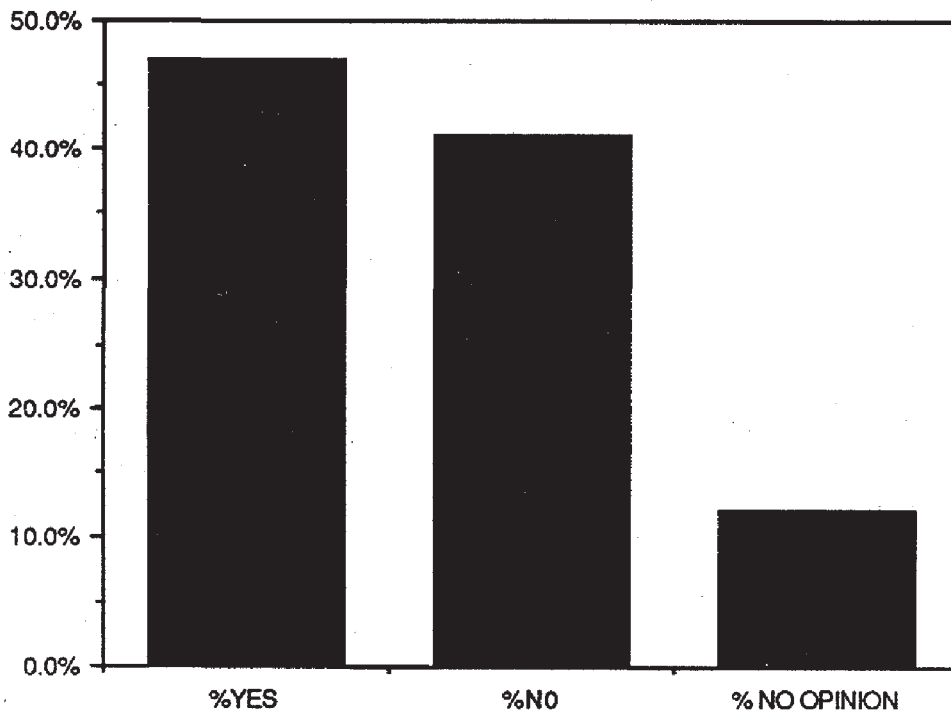


**A Study of Visitor Attitudes Toward Initiation of a
Visitor Transportation System at
Mount Rainier National Park**

**"Do you believe Mount Rainier National Park
Management should take action to initiate a visitor
transportation system?"**



National Park Service
Cooperative Park Studies Unit
College of Forest Resources
University of Washington
Seattle, WA 98195

Subagreement No 4
Coop Agreement No. CA-9000-8-007

**A Study of Visitor Attitudes
Toward Initiation of a Visitor Transportation System
at Mount Rainier National Park**

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1990

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Several Mount Rainier National Park staff members made significant contributions to questionnaire development by providing review comments that were very helpful. And, very importantly, Mount Rainier employees made the initial visitor contacts while manning the entry locations -- sometimes under difficult and hectic conditions.

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BACKGROUND

This study is a preliminary attempt to understand public attitudes toward a possible visitor transportation system for Mount Rainier National Park. Visitor opinions are important to park management in deciding whether a visitor transportation system is a viable option for Mount Rainier. Much more detailed studies would be done, however, before implementing such a transportation system.

If a visitor transportation system is eventually elected at Mount Rainier National Park, it will utilize large and small buses, depending on the number of visitors served at each location. Planning of routes, stops, and parking areas would include visitor input from this and additional studies. For the purpose of this survey it was assumed that under any proposed option, all private traffic on that particular route except for traffic associated with the official business of the park (e.g., park employees and service vehicles) would be eliminated while the system was in operation.

Bus shuttle systems may be considered for three of the four park entrance locations. These are Nisqually, White River, and Carbon River. Management might also consider operating a bus shuttle system from Longmire to Paradise in the winter only. Maps have been included to help visualize these alternatives.

Six proposed alternatives for transportation system routes were selected to elicit visitor opinion. The alternatives are explained below.

Transportation Alternatives

Briefly stated, the proposed alternatives for the routes of a visitor transportation system are:

- 1 Longmire to Paradise (winter only).
See Figure A (page 3).
- 2 Nisqually entrance to Paradise (summer only).
See Figure B (page 4).
- 3 From the north park boundary through White River entrance to Sunrise (summer only).
See Figure C (page 5).
- 4 Nisqually entrance to Paradise (winter and summer).
See Figure D (page 6).
- 5 Combination of options 2 and 3 above (Nisqually and Sunrise routes, summer only).
See Figure E (page 7).
- 6 Combination of options 2 and 3 above (Nisqually and Sunrise routes) with a Carbon River entrance to Ipsut Creek campground route (all routes, summer only).
See Figure F (page 8).

If a shuttle system were to operate from Longmire to Paradise, the staging area would be at Longmire. Intermediate stops would occur at Glacier Bridge and Narada Falls. A large parking lot would be constructed in the Longmire area.

If a shuttle were to operate at the Nisqually entrance, there would be a large parking lot in or near the park with intermediate stops as appropriate. At the White River entrance, a large parking lot would be constructed at the park boundary and intermediate stops would occur as appropriate. At the Carbon River entrance, a parking lot would be constructed outside the park. Intermediate stops would also occur as appropriate.

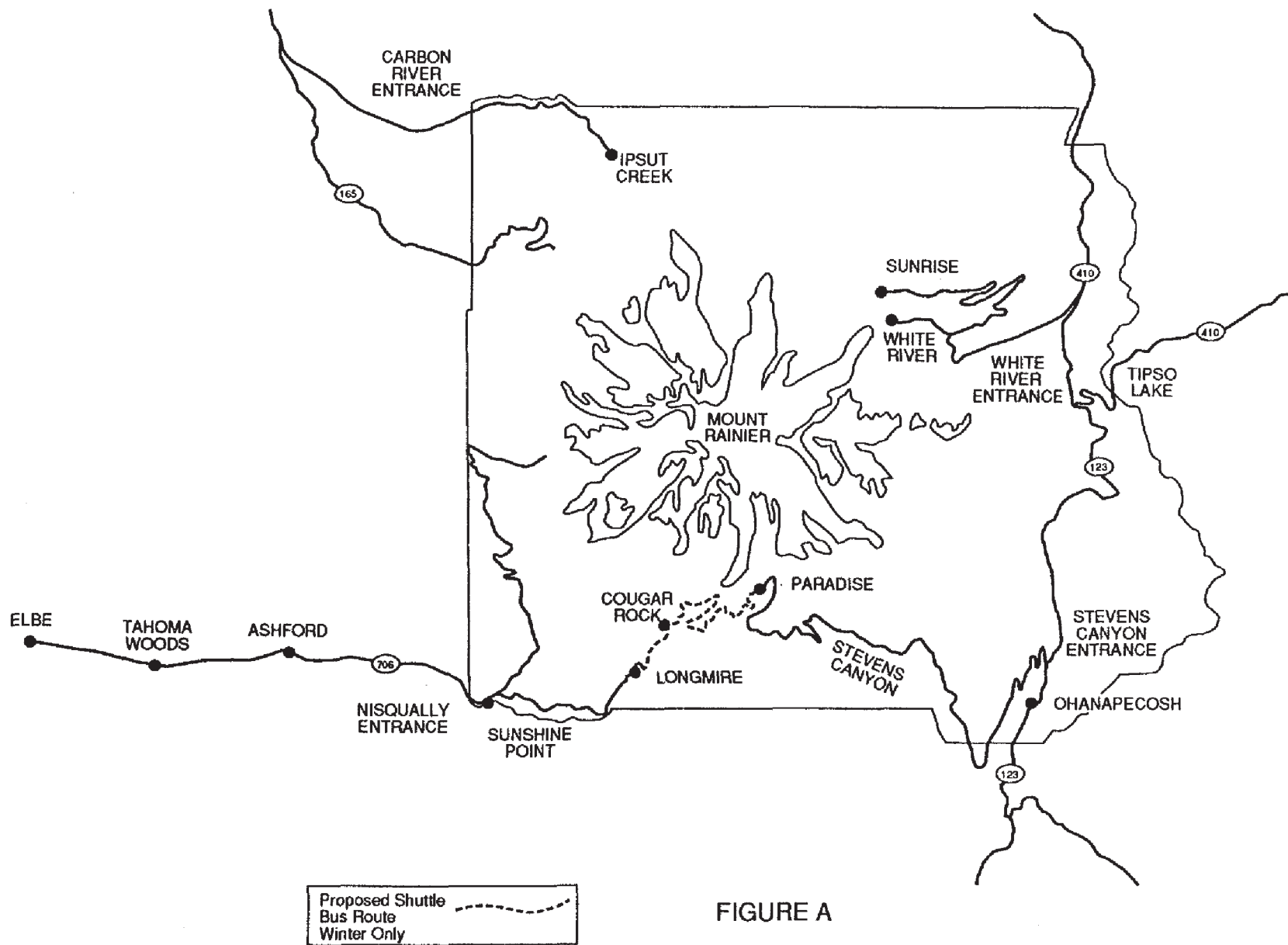
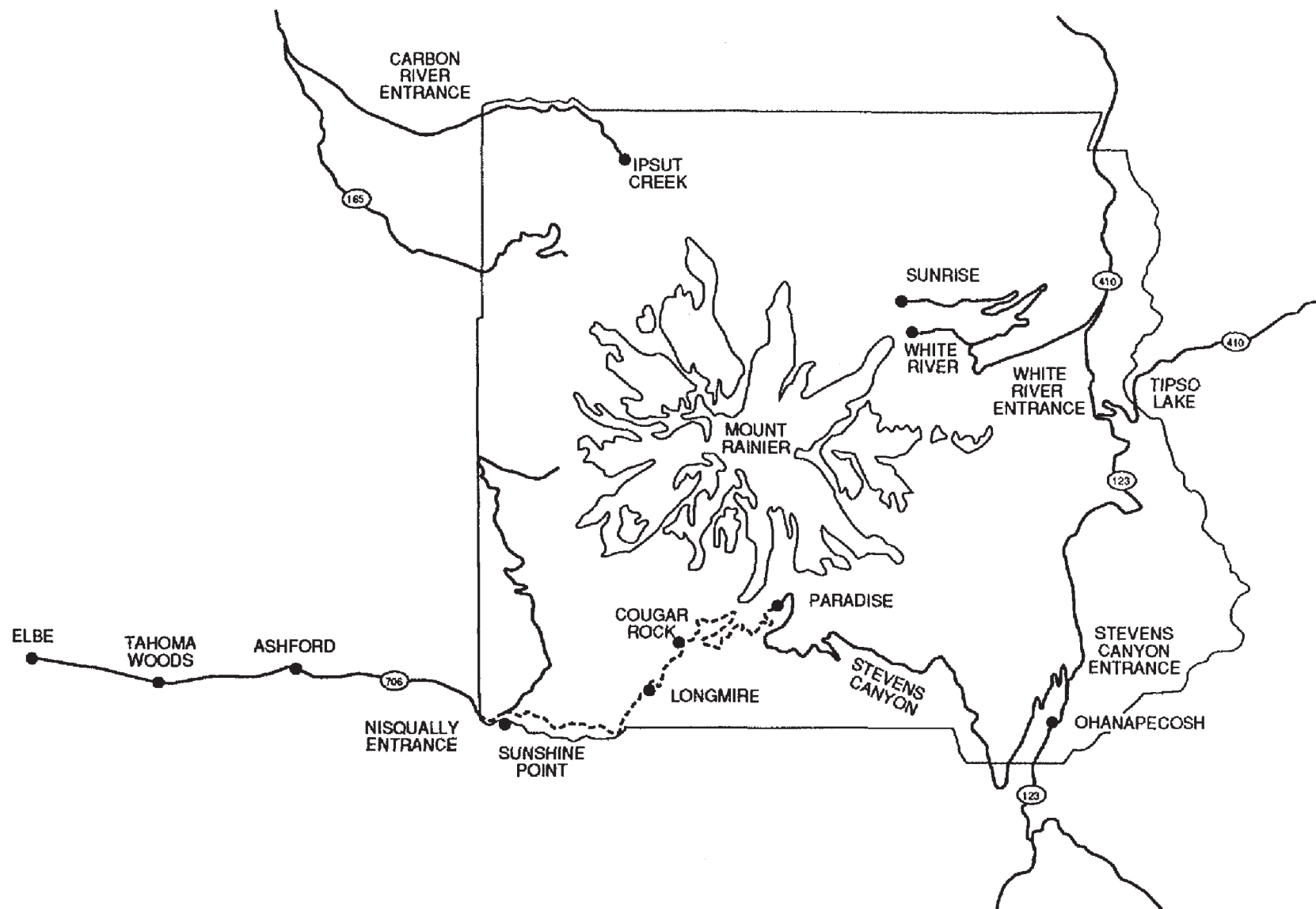
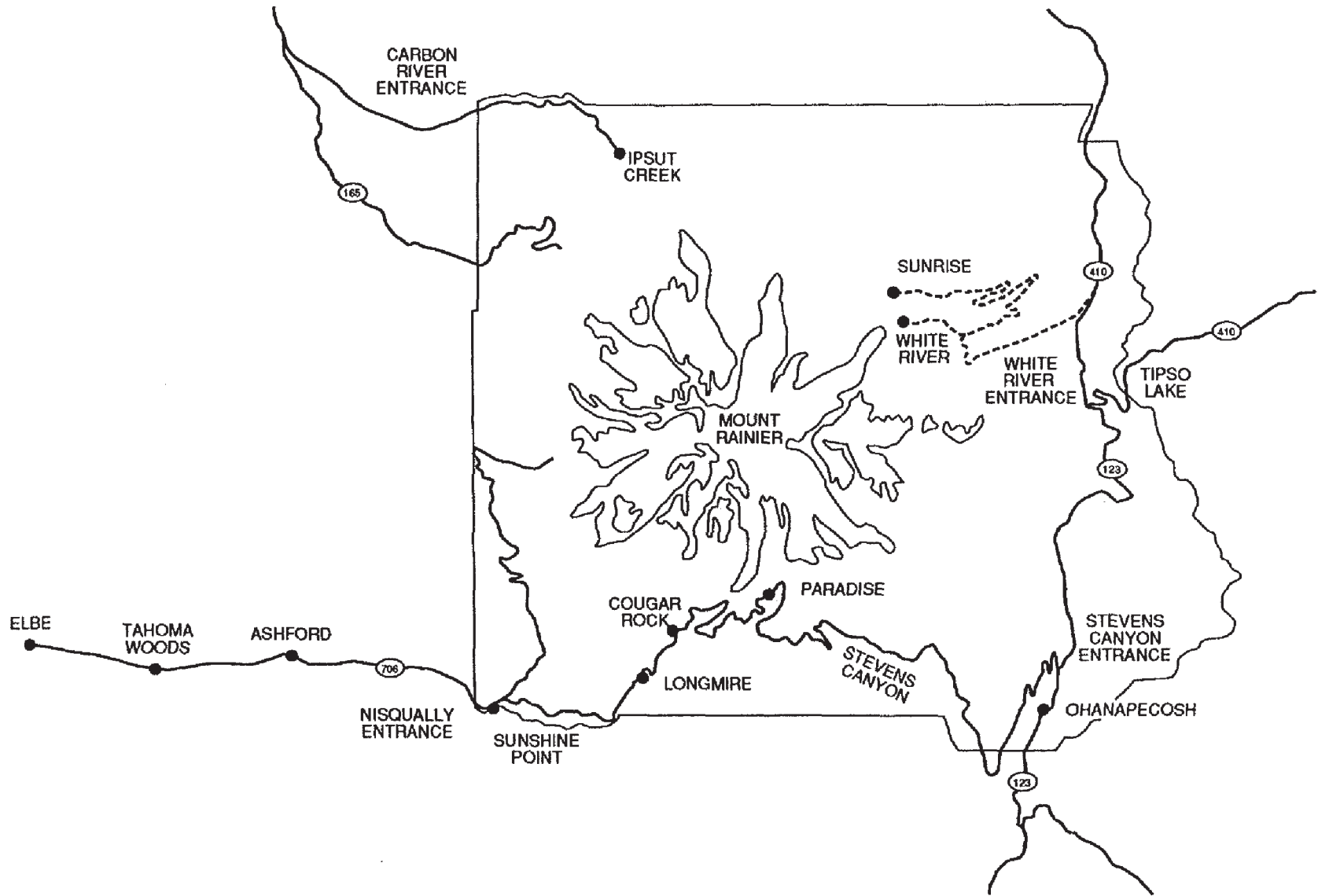


