ACADIA NATIONAL PARK ITS FIELD OPERATIONAL TEST

PARKING REPORT

April, 2003

Prepared for:

U.S. Department of Transportation
Federal Highway Administration

U.S. Department of Transportation
ITS Joint Program Office, HOIT-1
400 7th Street, S.W.
Washington, DC 20590

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Technical Report Documentation Page

1. Report No. FHWA-OP-03-149	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle Acadia National Park ITS Field Operational Test: Parking Report		5. Report Date April, 2003
		6. Performing Organization Code
7. Author(s) John Daigle, University of Maine; Carol A. Zimmerman, Battelle		8. Performing Organization Report No.
9. Performing Organization Name and Address University of Maine 5755 Nutting Hall Orono, ME 04469-5755 Battelle 901 D Street, SW Suite 900 Washington, DC 20024		10. Work Unit No. (TRAIS)
		11. Contract or Grant No. DTFH61-96-C-00077
12. Sponsoring Agency Name and Address ITS Joint Program Office USDOT 400 7th Street, SW Washington, DC 20590		13. Type of Report and Period Covered
		14. Sponsoring Agency Code HOIT-1
15. Supplementary Notes James Pol, U.S. DOT ITS Joint Program Office		

16. Abstract

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. The parking evaluation was designed to obtain specific information on three of the six central evaluation objectives: efficiency, energy and environment, and safety. For example, measures of the number of vehicles that park outside of the designated parking areas can be used to assess whether ITS can help to distribute the demand on ANP resources more evenly, enhanced aesthetics and reduced hazardous conditions of fewer vehicles parked on ANP roads. The parking evaluation also was designed to collect information that could be used to assess time of year, week, and day for peak parking problems in Acadia National Park. This report presents the results of the field data collection and assesses the data to measure the impact of ITS on the goals of efficiency, energy and environment and safety at Acadia National Park.

17. Key Word Intelligent Transportation Systems; ITS; Acadia National Park; evaluation; benefits; parking lots; parking information		18. Distribution Statement Public distribution	
19. Security Classif. (of this report) unclassified	20. Security Classif. (of this page) unclassified	21. No. of Pages 43	22. Price NA

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

Table of Contents

Page

ACKNOWLEDGEMENTS iii

EXECUTIVE SUMMARY iv

1.0 INTRODUCTION AND BACKGROUND 1
- 1.1 Overview of the Overall Evaluation Strategy 1
- 1.2 Objectives of the Parking Evaluation 4

2.0 STUDY DESIGN AND METHODS 5
- 2.1 Selection of Parking Areas for Study 5
- 2.2 Sampling Sites and Times 5
- 2.3 Data Recording 6

3.0 PARKING DATA RECORDS 7

4.0 SUMMARY OF PARKING DATA 8
- 4.1 Parking by Year 8
- 4.2 Parking by Month 9
- 4.3 Parking by Day 10
- 4.4 Parking by Time of Day 10
- 4.5 Parking at Individual Lots 11

5.0 DISCUSSION 14

List of Appendices

Appendix A: Parking Lot Maps and Methodology A-1

Appendix B: Sampling Schedules B-1

Appendix C: Parking Data Collection Sheets C-1

Table of Contents (Continued)

Page

List of Tables

Table 1.1.1: ITS FOT Components 3

Table 3.1.1: Parking Area Observations by Month and Year 7

Table 4.1.1: Number of Vehicles Exceeding the Capacity of Eight Designated Parking Lots in Acadia National Park 8
Table 4.2.1: Number of Vehicles per Month Exceeding the Capacity of Eight Designated Parking Lots in Acadia National Park 9
Table 4.4.1: Number of Vehicles and Time of Day Exceeding the Capacity of Eight Designated Parking Lots in Acadia National Park 11
Table 4.5.1: Mean Number of Vehicles Exceeding the Capacity of the Parking Area by Individual Lot in Acadia National Park 12
Table 4.5.2: Mean Number of Vehicles that Exceeded the Capacity and Time of Day for Individual Parking Lots 13

Table 5.0.1: Hypotheses Related to the Parking Evaluation 14
Table 5.0.2: The Park Use Statistics for Recreation Visits at Acadia National Park 15

List of Figures

Figure 1.1.1: System Architecture for ITS FOT at Acadia National Park 2

Figure 4.3.1: Number of Vehicles by Day Exceeding the Capacity of Eight Designated Parking Lots in Acadia National Park 10

Acknowledgements

The authors would like to acknowledge the many people and organizations who contributed to this particular aspect of the evaluation. We would like to thank Len Bobinchock at Acadia National Park as well as local partners and stakeholders involved in the Acadia National Park ITS Field Operational Test. We would like to offer thanks to students at the University of Maine who spent many hours driving in a safe manner to assess the parking conditions. A sincere thanks to Rea Brennan, Jason Bulay, Celina LaPoint, Byung-Kyu Lee, and Craig Thill.

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 direct observations of parking conditions during the summers of 2000, 2001, and 2002, this report describes parking conditions at eight parking areas in Acadia National Park that included Sieur de Monts, Sand Beach, Jordan Pond House, Bubble Pond, Eagle Lake, Ikes Point, Acadia Mountain, and Echo Lake. A total of 86 parking observations were recorded over the three summer seasons.

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. The parking evaluation was designed to obtain specific information on three of the six central evaluation objectives: efficiency, energy and environment, and safety. For example, measures of the number of vehicles that park outside of the designated parking areas can be used to assess whether ITS can help to distribute the demand on ANP resources more evenly, enhanced aesthetics and reduced hazardous conditions of fewer vehicles parked on ANP roads. The parking evaluation also was designed to collect information that could be used to assess time of year, week, and day for peak parking problems in Acadia National Park. Key findings are presented below.

The mean number of vehicles exceeding the capacity of Sand Beach and Jordan Pond parking areas was much higher as compared to the six other designated parking areas in Acadia National Park. These areas are extremely popular destinations in the Park and places exist for visitors to park nearby the designated parking areas to these attractions. In 2002, a reduction was seen in the mean number of vehicles exceeding the capacity of the Sand Beach and Jordan Pond House parking areas as compared to 2001. The magnitude of change for these parking areas as compared to the other six parking areas might be partly related to the real-time parking information available for these two areas and not the other six areas. Similarly, a noticeable reduction was observed in 2002 for the number of vehicles exceeding the capacity of the Eagle Lake parking area as compared to 2001. It should be noted that these reductions were observed in light of Park statistics reporting increased visitor use in 2002. Thus, these findings help support the hypothesized relation that the ITS technologies may be beneficial towards a more even distribution of visitor demand on Acadia National Park resources. However, it should be noted that a very slight increase in the number of vehicles exceeding the capacity of Acadia Mountain parking was observed in 2002 as compared to 2001. Visitors learning about the parking conditions at Sand Beach or the Jordan Pond House may have elected to go to this particular location adding to the parking problem at this location.

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. Visitors' use of the propane-powered Island Explorer buses would result in fewer trips by private vehicle and a consequent improvement in air quality as well as fewer vehicles that would be parked along the side of Park roads. It was expected that seeing fewer vehicles would result in a more positive experience for visitors through enhanced aesthetics of Acadia National Park. As hypothesized, the ITS technologies may have contributed to a decrease in the total number vehicles parked along the side of the road especially when comparing the pre-ITS summer observation periods during 2000 and 2001. In 2001, more than half of the days the eight parking areas where observed (54%) the number of vehicles exceeding the eight parking lots was more than 300 vehicles. In contrast, for 33% of the days in 2002 vehicles exceeded the capacity of the eight parking lots by more than 300. These percentages correlate with the mean number of vehicles exceeding the capacity of the eight designated parking areas during the summer season. In 2001, the mean number of vehicles was 325 that exceeded the capacity of eight designated parking lots in Acadia National Park as compared to 274 for 2002. Again, it should be noted that these reductions were observed in light of Park statistics reporting increased visitor use in 2002.

An expected benefit of the ITS technologies is that it will increase transportation safety in Acadia National Park and on Mount Desert Island. Specifically, the ITS-improved Island Explorer services will result in fewer vehicles parked on Acadia National Park roads and in-turn reduce hazardous conditions such as visitors walking along or crossing busy roads. Indeed, the parking data revealed fewer numbers of vehicles exceeding the capacity of parking areas especially at the Sand Beach and the Jordan Pond House parking areas for the summer of 2002 (means = 98 and 81, respectively) as compared to the summer of 2001 (means = 124 and 96, respectively). Consequently fewer numbers of vehicles were parked along the roads at these particular locations in Acadia National Park. A similar decrease was observed in number of vehicles exceeding the capacity of the Eagle Lake parking area for the summer of 2002 (mean = 52) as compared to the summer of 2001 (mean = 69). The reduction of fewer vehicles parked along the road at this particular parking area is especially beneficial in terms of safety because it is located on Route 233 a major road that connects points east to Bar Harbor and attractions in the Park and points west to Southwest Harbor and other areas of Acadia National Park. However, it should be noted that a reduction in vehicles parked along the roads did not occur at all designated parking areas observed for the 2002. There was a slight increase in number of vehicles exceeding the capacity of the Acadia Mountain parking area for the summer of 2002 (mean = 25) as compared to the summer of 2001 (mean = 24). The failure to reduce the number of vehicles parked along the road at this particular area may be a continued safety concern because it is located on Route 102 a major road that connects points north to exit Mount Desert Island and to Bar Harbor and points south to Southwest Harbor. Clearly, it can be argued that the ITS technologies appear to be reducing the number of vehicles parked along the road at many locations, but not all locations.

