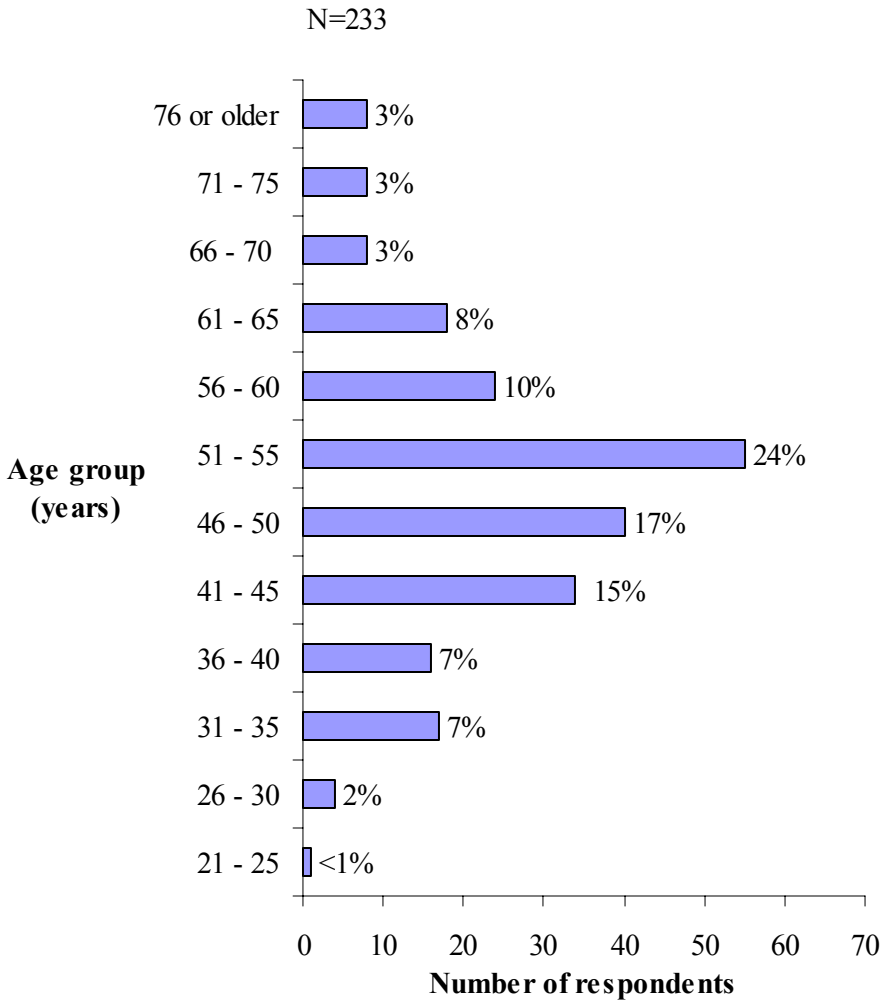

Figure 4.1.4: Age of Business Managers

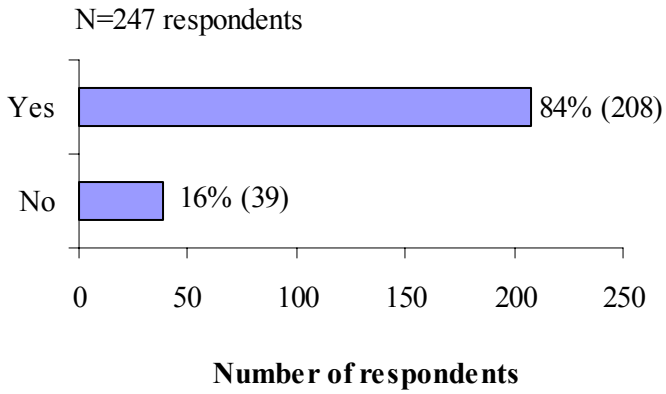

Figure 4.1.5: Use of the World-wide-Web/Internet Once a Week or More Often either at Home or Work

As noted above in Section 3.0 business managers and the location of their businesses were in 13 distinct geographic areas around Mount Desert Island (please see Table 3.1.1.). The higher proportion of businesses representing downtown Bar Harbor and Southwest Harbor reflects the distribution of businesses in terms on Mount Desert Island. However, other clusters of businesses on Mount Desert Island are also evident. Business managers were asked to indicate the type of business they operated on Mount Desert Island. If business managers were involved in more than one business, they indicated their primary business. Figure 4.1.6 shows 42% of the reported businesses were lodging. Nineteen percent of the reported business types were service oriented that included real estate agencies, banks, marketing, and insurance firms. Business types that were reported retail (18%) included gift shops, art museums, garden centers, florist shops, and hardware. Nine percent of the reported businesses types were restaurants. However, it should be noted lodging facilities that had a restaurant was recognized as lodging. Community service (5%) included businesses such hospitals, education, and retirement facilities. Figure 4.1.7 shows 44% of the business managers reported operating their business 12 months out of the year. Twenty-nine percent reported operating their businesses for 6 months. Fourteen percent of business managers reported operating their business for less than 6 months. The shortest length of operation reported was 3 months. Business managers were asked how long they had been operating their business (Figure 4.1.8). A little more than half of business managers (51%) reported operating their businesses more than 10 years. Twenty-three percent of business managers reported operating their business for less than 5 years. Three percent of the business managers reported operating their business less than a year. The range reported by business managers for years of operating their businesses was 3 months to 127 years. It is likely a few business managers miss-interpreted the question and reported years the business had been in operation. For example, five business managers reported over 100 years.

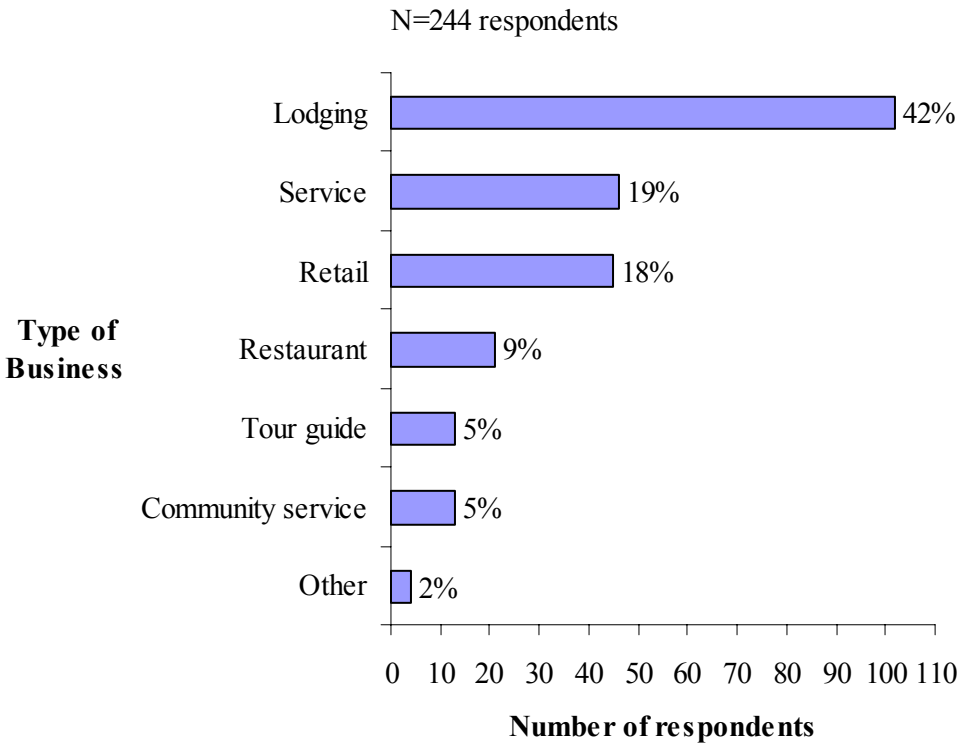

Figure 4.1.6: Types of Businesses on Mount Desert Island

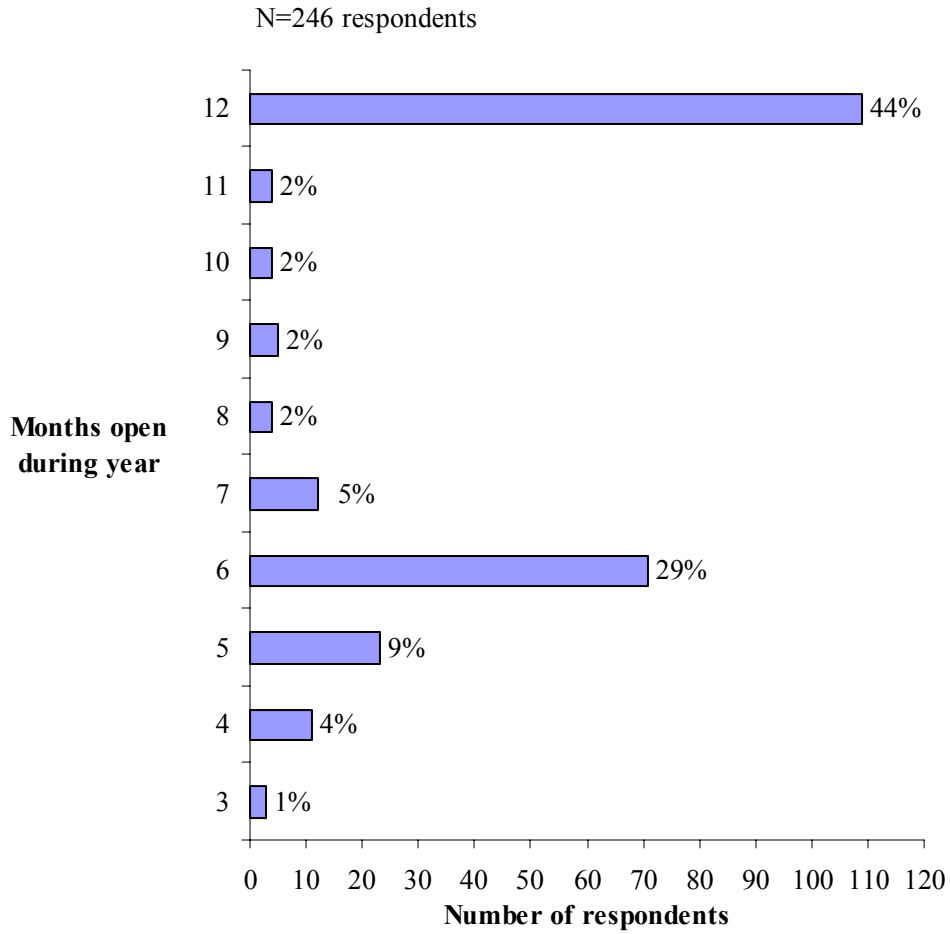

Figure 4.1.7: The Number of Months Businesses are Open during the Year

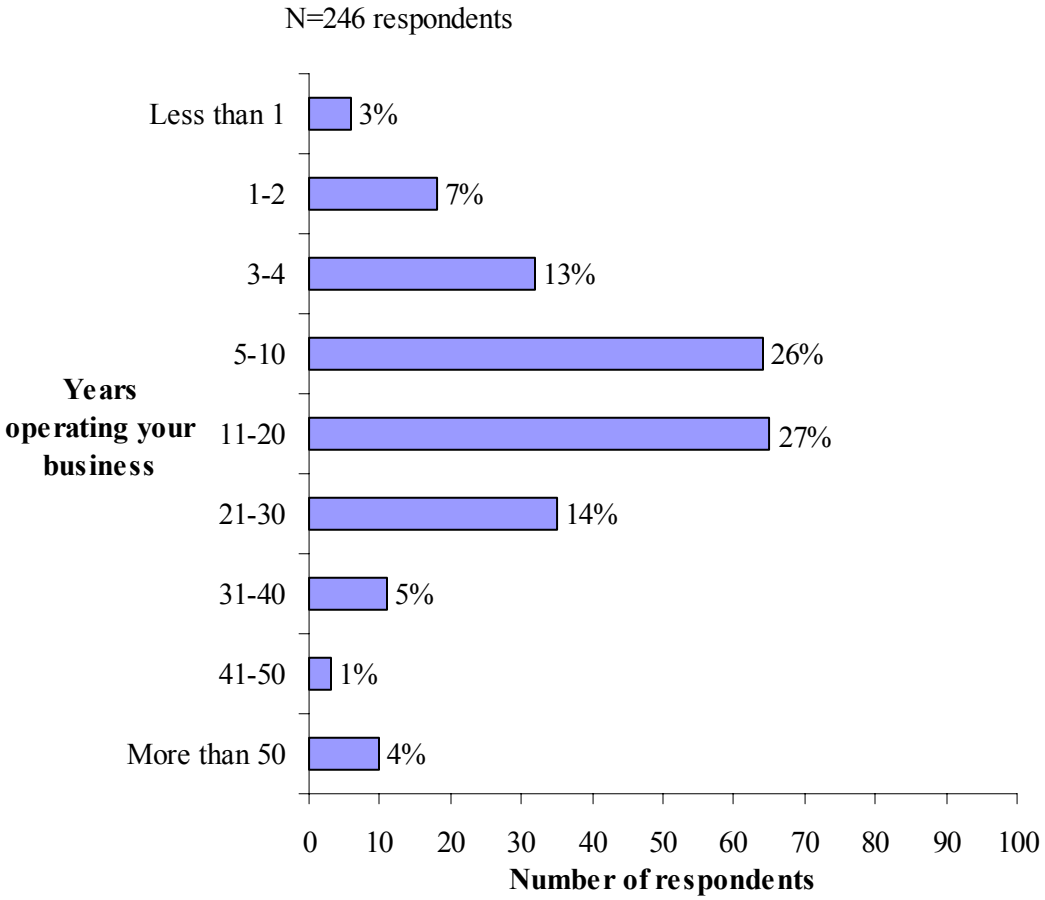

Figure 4.1.8: The Number of Years Operating Business

4.2 Tourism and Acadia National Park

Table 4.2.1 shows business manager ratings of the benefits as well as negative impacts related to tourism. Business managers rated benefits and potential negative impacts based upon a 5-point scale (+2) strongly agree to (-2) strongly disagree for each item. No differences were detected among businesses in terms of reports that customers used the Island Explorer bus system or they were aware and used deployed ITS components described in section 4.5 of this report. Therefore, for the purposes of this report the ratings reflect all business managers.

The strongest level of agreement among respondents of the business survey (1.87) was that the tourism industry would continue to play a major economic role in the community (Table 4.2.1). Eighty-seven percent of the business managers "strongly agreed" with the above projected trend of tourism and its economic role in the community. This was closely followed by strong levels of agreement among business managers (1.86) with the statement "I support tourism as having a vital role in this community." Eighty-six percent of the respondents "strongly agreed" with this statement. The strongest level of disagreement among respondents (-1.19) was that tourism usually benefited a small group of individuals in the community. Eighty-five percent of the respondents either "strongly disagreed" or "disagreed"

(45% and 40%, respectively). It should be noted the strength of agreement among respondents regardless of location or type of business.

There was less agreement with some issues related to tourism in the community. Generally, disagreement was reported by respondents (-.29) with the statement "tourism is responsible for too fast a rate of urbanization and development in Maine." Forty-two percent of respondents either "disagreed" or "strongly disagreed" (31% and 17%, respectively). However, twenty-eight percent of respondents either "agreed" or "strongly agreed" (21% and 7%, respectively). A low level of agreement was reported by respondents (.13) with the statement "tourists are a burden on my community's services (roads, water & sewer, police & fire). For this statement 36% of respondents reported "disagree" or "strongly disagree" (22% and 14%, respectively) and 47% of respondents reported "agree" or "strongly agree" (32% and 15%, respectively).