FIGURE A



Proposed Shuttle Bus Route
June 15 to Labor Day

FIGURE B



Proposed Shuttle
Bus Route
June 15 to Labor Day

FIGURE C

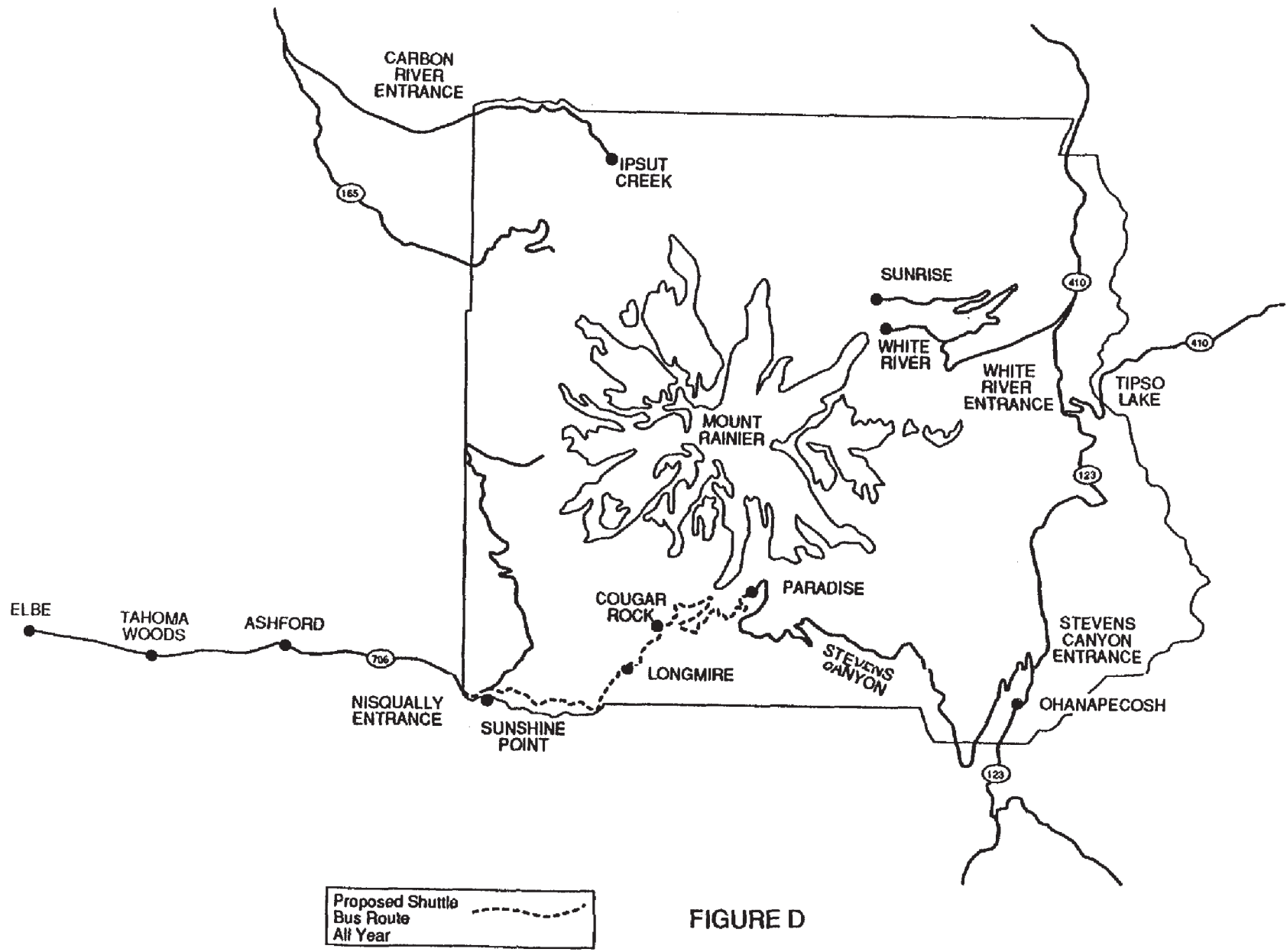
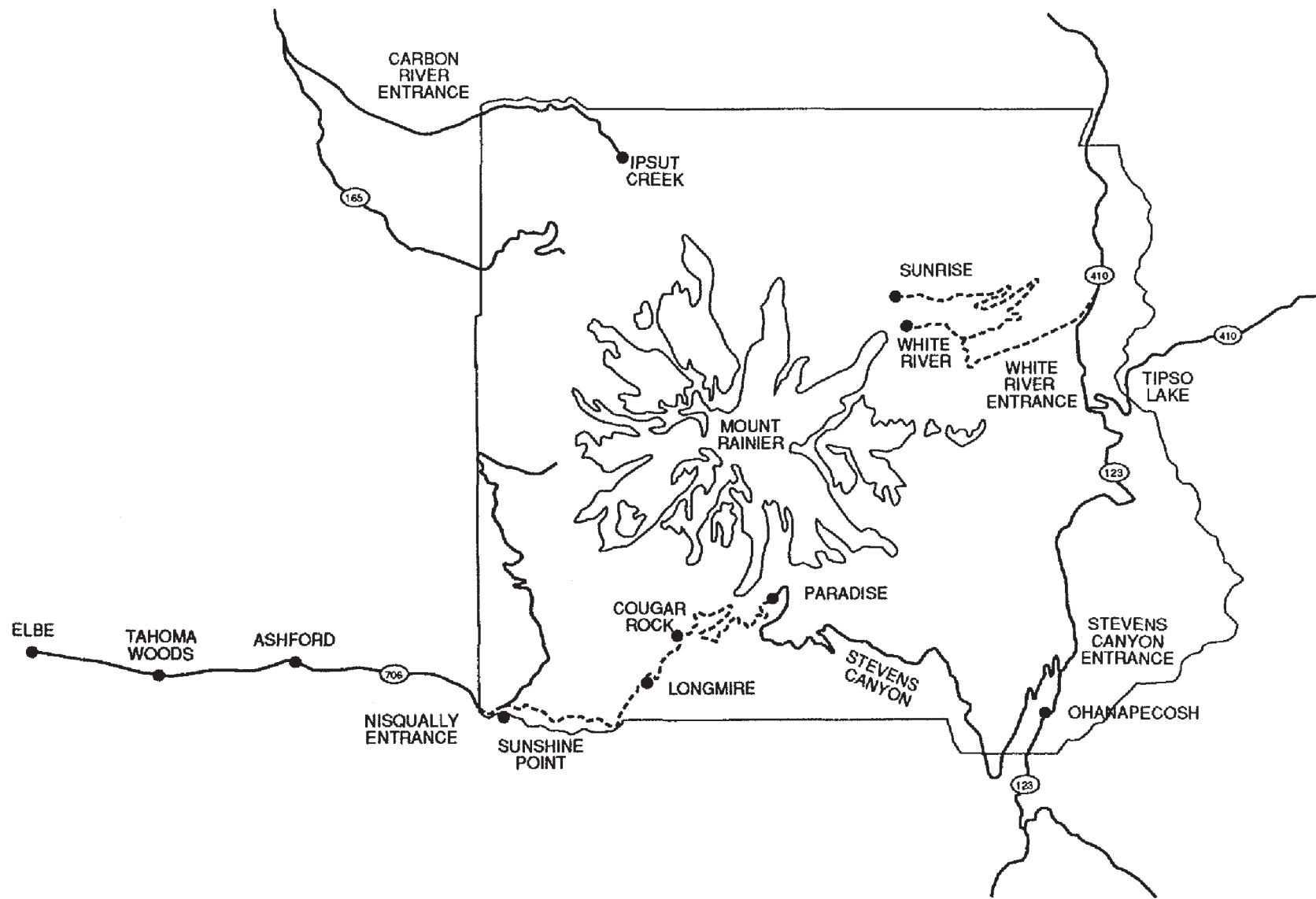
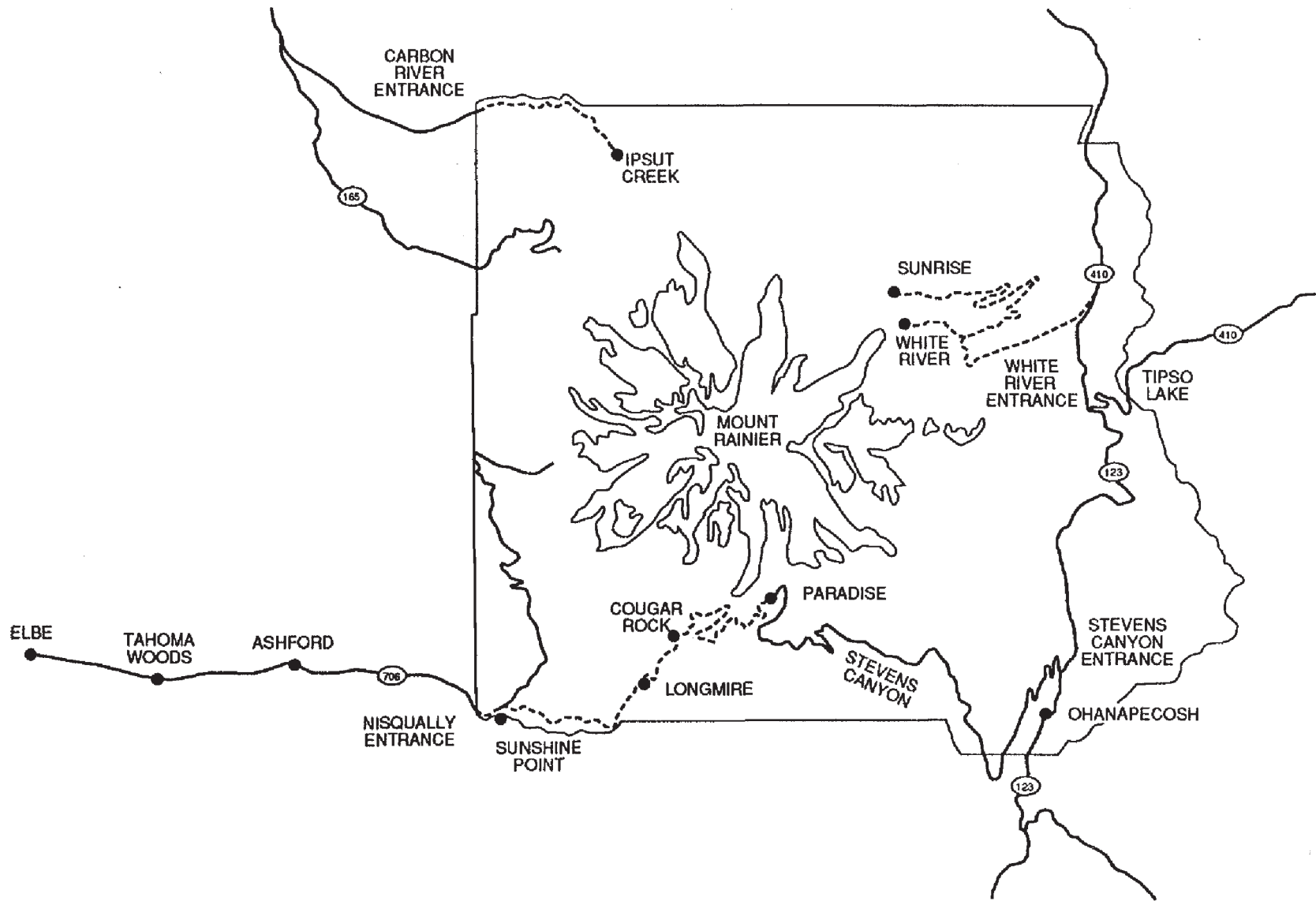