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 2.6 million recreation visits in 2002, 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 there 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 expansion of 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 (FOT) 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 FOT 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 evaluation strategy while the remainder of the report discusses one component of the independent evaluation, parking in Acadia National Park, in more detail.

1.1 Overview of the Overall Evaluation Strategy

The ITS 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[2]. 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.

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

[2] U.S. DOT ITS Joint Program Office website for evaluation documents: http://www.its.dot.gov/eval/docs_stateregionl.htm

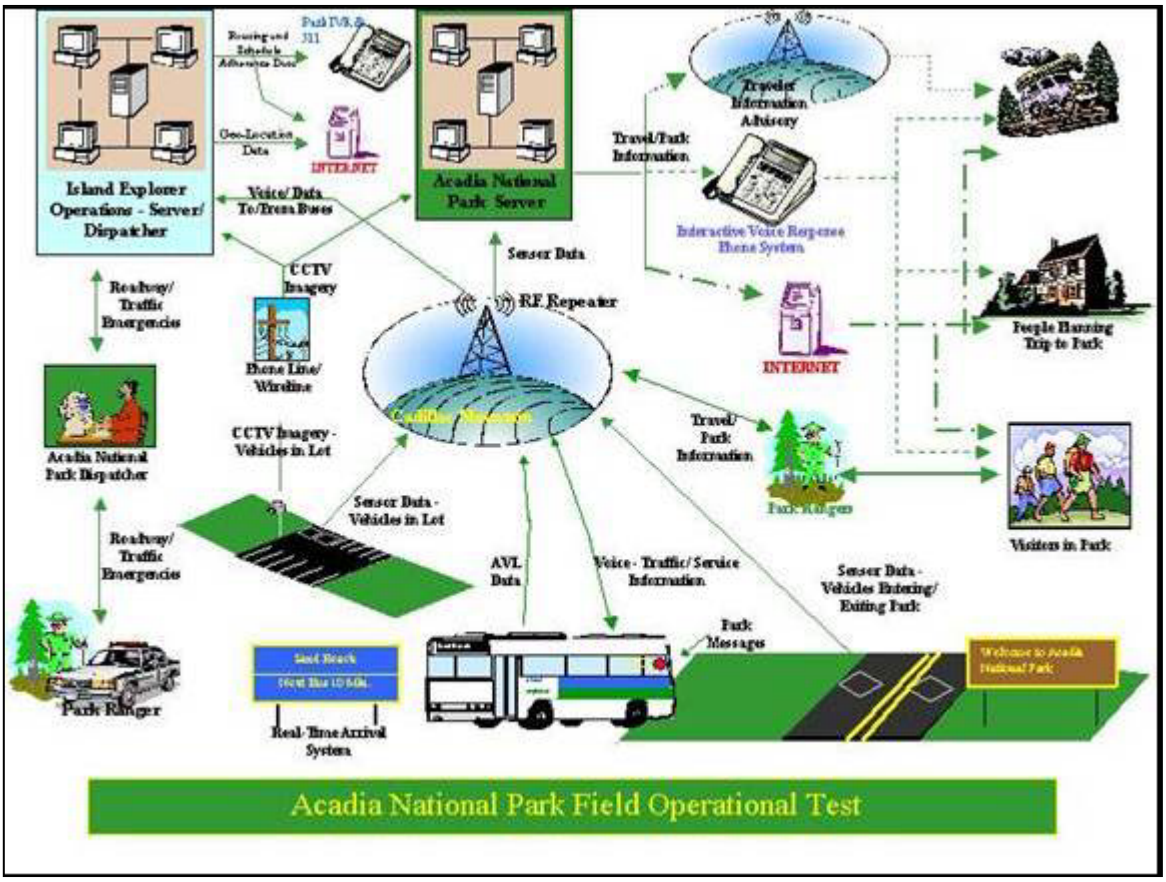


Figure 1.1.1: System Architecture for ITS FOT at Acadia National Park

The evaluation strategy was developed in cooperation with local partners and representatives from the state and federal Departments of Transportation. Despite diverse representation of those involved in the FOT, there was considerable agreement 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 and other key stakeholders 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. Direct observation of eight designated parking areas in Acadia National Park for 2000, 2001, and 2002 is the subject of this report, and findings of the other tests are reported elsewhere.

Table 1.1.1: ITS FOT 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[3], 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[4]	Record number of vehicles entering and exiting, provide slow scan video of parking area[5], 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[6]	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[7]	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[8], web page, parking status signs	Increase availability and display options of information, Decrease use of POV's, Improve visitor experience

[3] Not operational during the Field Operational Test
[4] 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
[5] Eliminated from the Field Operational Test
[6] Eliminated from the Field Operational Test
[7] Not operational during the Field Operational Test
[8] Not operational during the Field Operational Test

1.2 Objectives of the Parking Evaluation

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. 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. To evaluate the extent to which the ITS deployment has fulfilled these objectives, information was collected to assess the total number of vehicles parked outside of designated parking spaces.

The parking evaluation was designed to obtain specific information on three of the six central evaluation objectives: efficiency, energy and environment, and safety. For example, measures of the number of vehicles that park outside of the designated parking areas can be used to assess whether ITS can help to distribute the demand on ANP resources more evenly, enhanced aesthetics and reduced hazardous conditions of fewer vehicles parked on ANP roads. Specific hypotheses related to these goal areas are presented in Section 5.0 of the report. The parking evaluation also was designed to collect information that could be used to assess time of summer season, week, and day for peak parking problems in Acadia National Park. The eight designated parking areas and data collection form used to obtain the information are presented in Appendices A and B.

2.0 STUDY DESIGN AND METHODS

2.1 Selection of Parking Areas for Study

Many of the attractions in Acadia National Park have long experienced parking problems. Indeed, in addition to anecdotal information from Park staff and visitors, parking was identified as a long-standing problem in the 1991 Acadia National Park General Management Plan Environmental Assessment [9] prepared by the Denver Service Center of the National Park Service. This plan cited the parking problems of the 1988 visitor season and the desirability of alternatives to overflow parking. Since that study, the vehicle-parking situation has fluctuated with visitor levels, but the overall parking problems remains.

Three important dimensions associated with parking problems include:

- Degradation of resources associated with vehicles parking in non-designated areas. This is a problem particularly along the shoulders of entrance roads to parking lots.
- Visitor safety associated with parking along busy roads.
- Visitor satisfaction in locating parking areas and access to desired locations in the Park.

Therefore, the design of the baseline data collection of vehicle counts incorporated information beyond "illegally" parked vehicles, to include other vehicles causing problems, such as legally parked vehicles along the Park Loop Road at the Sand Beach attraction.

The above dimensions were instrumental in the design of the parking survey. Park staff members were interviewed about problem areas, and eight areas were selected as candidates. These areas included parking lots at Sieur De Monts, Sand Beach, Jordan Pond, Bubble Pond, Eagle Lake, Ikes Point, Acadia Mountain, and Echo Lake. It should be noted Cadillac Mountain was not included as a candidate because of private bus transit currently available to this area. Also, the ITS deployments were planned in conjunction with the Island Explorer bus service that serviced the eight parking areas. These eight areas were verified as good sites to study by a meeting of stakeholders on 2 August 2000. The parking counts were conducted in 2000, 2001, and 2002.

2.2 Sampling Sites and Times

Maps of the eight parking areas were created in order to determine the specific locations to count the number of vehicles and to develop an efficient protocol for counting vehicles. In addition to maps, written instructions for conducting each count at each location were developed and tested. Appendix A includes the maps and methodology used to obtain parking counts at each location.

A multi-stage cluster sampling design was utilized to select weeks and days to monitor parking conditions at Acadia National Park. Two week-end (Friday to Sunday) and three weekday (Monday to Thursday) clusters of days were randomly chosen from each sample week. In 2000, a total of 18 sample days were selected primarily during August. In 2001 and 2002, a total of 36 and 35 sample days were selected respectively during the Island Explorer time of operation from late June to early September. Seven weeks were randomly chosen from the 10 full weeks of the sample period during the 2001 and 2002 seasons.

[9] National Park Service. 1991. Acadia National Park General Management Plan Environmental Assessement. Denver, CO. 286 p.

An additional day was randomly chosen to obtain a total of 36 sample days in 2001. For each sample day the observer began at one of eight parking areas that included Sieur de Monts, Sand Beach, Jordan Pond House, Bubble Pond, Eagle Lake, Ikes Point, Acadia Mountain, and Echo Lake. Each parking area was observed once in the morning and once in the afternoon. According to Acadia National Park staff, parking areas receive the most use by visitors between 10:00 AM and 2:00 PM. Thus, for each sample day the observer began at a different parking area starting around 10:00 AM. The staggering of start times was purposively designed to better capture arrival patterns for the respective parking areas and to avoid sample bias in under- or over- reporting parking populations at any given location. Appendix B contains the date and site to start observing parking area conditions for each year.

2.3 Data Recording

Data sheets were used to record the date, weather conditions, time of day for parking area observation, number of vehicles for each specified section of the parking area, total vehicle count for the parking area, and grand total of vehicles counted for the day. All vehicles not in paved parking lanes in designated parking lots were recorded for this study. For example, vehicles were counted if parked outside of a designated parking space in the parking area or along the shoulder of the entrance road leading to a parking lot. A sample of the data collection sheet used in the field is presented in Appendix C. The "segment" columns headed "1st" and "2nd" represent the AM and PM observations.

A hand held counter was used to record the number of vehicles and this helped to avoid slowing traffic behind the observer's vehicle. The observer would generally record the vehicle count for a parking area onto the data sheets and re-set the counter at stop signs located at the end of parking areas or safe spots located off the main road. The sample schedule for observing parking areas were coordinated with Park authorities and a Park pass was obtained for the sample days. Additional details on the sampling design and methodology are contained in "Acadia National Park ITS Field Operational Test: Test Plan for Parking Data."