Table 4.2.1 shows more agreement than disagreement among respondents (.42) with the statement "Additional tourism will have a positive impact on my community's growth." Fifty-two percent of the respondents rated "agree" or "strongly agree" while 28% rated "disagree" or "strongly disagree." Twenty percent of the respondents rated neutral for this statement. Also, more agreement than disagreement among respondents (.27) was reported for "I favor new tourism facilities in my community that will attract more tourists." Forty-six percent of the respondents either "agreed" or "strongly agreed" as compared to 34% that either "disagreed" or "strongly disagreed." Finally, there was a slight margin of more respondents that disagreed than agreed (-.004) with the statement "An increase in tourists in my community will lead to friction between local residents and tourists." Thirty-nine percent of the respondents rated "disagree" or "strongly disagree" while 36% rated "agree" or "strongly agree." A relatively high percent of respondents (25%) rated "neutral" for this statement.

In sum, there were relatively high levels of agreement among respondents (1.41) to the statement "I am happy and proud to see tourists coming to see what my community has to offer." Ninety percent of the respondents either "agreed" or "strongly agreed" with this particular statement. Less than one percent of the respondents rated "disagree" or "strongly disagree." There was a strong level of agreement among respondents to the statement "My community should plan for and manage the growth of tourism." Nearly three quarters of the respondents (72%) rated "strongly agree" to this statement. This is not a surprise based upon some of the findings reported above.

Table 4.2.2 shows Acadia National Park's contributions that are realized by business managers. Business managers rated on a 5-point scale 1 = No Contribution, 2 = Minor Contribution, 3 = Moderate Contribution, 4 = Major Contribution, and 5 = No Opinion benefits that his or her business or community might realize being situated near Acadia National Park. No differences were detected among businesses that reported customer use of the Island Explorer bus or if they were aware and used deployed ITS components described in section 4.5 of this report. Therefore, for the purposes of this report the ratings reflect views of all business managers. Please note the means in the table below exclude business managers that reported "No Opinion" for the purpose of ranking the item and amount of contribution.

There are many benefits realized in terms of businesses being situated near Acadia National Park. The highest ranked benefit was "A natural setting in which your community takes pride" with 86% of the respondents reporting this was a "major" benefit (Table 4.2.2). Eighty-one percent of the respondents reported a "major" contribution of the Park was "A chance to experience unique recreation opportunities." Equally important was "A place to preserve/conserve various natural and unique ecosystems" with 81% reporting this was a "major" contribution of the Park. The second highest proportion of business managers (84%) reported that the Park was a "Major" contributor in "A feeling that your community is a special place to live."

Table 4.2.1: Potential Benefits and Negative Impacts Related to Tourism in the Community*

Potential Benefits and Negative Impacts	Business Managers	
	Mean	Rank
The tourism industry will continue to play a major economic role in this community	1.87	1
I support tourism as having a vital role in this community	1.86	2
My community should plan for and manage the growth of tourism	1.61	3
I am happy and proud to see tourists coming to see what my community has to offer	1.41	4
Additional tourism will have a positive impact on my community's growth	.42	5
I favor new tourism facilities in my community that will attract more tourists	.27	6
Tourists are a burden on my community's services (roads, water & sewer, police & fire)	.13	7
An increase in tourists in my community will lead to friction between local residents and tourists	-.004	8
Tourism is responsible for too fast a rate of urbanization and development in Maine	-.29	9
Tourism usually benefits a small group of individuals in this community	-1.19	10

* Possible responses: +2 = Strongly Agree; +1 = Agree; 0 = Neutral; -1 = Disagree; and -2 = Strongly Disagree

A high proportion of business managers (83%) reported that the Park was a "major" contributor in attracting tourism dollars to their business and community. However, only a slight majority of businesses (52%) reported that the Park was a "major" contributor in terms of the number of jobs that have been created within the community. Twenty-nine percent of businesses reported a "moderate" contribution and 15% indicated the Park was a "minor" contributor in terms of the number of jobs created within the community. This was the lowest ranked benefit among all items. However, on another aspect of jobs and the economy, 59% thought the Park contributed in a "major" way in terms of "A more stable economy within the community."

Another important benefit identified among businesses related to access to recreation opportunities. Approximately 3 out of 4 respondents (72%) thought the Park was a major contributor to "Assurance that access to recreation opportunities will not be lost." Eighteen percent rated "moderate" contribution in terms of maintaining access to recreation opportunities. Related to outdoor recreation participation, nearly 3 out of 4 respondents (70%) thought that the Park was a "major" contributor in terms of "Opportunities for exercise that improve local people's health." The increased access for recreation probably contributed to the respondent's reports of "major" contribution in terms of "A greater understanding of your natural environment" (66 percent). Finally, 71% of the respondents reported "major" contribution of the Park in terms of "A greater ability to preserve the character of the immediate area."

Table 4.2.2: Acadia National Park's Contributions that are Realized by Business Managers*

Item	Contribution				Mean	Rank
	No	Minor	Moderate	Major		
	---------- percent ----------					
A natural setting in which your community takes pride	<1	1	9	86	3.87	1
A chance to experience unique recreation opportunities	1	2	13	81	3.81	2
A feeling that your community is a special place to live	1	3	10	84	3.80	3
A place to preserve/conserve various natural and unique ecosystems	1	3	11	81	3.80	3
A chance to attract tourism dollars to my business and community	2	2	13	83	3.78	4
Assurance that access to recreation opportunities will not be lost	2	5	18	72	3.66	5
Opportunities for exercise that improve local people's health	1	7	19	70	3.64	6
A greater ability to preserve the character of the immediate area	4	4	17	71	3.61	7
A greater understanding of your natural environment	2	5	23	66	3.61	8
A more stable economy within the community	2	9	25	59	3.48	9
The number of jobs that are created in your community	1	15	29	52	3.36	10

* Possible responses: 1= No Contribution; 2 = Minor Contribution; 3 = Moderate Contribution; and 4 = Major Contribution.

4.3 Summer Travel on Mount Desert Island and in Acadia National Park

Table 4.3.1 shows business manager ratings of problems related to travel on Mount Desert Island and in Acadia National Park. No differences were detected among businesses that reported customer use of the Island Explorer bus or if they were aware and used deployed ITS components described in section 4.5 of this report. Therefore, for the purposes of this report the ratings reflect views of all business managers. Please note the means in the table exclude business managers that reported "No Opinion" for purposes of ranking the item and amount of problem.

The biggest problem reported was too many vehicles outside of the Park causing parking problems (Table 4.3.1). Nearly half of the business managers (49%) rated this issue as a "big problem" and 23% rated this issue a "moderate problem." The second ranked problem was too many vehicles outside of the Park causing traffic congestion. Forty-three percent of the business managers rated this issue as a "big problem" and 27% a "moderate problem." Over two thirds of the business managers (70%) rated "big" or "moderate" problems in terms of too many vehicles inside of the Park causing parking problems (35% and 35%, respectively). This is most likely related to business manager's report of too many autos in the Park that impacts visitor experience. Nearly two thirds of the business managers (62%) rated "big" or "moderate" problems in terms of too many autos in the Park that impacts visitor experience (30% and 32%, respectively).

The recognition of too many automobiles impacting air quality ranked relatively high as compared to other problems related to travel on Mount Desert Island and in Acadia National Park. Over two-thirds of the business managers (64%) rated this issue a "big problem" or "moderate problem" (32% and 32%, respectively). Only 12 percent of the business managers rated this issue as "not a problem." There were a relatively high percentage of business managers that reported vehicles parked along main roads causing unsafe conditions. Sixty percent of the business managers reported a "moderate" or "big" problem (31% and 29%, respectively). Twenty-six percent of business managers rated this issue as a "small problem."

Despite the magnitude of the problems reported by business managers with parking and traffic congestion outside of the Park as well as parking inside the Park, lower ratings are reported by business managers in terms of visitor's ability to access desired attractions and recreation opportunities. However, business managers report access being more of a problem at attractions outside of the Park than inside of the Park. Over one-half of the business managers (57%) rated "moderate" or "big" problem in terms of the ability for visitors to fully access desired attractions outside of the Park (34% and 23%, respectively). In contrast, less than one-third of the business managers (29%) rated "moderate" or "big" problem in terms of the ability for visitors to fully access desired recreation opportunities and attractions in the Park (23% and 6%, respectively). Nearly two-thirds of the business managers (61%) reported a "small" or "no" problem to this issue (27% and 34%, respectively).

Generally, fewer problems were reported by business managers regarding not enough travel and traffic information to help visitors plan trips in the Park. Twenty percent of the respondents rated this issue a "small problem" and 18% rated it a "moderate problem." Only 2% of business managers rated this issue a "big problem."

Table 4.3.1: Travel Issues and Magnitude of Problem on Mount Desert Island and in Acadia National Park this Summer*

Issue	Magnitude of Problem				Mean	Rank
	No	Small	Moderate	Big		
	---------- percent----------					
Too many vehicles outside of the Park causing parking problems	7	17	23	49	3.21	1
Too many vehicles outside of the Park causing traffic congestion	6	21	27	43	3.11	2
Too many vehicles inside of the Park causing parking problems	6	17	35	35	3.07	3
Too many autos having a negative impact on air quality	12	19	32	32	2.90	4
Too many autos in the Park that impacts visitor experience	9	24	32	30	2.89	5
Vehicles parked along main roads causing unsafe conditions	11	26	31	29	2.82	6
Ability for visitors to fully access desired attractions outside of the Park (i.e., restaurants, shops)	18	22	34	23	2.64	7
Too many people inside of the Park that impacts visitor experiences	20	31	30	12	2.37	8
Ability for visitors to fully access desired recreation opportunities and attractions in the Park	34	27	23	6	2.02	9
Not enough travel and traffic information to help visitors plan trips in the Park	37	25	18	2	1.82	10

* Possible responses: 1= Not a Problem; 2 = Small Problem; 3 = Moderate Problem; and 4 = Big Problem.

Business managers were asked to rate their overall travel experiences during the past summer. As Figure 4.3.1 shows nearly one-half of all business managers (48%) rated their overall travel experiences as being "average." Twenty-three percent of the business managers rated their overall travel experiences as "good." Twelve percent of business managers rated their travel experiences as being "very good." In contrast, thirteen percent of business managers rated their overall travel experiences as "poor" and 5% rated their travel experiences as "very poor." There were no differences detected among businesses managers in terms of reported location of their business. The highest proportion of business managers who reported a "poor" or "very poor" overall travel experiences had businesses that were located in the downtown Bar Harbor region. However, several business managers who reported similarly poor travel experiences had businesses that were located in other regions of Mount Desert Island.

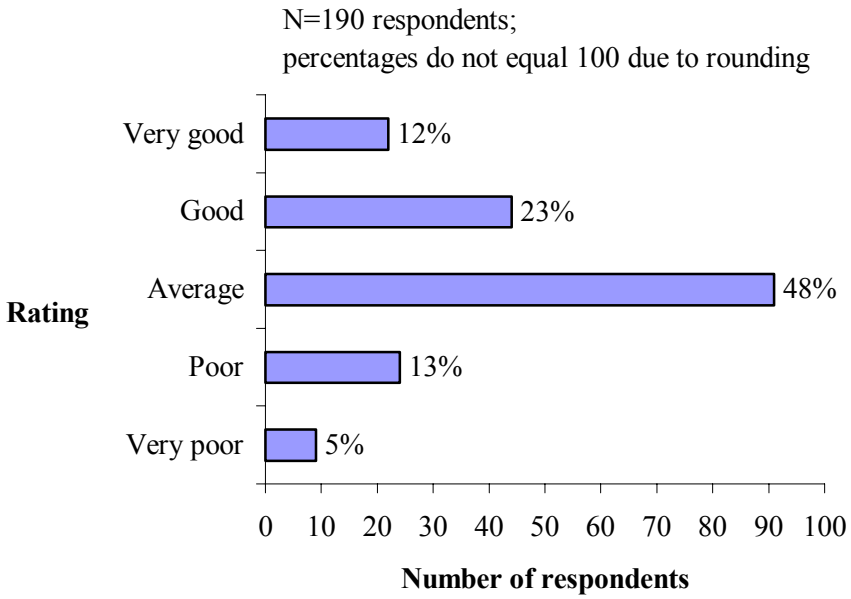

Figure 4.3.1: Overall Travel Experience during the Past Summer

4.4 Island Explorer Bus System

In 2002, the Island Explorer bus system featured seven different bus routes linking hotels, inns, and campgrounds with destinations in Acadia National Park and neighboring village centers. The propane-powered buses offered visitors and residents free accessible transportation to hiking trails, carriage roads, island beaches, and in-town shops and restaurants. Business managers were asked a number of questions related to the Island Explorer bus system and its operation during the past summer. The purpose of these questions was to assess relations of the business and the Island Explorer bus system in terms of customer or employee use as well as to obtain business perceptions of the benefits from tourists and residents that use the Island Explorer bus.

Business managers were asked how far was the closest Island Explorer bus stop from their business. The vast majority of the businesses (79%) reported either that the Island Explorer bus stopped in front of their business or was within five minutes walk to a bus stop (21% and 58%, respectively). Twelve percent of the businesses reported the Island Explorer bus stopped within 10 minutes walk of the Island Explorer bus

stop. Nine percent of the business managers reported that the Island Explorer was more than a 10 minutes walk to a bus stop or not near an Island Explorer bus stop (7% and 2%, respectively).

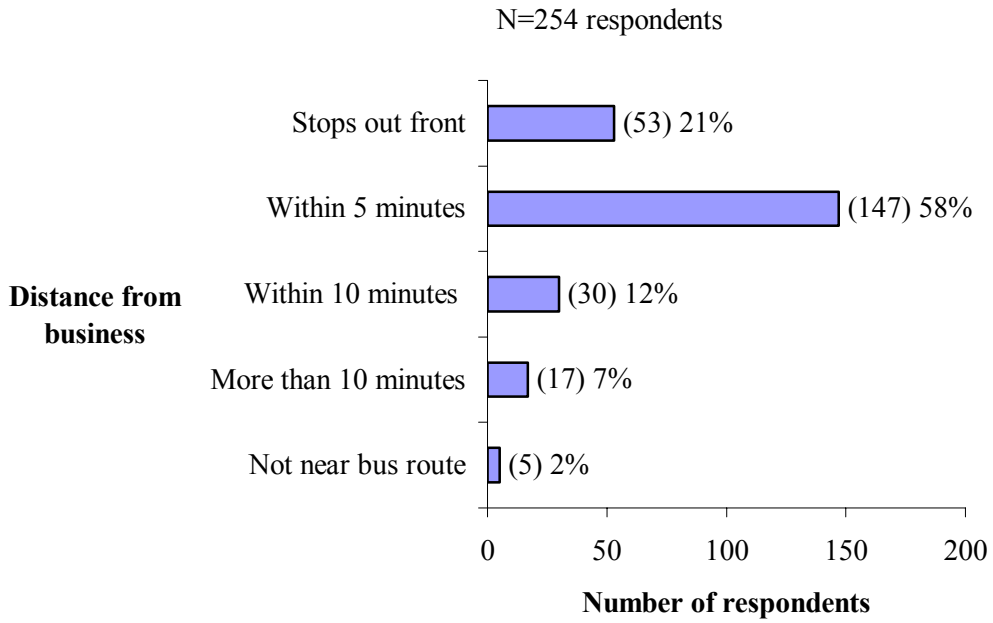

Figure 4.4.1: Proximity of the Island Explorer Bus to Business

Business managers were asked if they had business customers who used the Island Explorer bus during the past summer. A very high percentage of business managers (64%) reported that their business customers used the Island Explorer bus during the past summer (Figure 4.4.2). Twenty percent of the business managers were unsure if customers used the bus. Approximately 16% of the business managers reported that customers had not used the Island Explorer bus. Of the 162 businesses that reported business customers using the Island Explorer a broad range in terms of the percentage of their customers (1% to 95%) was reported by business managers. However, as Figure 4.4.3 shows the highest proportion of the business managers (35%) did not report an approximate percentage of customers that used the bus and we assume they did not know or felt uncomfortable giving an approximate percentage. Over one-third of the business managers (34%) reported between 1 and 10 percent of their customers used the Island Explorer bus. Nine percent of the business managers reported between 11-20 percent of their business customers used the bus. Seventeen percent reported between 21-50 percent of their business customers used the bus and this includes 7% of business mangers that reported one-half of their customers used the bus. Five percent of the business managers reported more than one-half of their customers used the Island Explorer bus during the past summer.

