



U.S. Department  
of Transportation



# ASSESSMENT OF THE SEATTLE SMART TRAVELER



**Seattle  
Smart Traveler<sup>®</sup>**

*Carpools on the  
Information Superhighway!*

Federal Transit Administration  
Office of Mobility Innovation  
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This report documents the development, operation, and evaluation of the Seattle Smart Traveler (SST), a dynamic ridematching system at the University of Washington. The SST is part of the Seattle Wide-Area Information for Travelers Operational Test. The assessment of the SST was sponsored by the Federal Transit Administration (FTA) as part of their Advanced Public Transportation Systems (APTS) Program. The Volpe National Transportation Systems Center (Volpe Center) is administering the National APTS Evaluation for the FTA. The examination of the SST project was conducted by the Texas Transportation Institute as part of the Battelle Memorial Institute team.

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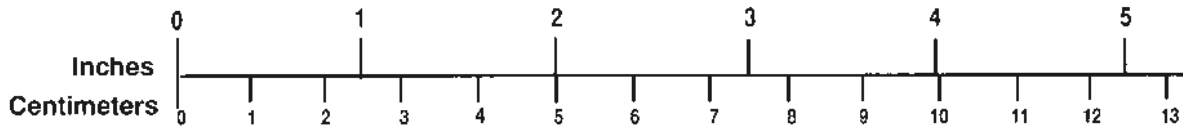
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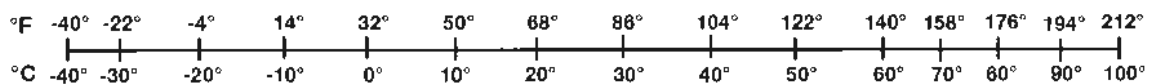
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## **EXECUTIVE SUMMARY**

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### **Introduction**

The Seattle Smart Traveler (SST) tested a dynamic ridematching system using the Internet and electronic mail (e-mail) at the University of Washington in Seattle. The project was part of the Seattle Wide-Area Information for Travelers (SWIFT), a larger Intelligent Transportation System Field Operational Test conducted by the Washington State Department of Transportation, the University of Washington, King County Metro, and five private sector partners, with funding from the Federal Highway Administration.

The SST tested the concept of dynamic rideshare matching services. Dynamic ridesharing is defined as two or more people sharing a single trip, without regard to previous arrangements or history among the individuals involved. In comparison to traditional ridematching services, which focus on commuters traveling to and from the same origins and destinations on fixed schedules, a dynamic ridesharing system must be able to match random trip requests at any time.

### **System Development**

The dynamic ridematching system was developed and operated at the University of Washington from 1995 to 1997. The system was designed by researchers in the Department of Electrical Engineering using a World Wide Web or Internet interface. A number of technologies and techniques were considered for the system. The combination of a Web Page on the Internet and e-mail was selected based upon availability to the target user groups. These systems are available on a 24-hour basis to students, faculty, and staff at the University. In addition, individuals in these groups tend to be computer literate and use e-mail and the Internet on a regular basis.

The SST was designed to meet the needs of individuals interested in forming ongoing carpooling arrangements, as well as those interested in offering or obtaining a ride for a single trip. Two of the unique elements in the system design were accommodating the desired travel times and identifying origins and destinations. To provide flexibility in the matching of trips, a time range or window was used for both the requested departure and arrival times. A search structure was developed using a series of pull-down menus allowing users to easily identify their desired origins and destinations from a search tree containing four levels of detail.

Although the design of the SST was relatively complex, the system was easy for participants to access and use. A potential participant first accessed the Web site by entering either their student or staff identification number or user password. The individual then completed an SST application form, which included their telephone number and e-mail address, but not their home address. The participant could request a trip at the time they registered and on an ongoing basis.

Three types of potential matches could be requested. These were regular commute trips, additional regular trips, and occasional trips. A user entered the origin, destination, day of week, departure time, and arrival time for each trip type they would like to check for a rideshare match. The system then identified potential matches. The SST automatically generated and sent an e-mail message with this information if the user desired or the participant could call the potential matches.

Thus, like more traditional ridematching services, making the actual connection with potential rideshare partners was left up to the SST participants. The automatic e-mail feature enhanced the ease of communicating with possible matches, but did not alleviate the need for participants to take action themselves.

### **Implementation, Operation, and Evaluation**

Implementation and operation of the SST occurred over a 15-month period from mid-March 1996 to June 1997. Methods used to market the SST to students, faculty, and staff at the University, and to recruit participants included printed materials, SST insulated mugs, the SST Web Page, and e-mail. These promotional activities were coordinated with marketing the University's U-Pass program and the Metro regional rideshare program.