3.0 PARKING DATA RECORDS

A total of 86 parking observations were recorded over three summer seasons (Table 3.1.1). For each sample day the observer began at one of eight parking areas that included Sieur de Monts, Sand Beach, Jordan Pond House, Bubble Pond, Eagle Lake, Ikes Point, Acadia Mountain, and Echo Lake. Each parking area was observed in the morning and afternoon. Planning for the entire evaluation program did not start until May, 2000. Consequently, it was not possible to begin baseline data collection until August when the stakeholders agreed upon the methods and locations for the parking counts. In 2001, parking counts began in late June to Labor Day weekend to capture the entire tourist season coinciding with the operation of the Island Explorer bus system. The majority of the parking observations occurred in the month of August (53 percent). The fewer number of days represented for the months of June and September is related to fewer possible sample days because of the operation of the Island Explorer bus system. There were a couple of missing sample days during 2001 and 2002 due to unavailability of evaluation staff.

Table 3.1.1: Parking Area Observations by Month and Year

Month	2000 (n=18)	2001 (n=35)	2002 (n=33)	Distribution
	--------- number --------			%
June	0	6	5	13
July	0	14	12	30
August	17	14	15	53
September	1	1	1	4
Grand Total	18	35	33	100

4.0 SUMMARY OF PARKING DATA

Results of the survey are presented in the following categories: 1) parking by year, 2) parking by month, 3) parking by day, 4) parking by time of day, and 5) parking at individual lots.

4.1 Parking by Year

Table 4.1.1 shows the number of vehicles exceeding the capacity of eight designated parking lots in Acadia National Park. The number of vehicles exceeding the capacity of the parking areas varied among days the lots were observed and the summer season. Therefore, six distinct categories with a range of the number of vehicles are displayed in the table below that includes the three summer observation periods: 2000 (n=18); 2001 (n=35); and 2002 (n=33). Conditions that exceeded the capacity of the eight parking lots ranged from days when less than 100 vehicles were counted to days when more than 500 vehicles were counted. Table 4.1.1 shows that in 2000 the largest percentage of vehicles (28%) was in the category of 101-200 vehicles. In 2001 and 2002, modal category was 201-300 (31% and 36%, respectively). In 2001, for more than half (54%) of the days that the eight parking areas were observed, the number of vehicles exceeding the eight parking lots was more than 300 vehicles. In contrast, 45% of the days in 2000 and 33% of the days in 2002 that the number of vehicles exceeding the eight parking lots was more than 300 vehicles. These percentages correlate with the mean number of vehicles exceeding the capacity of the eight designated parking areas during the summer season. In 2001, the mean number of vehicles was 325 that exceeded the capacity of eight designated parking lots in Acadia National Park as compared to 273 and 274 for 2000 and 2002, respectively.

Table 4.1.1: Number of Vehicles Exceeding the Capacity of Eight Designated Parking Lots in Acadia National Park

# of Vehicles	Years		
	2000	2001	2002
	---------- percent ----------		
0-100	6	9	18
101-200	28	6	12
201-300	22	31	36
301-400	22	25	9
401-500	17	20	12
Over 500	6	9	12
Mean number of vehicles exceeding the capacity of lots			
2000	273		
2001	325		
2002	274		

4.2 Parking by Month

Table 4.2.1 shows the number of vehicles per month exceeding the capacity of eight designated parking lots in Acadia National Park. The number of vehicles exceeding the capacity of the parking areas varied among months of the summer observation periods. Six distinct categories with a range of the number of vehicles are displayed in the table below for months during the summer observation periods: June and July (2001 and 2002) and August and September (2000, 2001, 2002). Analysis of the data did not detect differences among the summer seasons and the distribution of ranges involving the number of vehicles per month exceeding the capacity of eight designated parking lots in Acadia National Park. (An exception was the month of September with limited number of observation periods and rain resulted in few vehicles counted for one day.) Therefore, for the purposes of examining monthly parking use patterns, observations for the three summer seasons were combined.

A range of conditions was observed. For example, less than 100 vehicles were counted for certain days in August, whereas on other days in August more than 500 vehicles were counted that exceeded the capacity of the eight parking lots. Most striking was the variation by month. There were several days during the month of August when more than 500 vehicles were counted that exceeded the capacity of the eight parking lots (17 percent). In fact, over half of the days sampled during the month of August (54%) had vehicle counts of more than 300 that exceeded the capacity of the eight designated parking lots. In contrast, 91% of the days sampled in June, vehicles counts were 300 or less that exceeded the capacity of the eight parking lots. Approximately two-thirds of the days sampled in July (66%) had vehicles between 201-400 that exceeded the capacity of the eight parking lots. These percentages correlate with the mean number of vehicles per month exceeding the capacity of the eight designated parking areas during the summer season. In August, the mean number of vehicles was 339 that exceeded the capacity of eight designated parking lots in Acadia National Park as compared to 267, 237, and 189 for July, September, and June, respectively.

Table 4.2.1: Number of Vehicles per Month Exceeding the Capacity of Eight Designated Parking Lots in Acadia National Park

# of Vehicles	Months			
	June	July	August	September
	---------- Percent ----------			
0-100	18	19	4	33
101-200	27	4	15	
201-300	46	35	26	33
301-400	9	31	15	
401-500		12	22	33
> 500			17	

Mean number of vehicles exceeding the capacity of lots	
June	189
July	267
August	339
September	237

4.3 Parking by Day

Figure 4.3.1 shows the number of vehicles per day exceeding the capacity of eight designated parking lots in Acadia National Park. The number of vehicles exceeding the capacity of the parking areas varied among the days of the week during the summer observation periods. No differences were detected among the summer seasons and the distribution of ranges involving the number of vehicles per day exceeding the capacity of eight designated parking lots in Acadia National Park. Therefore, for the purposes of examining daily parking use patterns, observations for the three summer seasons were combined. A range of conditions was observed. For example, on Monday the mean number vehicles counted was 222 as compared to Thursday when the mean number of vehicles beyond capacity was 379. Generally, the middle of the week had higher mean number of vehicles as compared to the first part of the week and weekends. However, the mean number of vehicles for Sunday (mean = 292) was noticeably higher than for Monday (mean = 222) and Saturday (mean = 237). A possible explanation of the daily parking use patterns observed may be related to the typical week of vacation with travel to and from the area occurring mostly on weekends.

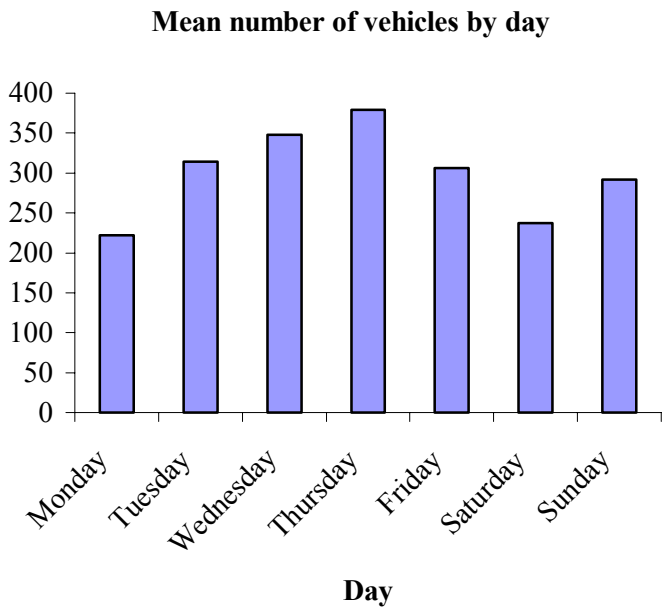


Figure 4.3.1: Number of Vehicles by Day Exceeding the Capacity of Eight Designated Parking Lots in Acadia National Park

4.4 Parking by Time of Day

Table 4.4.1 shows the number of vehicles by time of day exceeding the capacity of eight designated parking lots in Acadia National Park. Each parking lot was observed once in the morning and once in the afternoon. Thus, the mean number of vehicles exceeding the capacity of the parking areas is shown for the morning and afternoon for the three summer observation periods. Generally, a consistent pattern was observed in terms of the proportion of the number of vehicles by the time of day exceeding the capacity of lots. The mean number of vehicles exceeding the capacity of the eight designated lots was occurring during the morning observation periods but the number of vehicles more than doubled in size in the

afternoon each day. In 2000, the mean number of vehicles exceeding the capacity of lots in the morning period was 86 (31%) as compared to 193 (69%) in the afternoon observation period. In 2001, the morning period was 93 (28%) as compared to 236 (72%) in the afternoon observation period. In 2002, the mean number of vehicles exceeding the capacity of lots in the morning was (28%) as compared to 196 (72%) in the afternoon observation period.