FIGURE D



Proposed Shuttle
Bus Route
June 15 to Labor Day

FIGURE E



Proposed Shuttle
Bus Route
June 15 to Labor Day

FIGURE F

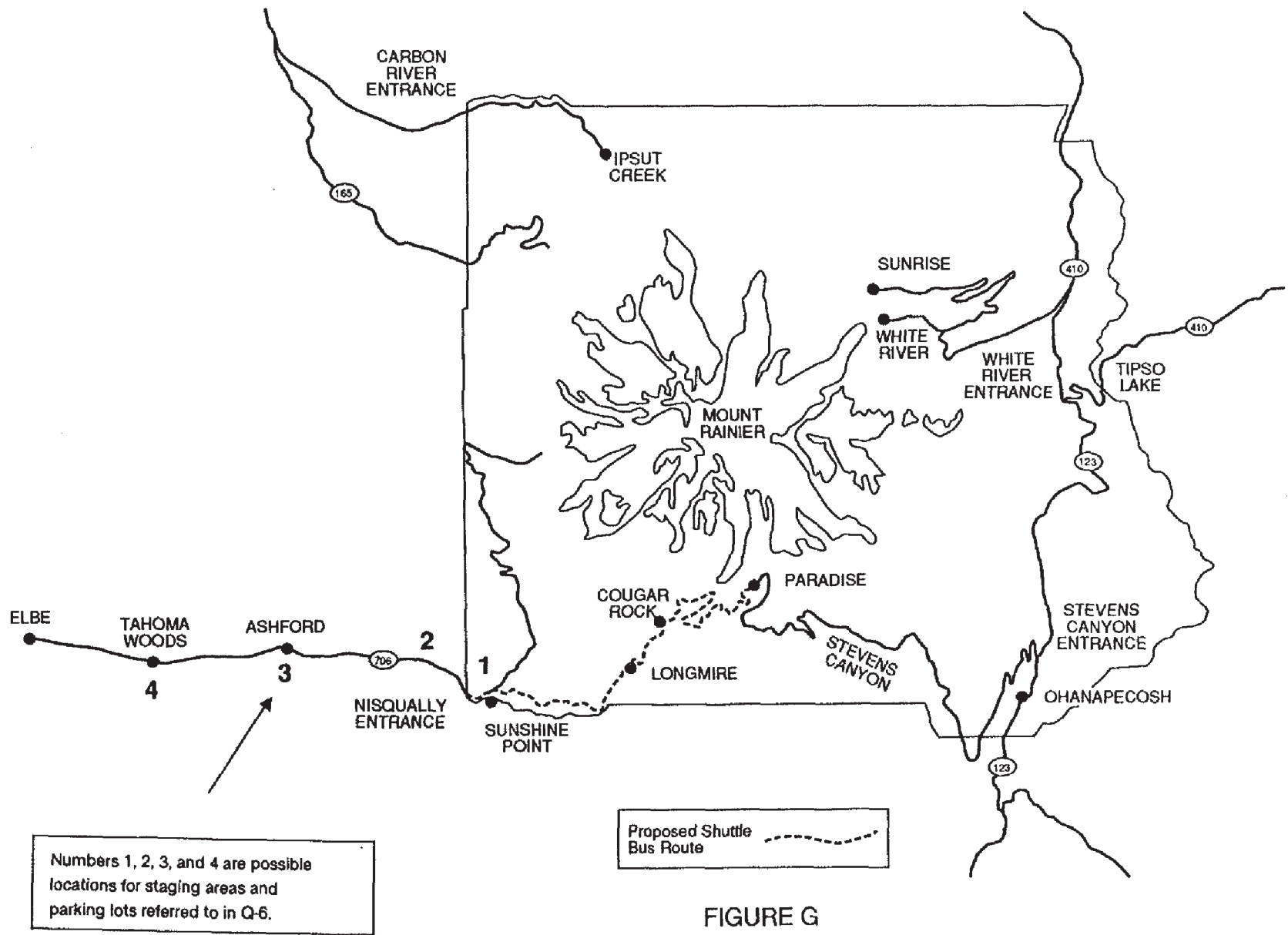


FIGURE G

SURVEY OF VISITORS

Mount Rainier seems destined to receive more and more private vehicle traffic as the population expands in the Puget Sound area during the next decade and into the next century. This document reports the results of a survey of Mount Rainier National Park visitors designed to measure attitudes toward development of a visitor transportation system.

A 1986 study reported that twelve National Parks in the United States offered government operated visitor transportation services ("Servicewide Bus Use Study: Phase 1," Review Copy, USDI/National Park Service, June 1986). Three other systems that had previously been operated by the government had been converted to concession operations; and Yosemite, Grand Canyon, and Denali National Parks offered major internal bus operations. Several types of systems (e.g., bus shuttles, vans, jeeps, trailers, trains, ferryboats) were in operation. In many cases services were free to the visitor. In some instances, a fee for the service was charged as well as an entry fee. The policies and design of these systems reflected local conditions and needs.

The primary purpose of the Mount Rainier National Park Transportation Survey (MRTS) was to ascertain the opinions of park visitors toward the establishment of various transportation system (mass transit) alternatives at Mount Rainier National Park. The MRTS was funded by Mount Rainier National Park (MORA), the Pacific Northwest Regional Office, and the Cooperative Park Studies Unit (CPSU) at the University of Washington, College of Forest Resources.

This section of the report describes the procedures followed in developing the questionnaire, selecting the survey sample, administering the questionnaire, and evaluating the data. Limitations of the questionnaire are also noted, and the survey findings are summarized.

Methods

The Questionnaire

Meetings were held between CPSU personnel and MORA staff in late 1987 and early 1988 to refine project objectives and define visitor transportation alternatives to present to the public for evaluation through the survey. Six visitor transportation scenarios were selected (Figures A to F). A draft questionnaire was developed by the CPSU and circulated to selected MORA staff for review. The questionnaire draft was revised after a review by MORA staff and was pretested in the park with a limited number of visitors. After revision, the draft was sent to the Office of Management and Budget (OMB) for review and approval. The OMB review resulted in minor changes to gain approval to carry out the survey.

Sampling and Visitor Contact Procedures

The population for which sampling was intended included all visitors entering the park in private vehicles during the summer season through the Nisqually, Stevens Canyon, White River, and Carbon River entrances, and through the Nisqually entrance during the remainder of the year. The summer season was defined as beginning on the date the entrances other than Nisqually opened for fee collection and ending immediately after Labor Day, when fee collection ceased.

Visitor contacts were made by MORA employees at the entry stations as visitors entered the park and paid their entry fees. The data collection began on July 26, 1988, and ended August 31, 1989.

One-hour periods of each day were randomly selected as sampling times. Sampling was carried out from 8:30 am to 7:30 pm or until the last hour the entry gate personnel were on duty each day. A random-numbers table was used to select the time intervals. During the sampling periods, gate personnel were on duty each day, and were instructed to ask the occupants of every n th vehicle if they would participate in the survey, complete an on-site sheet, and then place the sheet in the curbside box ahead--but within view--of the entry station. All vehicle occupants 18 or older were asked to supply their names and mailing addresses on the on-site sheet.

About 12 percent of the parties declined to participate. Some problems arose in the field contact procedure and are detailed in the Limitations section below.

On-site sheets were mailed to the CPSU. The survey sample was selected by taking every other name on the on-site sheets, but never less than one person per household. From 1,043 usable on-site sheets, 1,404 respondents were selected. Of the 1,404 questionnaires mailed, 32 were returned with undeliverable addresses, leaving 1,372 persons in the survey. The appendix includes tables displaying the distribution of respondents across months and days. Questionnaires were mailed to survey participants as described below.

Questionnaire Administration

Questionnaires were mailed from the CPSU with a cover letter and a map of the park to aid in conceptualizing the visitor transportation system alternatives. A combined thank you and reminder letter followed to encourage response. Nonrespondents received a second and third reminder. A replacement questionnaire accompanied the second reminder.

Nonresponse

A 72 percent response rate was achieved. To elucidate how the 28 percent nonresponse might have affected the sample, several chi square tests of independence using the .05 level of significance were performed with the on-site sheet data.

These tests showed no significant differences between the sample contacted and the subsample represented by the returned questionnaires in terms of gender, transportation mode, and day of the week on which respondents entered the park. Small statistical differences in response rates were observed by entry location, group makeup (i.e., individual, family, friends, and family and friends), group size, age, and location of residence of the respondent. The strongest statistical relationship was between age and response rate (which is typical of surveys of this kind). After consultation with a statistician, it was concluded that the observed differences in response rates did not warrant application of weights to accomplish a representative sample.

Response rates were slightly higher from the following: people who entered at Stevens Canyon, those who were part of groups under five, those who were part of groups composed at least partly of family members, people over 40, and nonresidents of Washington. Response rates were slightly lower for the following: visitors who entered at Nisqually, those who were in groups of friends only, those who were in groups of five or more, and those who were under 40--especially those who were under 29. (The results of these tests may be requested from the author.)

Limitations

The Mount Rainier Transportation Survey has several limitations. First, all surveys assume that respondents give accurate answers to the questions. Second, the data represent the respondent's views only at the time of the survey. Third, refusals to participate in the survey were more common than is typical when employees of the research project itself are responsible for the initial visitor contact. The effect of this refusal rate on the sample statistics is not known. Fourth, the numbers of visitors who entered the park by mass transit (buses) were very low and were not included in the sample.

A fifth limitation was that the entry station personnel responsible for initial visitor contacts did not always follow the sampling schedule (i.e., some days were missed or only partly covered). The situation was most critical at White River during the entire survey and at the Nisqually entrance during the winter period. To alleviate the White River problem, a CPSU employee was sent to White River to collect names of potential participants in the study in late August 1989. The names of over 100 people were collected on two randomly selected days. Caution is in order in interpreting data from that entrance because of the large number of respondents who were contacted over a short period.

Inadequate personnel were available at the Nisqually location for visitor contact during part of the winter, resulting in undersampling during the off-season. Thus off-season subsample responses have been weighted to total the proportion of year-round visitations as indicated by park visitor counts. This procedure increases confidence in the accuracy of the sample statistics for the entire sampling period at all locations. Because the number of off-season visitors is low,

however, comparisons of the opinions of off-season visitors with those of summer season visitors must be made with caution.

A sixth limitation is that a disproportionate number of the questionnaires were probably completed by a person designated in the group to do so. This is usually prevented by listing all party members over 18 and then randomly selecting the sample from this list. In this case, because there was no in-the-field review of the on-site sheets, many multi-person parties submitted only one name or fewer names than the number in the party.

Despite these limitations, the writer believes that the data provide a relatively accurate measurement of visitor opinions about the establishment of a visitor transportation system at Mount Rainier National Park.

Attaching Weight

As stated above, the data are weighted to reflect the appropriate proportions of visitors for the summer season and the balance of the year. Off-season respondents received a weight of 2.5. No other weights were deemed necessary.