In addition to business customers, business managers were asked if they had business employees who used the Island Explorer bus during the past summer to get to their place of work. As Figure 4.4.4 shows most business managers (77%) reported their business employees did not use the Island Explorer bus to get to their place of work. A small percentage of business managers (2%) were unsure if business employees used the bus to get to their work place. Twenty-one percent of the business managers reported they had business employees who used the Island Explorer bus to get to their work place. Business managers were asked to approximate the number of employees including themselves who actually used

the Island Explorer bus. Again, as Figure 4.4.5 shows the highest proportion of the business managers (34%) did not report an approximate number of employees that used the bus and we assume they did not know or felt uncomfortable giving an approximate number. Nineteen percent of the business managers reported at least one employee that used the Island Explorer bus to get their place of work. A slightly fewer number of business managers (17%) reported two employees that used the Island Explorer bus. Twelve percent of the business managers reported between 3-5 employees that used the bus. Finally, approximately 19% of the business managers reported more than 5 business employees that used to Island Explorer bus to get to their place of work.

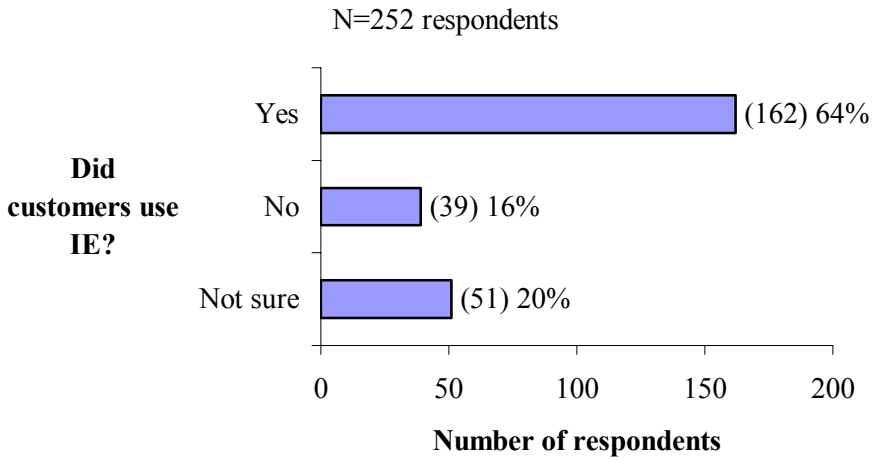

Figure 4.4.2: Businesses that had Customers who used the Island Explorer Bus

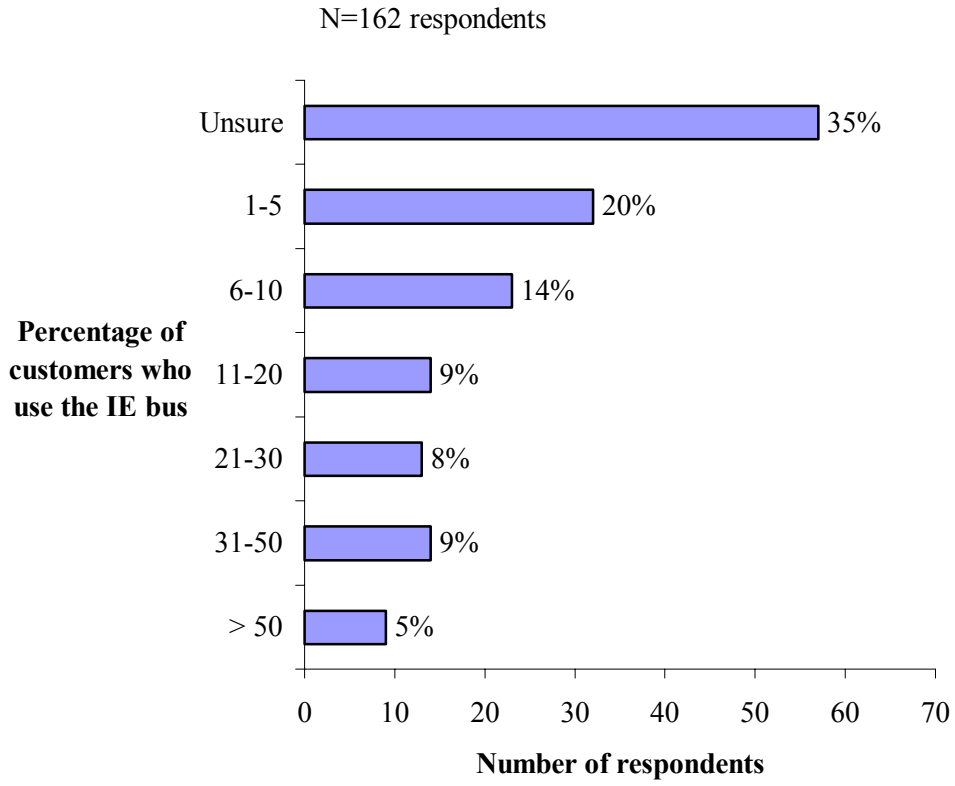

Figure 4.4.3: Percentage of Customers who used the Island Explorer Bus

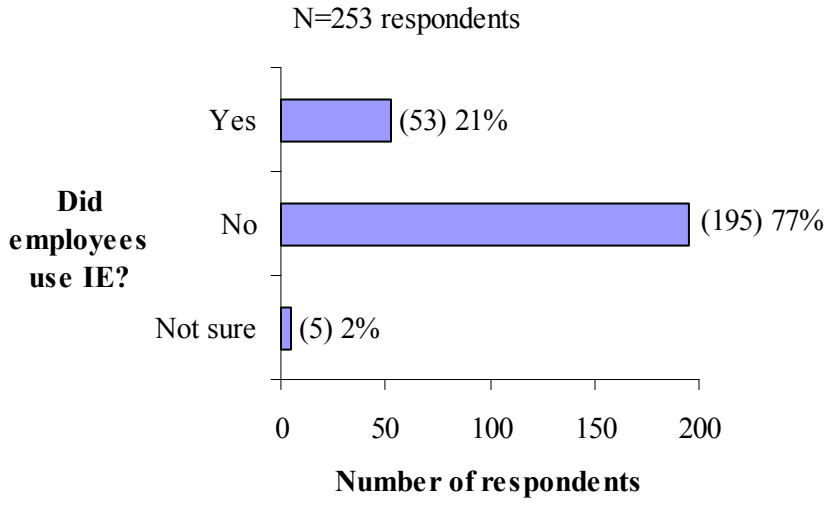

Figure 4.4.4: Businesses that had Employees who used the Island Explorer Bus

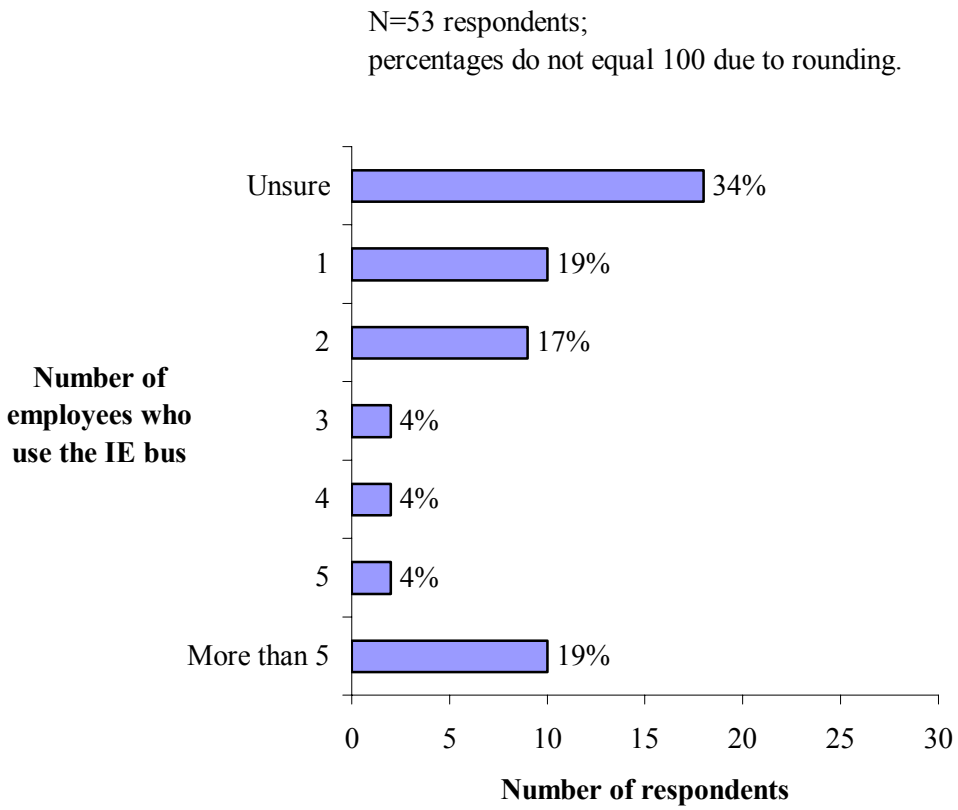

Figure 4.4.5: Number of Business Employees that use the Island Explorer Bus

Business managers were asked if they provided information (i.e., bus schedules) related to the Island Explorer bus (Figure 4.4.6). Based upon the number of business managers that reported customers that used the Island Explorer bus it is not surprising that the majority of business managers (69%) provided information related to the Island Explorer bus. Business managers were asked if they used the Island Explorer bus for other than traveling to their business (Figure 4.4.7). Approximately 25% of the business managers reported that they used the Island Explorer bus other than traveling to their business. Similarly, business managers were asked if their business employees used the Island Explorer bus for other than traveling to their business (Figure 4.4.8). Thirty-five percent of the business managers reported their business employees used the Island Explorer bus for other than traveling to their business. It should be noted this is a higher percentage reported by business managers than their reports of business employees traveling to their place of work as shown in Figure 4.4.4. Forty-eight percent of the businesses reported that their business employees did not use the Island Explorer bus for other than traveling to their business. Finally, a small percentage of businesses (17%) were not sure whether their business employees used the Island Explorer bus for other than traveling to their business.

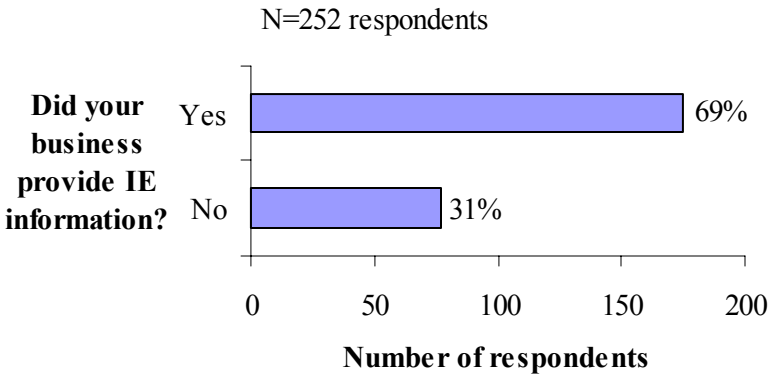

Figure 4.4.6: Business that Provided Information Related to the Island Explorer Bus

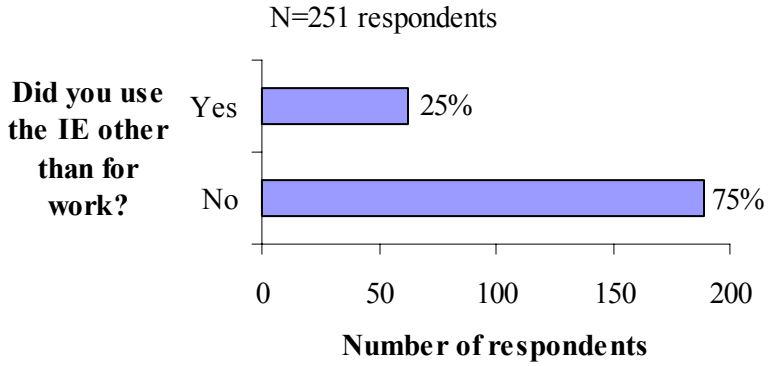

Figure 4.4.7: Business Managers that Reported Using the Island Explorer Bus for Other than Traveling to their Business

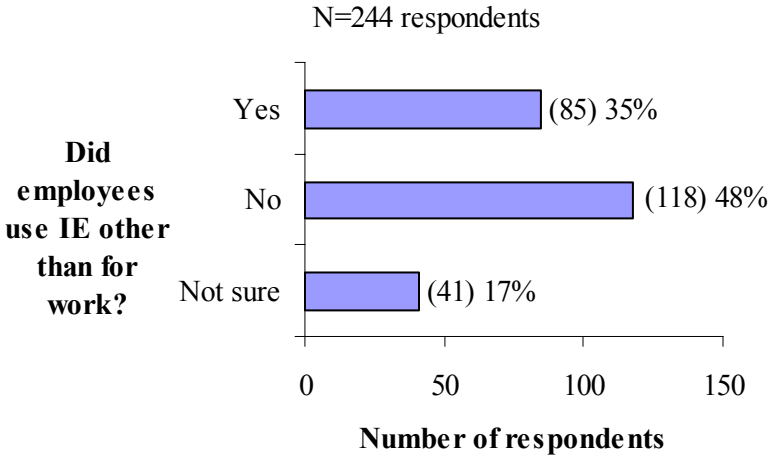

Figure 4.4.8: Business Employees that used the Island Explorer Bus for Other than Traveling to their Business

Table 4.4.1 shows business manager ratings of the benefits from tourists and residents that use the Island Explorer bus. Business managers rated benefits differently based upon whether they reported customers who used the Island Explorer bus during the past summer. Therefore, two distinct business manager groups are displayed in the table below that includes: (A) business managers who reported customers had used the Island Explorer bus (n=162); and (B) business managers who reported that customers did not use or were not sure if customers had used the Island Explorer bus during the past summer (n=90).

The biggest benefit reported, regardless of business manager group type, was that the Island Explorer bus created less worry about driving and parking for tourists along busy roads (Table 4.4.1). However, business managers that had customers who used the Island Explorer bus during the past summer reported a stronger mean belief for this particular benefit. A similar high ranked benefit, regardless of business manager group type, was that the Island Explorer reduced tension and stress for people who would otherwise drive their own vehicle. Although there was general agreement by both groups that the Island Explorer bus helped to reduce the amount of vehicle pollution and improve air quality, there were relatively large discrepancies between business group types in terms of their mean belief strength and consequently the rank order of the benefit. Business managers that had customers who used the Island Explorer bus ranked this as the second ranked benefit in terms of their strength in beliefs it would be an outcome. In sharp contrast, business managers who reported that customers did not use or were not sure if customers had used the Island Explorer bus had significantly lower mean belief strengths this would be a benefit. However, this same group reported slightly higher mean belief strengths in terms of the Island Explorer users would contribute to fewer total vehicles on the road and safer driving conditions. Again, this was a very high ranked benefit for the business managers that had customers who used the Island Explorer bus.