Table 4.4.1: Number of Vehicles and Time of Day Exceeding the Capacity of Eight Designated Parking Lots in Acadia National Park

Year	N=	Mean Number of Vehicles Exceeding the Capacity of Lots	
		Morning	Afternoon
2000	18	86	193
2001	35	93	236
2002	33	77	196

4.5 Parking at Individual Lots

Table 4.5.1 shows the number of vehicles exceeding the capacity of the parking area by individual parking lots in Acadia National Park. The mean number of vehicles exceeding the capacity of the parking area varied by parking area. The mean number of vehicles that exceeded the capacity of the parking area and reported in the table below includes the morning and afternoon observation periods by summer season. Generally, a consistent pattern was observed in terms of the proportion of vehicles exceeding the capacity of individual parking lots. A range of conditions was observed, such as a mean of 81 to 120 vehicles exceeding the capacity for the Sand Beach and Jordan Pond parking areas compared to a mean of 5 or less for Sieur De Monts, Bubble Pond, Ikes Point, and Echo Lake parking areas. The low mean for certain parking areas such as Bubble Pond may have been due to the extreme difficulty in finding a place to park other than in the parking lot. On one hand, the Bubble Pond parking area had a very limited parking capacity but the terrain limited the number of vehicles it could hold and the possible areas to park outside of the designated parking lot. On the other hand, the Echo Lake parking lot had a very large parking capacity and the number of vehicles rarely exceeded the capacity of the parking lot.

The mean number of vehicles exceeding the capacity of Sand Beach and Jordan Pond parking areas was much higher as compared to the six other designated parking areas in Acadia National Park. These areas are extremely popular destinations in the Park and places exist for visitors to park nearby the designated parking areas to these attractions. For example, a visitor can park on the right hand side of the Park Loop road near the entrance to the Sand Beach parking lot. Visitors were observed parking nearby the two designated Jordan Pond House parking lots along the entrance road leading to the Jordan Pond boat landing. In addition, visitors often parked outside of the designated parking lanes in the two designated Jordan Pond House parking lots.

The mean number of vehicles exceeding the capacity of Eagle Lake and Acadia Mountain parking areas was relatively high especially as compared to the four designated parking areas that had a mean of 5 or less. The Eagle Lake parking lot had a mean number of vehicles ranging from 54 to 68 that exceeded the capacity of this lot over three summer seasons. The Acadia Mountain parking lot had a mean number of vehicles ranging from 20 to 31 that exceeded the capacity of this lot over the three summer seasons.

These areas are popular destinations and places exist for visitors to park nearby the designated parking areas along the shoulder of major two-lane roads that run through portions of the Park.

Table 4.5.1: Mean Number of Vehicles Exceeding the Capacity of the Parking Area by Individual Lot in Acadia National Park

Year	Parking lot							
	Sieur De Monts	Sand Beach	Jordan Pond	Bubble Pond	Eagle Lake	Ikes Point	Acadia Mountain	Echo Lake
2000	4	81	106	2	63	2	20	<1
2001	2	120	95	4	68	3	24	1
2002	5	98	82	2	54	4	31	1

Table 4.5.2 shows the mean number of vehicles that exceeded the capacity by time of day for individual parking lots. Sieur De Monts, Bubble Pond, Ikes Point, and Echo Lake parking areas are not included in the table since there were so few vehicles counted that exceeded the capacity for these individual parking areas.

As noted in Section 4.4 with "Parking by Time of Day," a consistent pattern was generally observed: the mean number of vehicles exceeding the capacity of the designated lots was occurring during the morning observation periods and the number of vehicles increased dramatically in the afternoon. However, examining the parking data in more detail for individual lots reveals different patterns in terms of the number of vehicles exceeding the capacity of the lots by time of day (Table 4.5.2). For example, the mean number of vehicles exceeding the capacity for the Sand Beach parking area in the morning period was 25-36 and more than doubled to 56-88 in the afternoon period for the three summer seasons. Although fewer number of vehicles, a similar pattern was observed for the Acadia Mountain parking area. The mean number of vehicles exceeding the capacity for the Acadia Mountain parking area in the morning was 6-8 and more than doubled to 14-18 in the afternoon period for the summer seasons.

The mean number of vehicles exceeding the capacity for the Jordan Pond House parking area was noticeably more spread between morning and afternoon periods (Table 4.5.2). The mean number of vehicles exceeding the capacity for the Jordan Pond House in the morning was 9-19 and increased more than four times to 72-87 in the afternoon period for the summer seasons. The drastic increase in counts of vehicles exceeding that the capacity of the lots in the afternoon may partly be the result of visitors going to the Sand Beach and other attractions along the Park Loop before arriving to the Jordan Pond House. Also, the Jordan Pond House is the only facility in the Park that offers food service and visitors may plan their trip to arrive in the early afternoon to obtain lunch. In 2002, a lower mean number of vehicles were observed for both the morning and afternoon periods.

Finally, another distinct parking pattern of vehicles exceeding the capacity of parking lots was observed at the Eagle Lake parking area. The mean number of vehicles exceeding the capacity for the Eagle Lake parking in the morning was 26-32 and maintained the same level of use with 26-39 in the afternoon period for the summer seasons. In 2000, the mean number of vehicles exceeding the capacity in the morning (mean = 32) was actually higher than the mean number of vehicles in the afternoon period (mean = 31). In 2002, a similar pattern was observed with the mean number of vehicles being the same for the morning and afternoon periods (mean =26). The counts of vehicles exceeding the capacity of the Eagle Lake parking area in the morning and maintaining similar numbers in the afternoon may partly be the

result of visitor activities at this particular location. This area is popular for day hiking and mountain biking on the network of Park carriage roads.

Table 4.5.2: Mean Number of Vehicles that Exceeded the Capacity and Time of Day for Individual Parking Lots

Sand Beach				
Year	N	Morning	Afternoon	Total
		---mean # vehicles per day---		
2000	18	25	56	81
2001	35	36	88	124
2002	33	27	71	98

Jordan Pond				
Year	N	Morning	Afternoon	Total
		---mean # vehicles per day---		
2000	18	19	87	106
2001	35	14	82	96
2002	33	9	72	81

Eagle Lake				
Year	N	Morning	Afternoon	Total
		---mean # vehicles per day---		
2000	18	32	31	63
2001	35	30	39	69
2002	33	26	26	52

Acadia Mountain				
Year	N	Morning	Afternoon	Total
		---mean # vehicles per day---		
2000	18	6	14	20
2001	35	6	18	24
2002	33	8	17	25

5.0 DISCUSSION

Results of the parking evaluation provided data for assessing the benefits of ITS in the evaluation goal areas of efficiency, energy and environment, and safety. Specific hypotheses related to expected benefits of ITS 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 as well as fewer vehicles that would be parked along the side of Park roads, resulting in enhanced aesthetics within the Park.

Table 5.0.1: Hypotheses Related to the Parking Evaluation

Evaluation Area	Objective	Hypotheses
Efficiency	To distribute the demand on Acadia National Park resources more evenly	Visitor use of ITS information will reduce the number vehicles exceeding the carrying capacity of eight designated parking areas in Acadia National Park
Energy and the Environment	To provide a more positive visitor experience for visitors through enhanced aesthetics of Acadia National park	ITS-improved IE services will result in fewer vehicles parked on Acadia National Park roads
Safety	To increase transportation safety in Acadia National Park and on Mount Desert Island	ITS will reduce hazardous conditions by better management of transportation resources

First of all it should be noted that Park Use Statistics for Recreation Visits at Acadia National Park[10] has shown increases each year for the three summer observation periods (Table 5.0.2). In 2000, for example, the total for the months of June, July, August, and September was 1,840,176 recreation visits. The total for the 4 months was slightly higher in 2001 with 1,891,579 recreation visits and again higher in 2002 with 1,925,915 recreation visits. The use increases rapidly during the summer season and nearly doubles from the month of June to the month of August. The peak use during the summer occurs in August with recreation visits ranging from 594,904 to 636,824. As noted in Section 4.2 on "Parking by Month" the Park use statistics by month correlate with the mean number of vehicles per month exceeding the capacity of the eight designated parking areas during the summer season. In August, the mean number of vehicles was 339 that exceeded the capacity of eight designated parking lots in Acadia National Park as compared to 267, 237, and 189 for July, September, and June, respectively. Finally, the total recreation visits for the 4 months for each year corresponds with total recreation visits for the year (Table 5.0.2). In 2000, the total for the year was 2,469,238 recreation visits. The total for the year was slightly higher in 2001 with 2,516,551 recreation visits and again higher in 2002 with 2,558,572 recreation visits.

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

Table 5.0.2: The Park Use Statistics for Recreation Visits at Acadia National Park

Month	Year		
	2000	2001	2002
June	319,208	325,242	325,441
July	547,929	558,641	571,119
August	594,904	630,240	636,824
September	378,135	377,456	392,531
Total for the 4 Months	1,840,176	1,891,579	1,925,915
Total for the Year	**2,469,238**	**2,516,551**	**2,558,572**

In Section 4.5 of this report on "Parking at Individual Parking Lots" the results help support the hypothesized relation that the ITS technologies would be beneficial towards a more even distribution of visitor demand on Acadia National Park resources. The mean number of vehicles exceeding the capacity of Sand Beach and Jordan Pond parking areas was much higher as compared to the six other designated parking areas in Acadia National Park. These areas are extremely popular destinations in the Park and places exist for visitors to park nearby the designated parking areas to these attractions. In 2002, a reduction was seen in the mean number of vehicles exceeding the capacity of the Sand Beach and Jordan parking areas as compared to 2001 in light of the fact that Park use statistics indicated increases in recreation visits over the same periods. The magnitude of change for these parking areas as compared to the other six parking areas might be partly related to the real-time parking information available for these two areas and not the other six areas. A noticeable reduction was observed for the number of vehicles exceeding the capacity of the Eagle Lake parking area. However, there was no instance of a drastic redistribution in terms of observing an increase in the mean number of vehicles exceeding the capacity at the other designated parking areas. For example, it is possible that the total number of vehicles increased at Echo Lake during 2002, but they would have been parked legally within the capacity of the parking lot and therefore would not have been counted. Finally, it should be noted that a very slight increase in the number of vehicles exceeding the capacity of Acadia Mountain parking was observed in 2002. Visitors learning about the parking conditions at Sand Beach or the Jordan Pond House may have elected to go to this particular location adding to the parking problem at this location.