Statistical Tests and Missing Data

Several statistical tests were performed. Unless otherwise noted, the conventional .05 level of significance was adopted. Assuming random sampling, a significance level is the probability that observed results could be purely due to chance. Not all people answer each question in a self-administered survey. Unless otherwise noted, such "missing data" represent less than 10 percent of the possible responses in any reported statistical test.

Accuracy of the Sample Data

Assuming a random sample and questions of a yes/no type, the accuracy of the entire sample data (n=971) is \pm 3.2 percent, with 95 percent confidence where the occurrence of these values in the sample population is assumed to be 50 percent. The accuracy of the Nisqually entrance data (n=501) is \pm 4.3 percent, with the same assumptions.

Summary of Survey Findings

There was no consensus among the visitors surveyed regarding the need to establish a visitor transportation system: 41 percent were opposed to any type of system; a slightly higher proportion favored some type of mandatory bus system somewhere in the park.

Two demographic variables in the survey weakly predicted attitudes toward a visitor transportation system. Age is the best predictor, followed by frequency of visitation. People age 40 and over are least likely to favor a mass transit system. People 39 and younger are more likely to favor mass transit, especially those between 18 and 29. Older people, especially those who reside outside the state, are more likely to have no opinion about the issue. People who visit frequently are somewhat more supportive than those who visit less frequently, especially first-time visitors. First-time visitors are also more likely to have no opinion about the issue.

There is a statistical association between place of residence, camping in the park, and attitude toward a visitor transportation system. The relationship disappears, however, when the effects of age and frequency of visitation are controlled. This result occurs partly because local residence is associated with age (locals are slightly younger) and visitation frequency. Wilderness camping is also associated with age and frequency of visitation.

There is strongest support for those transportation system options which would curtail traffic during the peak visitor season. Approximately 30 percent of all respondents (31 percent of the respondents who entered from the Nisqually entrance) favored a listed mass transit development option that would eliminate traffic from the Nisqually-to-Paradise corridor during the summer season, and 18 percent of all respondents favored a listed option that would remove automobiles from the Nisqually and White River entrances from June 15 to Labor Day. Also, 8 percent of the respondents favored establishing a listed bus shuttle system alternative that would curtail automobiles at each of the Nisqually, White River, and Carbon River entrances during the summer season. Yet 41 percent were

opposed to transportation systems of any kind.

These data suggest that a mandatory visitor transportation system would have a significant impact on the amount of visitation and its distribution in Mount Rainier National Park. Even among those who support the concept of some type of visitor transportation system, about half believe they would alter their travel route within the park to avoid it.

About 40 percent of visitors who entered at the Nisqually entrance believed a visitor transportation system at that location would affect the frequency of their visitation. This displacement would disproportionately affect parties with children, visitors from the local four-county area, and those who visit the park several times a year. The most significant impact among local visitors would probably occur among visitors living south of the park, who would have to drive longer distances to avoid the mass transit system.

Significant associations were found between the belief that visitation frequency would decrease because of a mandatory transportation system at Nisqually and visitation frequency, place of residence, and whether the respondent was accompanied by children. If the effects of visitation frequency and being accompanied by children are controlled, the association of place of residence is lost. This result occurs primarily because visitation frequency is highly associated with place of residence.

The willingness and ability of large numbers of visitors to alter their travel routes to avoid a mandatory transportation system raises questions about the extent to which congestion might be alleviated in the Paradise area if auto accessibility remains through Stevens Canyon. The study suggests that a large minority (45 percent) of Nisqually entry visitors believe they would use a voluntary bus shuttle system at the Nisqually entrance -- especially if it featured onboard interpreters, or if costs were waived for entry. If the objective of establishing a visitor transportation system is primarily to eliminate congestion during peak periods in the Paradise and Longmire areas or to reduce highway traffic, the feasibility of a voluntary bus shuttle system should be studied.

The large minority of visitors who favor a visitor transportation system, along with the rapid population growth of the Puget Sound market area, suggests that mass transit may soon become a highly visible and very controversial park management issue. Many visitors support a transportation system concept, some very strongly. Many of these people want to be freed from the burden of driving and many believe that there would be ecological and aesthetic benefits in removing automobiles.

On the other hand, many who oppose the establishment of mass transit would be adamant in their opposition because mass transit is perceived as a barrier to the type of recreational experience they hope to achieve in the park. Some would be displaced from the park entirely. This negative perception occurs largely because of the restrictions placed on freedom of movement, which itself is a motivation for the leisure experience at Mount Rainier, and the barriers which this constraint creates for certain activities. In addition, many visitors are attracted to outdoor recreation sites because they want to enjoy an intimate social experience -- to be alone with family and friends. When access is limited to mass transit, the ability of visitors to achieve this outcome is potentially changed -- except for backpackers or those who go on extensive day hikes.

Additional research is needed to anticipate the displacement of visitors and substitution of travel routes. Further research in this area should be based on clear assumptions concerning the objectives of a possible transit system (e.g., to reduce air pollution, to reduce congestion in a target area, to create an auto-free corridor to enhance the quality of recreation, and so forth).

RESULTS OF SURVEY ANALYSIS

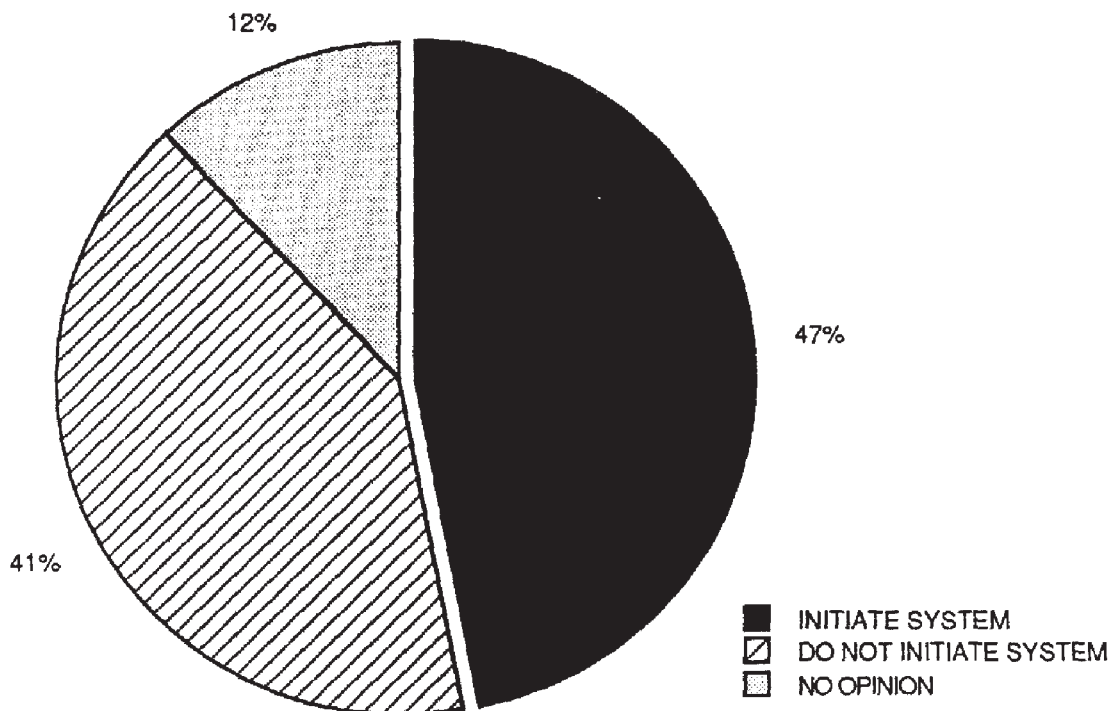
Attitudes Toward Initiation of a Visitor Transportation System

Question 1: "Do you believe Mount Rainier National Park management should take action to initiate a visitor transportation system?"

After reading the background information outlining six possible routes operating from three of the four park entrances, respondents answered the question shown above. Response: 47 percent said yes; 41 percent said no; and 12 percent said they had no opinion regarding the issue (Figure 1).

FIGURE 1

Visitor Attitudes Toward Management Action to Initiate a Transportation System at Mount Rainier



Written comments: Attitudes Toward Visitor Transportation System

Written comments by visitors provide additional first hand insight into the way that this issue is perceived. The following are quotes from people who favor establishment of a visitor transportation system.

Sample Comments from People in Favor a Transportation System

"I think a transit system from all entrances would cut down car traffic because everyone could enjoy the park and views."

"Would free me from driving and I could enjoy scenery more."

"More convenient and relaxing, plus able to enjoy the scenery a lot more."

"I think a transit system from all entrances would cut down car traffic because everyone could enjoy the park and views."

"I think more elderly people would visit because driving up and down can be frightening for the elderly."

"An excellent idea."

"I am pleased you are considering this vital move. I would like to help publicize it in anyway possible and lobby for it if necessary."

"Our group thought the transit system would be a great idea. My husband missed the view at times because he was driving."

"A transit system should be in effect for all parks."

"I certainly think it is a good idea. If the shuttle would terminate at Paradise, then the guide (or recording) on the bus should highlight that Longmire has information on a variety of hikes starting along the bus route. Please have the bus stop at hike/trail heads to encourage visitors to use the bus and the trails. Point these trails and trailheads out on the way up and down. Accessibility is the name of the game."

Many people, however, were highly opposed to a mass transit system. The following comments are examples of reactions from this group.

Sample Comments from People Opposed to a Transportation System

"Please keep the park as lovely as it is now. What we don't need are big buses with their exhaust fumes destroying the beautiful clean air."

"Transit systems are too inflexible. You do not have the opportunity to stop where you want at established pull outs and ... there is no guarantee that the next bus will be available for seating. The entire visit becomes a whim of the park administration or the established bus schedule."

"I oppose any shuttle bus service. If a shuttle service was to be instituted, I would not go to Mt. Rainier or avoid the areas where the shuttle was operating."

"I am not pro visitor transportation because we enjoy picnic areas which include barbecues. This type of picnic would be difficult using a visitor transportation system. I would rather see these funds spent on opening a well-known washed out road Klapatche Ridge. I believe that if more roads were opened/constructed to gain access to different areas within the park, the strain on the Longmire to Paradise area would be lessened. How about better parking facilities at trail heads? Improved/new trails?"

"We hate the idea. Have taken a couple Citizen tours, and can see very little while on the bus. We like the freedom of being able to stop and look whenever we want."

"I do not want to be locked into a transit system as I like to make numerous stops, ride a motorcycle, and I wouldn't care to be stuck on a bus with noisy people or screaming kids. I go there to enjoy nature and quiet as much as possible as well as the incredible vistas and wildflower displays."

"I use the park to go hiking and picnicking for the most part. This involves usually a large cooler full of food as well as other equipment. This stuff could be a real pain lugging on and off a bus loaded with the same type of equipment. The next problem is where to store the cooler while I and my family take a 3-5 hour hike, and expect to find it when we get back, hot, tired, and wanting a cold drink and snack."

"Inconvenience. Lower flexibility when compared to having own car in the park."

Attitudes Toward Initiation of a Transportation System Among Demographically Different Groups

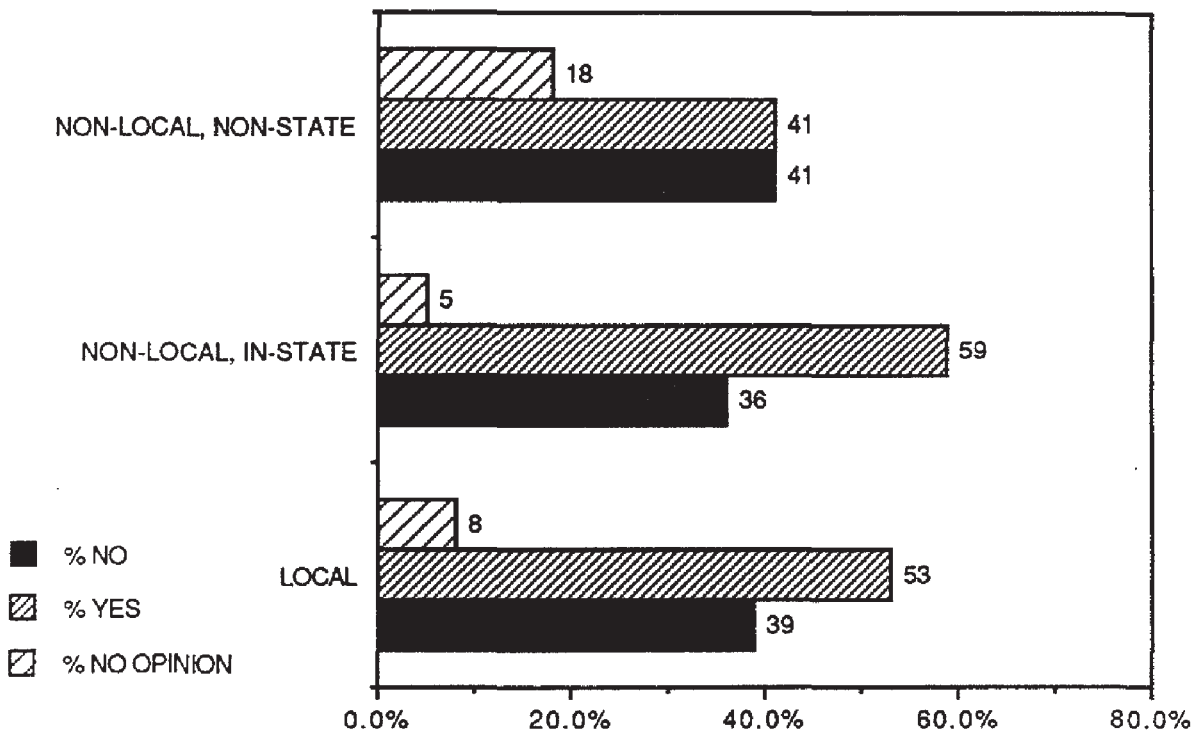
Attitudes were observed to differ with place of residence, frequency of visitation, age, and type of camping. In general, attitudes among subpopulations differ primarily in the proportions having no opinion and in the proportions favoring establishment of a visitor transportation system. There was no association between attitudes toward initiating a transportation system and gender, presence of children in the visiting party, entry location, day of the week respondent entered the park, type of group, or group size.