Other important benefits reported, regardless of business manager group type, was that the Island Explorer bus helped to reduce the amount of parking problems on Mount Desert Island and in Acadia National Park as well as improving access to intended destinations inside of the Park. The business managers that had customers who used the Island Explorer bus reported a significantly stronger mean belief that the Island Explorer helped to reduce the amount of parking problems inside of the Park. Despite the other group type with the significantly lower mean belief strength it was the second ranked benefit within this group type. Also, there was generally high certainty among business managers who reported no customers who used the Island Explorer that it improved access to intended destination inside of the Park (Table 4.4.4).

One of the benefits reported, regardless of business manager group type, was that the Island Explorer bus created more potential for a new segment of tourists who do not drive personal vehicles. The mean belief strengths ranged from 1.25 to 1.15 which are within the strongly agree and agree response range. There are a number of other benefits reported with the use of the Island Explorer but the mean belief strengths tend to be lower as compared to benefits mentioned above. For example, the Island Explorer bus provides benefits in terms of reducing the amount of parking problems and access to restaurants in the village centers but the mean belief strengths of business managers, regardless of group type, are lower as compared to the Park. There is less certainty among business managers in terms of the Island Explorer bus providing fast service, keeping people off the road who may drink and drive, and patronizing businesses. Interestingly, there was general uncertainty in whether the Island Explorer bus increases the likelihood that visitors will stay longer. Evidence from previous research and other aspects of this evaluation suggests tourists that use the Island Explorer stay longer and have more of an economic impact as reported in Section 4.6 on “Productivity and Economic Vitality” in the Visitor Survey Report.

Table 4.4.1: Business Manager Ratings of the Benefits from Tourists and Residents that use the Island Explorer Bus*

Benefits	Business Managers with Reported Customer Use of IE				ANOVA Results	p=
	Bus (n=162)		No Bus (n=90)			
	Mean	Rank	Mean	Rank		
	(A)		*(B)*			
Creates less worry about driving and parking for tourists along busy roads	1.48	1	1.30	1	A>B	.048
Reduces tension and stress for people who would otherwise drive their own vehicle	1.44	2	1.30	1		
Reduces the amount of vehicle pollution and improves air quality	1.44	2	1.04	7	A>B	.000
Contributes to fewer total vehicles on the road and safer driving conditions	1.40	3	1.17	3	A>B	.034
Reduces the amount of parking problems inside of the Park	1.40	3	1.19	2	A>B	.030
Improves access to intended destinations inside of Park	1.39	4	1.30	1		
Creates more potential for a new segment of tourists who do not drive personal vehicles	1.25	5	1.15	4		
Reduces the amount of parking problems in village centers	1.19	6	.96	5		
Improves access to shops and restaurants in village centers	1.12	7	.92	6		
Provides people with fast service to their intended destination	.80	8	.74	7		
Increases ability to keep people off the road who may drink and drive	.57	9	.60	8		
Enables me and my employees to have an alternative means to get to work	.46	10	.034	11	A>B	.005
Increases the likelihood that visitors will stay longer	.38	11	.16	10		
Has enabled more customers to patronize my business, because parking is less of a factor	.080	12	-.19	12		
Tends to benefit businesses that are closer to the bus stop than mine	.062	13	.38	9	B>A	.021

* Possible responses: +2 = Strongly Agree; +1 = Agree; 0 = Neutral; -1 = Disagree; and -2 = Strongly Disagree

4.5 Awareness and Usage of ITS Components

As part of the Acadia National Park Field Operational Test, three ITS components were planned to be deployed that could be used directly by visitors to help with traveling in Acadia National Park. These components were a parking information system, an automated annunciator for the Island Explorer buses, and electronic departure signs for the Island Explorer buses. The parking information system would collect and integrate travel data such as real-time parking conditions and bus schedule information to be disseminated to visitors via an interactive telephone messaging system and web page. Unfortunately, complications were encountered with the installation and the interactive telephone messaging system was not deployed during the evaluation period. However, other traveler information was provided to visitors such as real-time parking conditions at Sand Beach and the Jordan Pond House. This information was available on the Acadia National Park web page and displayed on signs at the Visitor Center, Blackwoods Campground, and Seawall Campground. Parking condition status was updated by Acadia National Park staff as conditions changed. The automated annunciator for the Island Explorer bus transmitted an audio message and displayed the next bus stop on an electronic sign within the bus. Finally, electronic signs displayed real-time departures of the next Island Explorer bus at the Visitor Center and Jordan Pond House bus stops in Acadia National Park and the Village Green in Bar Harbor located outside of the Park.

Businesses managers were asked if they were aware of any of the above ITS components. Nearly, two-thirds of the business managers (61%) reported being unaware of the traveler information (Figure 4.5.1). Thirty-nine percent reported awareness of at least one traveler information source. Table 4.5.1 shows the proportion of business managers (n=98) that reported being aware of at least one of the traveler information sources and awareness of different sources of traveler information. Of the ITS-aware business managers, a high proportion (80%) reported being aware of the electronic signs that displayed real time departures of the next Island Explorer bus. Forty-five percent of the business managers were aware of the audio announcement of the next Island Explorer bus stop. Forty percent of the business managers reported being aware of the parking availability information on the displayed signs at the Parks' visitor center and campgrounds. Twenty-five percent of the business managers reported being aware of the parking availability information on the Park's web page. Table 4.5.1 also shows that almost half of business managers (n=48) actually used at least one of the traveler information sources. Of those 48 managers, 79% reported using the electronic bus departure signs. Forty-five percent of the business managers reported using the audio announcement of the next Island Explorer bus stop. Business manager reports of awareness and especially use were much lower for the parking availability information as compared to the Island Explorer traveler information. Thirty four percent of the business managers reported using the parking availability information on the displayed signs at the Parks' visitor center and campgrounds. Seventeen percent of the business managers reported using the parking availability information on the Park's web. A possible explanation for the business manager and their reports of very low use of parking availability information may be due to their prior knowledge of the time of day related to parking availability at Sand Beach and the Jordan Pond House.

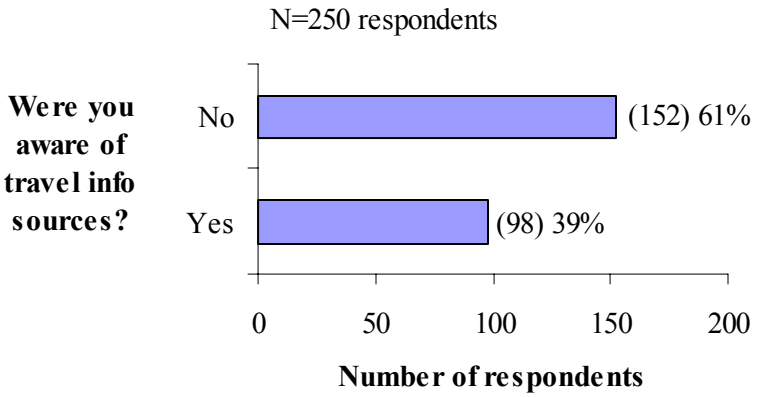

Figure 4.5.1: Business Managers and Awareness of ITS Components

Table 4.5.1: Business Manager Awareness and Use of the Travel Information Sources this Summer*

Traveler Information	Aware (n=98) ----percent----	Used (n=48) ----percent----
Electronic bus departure signs for Island Explorer Buses	80	79
Audio announcement of next bus stop on Island Explorer Buses	45	45
Parking conditions at Sand Beach and Jordan Pond on displayed signs	40	34
Parking conditions at Sand Beach and Jordan Pond w/ ANP website	25	17

*percentages add to more than 100 due to awareness and usage of multiple items.

Businesses managers were asked if they were aware of customers using any of the above ITS components. Over half of the business managers (55%) reported they were not sure if customers had used any of the traveler information sources (Figure 4.5.2). A small percentage of business managers reported "not applicable" and we assume these businesses did not serve customers who traveled or were not directly related to tourism (e.g., oil delivery company and self-employed web designer). Eight percent of the business managers reported their customers did not use the traveler information sources. Twenty-nine percent of the business managers reported their customers had used one or more of the traveler information sources.

Table 4.5.2 shows the proportion of business managers (n=28) that reported customers using different sources of traveler information. Although 35% of the business managers were not sure what traveler information sources were used by their customers during the past summer, a very high proportion of the managers (67%) reported customers using the electronic signs that displayed real time departures of the next Island Explorer bus. Thirty-three percent of the business managers reported customers using the audio announcement of the next Island Explorer bus stop. Business manager reports of their customers

use of the parking availability information was lower as compared to the Island Explorer traveler information. Fifteen percent of the business managers reported customers using the parking availability information on the signs displayed at the Parks' visitor center and campgrounds. Seven percent of the business managers reported customers using the parking availability information on the Park's web page. It should be noted that the parking availability reflected the designated parking lots at Sand Beach and Jordan Pond. The status of parking lots being full did not necessarily restrict visitors from gaining access to these attractions. Visitors could park along the 2-lane one-way section of the Park loop road and walk to the Sand Beach area. Also, visitors could park along the Park loop and boat access roads to gain access to the Jordan Pond House. Direct observation of the parking conditions at these locations indicated this was a common practice for visitors when parking lots became full. Some visitors may have realized these areas were still accessible by privately owned vehicles and despite knowing the condition of the parking lots did not plan to use the information or ask about this information from the business managers.

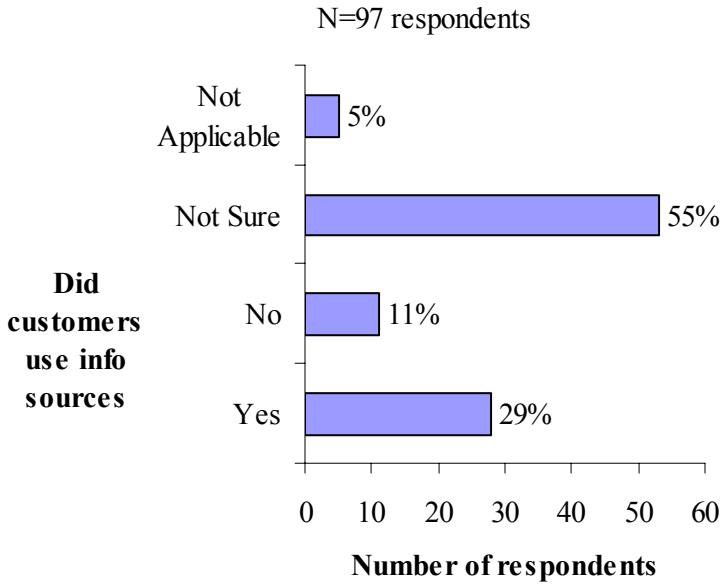

Figure 4.5.2: Business Managers and their Customers' Use of the Traveler Information Sources

Table 4.5.2: Traveler Information Sources Used by Customers this Summer*

(n=28) Traveler information	Used ---percent---
Electronic bus departure signs for Island Explorer Buses	67
Audio announcement of next bus stop on Island Explorer Buses	33
Parking conditions at Sand Beach and Jordan Pond on displayed signs	15
Parking conditions at Sand Beach and Jordan Pond w/ ANP website	7
Not Sure	35
*percentages do not equal 100 due to customers using multiple traveler information sources	

All business managers were asked to assess the benefits customers may derive using the parking availability information for Sand Beach and the Jordan Pond House in Acadia National Park. Again, this information was posted on signs at the Parks' visitor center and campgrounds as well as on the Acadia National Park web page. A 5-point scale with endpoints labeled as strongly agree and strongly disagree was used to assess the potential benefits. Figures 4.5.3 – 4.5.9 show business manager's evaluation of the benefits associated with the real time parking availability information.

Figure 4.5.3 shows a high level of uncertainty among business managers (48%) that the real time parking availability would be helpful to their business. Thirty-one percent of the business managers rated "strongly agree" or "agree" but 22% of the business managers rated "strongly disagree" or disagree." In sharp contrast there were generally high levels of agreement on the benefits that tourists themselves would likely derive using the parking availability information. As Figure 4.5.4 shows 84% of the business managers rated "strongly agree" or "agree" with the statement "parking information helps tourists avoid parking problems in the Park." Fourteen percent of the business managers were uncertain and 2% rated "disagree" that the information helped to avoid parking problems in the Park. Similarly, 81% of the business managers rated "strongly agree" or "agree" with the statement "parking information helps tourists avoid traffic congestion in the Park' (Figure 4.5.5). Sixteen percent of the business managers were uncertain and 4% rated "disagree" that the information helped to avoid traffic congestion in the Park.

A relatively high proportion of business managers (70%) thought the parking availability information would help tourists to avoid large crowds in the Park (Figure 4.4.6). Twenty-four percent of the business managers "strongly agreed" that it helped tourists to avoid large crowds. However, roughly the same proportion of business managers (22%) was uncertain the information helped tourists to avoid large crowds. Approximately 7% of the business managers disagreed that the information helped tourists to avoid large crowds in the Park. A high proportion of business managers

There were generally high levels of agreement that the parking availability information would make it easier for tourists to get around and that it could be helpful to tourists in planning the time of day for visiting certain destinations in the Park. Figure 4.5.7 shows more than three quarters of the business managers (78%) thought the parking availability information would make it easier for tourists to get around with the information. Twenty percent of the business managers were uncertain the parking information would make it easier for tourists to around with the information. A slightly higher proportion of business managers (81%) thought the parking availability information would help tourists to plan the time of day for visiting certain destinations in the Park. Sixteen percent were uncertain the parking

information would help tourists for planning trips. Only 2% of the business managers disagreed that the parking availability information would make it easier for tourists to get around or be helpful in planning the time of day for visiting certain destinations in the Park.

Finally, most business managers thought the parking availability information would be helpful in diverting tourists from using their own vehicles to using the Island Explorer bus. As Figure 4.5.9 shows 86% of the business managers rated "strongly agree" or "agree" to the statement "increases the likelihood that some tourists will ride the Island Explorer bus (39% and 47%, respectively). Twelve percent of the business managers were uncertain the information would increase the likelihood of some tourists using the Island Explorer. A small proportion of business managers did not believe the information would increase the likelihood that some tourists would use the Island Explorer bus (2 percent).