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. Visitors' use of the propane-powered Island Explorer buses would result in fewer trips by private vehicle and a consequent improvement in air quality as well as fewer vehicles that would be parked along the side of Park roads. It was expected that seeing fewer vehicles would result in a more positive experience for visitors through enhanced aesthetics of Acadia National Park. As hypothesized, the ITS technologies may have contributed to a decrease in the total number vehicles parked along the side of the road especially when comparing the pre-ITS summer observation periods during 2000 and 2001. In 2001, more than half of the days the eight parking areas where observed (54%) the number of vehicles exceeding the eight parking lots was more than 300 vehicles. In contrast, 33% of the days in 2002 that the number of vehicles exceeding the eight parking lots were more than 300 vehicles. These percentages correlate with the mean number of vehicles exceeding the capacity of the eight designated parking areas during the summer season. In 2001, the mean number of vehicles was 325 that exceeded the capacity of eight designated parking lots in Acadia

National Park as compared to 274 for 2002. Finally, it should be noted that these reductions were observed in light of Park statistics reporting increased visitor use in 2002 as illustrated in Table 5.0.2.

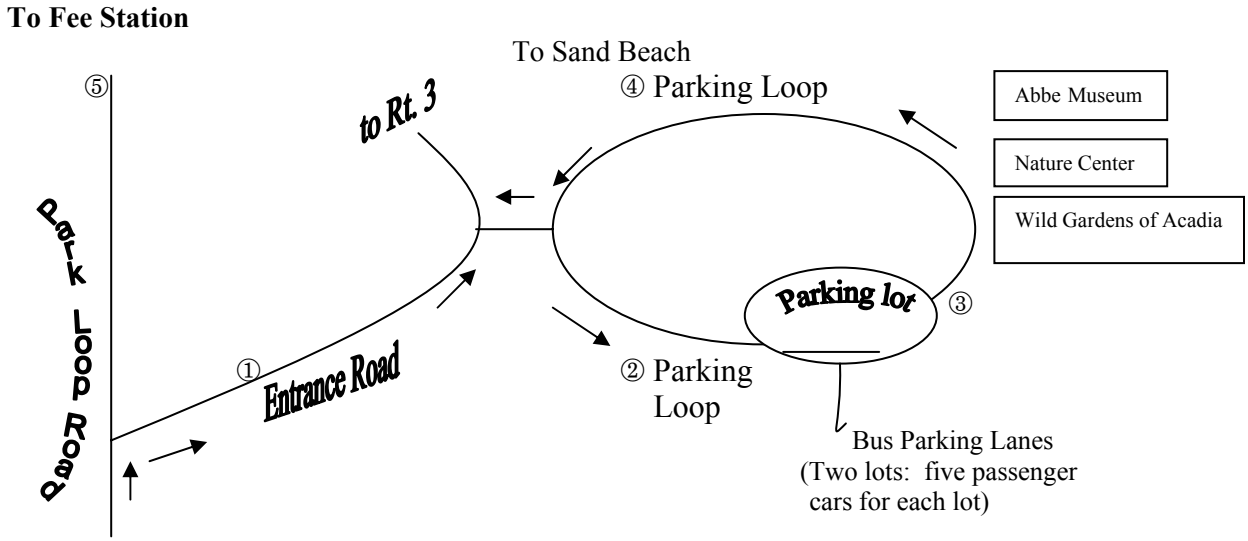
An expected benefit of the ITS technologies is that it will increase transportation safety in Acadia National Park and on Mount Desert Island. Specifically, the ITS-improved Island Explorer services will result in fewer vehicles parked on Acadia National Park roads and in-turn reduce hazardous conditions such as visitors walking along or crossing busy roads. Indeed, the parking data revealed fewer numbers of vehicles exceeding the capacity of parking areas especially at the Sand Beach and the Jordan Pond House parking areas for the summer of 2002 (means = 98 and 81, respectively) as compared to the summer of 2001 (means = 124 and 96, respectively). Consequently fewer numbers of vehicles were parked along the roads at these particular locations in Acadia National Park. A similar decrease was observed in number of vehicles exceeding the capacity of the Eagle Lake parking area for the summer of 2002 (mean = 52) as compared to the summer of 2001 (mean = 69). The reduction of fewer vehicles parked along the road at this particular parking area is especially beneficial in terms of safety because it is located on Route 233 a major road that connects points east to Bar Harbor and attractions in the Park and points west to Southwest Harbor and other areas of Acadia National Park. However, it should be noted that a reduction in vehicles parked along the roads did not occur at all designated parking areas observed for the 2002. There was a slight increase in number of vehicles exceeding the capacity of the Acadia Mountain parking area for the summer of 2002 (mean = 25) as compared to the summer of 2001 (mean = 24). The failure to reduce the number of vehicles parked along the road at this particular area may be a continued safety concern because it is located on Route 102 a major road that connects points north to exit Mount Desert Island and to Bar Harbor and points south to Southwest Harbor. Clearly, it can be argued that the ITS technologies appear to be reducing the number of vehicles parked along the road at many locations, but not all locations.

Finally, this document reports the results for one aspect of the overall evaluation: parking. It is important these results be viewed together with those from other aspects of the evaluation. For example, the number of vehicles exceeding the capacity of the parking areas decreased for the summer of 2002 as compared to the summer of 2001 at the Sand Beach and the Jordan Pond House. In conjunction with these parking observations is Park use statistics that show higher visitation during the summer of 2002 as compared to the summer of 2001. Thus, there is support of more even distribution of visitor demand on Acadia National Park resources assuming that visitors went to a different location or at different time to the same location. However, visitors who decide to use the Island Explorer bus instead of their private vehicle to access the same location may not impact the distribution of visitor demand on Acadia National Park resources. Results of the visitor survey suggests the ITS technologies had limited success in changing the time of day or changing the visitor's mind on what attractions to visit. More synthesis of different aspects of the overall evaluation is reported in the summary report.

Appendix A

Parking Lot Maps and Methodology

#1 Sieur de Monts



On the Park Loop Road heading towards the fee station and Sand Beach, turn right onto the entrance road to Route 3 and Sieur de Monts.

1. Count the vehicles parked on both sides of the entrance road to the stop sign to Route 3. Record number of vehicles on the data sheet.

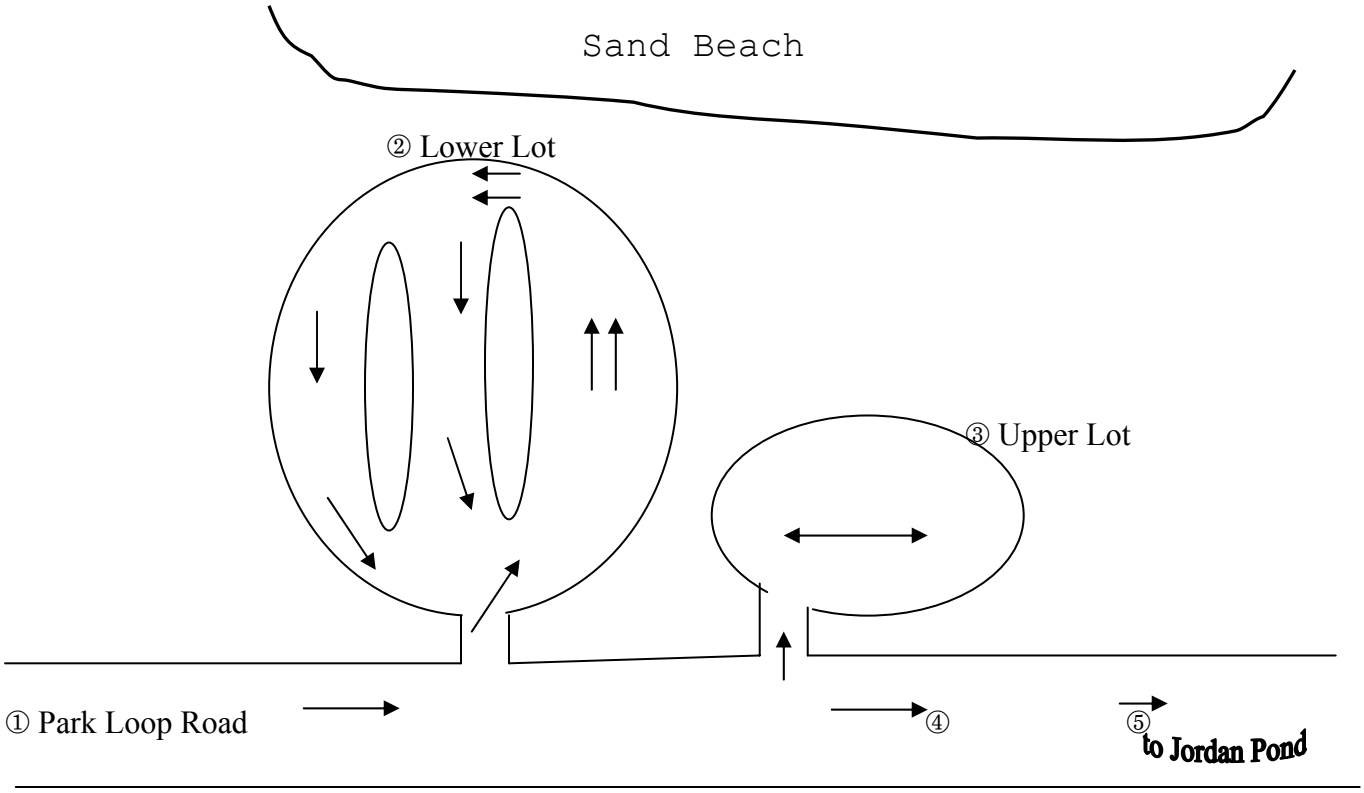
2. Turn right onto the one-way parking loop road leading into Sieur de Monts. Count vehicles parked on both sides of the road until reaching the parking lot.