Place of Residence

Among respondents, 59 percent of the Washington residents living outside the local area of King, Pierce, Lewis, and Yakima counties favored the establishment of a visitor transportation system, compared with 53 percent of those from the local area and 41 percent of the visitors from outside the state (Figure 2). Of the out-of-state visitors, 18 percent had no opinion, compared with 8 and 5 percent of local and non-local visitors, respectively.

FIGURE 2

Differences in Attitudes Toward Initiation of a Visitor Transportation System, by Residence*



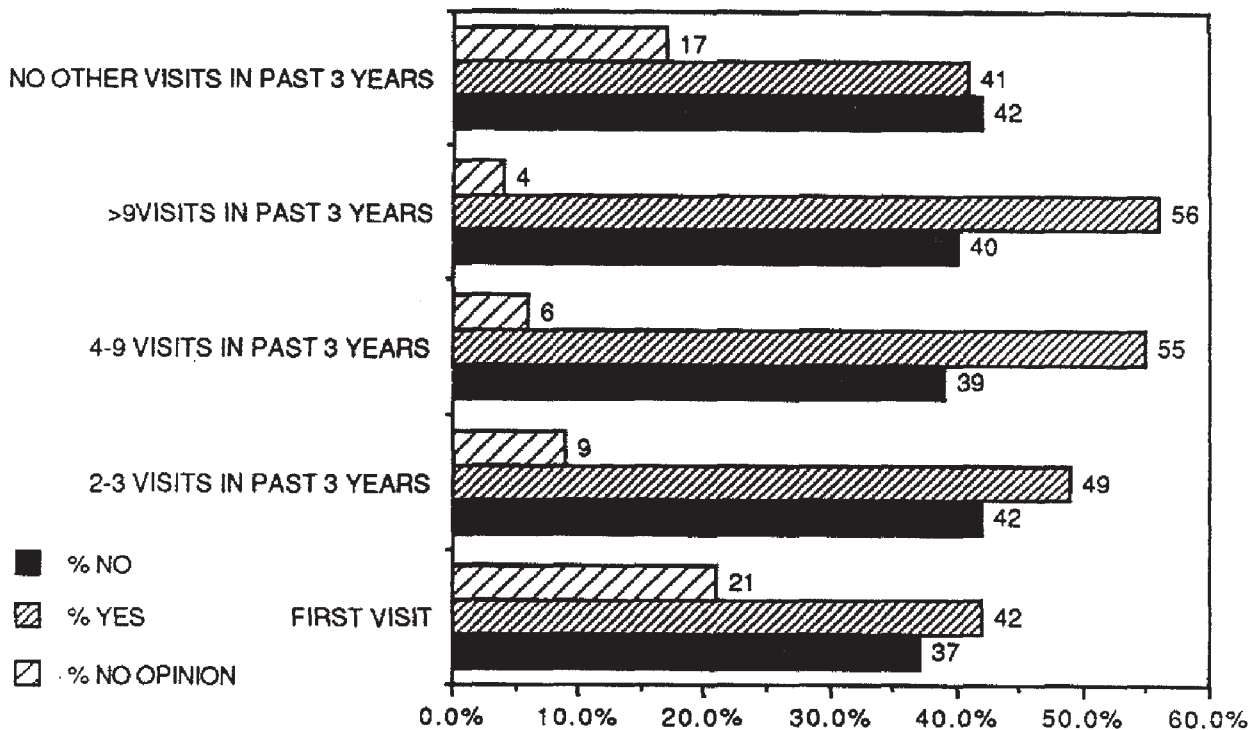
*Chi square equals 40.36 (p = .0000).

Frequency of Visitation

Of those who had visited the park ten or more times in the last three years, 56 percent favored a visitor transportation system; 42 percent of first-time visitors favored such a system (Figure 3). Among the first-time visitors, 21 percent had no opinion regarding establishment of a visitor transportation system, compared with 4 percent among those visitors who had visited the park ten or more times during the past three years.

FIGURE 3

Differences in Attitudes Toward Initiation of a Visitor Transportation System, by Frequency of Visitation*



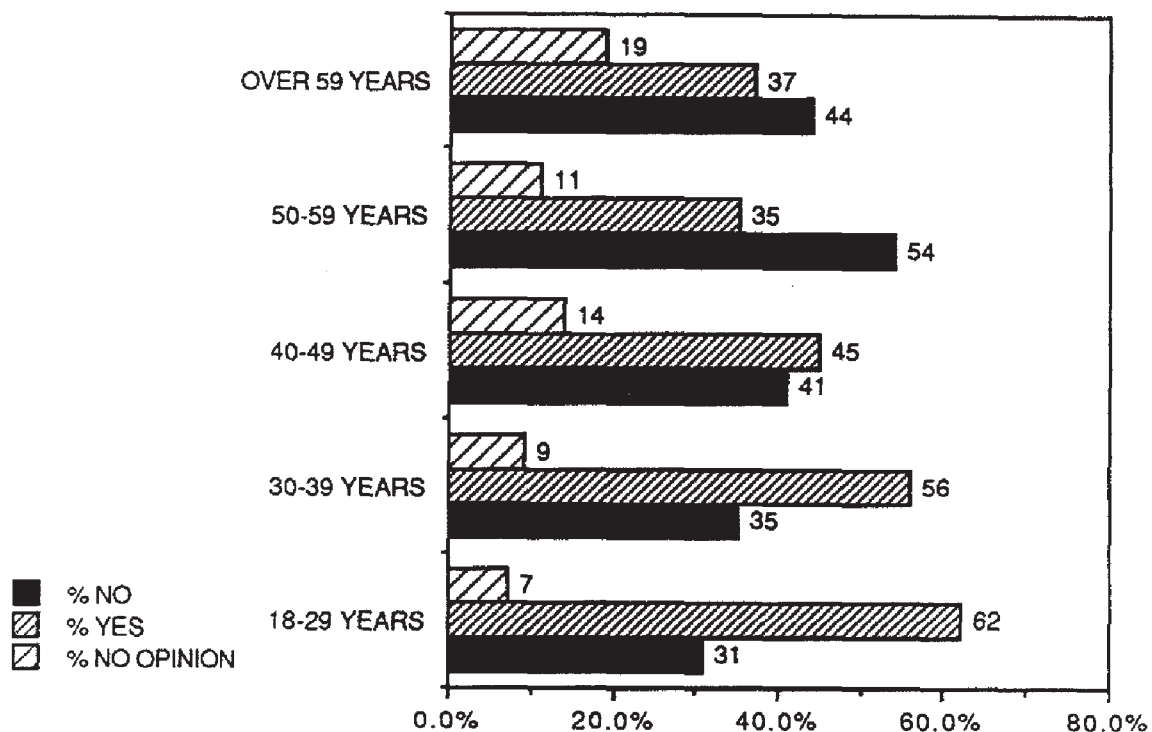
*Chi square equals 40.05 (p = .0000).

Age

In general, older visitors were less supportive and younger persons more supportive of establishing a visitor transportation system at Mount Rainier. Of the survey respondents between 18 and 29, 62 percent favored establishing a system compared with 35 percent of those between the ages of 50 and 59, and 37 percent of those over 59 (Figure 4). If age categories are combined, 58 percent of visitors under 40 favored establishing a visitor transportation system, 8 percent had no opinion, and 34 percent were opposed. For visitors over 50, corresponding percentages are 35, 15, and 50. The average age of respondents who favor establishing a visitor transportation system is approximately 40 compared with an average age of 45 for those who were opposed and 47 for those who had no opinion.

FIGURE 4

Differences in Attitudes Toward Initiation of a Visitor Transportation System, by Age*



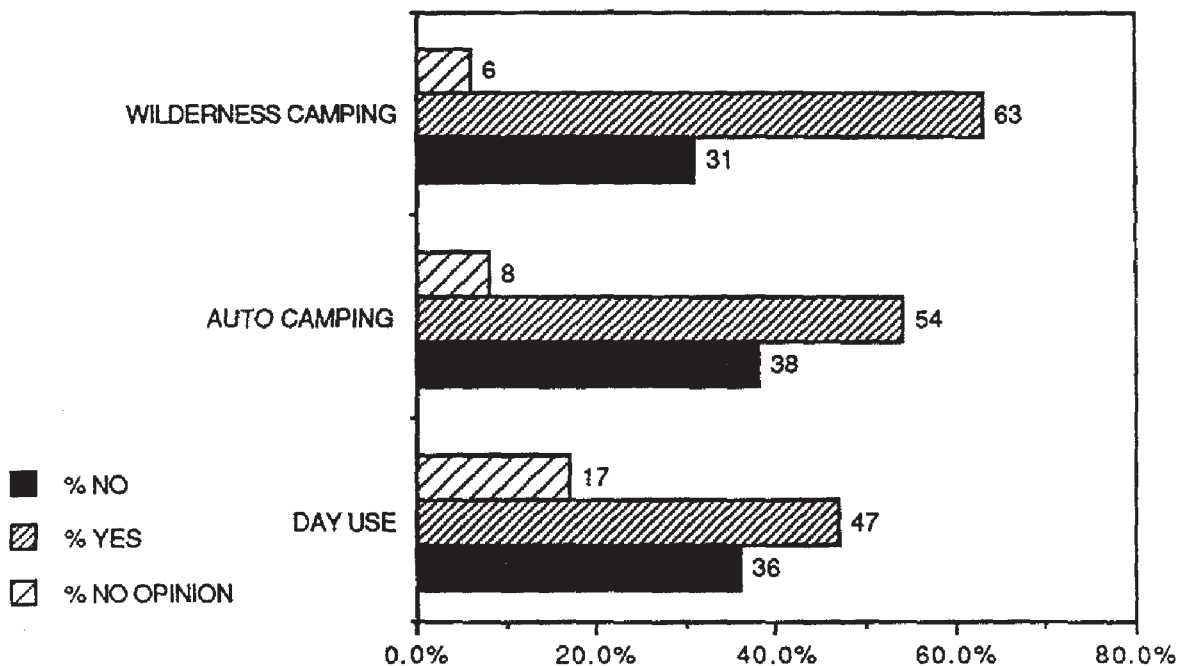
*Chi square equals 39.79 ($p = .0000$).

Type of Trip

Of the small subsample (n=51) of wilderness campers, 63 percent supported establishing a visitor transportation system compared with 54 percent of those camping in developed campgrounds (n = 86) and 47 percent who were on day trips to the park (n=412) (Figure 5). These data should be interpreted with caution because of the small number of campers. The structure of the data does not allow isolation of the subsample of visitors who stayed overnight in the inn or lodge.

FIGURE 5

Differences in Attitudes Toward Initiation of a Visitor Transportation System, by Camping Status*



* Chi square equals 9.39 (p=.052). This test eliminates a group of respondents whose overnight status (i.e., lodge or inn) was not clear. Consequently, n=549. The exact procedures used in this test are available upon request.

Gender

No differences were observed in the answers of male and female respondents in attitudes toward Mount Rainier National Park management action to initiate a visitor transportation system.

Presence of Children in Visiting Party

No differences in the types and ratios of responses received regarding the possibility of park management action to initiate a visitor transportation system were found which could be attributed to the presence of children under age 18 in the visiting party.

Entry Location

No differences were observed in the types and ratios of responses received regarding the possibility of park management action to initiate a visitor transportation system which could be attributed to the entry (contact) location of respondents.

Day of Week Entering the Park

No differences were observed in the types and ratios of responses received regarding the possibility of park management action to initiate a visitor transportation system which could be attributed to the day of week in which the participant entered the park.

Type of Group

No differences were observed in the types and ratios of responses received regarding the possibility of management action to initiate a visitor transportation system which could be attributed to the type of group in which the participants entered the park. The types of groups were individual, family, friends, and a combination of family and friends.

Group Size

No differences were observed in the types and ratios of responses toward the possibility of park management action to initiate a visitor transportation system which could be attributed to the size of groups in which respondents entered the park.

Summary

Two demographic variables in the survey (age, frequency of visitation) predict attitudes toward establishing a visitor transportation system at Mount Rainier National Park. People 40 and older are less likely to favor initiation of a mass transit system. People 39 and younger are more likely to favor mass transit. Older people, especially those who reside outside the state, are more likely to have no opinion about this issue. People who visit the park frequently are somewhat more supportive than those who visit the park less frequently.