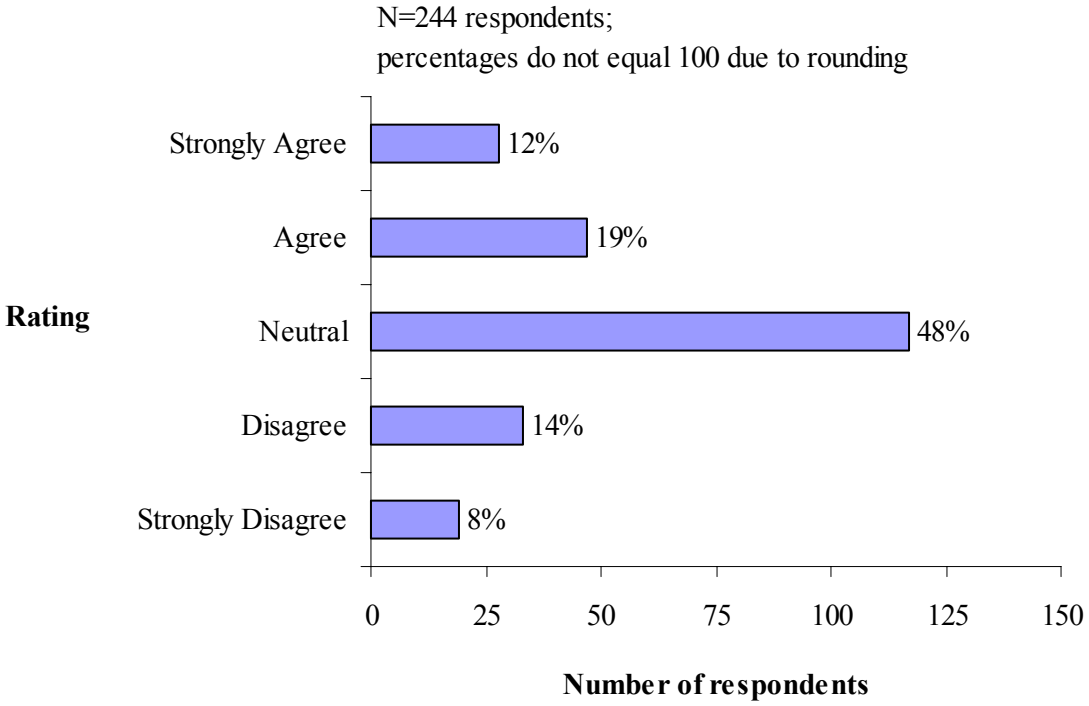

Figure 4.5.3: Providing Parking Conditions and Traffic Information would be Helpful to my Business

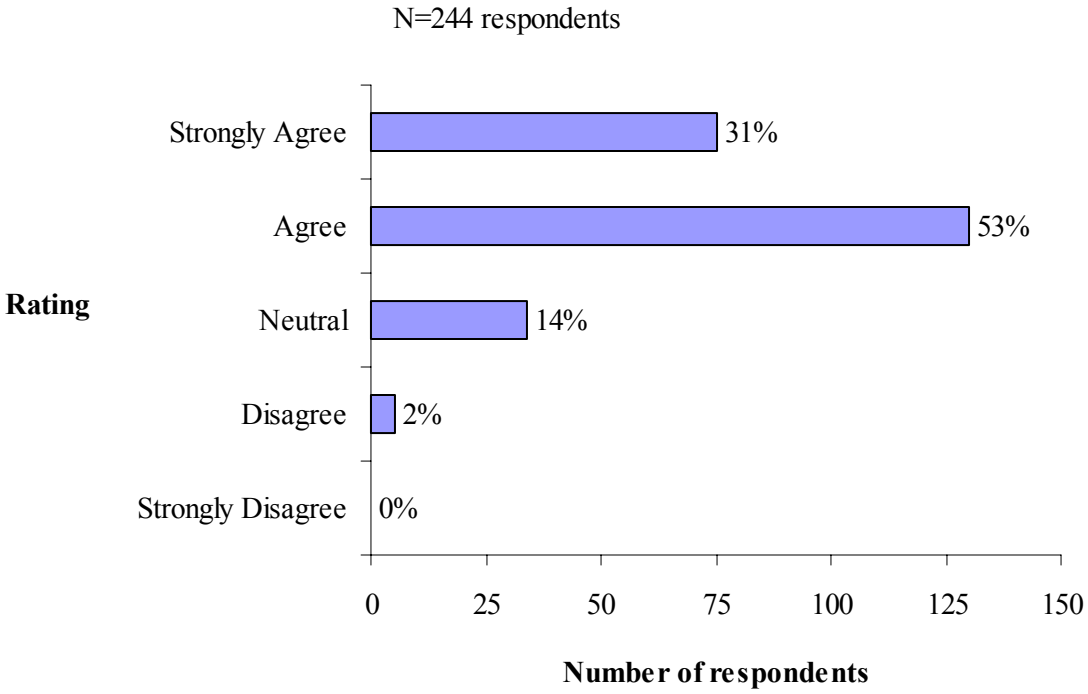

Figure 4.5.4: Parking Condition Information Helps Tourists Avoid Parking Problems in the Park

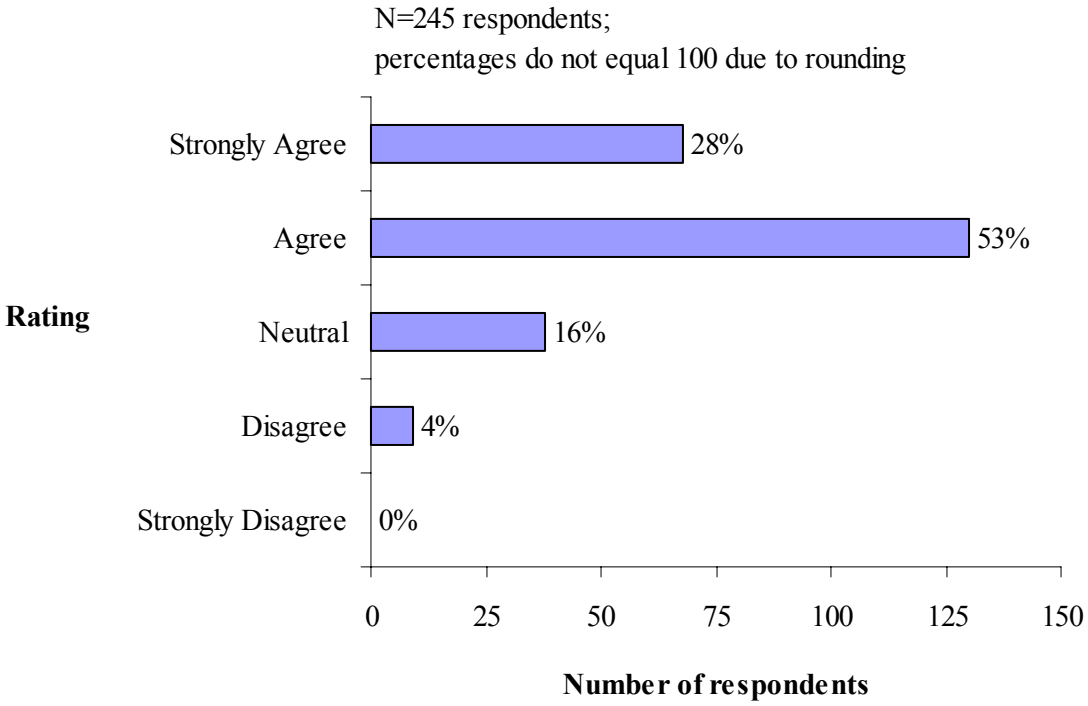

Figure 4.5.5: Parking Conditions Information Helps Tourists Avoid Traffic Congestion in the Park

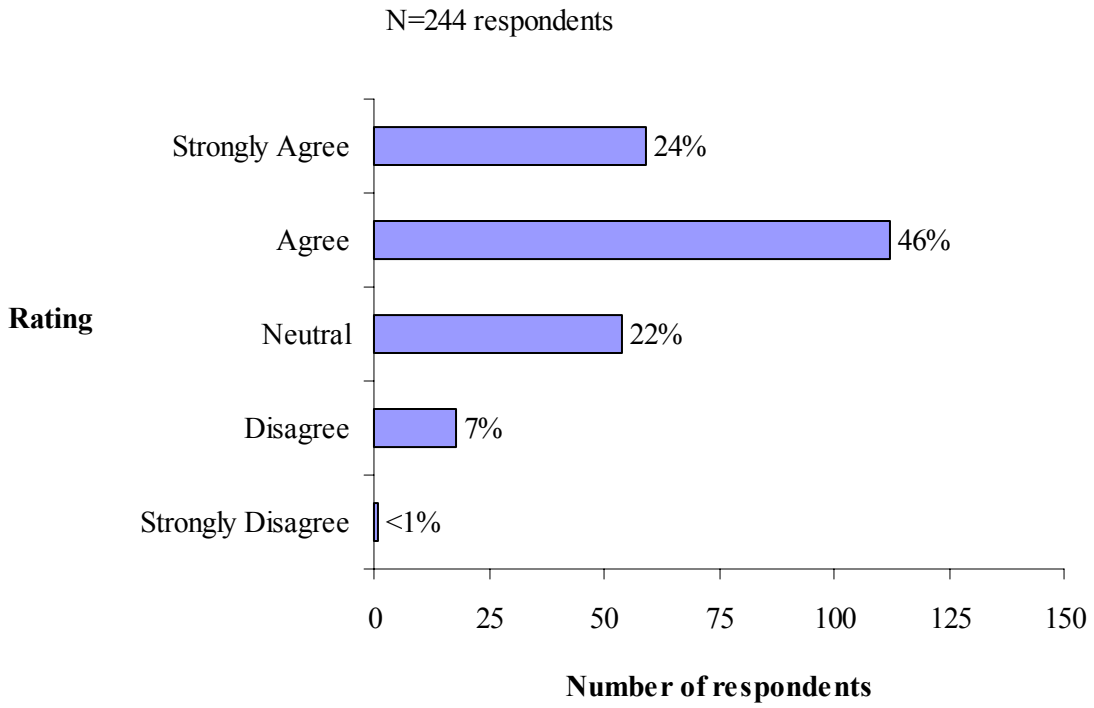

Figure 4.5.6: Parking Information Helps Tourists Avoid Large Crowds in the Park

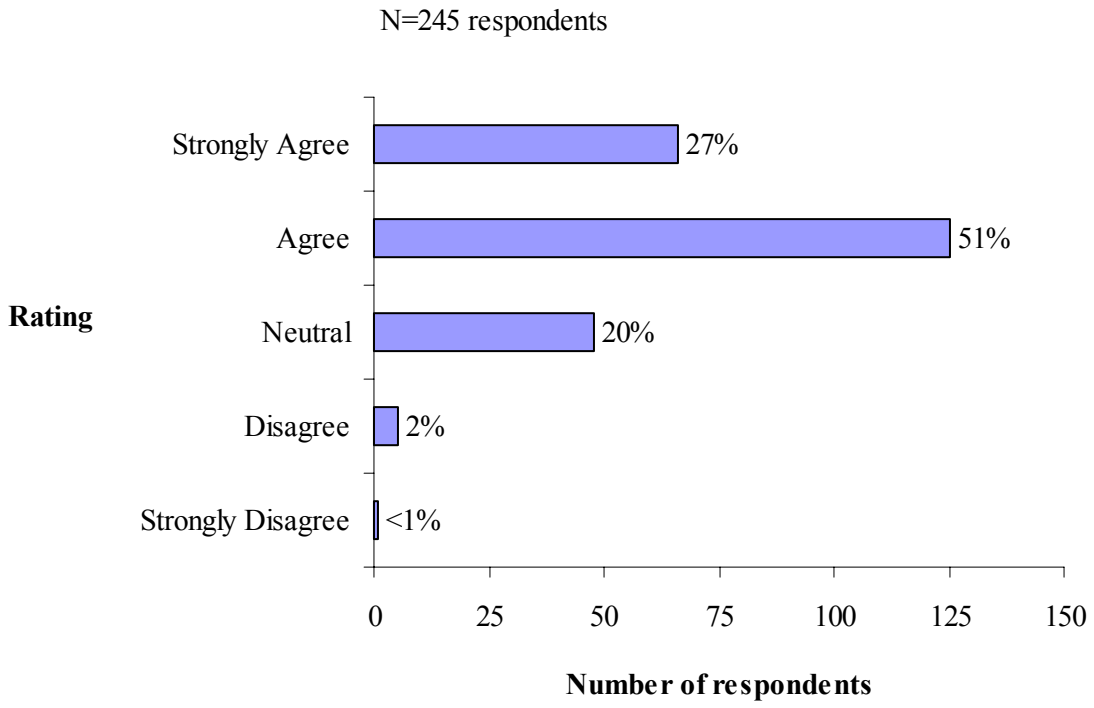

Figure 4.5.7: Parking Information Makes it Easier for Tourists to get Around with the Information

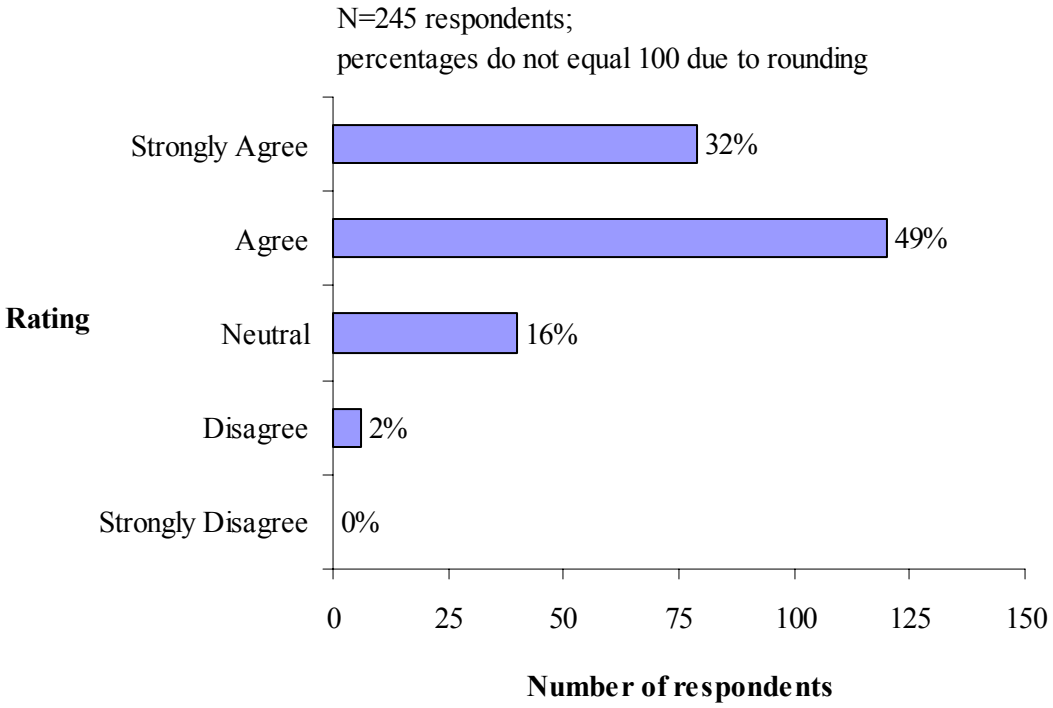

Figure 4.5.8: Parking Information Helps Tourists to Plan the Time of Day for Visiting Certain Destinations in the Park

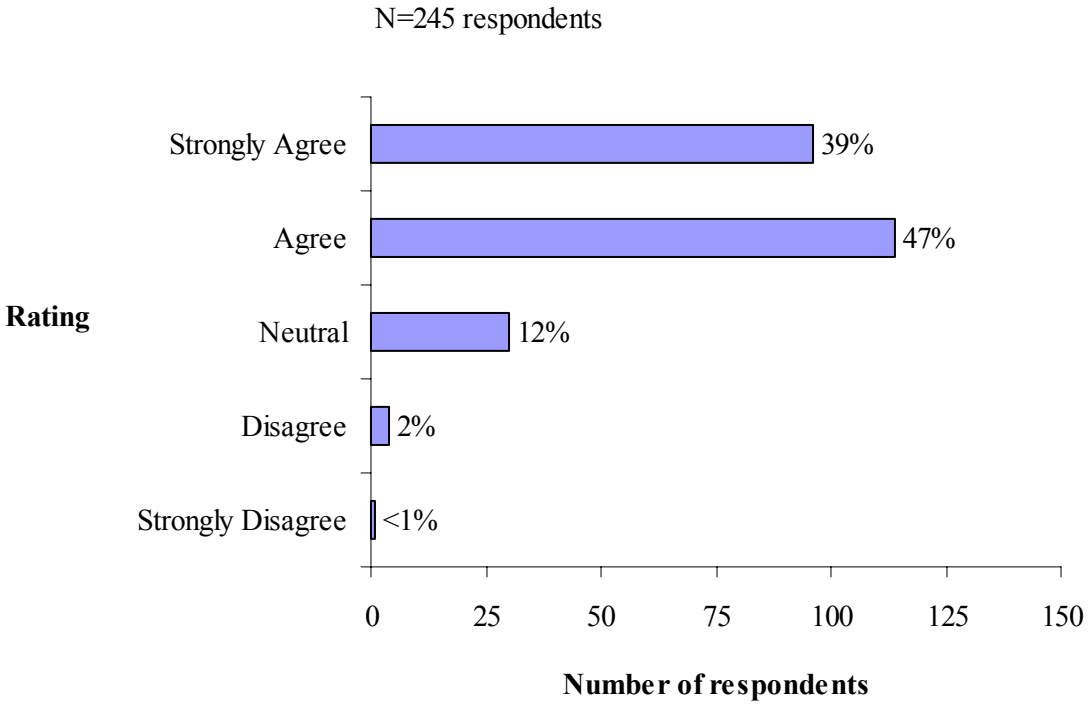

Figure 4.5.9: Parking Information Increases the Likelihood that Some Tourists will Ride the Island Explorer Bus

All business managers were asked to assess the benefits customers may derive using two forms of the Island Explorer bus traveler information. One form was an automated annunciator for the Island Explorer bus that transmitted an audio message and displayed the next bus stop on an electronic sign within the bus. The other form were electronic signs that displayed real-time departures of the next Island Explorer bus at the Visitor Center and Jordan Pond House bus stops in Acadia National Park and the Village Green in Bar Harbor. A 5-point scale with endpoints labeled as strongly agree and strongly disagree was used to assess the potential benefits. Figures 4.5.10 – 4.5.16 show business manager's evaluation of the benefits associated with the Island Explorer bus traveler information.