Use of the SST dynamic ridematching system was tracked by University researchers over the 15-month demonstration. In addition, two surveys were conducted during the last month of the test. First, an e-mail survey was used to obtain information from participants who had requested a rideshare match or who had been on a match list. Second, a survey on the SST Web Page allowed all participants to provide general comments on the system and feedback about the test.

Approximately 400 individuals registered for the SST, with the actual number of active participants varying over the course of the demonstration. The largest number of active participants occurred in the spring and fall of 1996, when some 200 individuals were in the SST database. The SST database was updated at the start of each quarter to eliminate individuals no longer wishing to participate. The following highlights summarize use of the SST.

- Faculty and staff comprised approximately 68 percent of the users, while students represented 32 percent. Student use increased in the fall of 1996 and the winter of 1997.
- Slightly over 90 percent of the trips registered in the database were categorized by the participants as traditional commute trips for work or school. The remaining trips were classified as either recurring, non-commute trips, or dynamic, non-recurring trips.
- Approximately 700 matches were requested. Of these, some 150 matches (21 percent) were made. The individuals requesting the match were provided with the names of potential riders. At least 41 individuals (about six percent) actually established a

carpool for the requested trip.

- Of the 141 participants responding to the e-mail survey in May and June of 1997, 31, or 22 percent, indicated that they shared a ride with someone through use of the SST.
- University researchers noted that at least one SST match resulted in the formation of a permanent carpool arrangement.

The SST successfully demonstrated the use of an Internet-based dynamic ridematching system in a university environment. The results from the demonstration indicate that the SST provided a mechanism for individuals to conveniently access ridesharing information and to request and obtain potential matches. The following conclusions can be drawn from the project.

- The SST was in operation for 15 months without any major technical problems. The self-contained nature of the SST provided for relatively easy maintenance and operation.
- The number of individuals actually sharing rides appears to be similar to the experience with conventional rideshare programs.
- The cost of developing the SST was comparable to the costs often associated with the development of a traditional computer-based ridematching system.
- The system could be transferred to other metropolitan areas with modifications to the geographic database and enhanced with the use of more advanced computer hardware and software available since the development of the SST.
- The SST appears to have reached a new group of potential rideshare participants, who were not previously registered in the Metro rideshare program, as there was only a 20 percent overlap among participants in both programs.
- The availability of SST ridematching service outside the normal 8:00 a.m. to 5:00 p.m. business day seemed to be attractive to participants, as approximately 20 percent of the use occurred outside this period.
- Follow-up projects in the Seattle area are building on the development of the SST and the experience gained in the demonstration. The Greater Redmond Transportation Management Association is currently working on developing and testing the next generation dynamic ridematching system.

In addition to these conclusions, the project results, survey responses, and interviews with University of Washington and SST staff identified some issues that may have limited use of the system. First, the project may have been implemented a little before the real boom in Internet use.

Second, the technology available at the time for developing the dynamic ridematching capabilities was somewhat cumbersome. Third, the SST may have been viewed by some potential users as too temporary or experimental. Fourth, although coordination among University researchers and staff with the U-PASS program, Metro's rideshare program, and other agencies appears to have been good, there may have been some conflicts between the more academic or research focus of the SST and the applied interest of other public agencies. Fifth, other incentives may be needed to encourage greater ridesharing. Finally, a significant limitation continues to be concerns about sharing rides with strangers.

Given the experience with the SST, it appears that additional research and tests of dynamic ridematching are warranted. These could include continuing the development of advanced ridematching systems using the Internet, e-mail, telephone, pager, and other advanced technologies and continuing to explore the factors that influence commute behavior and the use of carpooling or other High Occupancy Vehicle modes.

## **CHAPTER ONE—INTRODUCTION**

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This report documents the development, operation, and evaluation of the Seattle Smart Traveler (SST). The SST tested a dynamic ridematching system using the Internet and electronic mail (e-mail) at the University of Washington in Seattle. The project was part of the Seattle Wide-Area Information for Travelers (SWIFT), a larger Intelligent Transportation System (ITS) Field Operational Test conducted by the Washington State Department of Transportation (WSDOT), the University of Washington, King County Metro, and five private sector partners, with funding from the Federal Highway Administration (FHWA).

This assessment of the SST was sponsored by the Federal Transit Administration (FTA) as part of their Advanced Public Transportation Systems (APTS) Program. The Volpe National Transportation Systems Center in Cambridge, Massachusetts is managing the National APTS Evaluation program for FTA. The Volpe Center, in turn, is using two research teams selected through competitive procurement to conduct the actual evaluations. The Texas Transportation Institute (TTI), a part of the Texas A&M University System and a member of the Battelle Memorial Institute team, was responsible for the assessment of the SST.