The association between residence, camping in the park, and attitude toward a visitor transportation system disappears when the effects of age and frequency of visitation are controlled. (Multivariate tests were performed using hierarchical log linear models from SPSS. Log linear models are a special class of statistical techniques, similar to multiple regression, formulated for use with categorical data.) This result occurs partly because local residence is associated with age (locals are slightly younger) and visitation frequency. Wilderness camping is also associated with age and frequency of visitation.

Support for Selected Visitor Transportation Alternatives

The questionnaire listed six alternatives representing possible transportation system alternatives. Each alternative includes a bus shuttle system. Table 1 lists the data from the answers to the following question.

Question 2: "The following are possible visitor transportation alternatives that Park Management could select. A set of maps is enclosed to help you visualize each alternative. For more detailed information refer to the previous page. Which of these do you most prefer? If you are opposed to each of the six alternatives listed below, but support another visitor transportation alternative, circle item 7 and explain the option you favor."

TABLE 1

Support for Selected Transportation System Alternatives

ALTERNATIVE	% MOST PREFERRED
1. Longmire to Paradise in the winter	6
2. Nisqually entrance to Paradise from June 15 to Labor Day	4
3. North park boundary through the White River entrance to Sunrise from June 15 to Labor Day	1
4. Nisqually entrance to Paradise all year	8
5. Nisqually entrance to Paradise and north park boundary through the White River entrance to Sunrise from June 15 to Labor Day	10
6. Nisqually entrance to Paradise and north park boundary through the White River entrance to Sunrise during the summer/Carbon River entrance to Ipsut Creek campground from June 15 to Labor Day	8
7. I support a transportation system but I am opposed to the six alternatives	9
8. No Opinion	13
9. Opposed to any transportation system	41

Opinions of Respondents Who Favored A Visitor Transportation System But Not One of the Listed Options

Respondents (n=79) who favored initiation of a transportation system other than the listed options were asked to describe their preference. About one-fourth (by far the most common opinion) emphasized that visitor transportation should be established, but should be voluntary. Some people raised concerns about wilderness and car camping and believed that people who engaged in such activities should be granted auto entry permits. A few respondents thought that private vehicles should be allowed after charging a higher entry fee; a few thought that a visitor transportation system should be established as voluntary, with use encouraged by lower entry fees for system patrons. Some respondents offered the suggestion of running mandatory bus shuttles only at the most congested locations during peak visitation periods. A few respondents offered alternate transportation system configurations. Some of these comments are included in the box on the following page.

Sample Comments from People Favoring a Transportation System But Opposed Listed Options

"I have no opposition to any of the proposed routes or preferences to any of them, but am opposed to the elimination of 'all private traffic."

"Give people a choice between mass transit and their own vehicle. Possibly charging more to take own vehicle into park."

"I believe that a shuttle system should be available for those who choose to use it to all the mentioned areas. However, I don't want to see private vehicle access limited or restricted."

"I personally hate to ride buses. I think its fine to have the transportation system but you should allow for private traffic too."

"I am opposed to elimination of all non-official traffic. A more sensible approach would be to raise the vehicle entrance fee and 'sell' visitors on the bus system."

"I support a shuttle system as a supplement only for those that chose to use it. Perhaps full time shuttles on the weekends and/or holidays when deemed necessary. It is important that we maintain the option and pleasure of private traffic."

"Allow option to drive your own car but charge a fee set at a level which would encourage selection of visitor transportation."

"Alternative 6 is the best, but it's not complete; a shuttle should also run to Paradise from Stevens Canyon Entrance in the summer. Most people are so in love with their cars that they would rather drive through Stevens Canyon to Paradise, rather than take a bus from Longmire."

"I support option #6 except I believe Hwy 410 should be kept open. Begin shuttle system on the road leading to Sunrise. This allows visitors unencumbered north - south access to the east side of the park. Also support Longmire to Paradise in winter."

"System to operate Longmire or Nisqually entrance to Paradise winter (2). Nisqually entrance all way around park to North entrance. Schedule stops at main attractions (Paradise, Sunrise, Narada Falls). Stop at other hiking trails by request for any hiker waiting at a trail."

"A shuttle/sightseeing bus similar to Glacier Park might be appropriate. Routes could be: Nisqually to Paradise and return. Paradise to Sunrise and return. White River to Sunrise and return. White River to Paradise and return."

"Nisqually to Paradise June 15--Labor Day plus Nisqually to Paradise--winter."

"From intersection of 410 to White River to Sunrise (Not begin at park boundary)."

"Apparently, each of your proposals would prohibit traffic north out of Nisqually entrance station. I want access to the West side of Mt Rainier without hassles."

Summary and Discussion: Visitor Attitudes Toward Initiation of a Transportation System

There was no consensus among the visitors surveyed regarding the need for a visitor transportation system: 41 percent opposed any type of system; a slightly higher proportion favored some type of mandatory system within in the park.

Younger visitors, and those who visit the park most frequently, are disproportionately supportive. (These groups are also more likely to have local residences and to be overnight campers.)

Older visitors and first-time visitors are least supportive. (Such visitors also disproportionately reside outside the state of Washington.) The variation in attitudes toward a visitor transportation system is largely between the "no opinion" and "favor" categories. The percentage of visitors opposed to the transportation system remains relatively constant across visitor subpopulations.

There is strongest support for the options that would curtail traffic during the peak visitor season. Approximately 30 percent of all respondents (31 percent of the respondents who entered from the Nisqually entrance) favored a listed mass transit development option that would eliminate traffic from the Nisqually-to-Paradise corridor during the summer season; 18 percent of all respondents favored a listed option that would remove automobiles from the Nisqually and White River entrances from June 15 to Labor Day; 8 percent favored establishing a listed bus shuttle system alternative that would curtail automobiles at the Nisqually, White River, and Carbon River entrances during the summer season. However, 41 percent remain opposed to transportation systems of any kind.

The prospect of a visitor transportation system may soon become a very controversial park management issue in the eyes of the public. This is suggested by the large minority of visitors who favor establishing some type of visitor transportation system, and by the rapid population growth in the park's immediate market area (Puget Sound). Many visitors support the concept of a transportation system--some very strongly. However, many who oppose it are adamant in their opposition because mass transit is perceived as a barrier to the type of recreational experience they hope to achieve in the park. Some park users would be displaced from the park entirely.

Perceived Effect of a Transportation System at Nisqually on Visitation

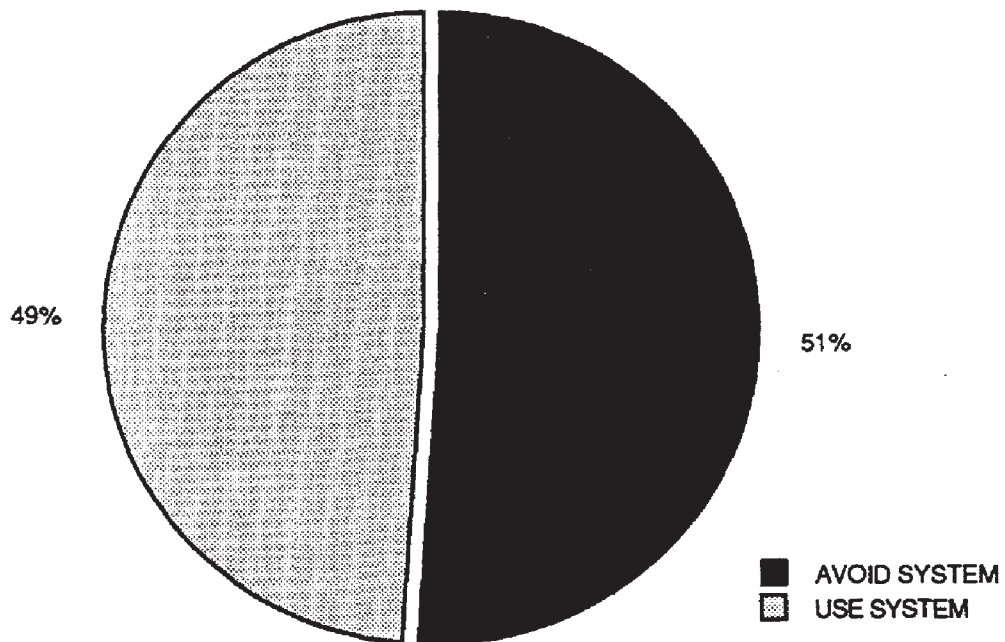
Question 3: "If a mandatory bus shuttle system were established at the Nisqually entrance, would the existence of the bus shuttle system have prompted you to have entered the park by private vehicle at another entrance?"

Of those who entered the park at the Nisqually entrance (n=501 unweighted), 49 percent indicated yes to this question (Figure 6). Of those who said they would have entered the park at another entrance by private vehicle, 31 percent favored establishment of a transportation system.

FIGURE 6

Percentage of Respondents Who Would Have Avoided Transportation System by Entering at Another Location, Nisqually Visitors Only

Data from "DATA FIG. 6"

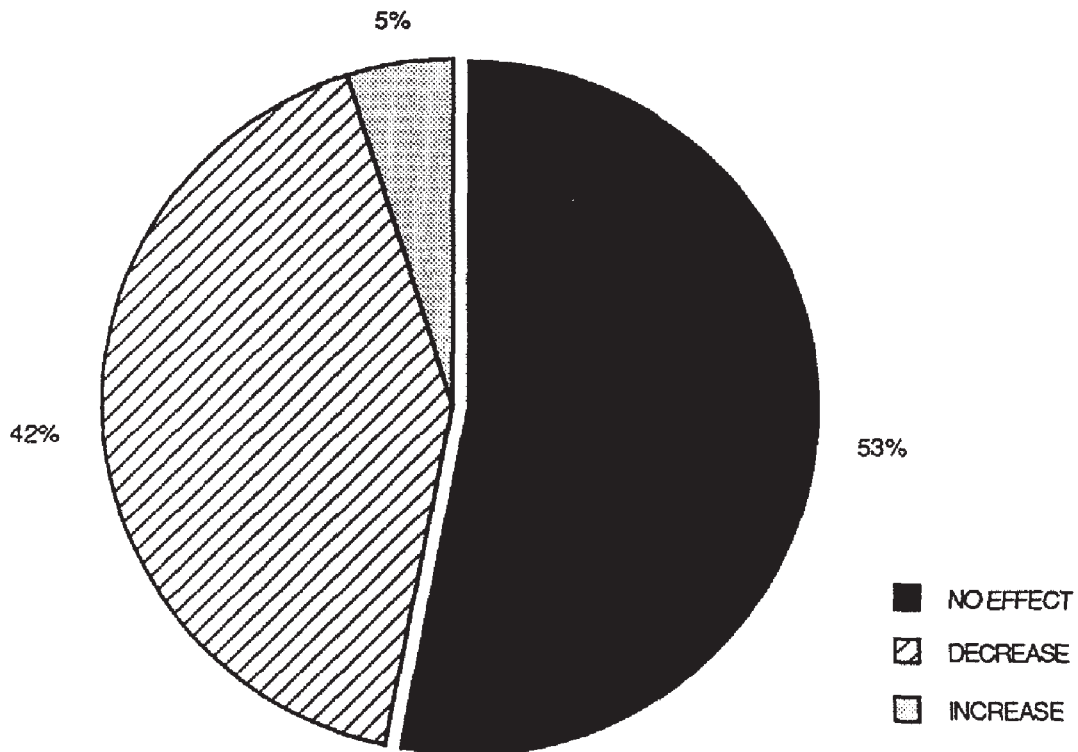


Question 4: "If a mandatory bus shuttle system were established at Nisqually entrance, would the existence of this system affect the frequency with which you would visit Mount Rainier National Park?"

Of those who entered at the Nisqually entrance, 53 percent said a transportation system would have no effect on the frequency of their visitation; 5 percent said it would increase the frequency of their visits; and 42 percent indicated it would decrease the frequency of their visits (Figure 7). Of those who indicated that a visitor transportation system at Nisqually would affect their visitation frequency, 30 percent favored the action to initiate some type of transit system. About one-fourth of the Nisqually visitors who favored a visitor transportation system indicated that such a system would decrease the frequency of their visits.

FIGURE 7

Perceived Effect of a Mandatory Visitor Transportation System on Frequency of Visitation, Nisqually Visitors Only



**Profile of Visitors Who Would Decrease Visitation
If a Mandatory Transportation System Were Established,
Nisqually Entrance Respondents Only**

Several chi square tests of independence were performed to identify demographic characteristics of visitors who believed their visitation frequency would decrease because of establishment of a visitor transportation system. Weak, but significant, associations were found between belief that visitation would be reduced and the visiting party being accompanied by children, visitation frequency, and residence. There was no association between belief that visitation frequency would decrease and gender, age, size of the visiting party, day of week of park entry, or whether the person was a wilderness or auto campground camper.