Over one half of the business managers (56%) thought the Island Explorer bus traveler information would be helpful to their business (Figure 4.5.10). However, a relatively high percentage of business managers (30%) were uncertain that the traveler information would be helpful to their business, and an additional 13% of the business managers "disagreed" or "strongly disagreed" the information would be helpful to their business (9% and 5%, respectively). An extremely high proportion of business managers (95%) thought the Island Explorer bus traveler information makes it easier for tourists to get around (Figure 4.5.11). Only five percent of the business managers were uncertain and less than 1% disagreed that the information made it easier for tourists to get around.

In terms of benefits to tourists, 90% of the business managers thought that the Island Explorer bus traveler information helped to relieve uncertainty for users when the bus would arrive at the bus stop (Figure 4.5.12). Ten percent of the business managers were uncertain if this information helped to relieve the uncertainty for users in terms of arriving at the bus stop. Eighty-five percent of the business managers thought the Island Explorer bus traveler information helped to relieve uncertainty for users when to exit the bus (Figure 4.5.13). Fifteen percent of the business managers were uncertain if this information helped to relieve uncertainty for users in terms of exiting the bus. Less than 1% of the business managers disagreed that the traveler information would not relieve uncertainty when the bus would arrive at the bus stop or when to exit the bus.

A relatively high proportion of the business managers (87%) thought the Island Explorer traveler information helped tourists utilize time such as visiting shops before bus arrives at the bus stop (Figure 4.5.14). Eleven percent of the business managers were uncertain if the traveler information helped tourists to better utilize their time.

As Figure 4.5.15 shows 90% of the business managers rated "strongly agree" or "agree" to the statement "providing the Island Explorer bus traveler information helps to improve the travel experience" (42% and 48%, respectively). Nine percent of the business managers were uncertain and 1% disagreed that the traveler information improved the travel experience. Finally, the vast majority of the business managers thought the Island Explorer traveler information would be helpful in diverting tourists from using their own vehicles to using the Island Explorer bus. As Figure 4.5.16 shows 93% of the business managers rated "strongly agree" or "agree" to the statement "increases the likelihood that some tourists will ride the Island Explorer bus (43% and 50%, respectively). Six percent of the business managers were uncertain the information would increase the likelihood of some tourists using the Island Explorer. A small proportion of business managers did not believe the information would increase the likelihood that some tourists would use the Island Explorer bus (1 percent).

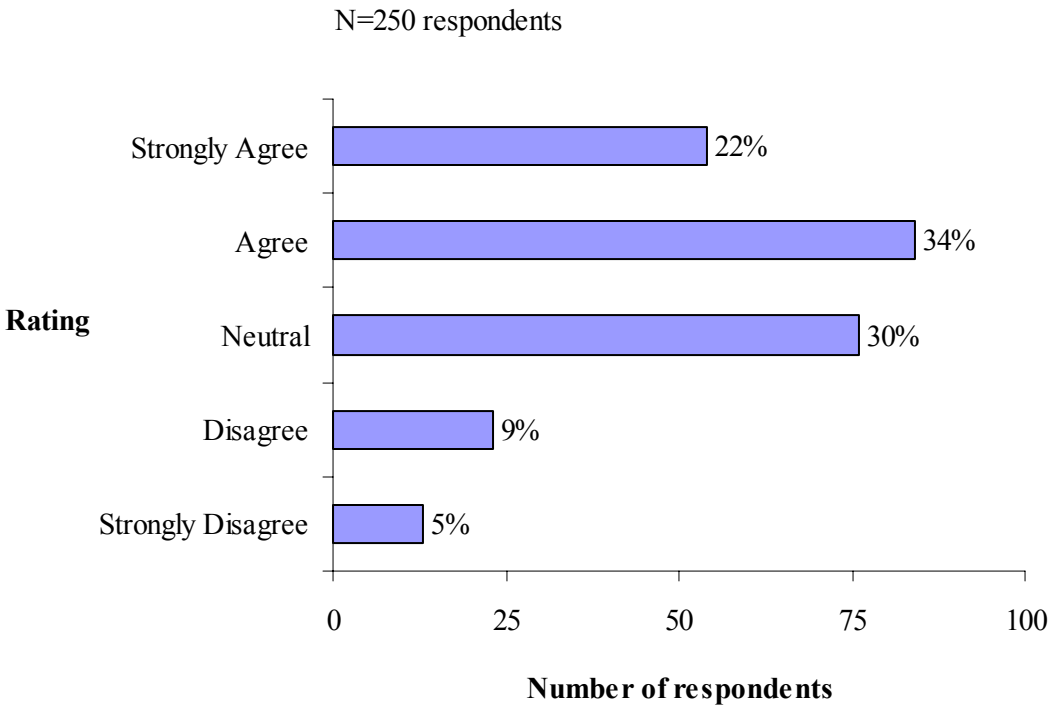

Figure 4.5.10: Providing Island Explorer Traveler Information would be Helpful to my Business

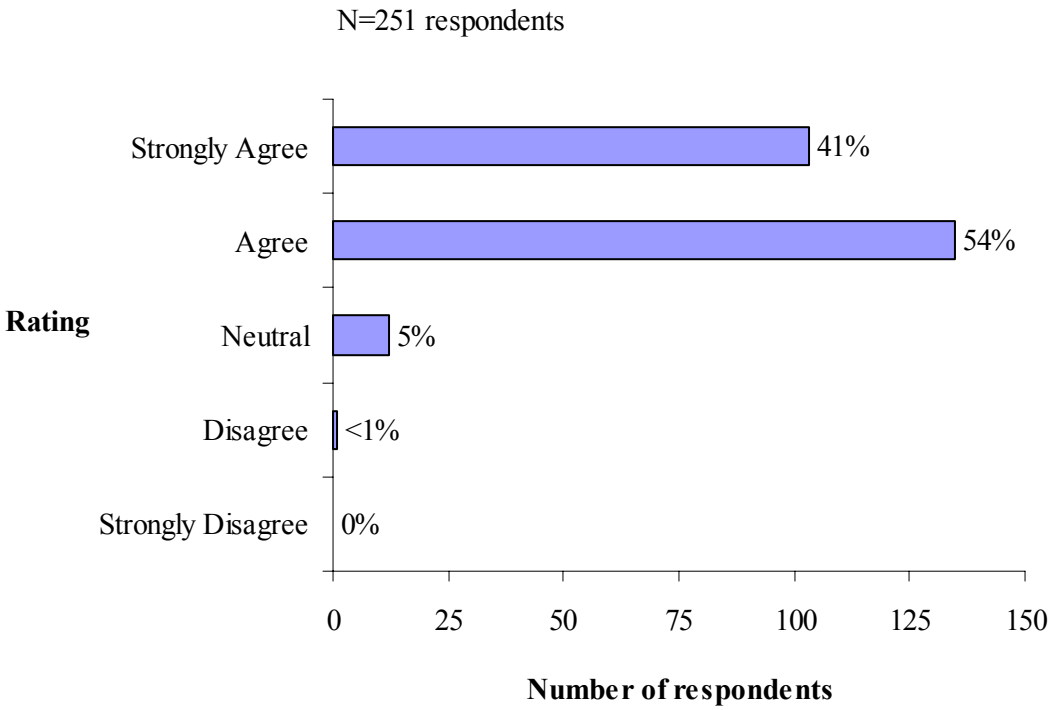

Figure 4.5.11: Island Explorer Bus Traveler Information makes it Easier for Tourists to get Around

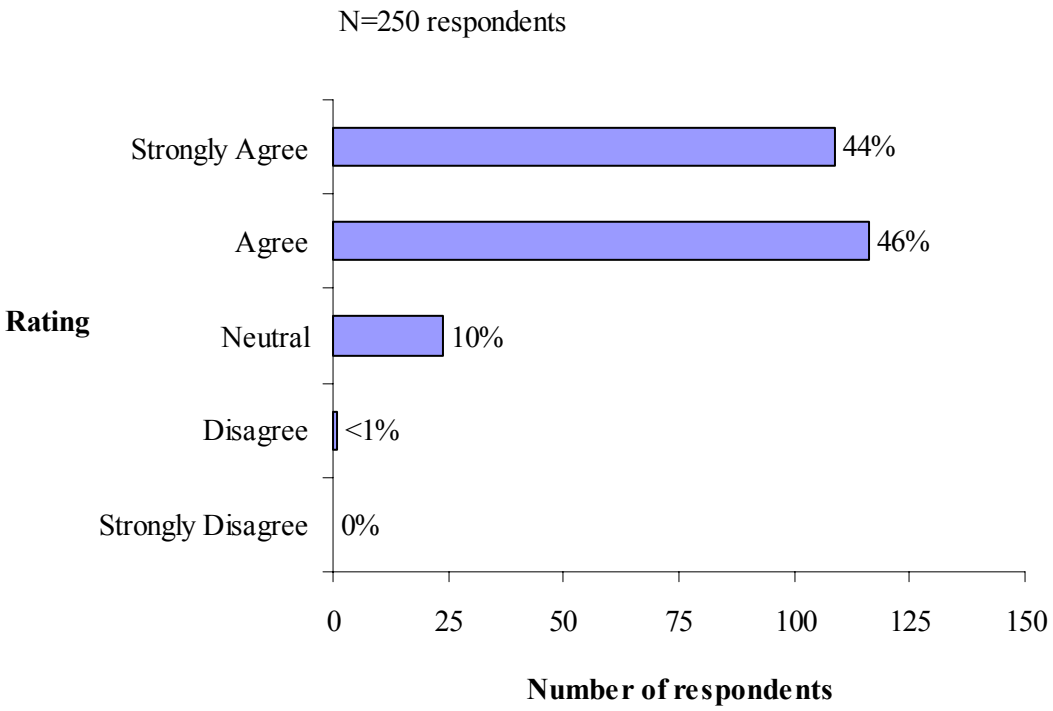

Figure 4.5.12: Island Explorer Bus Traveler Information Relieves Uncertainty for Users when the Bus will Arrive at the Bus Stop

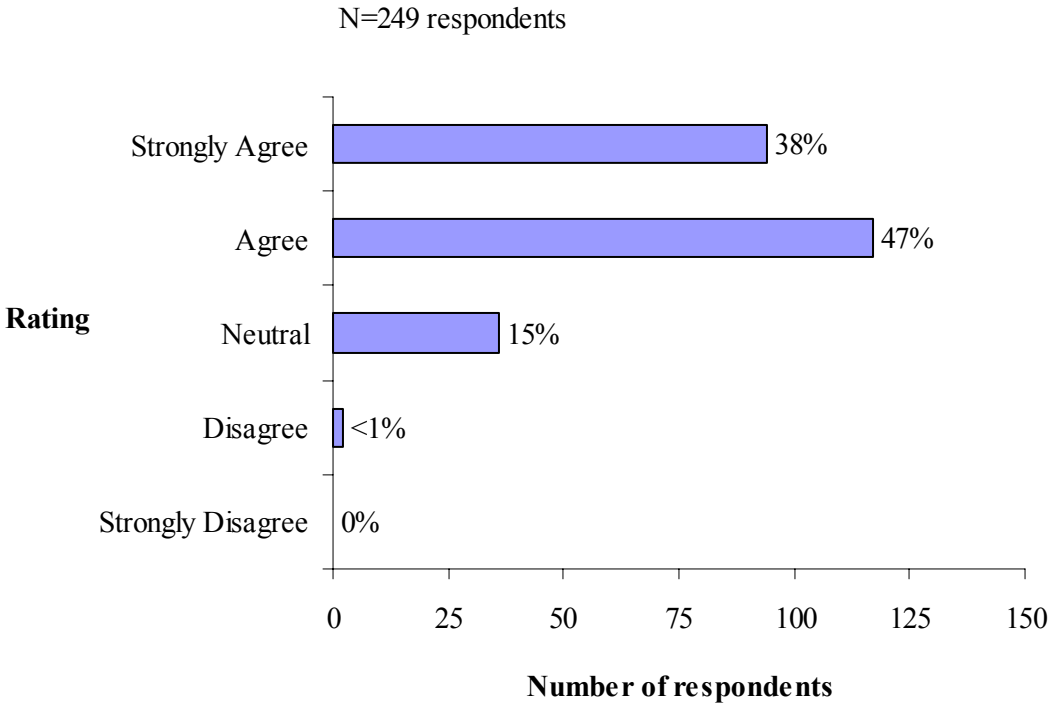

Figure 4.5.13: Island Explorer Bus Traveler Information Relieves Uncertainty for Users on when to Exit the Bus

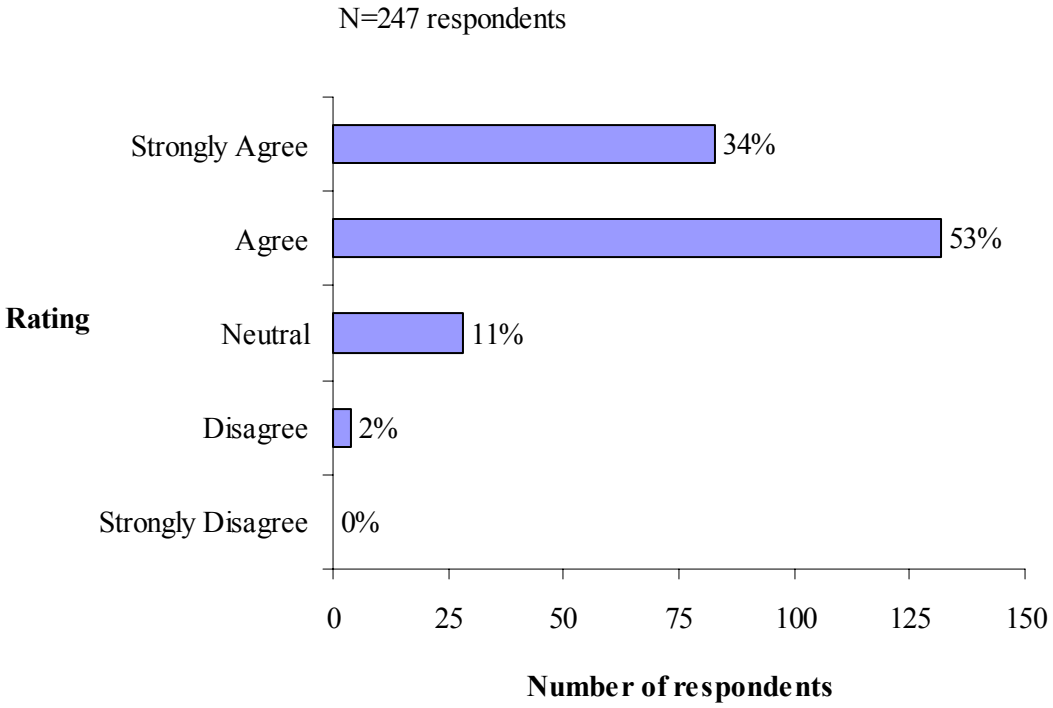

Figure 4.5.14: Island Explorer Bus Traveler Information Helps Tourists Utilize Time Such as Visiting Shops before Bus Arrives at the Bus Stop