### **Objective of the Seattle Smart Traveler**

The major objective of the SST was to test the concept of dynamic rideshare matching services. Dynamic ridesharing is defined as two or more people sharing a single trip, without regard to previous arrangements or history among the individuals involved (1, 2). In comparison to traditional ridematching services, which focus on commuters traveling to and from the same origins and destinations on fixed schedules, a dynamic ridesharing system must be able to match random trip requests at any time. Thus, the system must be able to match potential carpoolers quickly to respond to same-day trip requests, as well as the more traditional commute trips.

In order to accomplish this objective, a dynamic ridematching system was developed and operated at the University of Washington. The system was designed by researchers in the Department of Electrical Engineering at the University of Washington using a World Wide Web or Internet interface. The dynamic ridematching service was made available to students, faculty, and staff at the University for a 15-month period. This report documents the development, implementation, operation, and evaluation of the SST operational test.

### **Organization of this Report**

This report is divided into five chapters following this introduction. Chapter Two provides a historical summary of ridesharing in the United States, recent interest in real-time or dynamic ridematching capabilities, and related projects in Seattle and other parts of the country. Chapter Three describes the development and the design of the computerized dynamic ridematching system at the University of Washington. The implementation and operation of the SST, including

methods to recruit participants and promote use of the system, is discussed in Chapter Four. Information on the number and characteristics of participants, their use of the system, matches generated by the SST, and actual rides shared is presented in Chapter Five. The report concludes with an assessment of the unique features of the demonstration, elements for consideration in other projects, and areas for further research and testing.

## **CHAPTER TWO—BACKGROUND**

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Ridesharing refers to the act of sharing vehicles for trips to work, school, or other destinations. Carpooling, which involves one or more persons riding with someone else, and vanpooling, which involves a more formal organization of people riding in a van, are the two basic types of ridesharing. A wide variety of approaches and techniques can be used to help individuals form and operate carpools. This chapter summarizes the history of carpooling in the United States, recent interest in casual or real-time ridesharing, and related projects.

### **Evolution of Ridesharing in the United States**

The first use of carpool matching assistance in this country occurred during World War II, when ridesharing was promoted in response to gasoline and tire rationing. Public and private organizations, including most employers, promoted voluntary carpooling to assist in the war effort. Rideshare application forms, similar to those in use today, were developed to help match workers with similar home locations and travel schedules.

Carpooling and vanpooling were also promoted extensively during the energy crises and oil embargo in the mid-1970s and early 1980s. Many employers and regional agencies initiated rideshare programs and carpool matching services during this time. Federal funding was used to support many of these efforts, as well as the development of park-and-ride lots and other supporting facilities. Today, rideshare programs throughout the United States provide a variety of services within the four broad categories of rideshare matching, vanpool support, marketing, and employer assistance and outreach.

Carpools are formed through a variety of methods and are comprised of different groups of people. The most common types of carpools are organized with family members, friends or neighbors, and co-workers. Experience from different metropolitan areas indicated that between 40 and 70 percent of carpools are family based, approximately 25 to 30 percent are organized with co-workers, and 7 to 14 percent are formed with neighbors and friends (3, 4, 5). Individuals forming carpools with family members and friends need little or no help from regional rideshare agencies or individual employers, while assistance is often needed to organize carpools with co-workers and other individuals.

During the 1970s, rideshare matching was usually done manually or with the use of early computer systems. Rideshare matching systems have increased in sophistication and capabilities since the 1970s and rideshare programs today use either commercially available software programs or specially designed systems to provide ridematching services. Most rideshare programs use some type of geographic base to record and track individual origins and destinations, and to identify potential carpool matches.

Typically, an individual accesses a ridematching system by providing the necessary information over the telephone or by mailing in an application form. Recently, many agencies have incorporated rideshare forms into Web Pages on the Internet. The computer system matches their origin, destination, and work schedule with others in the database, and the individual is provided with a match list of possible carpoolers either over the telephone or by mail. It is left up to the individual to make contact with other prospective carpoolers and to make arrangements for rides. Rideshare programs are currently in operation in most major metropolitan areas and many medium and small urban areas.

### **Part-Time and Casual Carpooling**

Part-time carpooling is usually defined as individuals who rideshare less than five days a week. Part-time carpooling provides flexibility for commuters who need to drive alone some days to accommodate personal business and other activities. Employers may require that employees carpool at least two or three times a week to be eligible for incentives or other benefits.