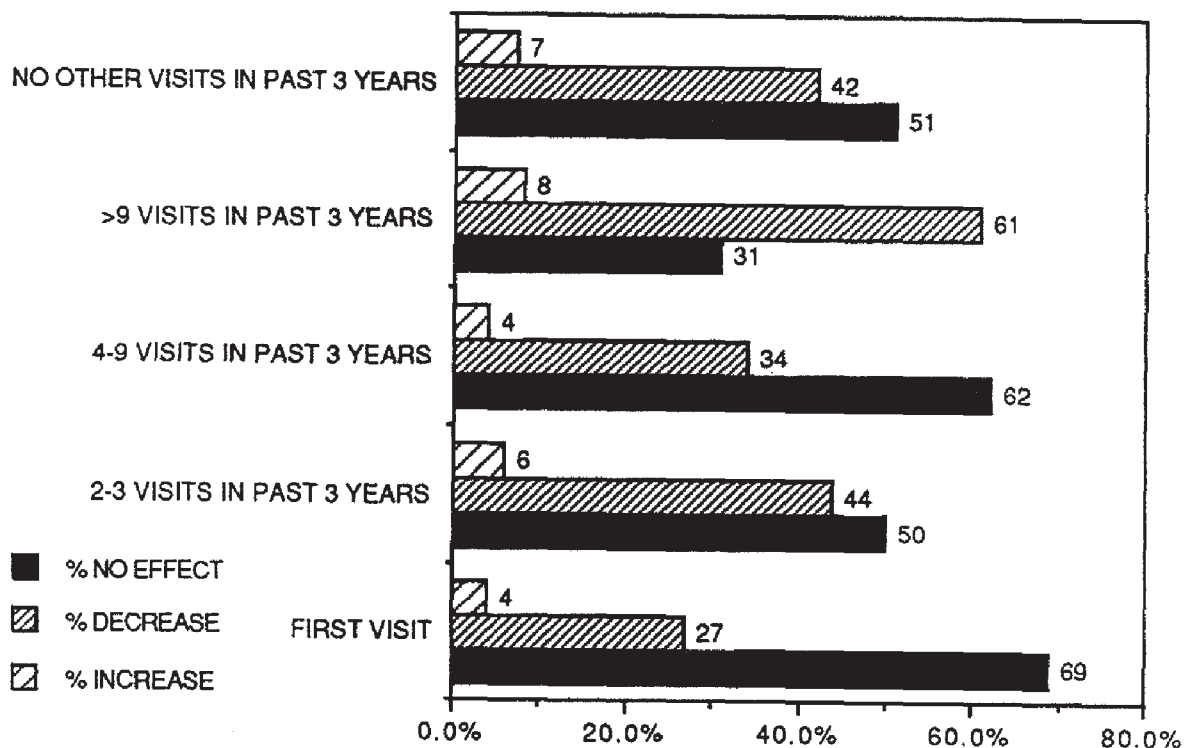
The small subsample of campers contacted at the Nisqually entrance [n=32 (wilderness) and n=39 (auto)] dictates caution in interpreting these results, especially with regard to wilderness campers where there is a suggestion that visitation could be decreased. Such might not be the case for auto campers who could enter through other entrances. To define the impact of mandatory mass transit on the camping populations, a much larger sample of these groups would be needed.

Visitation Frequency

Of the respondents who had visited the park more than nine times in the three years preceding the contact for the survey, 61 percent said initiation of a visitor transportation system would decrease the frequency of their visitation, compared with 27 percent of those who were contacted on their first visit (Figure 8). Of the first-time visitors, 69 percent indicated that their visitation frequency would not be affected compared with 31 percent of the respondents who had visited the park more than nine times during the last three years.

FIGURE 8

Perceived Effect of a Mandatory Transportation System on Visitation Frequency, by Frequency of Visitation*



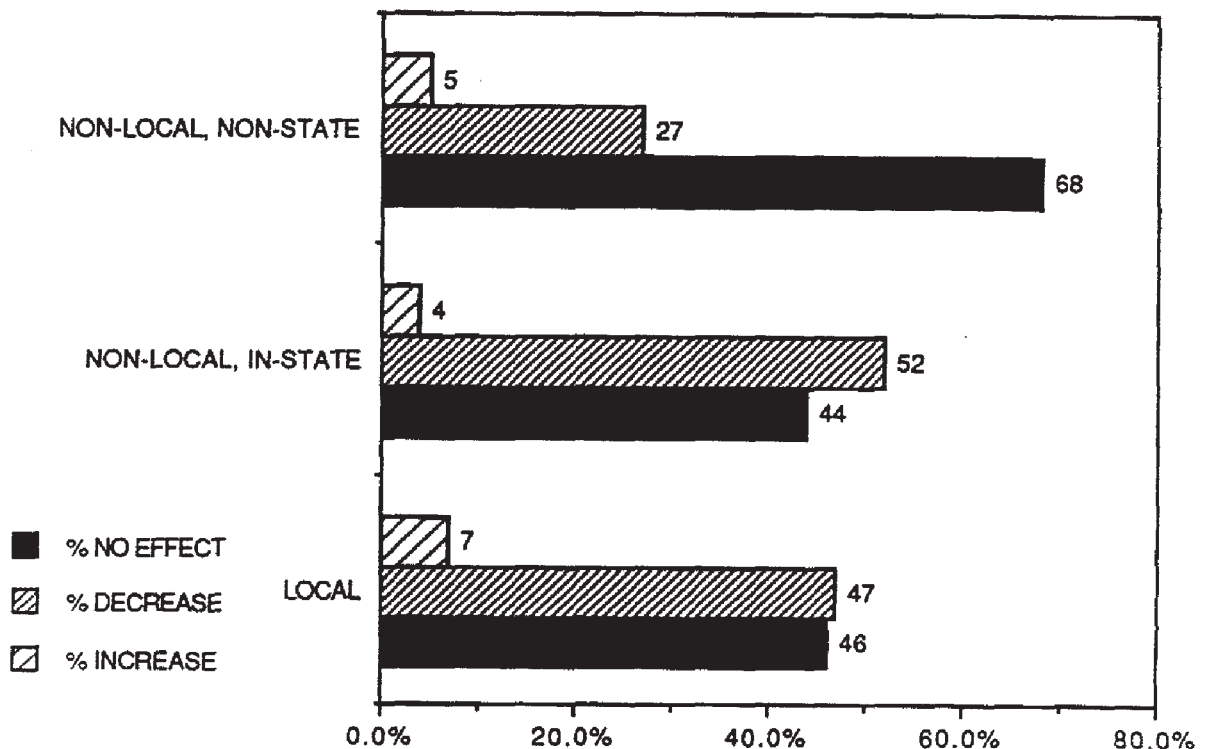
* Chi square equals 38.64 (p = .0000).

Residence

Of the visitors whose residence was outside the state of Washington, 68 percent said their visitation frequency would not be affected by a visitor transportation system (Figure 9). Of the respondents from the local four-county area, 46 percent indicated they believed a visitor transportation system would have no effect; 47 percent also indicated their visits would decrease. Of the 46 percent of local respondents who believed their visitation would decrease, 28 percent were in favor of the concept of establishing a mandatory visitor transportation system.

FIGURE 9

Perceived Effects of a Mandatory Transportation System on Visitation Frequency, by Place of Residence*



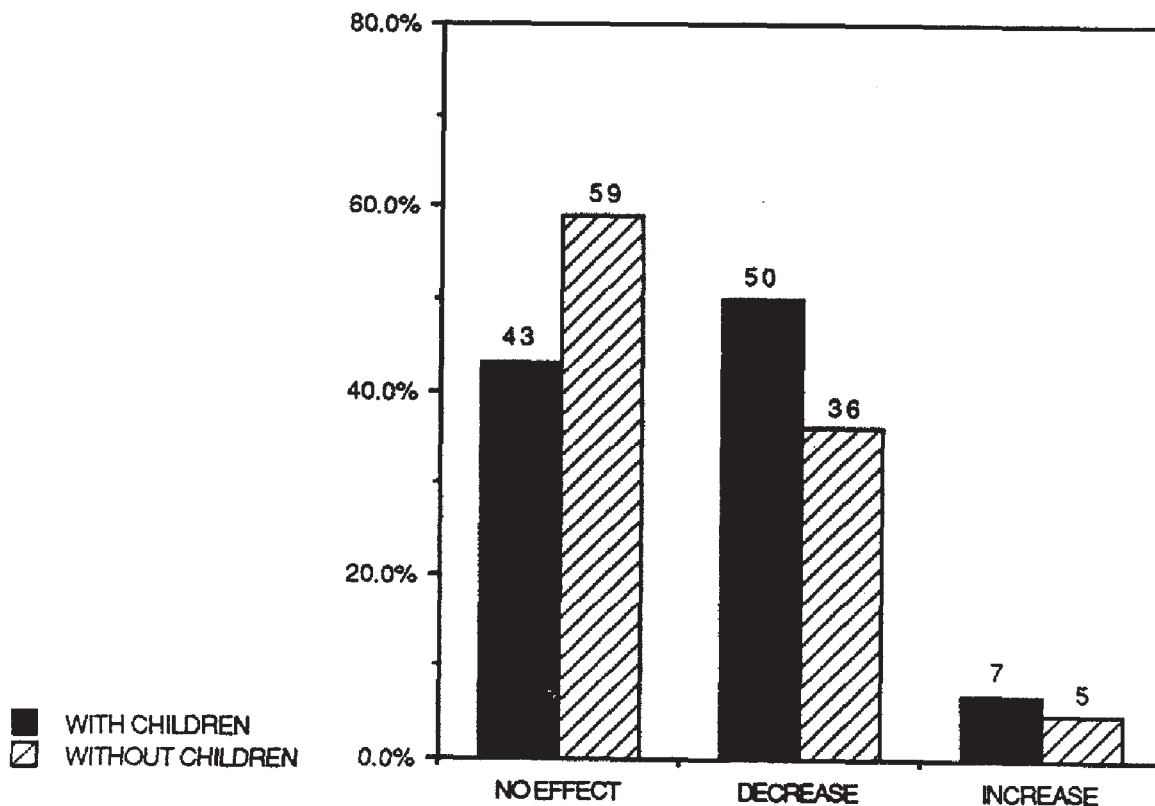
*Chi square equals 27.72 (p = .0000).

Accompanied by Children

Of visitors who were accompanied by children, 50 percent believed a transportation system would decrease their visitation frequency; 43 percent said such a system would have no effect on their visitation frequency (Figure 10). Of those visitors not accompanied by children, 36 percent said their visits would be reduced by a visitor transportation system, compared with 59 percent who believed there would be no effect on their visitation.

FIGURE 10

Perceived Effects of a Mandatory Transportation System on Visitation Frequency, by Whether Respondent Was Accompanied by Children*



*Chi square equals 9.67 (p = .0000).

Visitor Comments: Impact of a Mandatory System

Respondents' comments provide additional insight into visitors' perceptions of the impact of a mandatory transportation system at Nisqually. The most common theme discernible in the comments dealt with the restrictions on freedom and individual movement by a mandatory transportation system. About 50 percent of those who wrote comments mentioned this issue. The next most common theme in the comments related to the inconvenience of hauling equipment, such as backpacks, climbing gear, picnic supplies, and camera equipment, on buses. Equipment was mentioned by 15 percent of those who wrote comments.

Many people visit the park to avoid crowds. This goal would be compromised by a transportation system. Some people engage in special activities, such as photography, that would be difficult to do from a bus. Some of these comments are included on the following page.

Sample Comments Regarding Restrictions on Freedom and Individual Movement

"I enjoy the drive and prefer to travel at my own pace: not with groups."

"We prefer to use our own vehicle, stop where we want, we like to enjoy the park at our own pace, not someone else's."

"I like being able to drive through the Park, stop at various points at my own pace."

"I want to have an independent and personal experience - not a Disneyland type excursion."

"Because we like to take pictures, the shuttle system would not allow for our frequent stops for this and exploration."

"Part of the enjoyment of the park is being able to go at your own pace, seeing what you want and stopping where you want."

"I want freedom to extend my travel by private car."

"Would involve too much of a hassle. We enjoy private calm family outings to Mt. Rainier for peace and quiet and relaxation."

"I am an amateur artist. I like to get out of my car at will. I don't relish the thought of being mandatorily restricted."

"The inconvenience of having to wait for the bus. Wrestling my gear on and off the bus, coming out of the woods after a week and smelling like I do I don't think that I would want to ride next to me if I were a day traveler."

"Very difficult to picnic at Paradise if we have to shuttle all food, etc. on bus."

"We enjoy driving our own vehicle in the park. We appreciate taking our ice chest and dinners and our inner tubes. We would avoid the crowds the shuttle system would cause."

"We have a large family and we could not afford to go. And we go for camping, could not pack our gear on a shuttle."

"We do like to have the freedom of our vehicle to Longmire because of skiing in winter we take a lot of gear with us that we like to have access to."

"Most of the activities on the mountain include skiing and backpacking - the shuttles would prohibit the spontaneity of the activities and promote more of a tourist trap and a commercial atmosphere."

"The National Park System is for public use. With the way things are going its starting to become impossible for families to visit, with a bus system that would make it even harder. We could afford a small fee, but many people can't and to visit a park like Mt. Rainier is their only luxury."