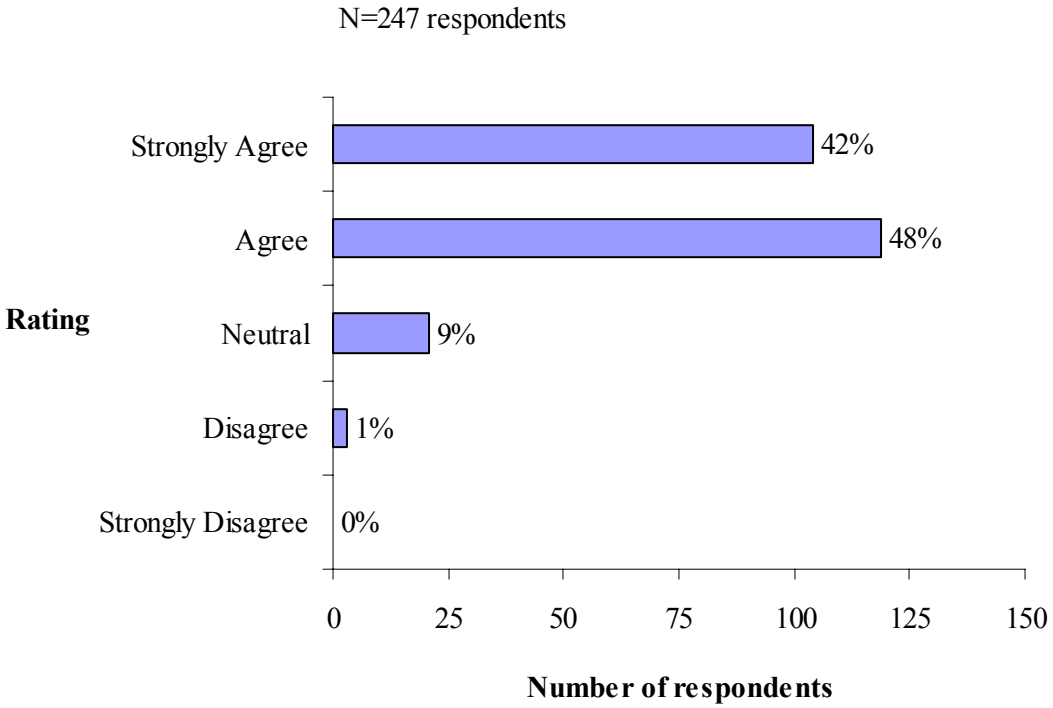

Figure 4.5.15: Providing the Island Explorer Bus Traveler Information Helps to Improve the Travel Experience

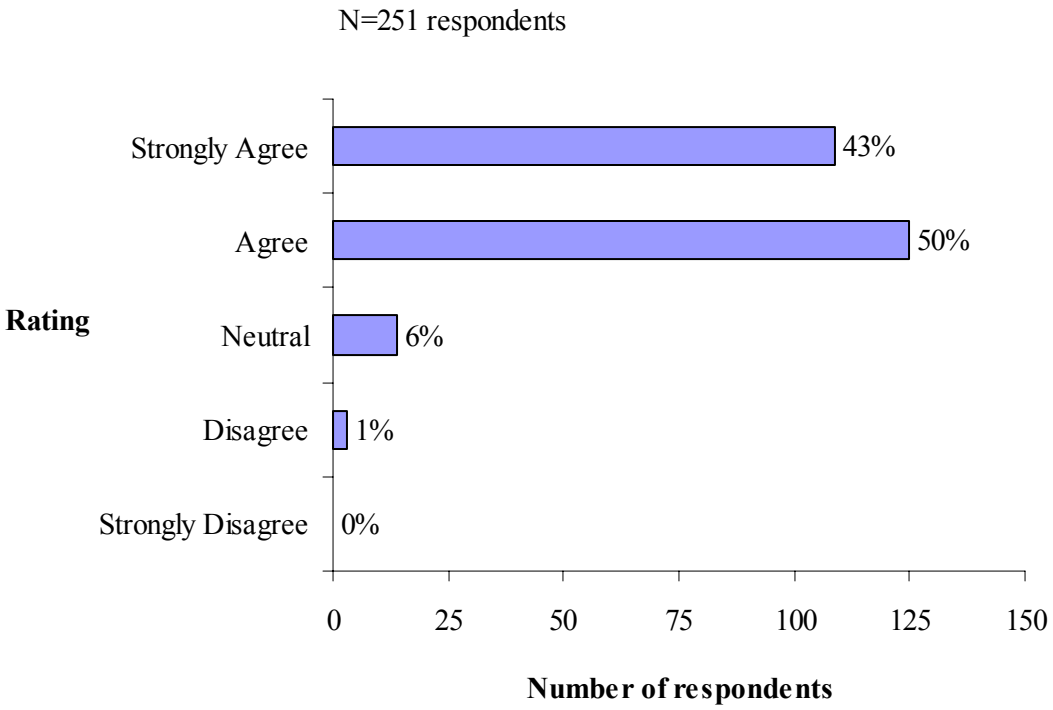

Figure 4.5.16: Island Explorer Bus Traveler Information Increases the Likelihood that some Tourists will Ride the Island Explorer Bus

5.0 DISCUSSION

Results of the business survey provided data for assessing the benefits of ITS in the evaluation goal area of productivity and economic vitality. Specific hypotheses related to expected benefits of ITS to the local tourist economy are presented in Table 5.0.1. An important goal of the ITS technologies was to enhance the visitor's experience and to divert visitors from using their private vehicles to using the Island Explorer bus for traveling around Mount Desert Island and in Acadia National Park. It was expected that ITS technologies would contribute to a more positive visitor experience and willingness to use transit by providing real-time information on parking lot conditions, real-time information on departures of the next Island Explorer bus, and traveler information on-board buses such as announcements of the next bus stop. It was expected that ITS technologies would increase visitor's ability to access desired destinations and activities. The enhanced experience and increased access would contribute to the local economy in terms of longer visitor stays and a new car-less tourist segment. Finally, visitors' use of the propane-powered Island Explorer buses would result in fewer trips by private vehicle and a consequent improvement in air quality. This would result in a more positive experience for visitors through enhanced aesthetics of Acadia National Park.

Table 5.0.1: Hypotheses Related to the Impact on the Local Tourist Economy

Evaluation Area	Objective	Hypotheses
Productivity and Economic Vitality	To provide a more positive visitor experience and increased visitation	ITS users stay longer than ITS non-users
	To increase economic contribution to MDI and ANP	ITS attracts visitors and enables higher revenue capture during stay
	Attract car-less tourist segment	Tourists arriving without cars will be attracted by ITS-enabled mobility

Based on the demographic information that was gathered, business managers responding to this survey can be characterized as follows:

- Primarily residents of Mount Desert Island (89%), mostly year-round (86%)
- Long-term residents, with 70% residing in the area more than 10 years
- Most likely to be over 45 years of age (68%)
- Regular web/Internet users (84%)
- Managing tourist-oriented business, including lodging, retail, restaurant, and tour guide businesses (74%)

Thus, the managers surveyed represent a cadre of seasoned veterans with a long-term view of tourism in the local economy, and, therefore, their views on the role of transportation plays in tourism were expected to be useful for the evaluation of ITS.

First of all it should be noted that the majority of business managers, regardless of business type, reported strong levels of agreement that tourism would continue to play a major economic role in the community and that they supported tourism as having a vital role in their community. There were also strong levels

of agreement of the need to plan for and manage the growth of tourism. There was less strength in agreement among business managers whether additional tourism would have a positive impact on the growth of the community and whether they favored new tourism facilities that might attract more tourists. Business managers reported many benefits their business or community realized being situated near Acadia National Park. A very high proportion of business managers reported the Park provided a "major contribution" in terms of "a natural setting in which your community takes pride" (86%), " a feeling that your community is a special place to live" (84%), "a chance to attract tourism dollars to my business and community" (83%), "a chance to experience unique recreation opportunities" (81%), and "a place to preserve/conserve various natural and unique ecosystems" (81%). The contributions realized by business managers being situated near Acadia National Park include many important benefits to the community including ecological, social, and economic values. The relevance of tourism to the local economy and the relations to Acadia National Park provides a context to the problems discussed below related to summer travel on Mount Desert Island and in Acadia National Park. This in turn may help to explain the favorable business manager reports of the benefits of the Island Explorer bus system and ITS components.

Business managers are concerned about summer travel on Mount Desert Island and in Acadia National Park. In their rating of "big" and "moderate" problems, first and second ranked problems had to do with too many vehicles outside of the Park causing parking problems or congestion. Parking and congestion concerns were a "big" or "moderate" problem to 72% and 70% respectively. Business managers felt similarly about too many vehicles inside the Park causing parking problems (70%) and impacting visitor experiences (62%). It should be noted that concerns reported by business managers may partly be a reflection of their own personal experiences, with many of them viewing travel problems as the norm. Nearly one-half of all business managers (48%) rated their overall travel experiences during the past summer as being "average," and 18% rating it "poor" or "very poor." In contrast, 35% reported "good" or "very good" travel experience. Regardless of these reported differences of personal experiences, the summer travel issues may be of particular concern in light of the importance of tourism and related visitor experiences while traveling to village centers and in Acadia National Park.

The recognition of too many automobiles impacting air quality ranked relatively high as compared to other problems related to travel on Mount Desert Island and in Acadia National Park. Over two-thirds of the business managers rated this issue a "big problem" or "moderate problem." There was a relatively high percentage of business managers that reported vehicles parked along main roads causing unsafe conditions. Despite the magnitude of the problems reported by business managers with parking and traffic congestion outside of the Park as well as parking inside the Park, lower ratings were reported by business managers in terms of visitor's ability to access desired attractions and recreation opportunities. However, business managers reported access as more of a problem at attractions outside of the Park than inside of the Park. Generally, fewer problems were reported by business managers regarding not enough travel and traffic information to help visitors plan trips in the Park. Again, the level of concern associated with these travel issues may reflect the importance of tourism in the community and related visitor experiences in Acadia National Park. However, some concern may also relate to quality of life from operating a business in the area with respect to air quality and health or travel conditions to and from work.

Clearly, many business managers believe that the Island Explorer bus system helps to address some of their concerns about summer travel on Mount Desert Island and in Acadia National Park. For example, the biggest benefit reported, regardless of the type of business, was that the Island Explorer bus created less worry about driving and parking for tourists along busy roads. A similar high ranked benefit, regardless of type of business, was that the Island Explorer bus reduced tension and stress for people who would otherwise drive their own vehicle. Although there was general agreement by both groups that the Island Explorer bus helped to reduce the amount of vehicle pollution and improve air quality, there were relatively large discrepancies by type of business in terms of their mean belief strength and consequently

the rank order of the benefit. The average rating of business managers that had customers who used the Island Explorer bus was the second highest in terms of their strength in beliefs that improved air quality would be an outcome. In sharp contrast, business managers who reported that customers did not use or were not sure if customers had used the Island Explorer bus had significantly lower mean belief strengths about the benefit for pollution and air quality. However, this same group reported slightly higher mean belief strengths in terms of the Island Explorer users would contribute to fewer total vehicles on the road and safer driving conditions. Again, this was a very high ranked benefit for the business managers that had customers who used the Island Explorer bus. It should be noted that 69% of the business managers reported providing information related to the Island Explorer bus. This is particularly promising because the favorable attitudes towards the Island Explorer bus may motivate businesses to recommend using the bus to visitors and add support for the ITS technologies that further improve the bus system.

As mentioned above, an important goal of the ITS technologies was to enhance the visitor's experience and to divert visitors from using their private vehicles to using the Island Explorer bus for traveling around Mount Desert Island and in Acadia National Park. It was expected that ITS technologies would contribute to a more positive visitor experience and willingness to use transit by providing real-time information on parking lot conditions, real-time information on departures of the next Island Explorer bus, and traveler information on-board buses such as announcements of the next bus stop. While awareness of ITS is an essential first step, the business survey revealed it didn't necessarily translate into businesses using the ITS technologies or their awareness of customers using the ITS technologies. Nearly one-third of the business managers (61%) reported being aware of one or more of the ITS technologies. In general, there appeared to be much more reported awareness of the ITS technologies associated with the Island Explorer bus and in particular the electronic bus departure signs (80%). In contrast there was much less reported awareness of the parking conditions at Sand Beach and Jordan Pond House with displayed signs (40%) or the Acadia National Park web page (25%).

It is important to note that awareness and usage were far from uniform. One-half of the business managers that reported being aware of any of the ITS technologies actually used the ITS technologies themselves. Lower reports of awareness and use were identified for the parking conditions information. Given that most managers have lived through many tourist seasons on Mount Desert Island, a possible explanation for their reports of very low use of parking availability information may be due to their prior knowledge of daily patterns of parking availability at Sand Beach and the Jordan Pond House. The vast majority of business managers were not sure if customers used any of the ITS technologies. More than half of the business managers that were aware of one or more of the ITS technologies (55%) reported "not sure" of customers using any of the ITS technologies even though most managers (69%) said they distributed information about the bus. Business managers were more likely to report their customers using the ITS technologies associated with the Island Explorer bus as compared to the parking information. As noted in Section 4.5 on "Awareness and Usage of ITS Components" the parking availability reflected the designated parking lots at Sand Beach and the Jordan Pond House. The status of parking lots being full did not necessarily restrict visitors from gaining access to these attractions. Some visitors may have realized these areas were still accessible by privately owned vehicles and despite knowing the condition of the parking lots did not plan to use the information. However, if a more strict parking policy was to be implemented to regulate cars not parked in designated lanes in parking lots, especially at the Jordan Pond House, business managers as well as visitors may be more likely to use the parking availability information. Moreover, heavier promotion of the parking information, including dissemination by businesses, might result in greater usage than observed and might encourage visitors to act on alternatives.

There are clearly many perceived benefits associated with the ITS technologies regardless of the awareness and current usage of ITS technologies. For example, business managers reported that the users of the traveler information system involving the real-time parking conditions would make it easier for

tourists to get around (78%). A high proportion of business managers thought the parking information would help tourists to avoid parking problems and traffic congestion in the Park (84% and 81%, respectively) and to avoid large crowds (70%). Similarly, business managers reported that the users of the traveler information system involving the automated annunciator, and electronic departure sign for the Island Explorer bus information would make it easier for tourists to get around (95%). Ninety percent of the business managers thought that the Island Explorer bus traveler information helped to relieve uncertainty for users when the bus would arrive at the bus stop. Eighty-five percent of the business managers thought the Island Explorer bus traveler information helped to relieve uncertainty for users when to exit the bus. Finally, 90% of the business managers rated "strongly agree" or "agree" to the statement "providing the Island Explorer bus traveler information helps to improve the travel experience." Based upon these findings about the perceived benefits to users, the implication is that traveler information could be potentially useful to the customers of many businesses whose managers were unaware of the ITS technologies and traveler information. However, equally important may be mechanisms that help raise awareness among businesses that in turn can promote these types of traveler information sources to their customers.