3. Count illegally parked cars in the parking lot. Also note any passenger cars in designated parking lanes for buses. Record number of vehicles on the data sheet.

4. Resume the one-way parking loop road after driving through the parking lot. Add number of vehicles from step 2 and record the total number of vehicles for the one-way parking loop road on the data sheet.

5. Return to the Park Loop Road heading towards the Fee Station and Sand Beach.

#2 Sand Beach



1. After the Fee Station, begin counting vehicles parked along the Park Loop Road until the entrance road to the Lower Lot of Sand Beach parking.

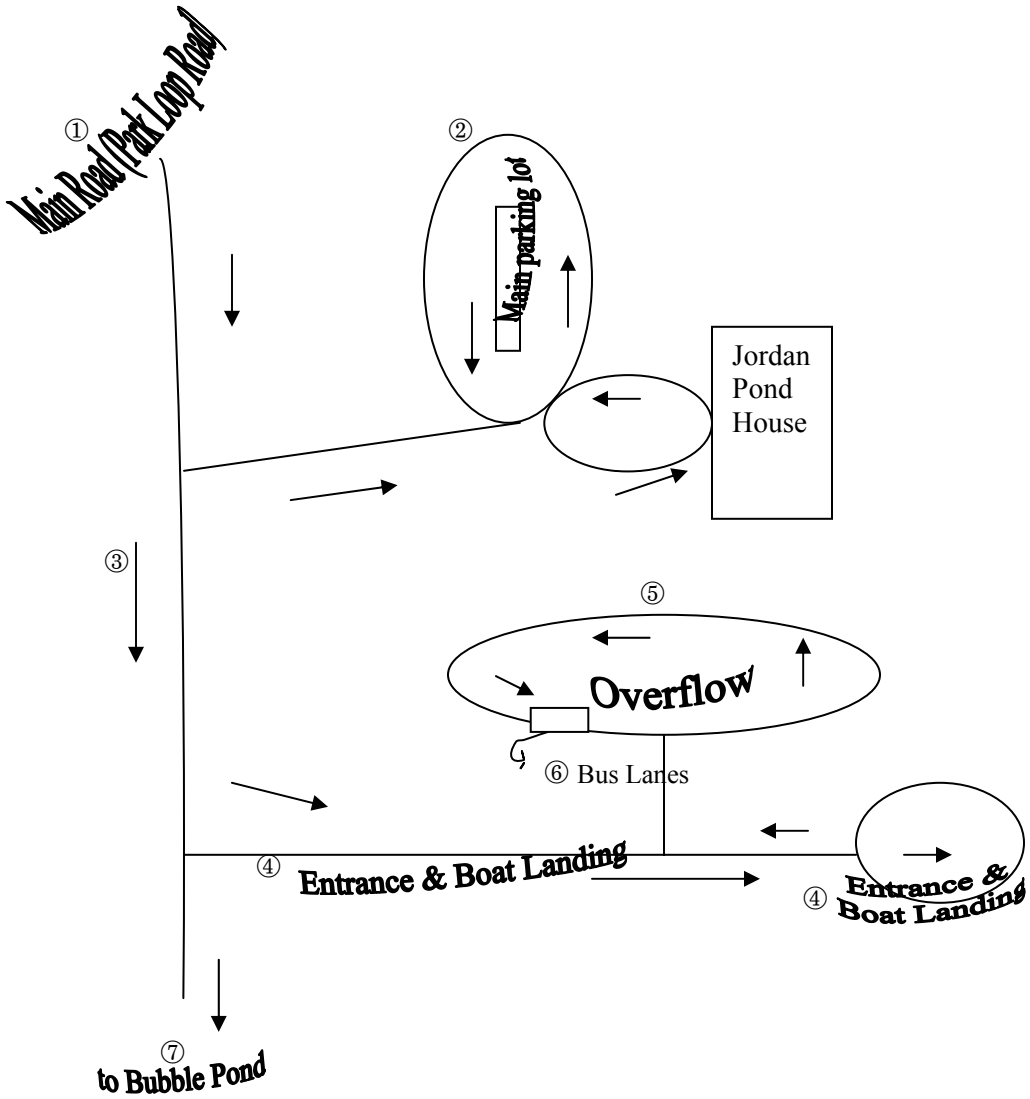
2. Turn left into the lower lot parking area, counting the number of illegally parked vehicles. Drive counterclockwise around the parking lot to observe all parking lanes. Record number of illegally parked vehicles on the data sheet.

3. Turn left on the Park Loop Road and left into the Upper Lot of Sand Beach parking. Record number of illegally parked vehicles on the data sheet.

4. Turn left on the Park Loop Road and count the vehicles up to the top of the hill and a short distance down on the Park Loop Road until reaching an entrance road to a small parking area on the right. Add the number of vehicles from step 1 for a total number of vehicles parked along the Park Loop Road on the data sheet.

5. Continue on the Park Loop Road heading towards the Jordan Pond.

#3 Jordan Pond



#3 Jordan Pond

1. Heading north after the end of one-way traffic and before the gatehouse, approaching the Jordan Pond House. Count vehicles parked along the Park Loop Road.

2. Turn left at the Jordan Pond House and count the number of illegally parked vehicles at the Main Parking Lot. Record number of illegally parked vehicles on the data sheet.

3. Turn left onto the Park Loop Road and continue counting vehicles parked along the Park Loop Road until the Entrance to the Overflow parking lot for Jordan Pond and Boat landing. Add the number of vehicles from step 1 for a total number of vehicles parked along the Park Loop Road on the data sheet.

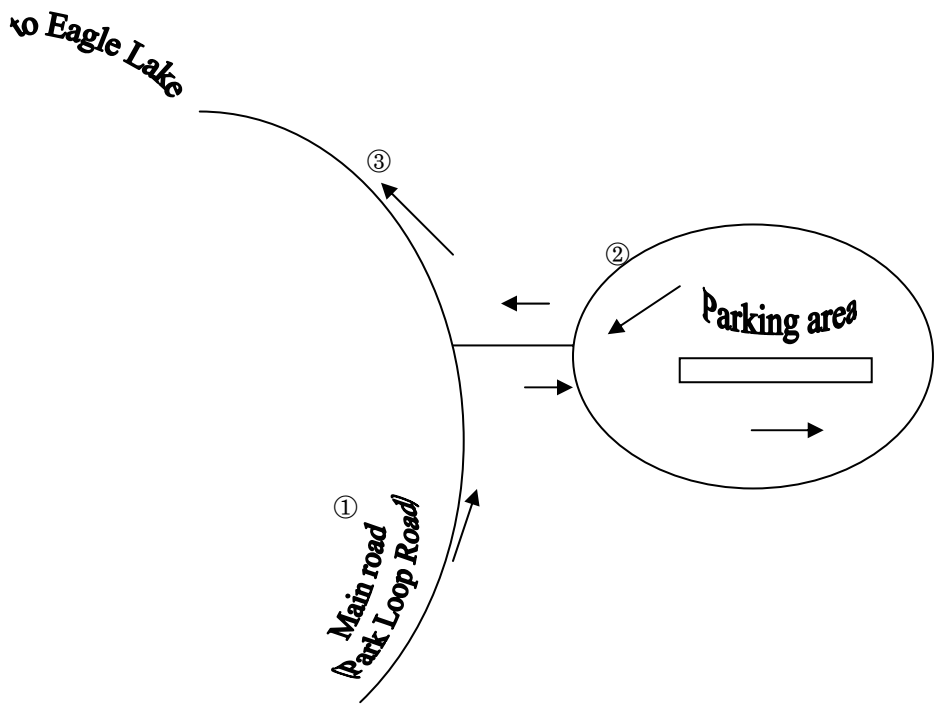
4. Count the number of vehicles parked along both sides of the road for the Entrance Road leading to the Overflow parking lot and Boat Landing. Continue straight to the Boat Landing and count all vehicles parked along the side of the road not in designated parking lanes. Loop around a small island at the end of the boat landing parking area and return to the entrance to the overflow parking lot for Jordan Pond. Record the number of vehicles on the data sheet.

5. Turn right in the Overflow parking lot and count vehicles on both sides of the road up the small hill and vehicles parked illegally in the parking lot. Vehicles parked illegally in bus lanes at the end of the parking lot are not counted. Record the number of vehicles on the data sheet.

6. At the end of the drive loop for the Overflow parking lot count the vehicles that are parked illegally in designated bus lanes. Record the number of illegally parked cars on the data sheet.