Summary and Discussion: Impact of a Mandatory System

These data suggest that a mandatory visitor transportation system would significantly affect the amount and distribution of visitation to Mount Rainier. Even among those who support the concept of some type of visitor transportation system, about half believe they would alter their travel route to avoid it.

Approximately 40 percent of the visitors who entered at the Nisqually entrance believed a visitor transportation system at that location would affect the frequency of their visitation. Significant associations were found between the belief that visitation frequency would be decreased because of a mandatory transportation system at Nisqually and respondents' visitation frequency, place of residence, (i.e., local, non-local, etc.) or whether the respondents were accompanied by children. If the effects of visitation frequency and being accompanied by children are controlled, the association of place of residence is lost. This result occurs primarily because visitation frequency is highly associated with place of residence.

It should be emphasized that some local people (i.e., four county area) whose visitation frequency would be reduced are willing to accept this impact because of their commitment to the concept of reducing traffic in the park. Conversely, many nonlocal first-time visitors who are opposed to establishing a mandatory mass transit system would not reduce their visitation frequency because they would enter the park on a one-time basis by whatever means available. That large numbers of visitors are willing and able to alter their travel routes to avoid a mandatory transportation system raises questions about the extent to which congestion might be alleviated in the Paradise area if auto accessibility remained through Stevens Canyon. Additional research is needed to anticipate the displacement of visitors and substitution of travel routes. Further research in this area should be based on clear assumptions concerning the objectives of a possible transit system (e.g., reduction of air pollution, reduction of congestion in a target area, creation of an auto-free corridor to enhance recreation quality, etc.).

These results are somewhat similar to those reported by Robert Manning in 1985-86 survey in Acadia National Park. In that survey visitors were asked if "public transportation (shuttle buses, for example) would be a good idea for Acadia

National Park." Approximately 40 percent of the respondents agreed with the statement, 35 percent disagreed and 22 percent had no opinion.

Use of a Voluntary Bus Shuttle at Nisqually

Question 5: "If a voluntary bus shuttle system had been operating from the Nisqually entrance to Paradise, would you have used this system on the trip during which you were contacted for this survey? Assume the bus would depart at one-half hour intervals from a parking lot near the entrance. It would have several intermediate stops. The fare would not exceed \$2 per person. You would still pay a \$2 per person or \$5 per vehicle entry fee."

This question was answered no by 72 percent of the respondents. Of those who answered no, 22 percent said they would have used the bus if it had an interpreter on board to discuss points of interest; 20 percent said they would have used the bus if there had been no charge. Age was the only demographic variable predicting use of a voluntary bus shuttle. Of the respondents over age 59, 42 percent said they would have used a voluntary bus shuttle, compared with 25 percent of those under 59.

Location of Staging Area at Nisqually

Question 6: "If a shuttle bus system were to operate from Nisqually entrance to Paradise as described in options 2, 4, 5, or 6 above, where should the staging area and parking lot be located?"

TABLE 2

Preferred Location of Staging Area*

LOCATION OF STAGING AREA	PERCENT
Outside the park near Nisqually entrance	35
Inside the park near Nisqually entrance	21
Outside the park near Tahoma Woods	10
Outside the park near Ashford	8
Don't know/no opinion	26

* See Figure G, page 9.

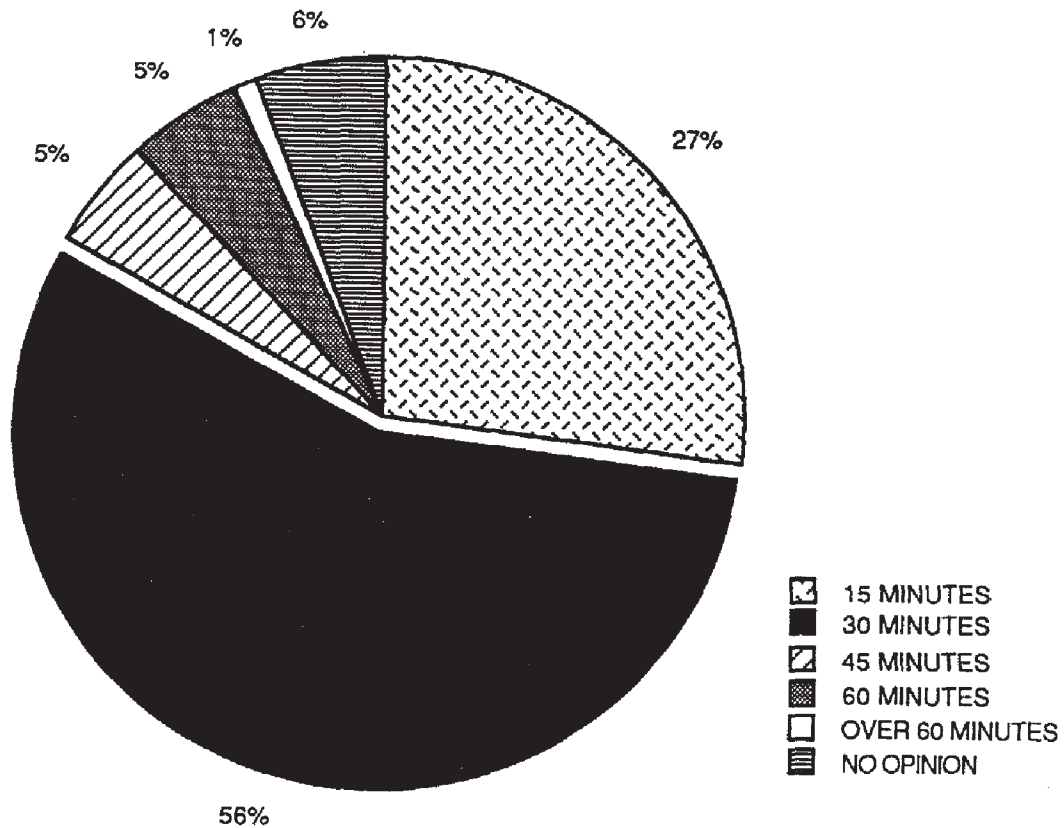
The data in Table 2 indicate that a majority of visitors would prefer to see a staging area at Nisqually located outside the park. If such a staging area were to be constructed, a majority also would prefer it to be near the Nisqually entrance.

Willingness to Wait for Bus Shuttle

Of all respondents, 27 percent indicated willingness to wait a maximum of 15 minutes if a bus shuttle system were operating; 56 percent indicated willingness to wait a maximum of 30 minutes; and 6 percent had no opinion or didn't know how long they would be willing to wait (Figure 11).

FIGURE 11

Maximum Time Visitors Would Be Willing to Wait for Bus

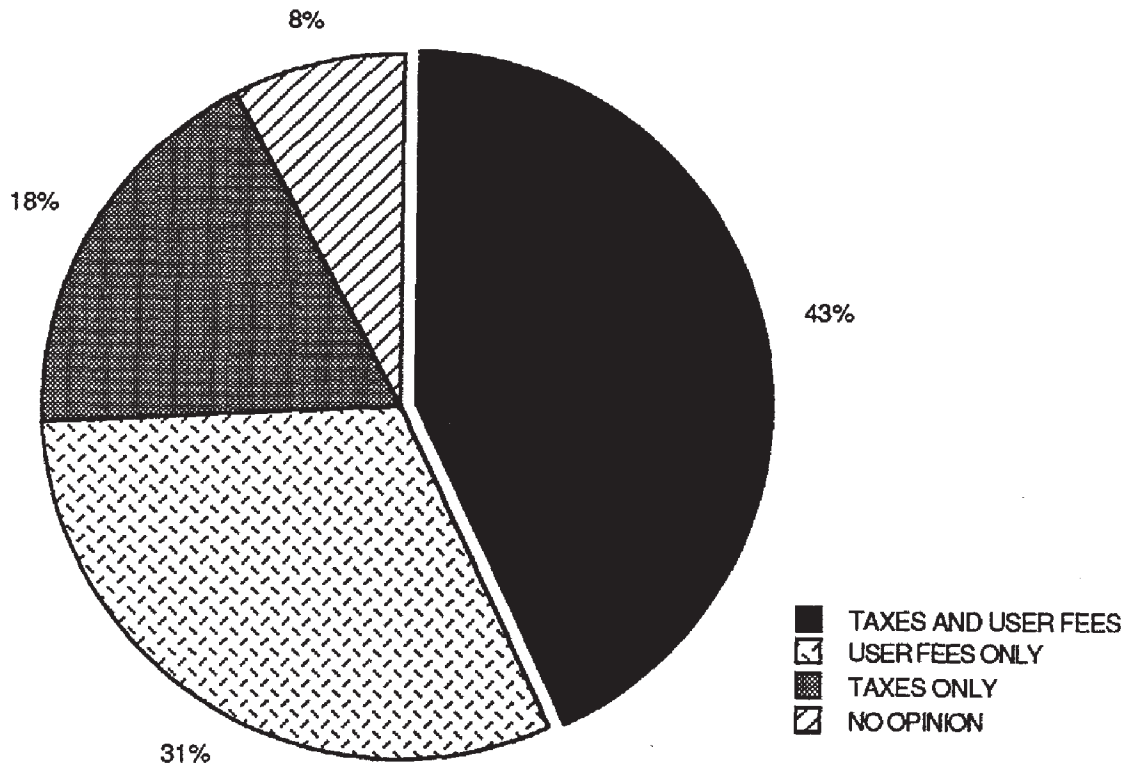


How Costs of a Transportation System Should Be Paid

Costs of a transportation system should be paid entirely by taxes with no user fees according to 18 percent of survey respondents; 43 percent said the costs should be paid equally by taxes and users; 31 percent indicated costs should be paid entirely by users; and 8 percent didn't know or had no opinion about how the costs of a transportation system should be paid (Figure 12).

FIGURE 12

Visitor Opinions on How Costs of a Transportation System Should Be Paid



Willingness to Pay for Bus Shuttle at Nisqually

Question 7: "Suppose the only way you could enter the park at Nisqually entrance was to ride a bus shuttle system and you wanted to travel to Paradise. What is the highest amount you would be willing to pay in fare per adult for the round trip to Paradise? Assume that you would still pay an entrance fee of \$2 per person or \$5 per vehicle. Assume also that you could still enter the park by private vehicle at the entrances by paying the existing entrance fee. You could not, however, leave the park at the Nisqually entrance and exit in a private vehicle."

Of all respondents, 25 percent said they would be unwilling to pay such a bus fare; 20 percent said they didn't know how much of a bus fare they would be willing to pay; and the remaining 55 percent indicated an average of \$2.75 as the amount they would be willing to pay for a round trip fare (55 percent of this last group indicated a willingness to pay \$2.00 or less).

Question 8: "If the government were to waive entry fees to Mount Rainier National Park for shuttle bus users, would this affect the amount you would be willing to pay per person to ride the bus shuttle system?"

Of all respondents, 63 percent said that if the government waived entry fees, it would affect the amount they would be willing to pay to use a visitor transportation system. Of those who said they would be unwilling to pay a bus fare if they were required to pay an entry fee, 44 percent would pay such a fare if entry fees were waived. The average amount those respondents were willing to pay was \$3.65.

The survey suggests that a large minority (45 percent) of Nisqually entry visitors believe they would use a voluntary bus shuttle system at the Nisqually entrance -- if it featured onboard interpreters or if costs were waived for entry. If the objective of establishing a visitor transportation system is only to eliminate congestion during peak periods in the Paradise and Longmire area, or to reduce highway traffic, the feasibility of a voluntary bus shuttle system should be studied.

The fact that 12 percent of the visitors said they would be unwilling to pay anything to ride a bus shuttle system, even if fees were waived, suggests the intensity with which some oppose the initiation of such a system. Of the respondents who were unwilling to pay to use a bus shuttle system, 70 percent were opposed to establishing such a system.

Overall the results suggest a link between the amount people who would be willing to pay to ride a bus shuttle system, the amount of the park entry fee, and displacement from use of the park. Of the respondents who said they would decrease their visits to the park if a visitor transportation system were in place, 76 percent were not willing to pay for use of a system. If park management elects to continue the study of visitor transportation issues, those studies should analyze visitor displacement due to total costs associated with entry.

APPENDIX

Table 1A. Frequency of Months During Which Respondents Were Contacted

<u>Month</u>	<u>Valid Percent</u>
January	.5
February	1.8
March	1.3
April	8.6
May	6.5
June	6.7
July	29.2
August	23.8
September	7.3
October	9.6
November	3.1
December	<u>1.6</u>
	100.0

Table 2A. Frequency of Days on Which Respondents Were Contacted

<u>Day</u>	<u>Valid Percent</u>
1	4.9
2	3.5
3	3.1
4	3.1
5	3.2
6	2.6
7	2.9
8	3.2
9	2.5
10	2.0
11	2.7
12	1.8
13	2.0
14	3.0
15	2.1
16	3.4
17	1.7
18	2.2
19	3.9
20	3.2
21	2.4
22	4.6
23	3.5
24	1.4
25	4.3
26	5.3
27	3.7
28	3.3
29	2.4
30	9.8
31	<u>2.3</u>
	100.0