An expected benefit of the ITS technologies is that it will contribute to the productivity and economic vitality in the region. Specifically, it was hypothesized that the enhanced experience and increased access will contribute to longer visitor stays and attract a new car-less tourist segment. In general, there was strong support among business managers (38% agreed and 45% strongly agreed) that the Island Explorer creates potential for a new segment of tourists who do not drive personal vehicles. Specifically related to the ITS technologies, most business managers thought the parking and Island Explorer traveler information would increase the likelihood that some tourists would ride the Island Explorer bus (86% and 93%, respectively). A relatively high proportion of the business managers (87%) thought the Island Explorer traveler information helped tourists utilize time such as visiting shops before bus arrives at the bus stop. However, it should be noted that there was a great deal of uncertainty among business managers in terms of their beliefs about visitors who use the Island Explorer tend to stay longer. Nearly half of all business managers (48%) neither agreed nor disagreed to one statement of the potential benefits of the Island Explorer "increases the likelihood that visitors will stay longer." Thirty-five percent of the business managers agreed that use of the Island Explorer bus increases the likelihood that visitors will stay longer. Thus, regardless of the increased positive experiences that might result from customer use of the ITS technologies and probable use of the Island Explorer bus there is not necessarily a perceived economic benefit to the business in terms of increased length of stay. This may have contributed to business manager reports of "neutral" to parking and Island Explorer traveler information being helpful to their business (48% and 30%, respectively). Previous research has shown longer lengths of stay for Island Explorer bus passengers as compared to other Park visitor studies (Daigle and Lee 1999; Littlejohn 1998), and this was confirmed in the Visitor Survey of this ITS evaluation. Such information could be used to help illustrate to businesses the potential impact of ITS on the local economy and encourage use of the Island Explorer and traveler information in promotion of Mount Desert Island tourism.

Finally, this document reports the results for one aspect of the overall evaluation: Business Surveys. It is important that these results be viewed together with those from other aspects of the evaluation, such as the results of the Visitor Survey and other data about visitors and their impact that were collected for the evaluation. There are many similarities in what businesses and visitors believe are benefits from use of the traveler information such as ease of travel, less tension and stress related to travel, and increased likelihood of using the Island Explorer bus. However, there are important disparities in beliefs about certain benefits of the traveler information. For example, businesses generally believed that the traveler information would be helpful to visitors in avoiding large crowds. In contrast, visitors generally reported that the traveler information was not helpful in avoiding large crowds. This has important implications to future advertising of the benefits of using the traveler information because congruence between

expectations and outcomes is seen to ultimately define satisfaction. More synthesis of different aspects of the overall evaluation is reported in the summary report.

Appendix A

Mail-back Questionnaire

(Note: final version formatted slightly different for booklet)

MOUNT DESERT ISLAND
BUSINESS SURVEY

University of Maine
Parks, Recreation and Tourism Program
5755 Nutting Hall
Orono, Maine

This survey is voluntary but your participation is important to ensure representation of a broad spectrum of business viewpoints. You may be assured that in the analysis and reporting of the results your answers will not be connected with you or your business.

A. In the first part of the survey, we would like to learn about your perceptions of tourism. We will be asking your assessment of potential benefits as well as negative impacts related to tourism. Also, we would like to gain a better understanding of Acadia National Park and its contribution to tourism and quality of life in your community.

1. Below is a list of potential benefits as well as negative impacts related to tourism. For each of the statements below, please circle the number to indicate your level of agreement with each item.

Potential benefits and negative impacts related to tourism in my community	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
a. I support tourism as having a vital role in this community……..	+2	+1	0	-1	-2
b. The tourism industry will continue to play a major economic role in this community…..…	+2	+1	0	-1	-2
c. Tourism usually benefits a small group of individuals in this community……..……	+2	+1	0	-1	-2
d. My community should plan for and manage the growth of tourism……..……...….	+2	+1	0	-1	-2
e. Tourism is responsible for too fast a rate of urbanization and development in Maine….....	+2	+1	0	-1	-2
f. I am happy and proud to see tourists coming to see what my community has to offer……..	+2	+1	0	-1	-2
g. Tourism results in more crime and vandalism in my community…..…….	+2	+1	0	-1	-2
h. Tourists are a burden on my community's services (roads, water & sewer, police & fire)	+2	+1	0	-1	-2
i. I favor new tourism facilities in my community that will attract more tourists..….	+2	+1	0	-1	-2
j. Additional tourism will have a positive impact on my community's growth……...……	+2	+1	0	-1	-2
k. The state has become overcrowded because of tourists……...……	+2	+1	0	-1	-2
l. An increase in tourists in my community will lead to friction between local residents and tourists……..…….	+2	+1	0	-1	-2

2. Listed below are potential benefits that your business or community might realize being situated near Acadia National Park. Please indicate how much Acadia National Park contributes to each of the following. Please circle one number for each item.

Item	No Contribution	Minor Contribution	Moderate Contribution	Major Contribution	No Opinion
a. A chance to attract tourism dollars to my business and community……	1	2	3	4	5
b. A place to preserve/conserve various natural and unique ecosystems…..	1	2	3	4	5
c. A chance to experience unique recreation opportunities…..	1	2	3	4	5
d. A natural setting in which your community takes pride..	1	2	3	4	5
e. A greater understanding of your natural environment…..	1	2	3	4	5
f. A feeling that your community is a special place to live……	1	2	3	4	5
g. A more stable economy within the community…	1	2	3	4	5
h. Assurance that access to recreation opportunities will not be lost…….	1	2	3	4	5
i. The number of jobs that are created in your community…	1	2	3	4	5
j. Opportunities for exercise that improve local people's health……	1	2	3	4	5
k. A greater ability to preserve the character of the immediate area…….	1	2	3	4	5

B. In this section of the survey we would like to know your opinions about the number of tourists visiting this summer and related transportation issues.

1. This summer, how much of a problem do you think the following travel issues were on Mount Desert Island and in Acadia National Park? Please read each question carefully and circle the number that best describes your opinion.

Issue	Not a Problem	Small Problem	Moderate Problem	Big Problem	No Opinion
a. Not enough travel and traffic information to help visitors plan trips in the Park……..	1	2	3	4	5
b. Too many autos in the Park that impacts visitor experiences……...	1	2	3	4	5
c. Ability for visitors to fully access desired recreation opportunities and attraction in the Park……...……	1	2	3	4	5
d. Too many autos having a negative impact on air quality……..	1	2	3	4	5
e. Too many vehicles inside of the Park causing parking problems……	1	2	3	4	5
f. Too many people inside of the Park that impacts visitor experiences…….	1	2	3	4	5
g. Too many vehicles <u>outside of the Park</u> causing parking problems……	1	2	3	4	5
h. Ability for visitors to fully access desired attractions <u>outside of the Park</u> (i.e., restaurants, shops)……..…	1	2	3	4	5
i. Vehicles parked along main roads causing unsafe conditions……	1	2	3	4	5
j. Too many vehicles <u>outside of the Park</u> causing traffic congestion……	1	2	3	4	5
k. Other? Please list _____ _____	1	2	3	4	5

2. Overall, how would you rate <u>your</u> travel experience during the past summer? (Please circle one)

VERY GOOD GOOD AVERAGE POOR VERY POOR

3. The following questions are related to the Island Explorer Bus system and it's operation during the past summer.

   A. How far is the closest Island Explorer Bus stop from your business?

      ___ STOPS IN FRONT OF MY BUSINESS
      ___ WITHIN 5 MINUTE WALK TO BUS STOP
      ___ WITHIN 10 MINUTE WALK TO BUS STOP
      ___ MORE THAN 10 MINUTE WALK TO BUS STOP
      ___ NOT ON OR NEAR ISLAND EXPLORER BUS ROUTE

   B. Did you have business customers who used the Island Explorer Bus this summer?

      ___ NO
      ___ YES → If **Yes**, approximately what percentage of customers used the bus? ____
      ___ NOT SURE

   C. Did you or your business employees use the Island Explorer Bus to travel to your place of work?

      ___ NO
      ___ YES → If **Yes**, approximately how many employees including yourself used the bus?
____
      ___ NOT SURE

   D. Did your business provide information (i.e., bus schedules) related to the Island Explorer Bus?

      ___ NO
      ___ YES

   E. Did you use the Island Explorer Bus for other than traveling to your business?

      ___ NO
      ___ YES

   F. Did employees use the Island Explorer Bus for other than traveling to your business?

      ___ NO
      ___ YES
      ___ NOT SURE

4. This question explores your views about the benefits from tourists and residents that use the Island Explorer bus. For each of the statements below, please circle the number to indicate your level of agreement with each item.

Benefits of using the Island Explorer Bus:	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
a. Reduces the tension and stress for people who would otherwise drive their own vehicle…..…	+2	+1	0	-1	-2
b. Provides people with fast service to their intended destination……...……..	+2	+1	0	-1	-2
c. Has enabled more customers to patronize my business, because parking is less of a factor…	+2	+1	0	-1	-2
d. Improves access to intended destinations inside of Park…….…….……	+2	+1	0	-1	-2
e. Creates more potential for a new segment of tourists who do not drive personal vehicles	+2	+1	0	-1	-2
f. Increases the likelihood that visitors will stay longer……..	+2	+1	0	-1	-2
g. Creates less worry about driving and parking for tourists along busy roads……...	+2	+1	0	-1	-2
h. Increases ability to keep people off the road who may drink and drive……..…	+2	+1	0	-1	-2
i. Contributes to fewer total vehicles on the road and safer driving conditions…….	+2	+1	0	-1	-2
j. Reduces the amount of parking problems in village centers…..……	+2	+1	0	-1	-2
k. Enables me and my employees to have an alternative means to get to work……..…	+2	+1	0	-1	-2
l. Reduces the amount of vehicle pollution and improves air quality…….……	+2	+1	0	-1	-2
m. Reduces the amount of parking problems inside of the Park……..……..	+2	+1	0	-1	-2
n. Improves access to shops and restaurants in village centers…….……	+2	+1	0	-1	-2
o. Tends to benefit businesses that are closer to the bus stop than mine……..……..	+2	+1	0	-1	-2
p. Other (Please describe:_____)	+2	+1	0	-1	-2

C. In this section of the survey we would like your opinion related to traveler information that was available this summer. The information included parking conditions indicating the parking lot status was full or open at Sand Beach and the Jordan Pond House in Acadia National Park. The parking information was available through a Park website and signs displayed at the Hulls Cove visitor center and Acadia National Park campgrounds. Other traveler information included electronic departure signs of the next Island Explorer bus at the Village Green, Jordan Pond House, and the Hulls Cove visitor center. Finally, an automatic announcement and visual display of the next bus stop operated on each Island Explorer bus.

1. Were you aware of the traveler information sources available this summer?

___ NO If no, please go to **Question 4.**
___ YES If yes, please **continue**

Which of the traveler information sources were you aware of this summer?
(Please check all that apply)
___ Parking conditions at Sand Beach and Jordan Pond on displayed signs
___ Parking conditions at Sand Beach and Jordan Pond with Acadia National Park website
___ Electronic bus departure signs for Island Explorer Buses
___ Audio announcement of next bus stop on Island Explorer Buses

2. Do you know if your business customers used any of the traveler information sources?

___ NO
___ NOT SURE If no, not sure, or not applicable, please go to **Question 3.**
___ NOT APPLICABLE
___ YES If yes, please **continue**

Which of the traveler information sources did your customers use this summer?
(Please check all that apply)
___ Parking conditions at Sand Beach and Jordan Pond on displayed signs
___ Parking conditions at Sand Beach and Jordan Pond with Acadia National Park website
___ Electronic bus departure signs for Island Explorer Buses
___ Audio announcement of next bus stop on Island Explorer Buses
___ Not Sure

3. Did <u>you</u> experience any of the traveler information sources?

___ NO If no, please go to **Question 4.**
___ YES If yes, please **continue**

Which of the traveler information sources did you experience this summer?
(Please check all that apply)
___ Parking conditions at Sand Beach and Jordan Pond on displayed signs
___ Parking conditions at Sand Beach and Jordan Pond with Acadia National Park website
___ Electronic bus departure signs for Island Explorer Buses
___ Audio announcement of next bus stop on Island Explorer Buses

4. Please circle the number that represents your opinion of the benefits customers may derive using the parking conditions information at Sand Beach and the Jordan Pond House in Acadia National Park.

Parking conditions information	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a. Providing parking conditions and traffic information would be helpful to my business……	+2	+1	0	-1	-2
b. Helps tourists avoid parking problems in the Park……	+2	+1	0	-1	-2
c. Helps tourists avoid traffic congestion in the Park……	+2	+1	0	-1	-2
d. Helps tourists avoid large crowds in thePark.	+2	+1	0	-1	-2
e. Makes it easier for tourists to get around with the information…….……..…….	+2	+1	0	-1	-2
f. Increases the likelihood that some tourists will ride the Island Explorer Bus…….……	+2	+1	0	-1	-2
g. Helps tourists to plan the time of day for visiting certain destinations in the Park.…	+2	+1	0	-1	-2
h. Other (Please describe): _____	+2	+1	0	-1	-2

5. Please circle the number that represents your opinion of the benefits customers may derive using the Island Explorer traveler information.

Island Explorer Bus traveler information	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
a. Providing Island Explorer Bus traveler information would be helpful to my business..	+2	+1	0	-1	-2
b. Makes it easier for tourists to get around…	+2	+1	0	-1	-2
c. Increases the likelihood that some tourists will ride the Island Explorer Bus……..……	+2	+1	0	-1	-2
d. Relieves uncertainty for users when the bus will arrive at the bus stop……..	+2	+1	0	-1	-2
e. Relieves uncertainty for users on when to exit the bus…….……	+2	+1	0	-1	-2
f. Helps tourists utilize time such as visiting shops before bus arrives at the bus stop…..…	+2	+1	0	-1	-2
g. Providing the Island Explorer Bus traveler information helps to improve the travel experience……..	+2	+1	0	-1	-2
h. Other (Please describe): _____	+2	+1	0	-1	-2

D. This final section of the survey will give us some background information about you and your business. The purpose of these questions is to determine if opinions vary among different groups of people and businesses. Your answers to these questions, as with all other answers you provide in this questionnaire, will remain completely anonymous.

1. On the map below, please circle the number of the zone where your business is located on Mount Desert Island. If you are involved in more than one business, circle one location of your primary business.

(Please see the 1999 bus survey for the 14 geographic zones on MDI)

2. What type of business do you operate on Mount Desert Island? If you are involved in more than one business, please indicate your primary business.

   _____

3. How many months is your business open during the year?

   _____

4. How long have you been operating your business?

   _____

5. Which of the following best describes your principal residence? In other words, where do you live most of the year? (Please check one)

   [ ] Mt. Desert Island
   [ ] Hancock County, Maine (other than Mt. Desert Island)
   [ ] Maine (other than Hancock County)
   [ ] United States (other than Maine)
   [ ] Outside the United States

6. How many years have you resided in the Mount Desert Island area including Hancock County regardless of how many years you've been managing your business? (Please put a zero if you do not reside in the area)

   _____

7. Are you a Year-round resident of Mount Desert Island?

   [ ] NO
   [ ] YES

8. In what year were you born? 19___

9. Do you regularly access the World-Wide web/Internet once a week or more often either at home or at work?

   [ ] NO
   [ ] YES

IS THERE ANYTHING ELSE ABOUT TOURISM AND TRANSPORTATION ISSUES OR INFORMATION YOU WOULD LIKE TO SHARE WITH US?

YOUR CONTRIBUTION TO THIS EFFORT IS GREATLY APPRECIATED.
PLEASE RETURN YOUR COMPLETED QUESTIONNAIRE IN THE SELF-ADDRESSED STAMPED ENVELOPE AS SOON AS POSSIBLE.

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