7. Return to the Park Loop Road and continue heading north towards Bubble Pond.

#4 Bubble Pond



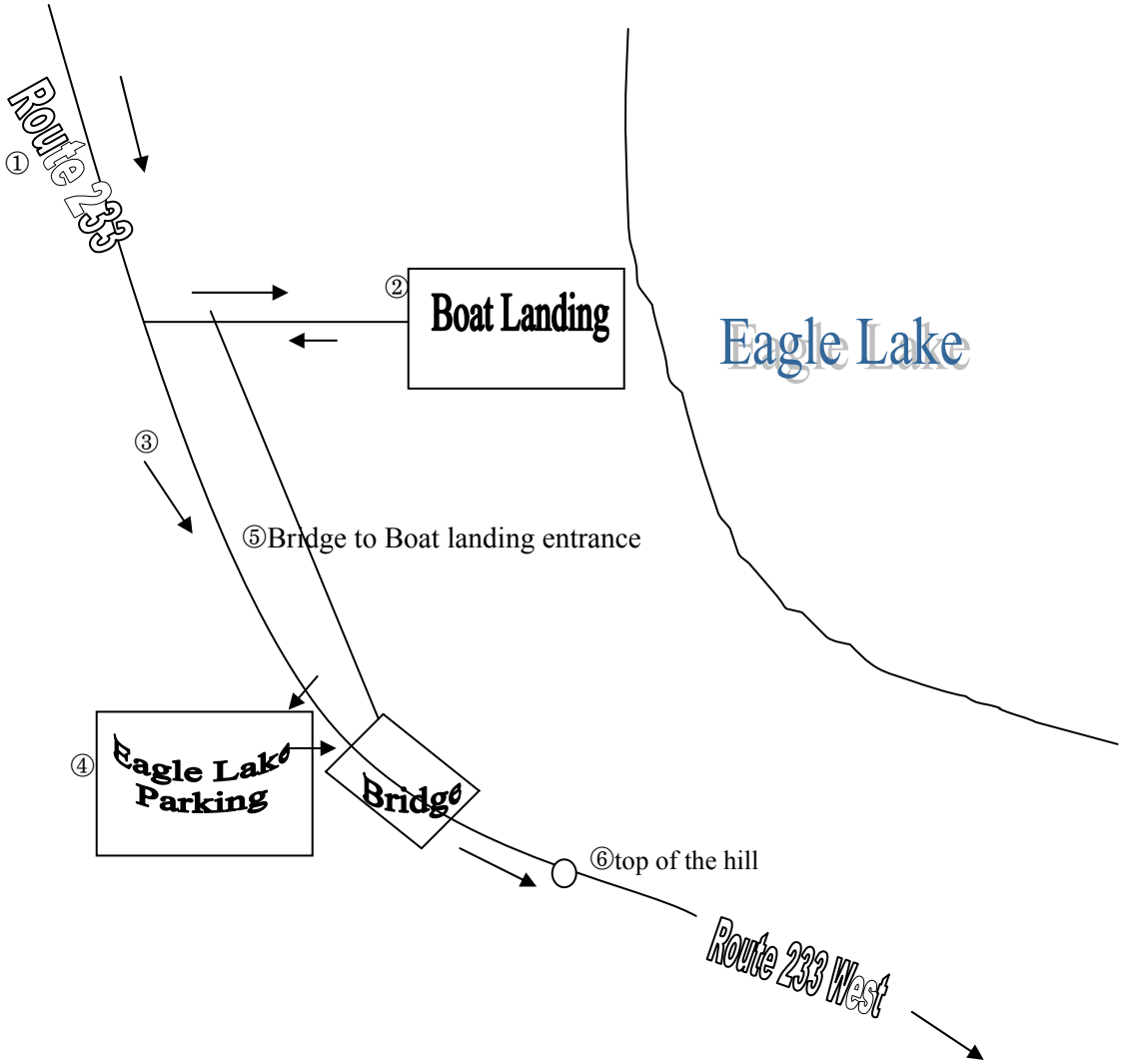
1. Heading north on the Park Loop Road, count vehicles parked along the side of the road before the entrance to the Bubble Pond parking area.

2. Turn right in the Bubble Pond parking area and count the number of illegally parked vehicles. Record number of illegally parked vehicles on the data sheet

3. Turn right on the Park Loop Road and continue to count vehicles parked along the side of the road until half way up the hill. Add the number of vehicles from step 1 for a total number of vehicles parked along the Park Loop Road on the data sheet.

Continue north on the Park Loop Road to the Route 233 and Eagle Lake.

#5 Eagle Lake


Route 233
①
②
Boat Landing
Eagle Lake
③
⑤Bridge to Boat landing entrance
④
Eagle Lake Parking
Bridge
⑥top of the hill
Route 233 West

5 Eagle Lake

1. Heading west on Route 233 towards Eagle Lake count the number of cars on both sides of the road until the entrance to the boat landing.

2. Turn left at the boat landing and count the number of illegally parked vehicles along the entrance road and parking area. Record number of illegally parked vehicles on the data sheet.

3. Turn left on Route 233 and count the number of vehicles parked on the right side of the road until the Route 233 bridge and the entrance to the Eagle Lake parking.

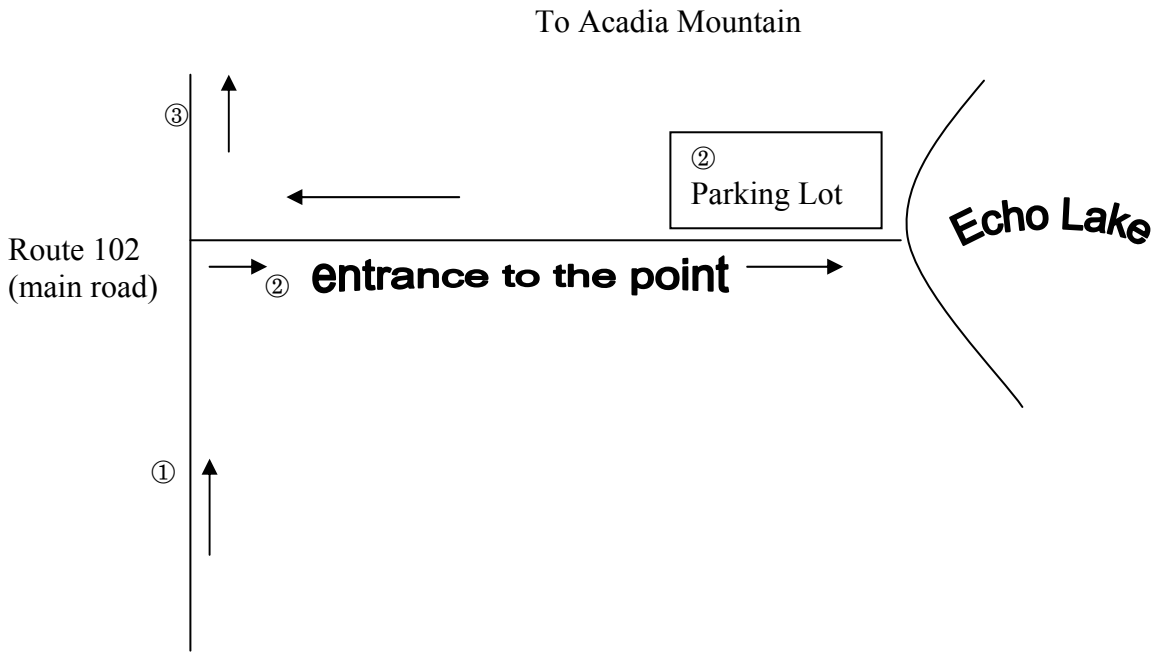
4. Turn right in the Eagle Lake parking and count the number of illegally parked cars in the parking area. Record the number of illegally parked vehicles on the data sheet.

5. Drive to the exit point of parking area. Count the number of illegally parked vehicles on the left side of Route 233 from the bridge to the entrance road to the boat landing. Record the number of illegally parked vehicles on Route 233 on the data sheet.

6. Turn right on Route 233 and count the number of vehicles on both sides of the road after passing the Route 233 bridge and up the hill. Add the number of vehicles from step 1 and step 3 for a total number of vehicles parked legal along Route 233 on the data sheet.

Continue west on Route 233 towards the western side of MDI and Echo Lake

#6 Ikes Point

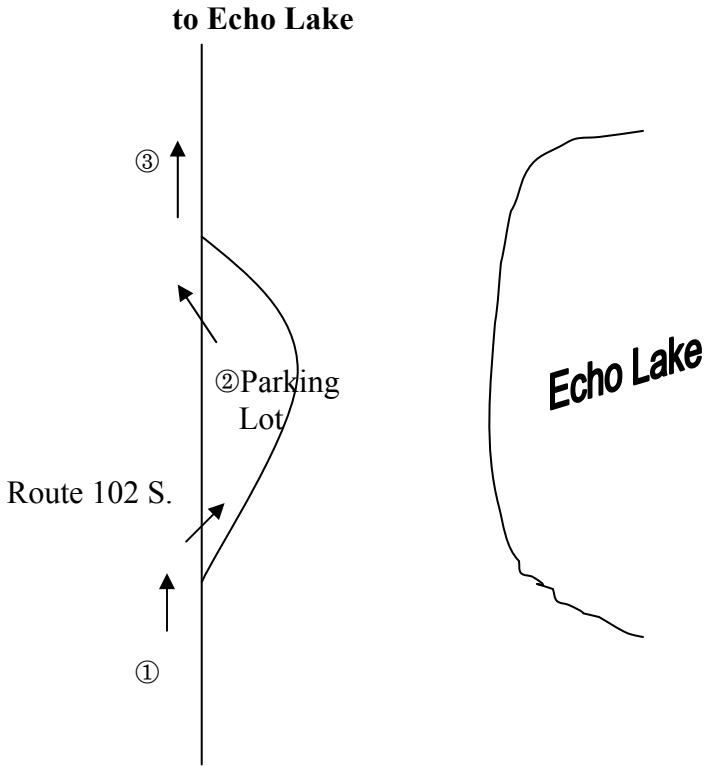


1. Heading south on Route 102 towards Echo Lake count the number of cars on both sides of the road until the entrance to the Ikes Point boat landing.

2. Turn right and count the number of vehicles parked along the entrance road and vehicles parked illegally in the parking lot. Record the number of vehicles parked along the entrance road and parked illegally on the data sheet.

3. Drive to the exit point of Ikes Point boat landing. Turn right and count the number of vehicles parked on both sides of the road on Route 102 heading towards a hill. Add the number of vehicles from step 1 for a total number of vehicles parked along Route 102 for the Ikes Point boat landing and record on the data sheet.

#7 Acadia Mountain



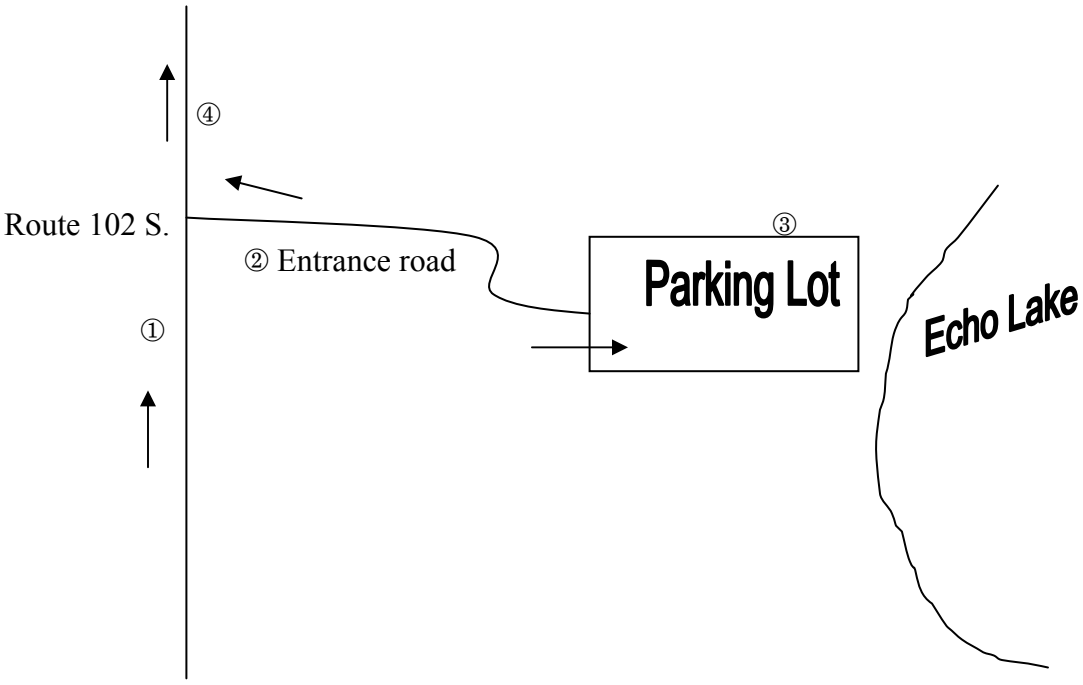
1. Heading south on Route 102 and less than a 1/4 mile after leaving Ikes Point boat landing, count the number of vehicles on both sides of the road until reaching the Acadia Mountain parking area.

2. Turn right in the Acadia Mountain parking lot and count the illegally parked vehicles. Record number of illegally parked vehicles on the data sheet.

3. Turn right on Route 102 and count the number of vehicles on both sides of the road up to the hill. Add the number of vehicles from step 1 for a total number of vehicles parked along Route 102 for Acadia Mountain on the data sheet.

4. Continue south on Route 102 towards Echo Lake Beach.

#8 Echo Lake



1. Heading south on Route 102 count the number of cars on both sides of the road as approaching the entrance road to the Echo Lake Beach parking.

2. Turn right on the Echo Lake Beach entrance road and count the number of vehicles until reaching the parking lot. Record number of vehicles parked along the entrance road on the data sheet.

3. Count the number of illegally parked vehicles in the Echo Lake Beach parking lot. Record the number of illegally parked vehicles on the data sheet.

4. Turn right on Route 102 and count the number of cars on both sides of the road. Add the number of vehicles from step 1 for a total of vehicles parked along Route 102 for Echo Lake on the data sheet.

Appendix B

Sampling Schedules

Year 2000 Parking Survey Schedule

AUGUST	Day of Week	Parking Area Starting Point *
4	Friday	Sieur de Monts
5	Saturday	Sand Beach
6	Sunday	Jordan Pond
7	Monday	Bubble Pond
9	Wednesday	Eagle Lake
11	Friday	Sieur de Monts
12	Saturday	Ikes Point
13	Sunday	Acadia Mountain
14	Monday	Echo Lake
16	Wednesday	Sieur de Monts
19	Saturday	Sand Beach
21	Monday	Jordan Pond
23	Wednesday	Bubble Pond
26	Saturday	Eagle lake
28	Monday	Ikes Point
30	Wednesday	Acadia Mountain
SEPTEMBER		
2	Saturday	Echo Lake
4	Monday	Sieur de Monts

Year 2001 Parking Survey Schedule

JUNE	Day of Week	Parking Area Starting Point *
23	Saturday	Jordan Pond
25	Monday	Bubble Pond
26	Tuesday	Eagle Lake
27	Wednesday	Ikes Point
29	Friday	Acadia Mountain
JULY		
1	Sunday	Echo Lake
2	Monday	Sieur de Monts
3	Tuesday	Sand Beach
5	Thursday	Jordan Pond
6	Friday	Bubble Pond
7	Saturday	Eagle Lake
17	Tuesday	Ikes Point
18	Wednesday	Acadia Mountain
19	Thursday	Echo Lake
20	Friday	Sieur de Monts
21	Saturday	Sand Beach
24	Tuesday	Jordan Pond
25	Wednesday	Bubble Pond
26	Thursday	Eagle Lake
27	Friday	Ikes Point
28	Saturday	Acadia Mountain
AUGUST		
6	Monday	Echo Lake
7	Tuesday	Sieur de Monts
8	Wednesday	Sand Beach
11	Saturday	Jordan Pond
12	Sunday	Bubble Pond
13	Monday	Eagle Lake
15	Wednesday	Ikes Point
16	Thursday	Acadia Mountain
17	Friday	Echo Lake
16	Saturday	Sieur de Monts
27	Monday	Sand Beach
29	Wednesday	Jordan Pond
30	Thursday	Bubble Pond
31	Friday	Eagle Lake
SEPTEMBER		
2	Sunday	Ikes Point

* Note that starting point rotates

Year 2002 Parking Survey Schedule

JUNE	Day of Week	Parking Area Starting Point *
24	Monday	Acadia Mountain
25	Tuesday	Echo Lake
26	Wednesday	Sieur de Monts
29	Saturday	Sand Beach
30	Sunday	Jordan Pond
JULY		
1	Monday	Bubble Pond
2	Tuesday	Eagle Lake
4	Thursday	Ikes Point
5	Friday	Acadia Mountain
6	Saturday	Echo Lake
15	Monday	Sieur de Monts
17	Wednesday	Sand Beach
18	Thursday	Jordan Pond
19	Friday	Bubble Pond
20	Saturday	Eagle Lake
29	Monday	Ikes Point
30	Tuesday	Acadia Mountain
AUGUST		
1	Thursday	Echo Lake
9	Friday	Sieur de Monts
10	Saturday	Sand Beach
13	Tuesday	Jordan Pond
14	Wednesday	Bubble Pond
15	Thursday	Eagle Lake
16	Friday	Ikes Point
18	Sunday	Acadia Mountain
19	Monday	Echo Lake
21	Wednesday	Sieur de Monts
22	Thursday	Sand Beach
24	Saturday	Jordan Pond
25	Sunday	Bubble Pond
26	Monday	Eagle Lake
28	Wednesday	Ikes Point
29	Thursday	Acadia Mountain
31	Saturday	Echo Lake
SEPTEMBER		
1	Sunday	Sieur de Monts

* Note that starting point rotates

Appendix C

Parking Data Collection Sheets

Date:

#1 Sieur De Monts		Segment	1st[11]	2nd	total	Remarks
	1	Entrance Road	0	0	0	(weather conditions noted here)
	2	Parking Loop	0	0	0	
	3	Parking Lot	0	0	0	
		total	0	0	0	

#2 Sand Beach		Segment	1st	2nd	total
	1	Park Loop Road	0	0	0
	2	Lower Lot	0	0	0
	3	Upper Lot	0	0	0
		total	0	0	0

#3 Jordan Pond		Segment	1st	2nd	total
	1	Main Road	0	0	0
	2	Main Parking	0	0	0
	3	Entrance (to Boat Landing)	0	0	0
	4	Overflow (parking lot)	0	0	0
	5	bus lane (at Overflow)	0	0	0
		total	0	0	0

#4 Bubble Pond		Segment	1st	2nd	total
	1	Parking Area	0	0	0
	2	Main Road	0	0	0
		total	0	0	0

#5 Eagle Lake		Segment	1st	2nd	total
	1	Route 233	0	0	0
	2	Boat Landing (B.L.)	0	0	0
	3	Eagle Lake Parking	0	0	0
	4	Bridge to B.L. entrance	0	0	0
		total	0	0	0

[11] 1st = observation in the AM; 2nd = observation in the PM.

#6 Ikes Point		Segment	1st	2nd	total
	1	Main Road	0	0	0
	2	Entrance & Parking Lot	0	0	0
		total	0	0	0

#7 Acadia Mountain		Segment	1st	2nd	total
	1	Main Road	0	0	0
	2	Parking Lot	0	0	0
		total	0	0	0

#8 Echo Lake		Segment	1st	2nd	total
	1	Main Road	0	0	0
	2	Entrance Road	0	0	0
	3	Parking Lot	0	0	0
		total	0	0	0

	1st count	2nd count	Daily total
Grand Total	**0**	**0**	**0**

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Publication No.: 13865
HOIT/04-03