The use of casual or instant carpooling has been identified in the Shirley Highway corridor in the northern Virginia/Washington, D.C. area and on the Oakland Bay Bridge in the San Francisco area. In both areas, individuals are forming informal instant carpools on a daily basis to take advantage of the travel time savings afforded by the high occupancy vehicle (HOV) facilities in the corridor. Activities in both areas were started by commuters and continue to operate without any formal planning or sanctions by agencies or organizations. Individuals wanting rides gather at park-and-ride lots and other locations and are picked up by drivers going to the same destination (7, 8). The vehicle occupancy requirement on the Shirley Highway and the Bay Bridge HOV facilities is three or more individuals.

### **Real-Time or Dynamic Ridematching**

The experience with casual carpooling on the Shirley Highway and the Bay Bridge, and the availability of Intelligent Transportation Systems (ITS) and other advanced technologies, resulted in the consideration of real-time or dynamic ridematching in some areas. The concept of real-time ridematching attempts to formalize the casual carpooling phenomenon. A number of different approaches have been suggested to provide real-time ridematching capabilities.

One possible approach would allow commuters to call a ridematching service the night before, or the morning of a trip, to either offer or request a ride. A second approach would provide commuters with the opportunity to request a space in a vanpool on a real-time basis. A third concept would notify commuters traveling in a corridor of real-time rideshare opportunities at park-and-ride lots and other facilities. A fourth technique would use the Internet, Intranet, e-mail, or voice mail to help form carpools within a company, agency, university, or geographic area.



A few real-time or dynamic ridematching demonstrations have been tested on a limited basis. A model for a voice mail-based system in Seattle was developed but never implemented (9). The Sacramento Real-Time Ridematching Demonstration, called *Rideshare Express*, tested the provision of instant ridematching services through Transportation Management Associations in 1994 and 1995. This project met with limited use. Some 360 individuals registered as drivers offering rides, but only 10 requests for matches and one actual match list were recorded (2). One component of the Los Angeles SMART TRAVELER project provided commuters with the opportunity to use a telephone-based dynamic ridematching system during the aftermath of the 1994 Northridge earthquake. Twenty to 40 calls a week were recorded over a three-month period, but actual matches were not monitored (2).

### **Bellevue Smart Traveler**

The real-time or instant carpool concept was tested initially in the Seattle area as part of the Bellevue Smart Traveler project. This demonstration was undertaken by researchers at the University of Washington and TransManage, the Bellevue Transportation Management Association, with participation from PacTel. The project tested a prototype traveler information center (TIC) in downtown Bellevue. Telephone and paging technologies were used to provide three types of personal commuter services — dynamic ridematching, current traffic information, and transit information. The project started in July 1992 and ended in April 1994. The TIC and supporting services were operational for a 5-month period.

The goal of Bellevue Smart Traveler was to design and test an information system with the potential to decrease single-occupant vehicle travel to a downtown employment center by making alternative commute options more attractive and easier to access (10). The project included the following market research activities to assess the needs of potential participants prior to the actual test of the TIC.

- Surveys of employees at Bellevue Place. Approximately 1,200 surveys were distributed to employees at 54 companies in Bellevue Place in downtown Bellevue. A total of 420 employees from 45 businesses responded. The surveys provided information on employees current commute behavior, knowledge of HOV facilities, interest in traffic and transit information and information delivery methods, and potential participation in the demonstration.
- Telephone interviews. Follow-up telephone interviews were conducted with individuals who indicated in the surveys that they might use an on-demand carpool service and those who responded they would be very likely to drive for a carpool if compensated for expenses. Additional information was obtained from these individuals on possible communication devices, rideshare organization options, and incentives for participation.

- Focus Groups. Two focus groups were conducted during the market research phase. The first was with employees of a firm that did not participate in the initial survey and the second included current carpoolers. The focus group results provided further information on reactions to the real-time ridematching concepts and possible participation in the demonstration.

The market research results were used in the development of the actual test. In addition, the TIC and real-time ridematching concept was pre-tested through an usability study. Eight individuals — four women and four men — participated in this phase of the project. Participants were assigned specific roles and were requested to offer or seek rides on specific days. During the test, 22 ridematches were possible. Participants were assigned roles, and those identified as drivers kept track of the number of riders who contacted them. Thirteen of the possible 22 matches were made. During the usability study participants also tested the various features of the TIC (10).

The full demonstration was in operation for a 5-month period. A total of 134 individuals registered to participate in the project, but only 53 met the ride group criteria and were included in the test. These individuals could access the TIC by telephone or alphanumeric pagers, which were provided as part of the demonstration. The participants were divided into groups based on home locations, proximity to park-and-ride lots, commute routes, and preferences on ridesharing pick-up and drop-off arrangements.

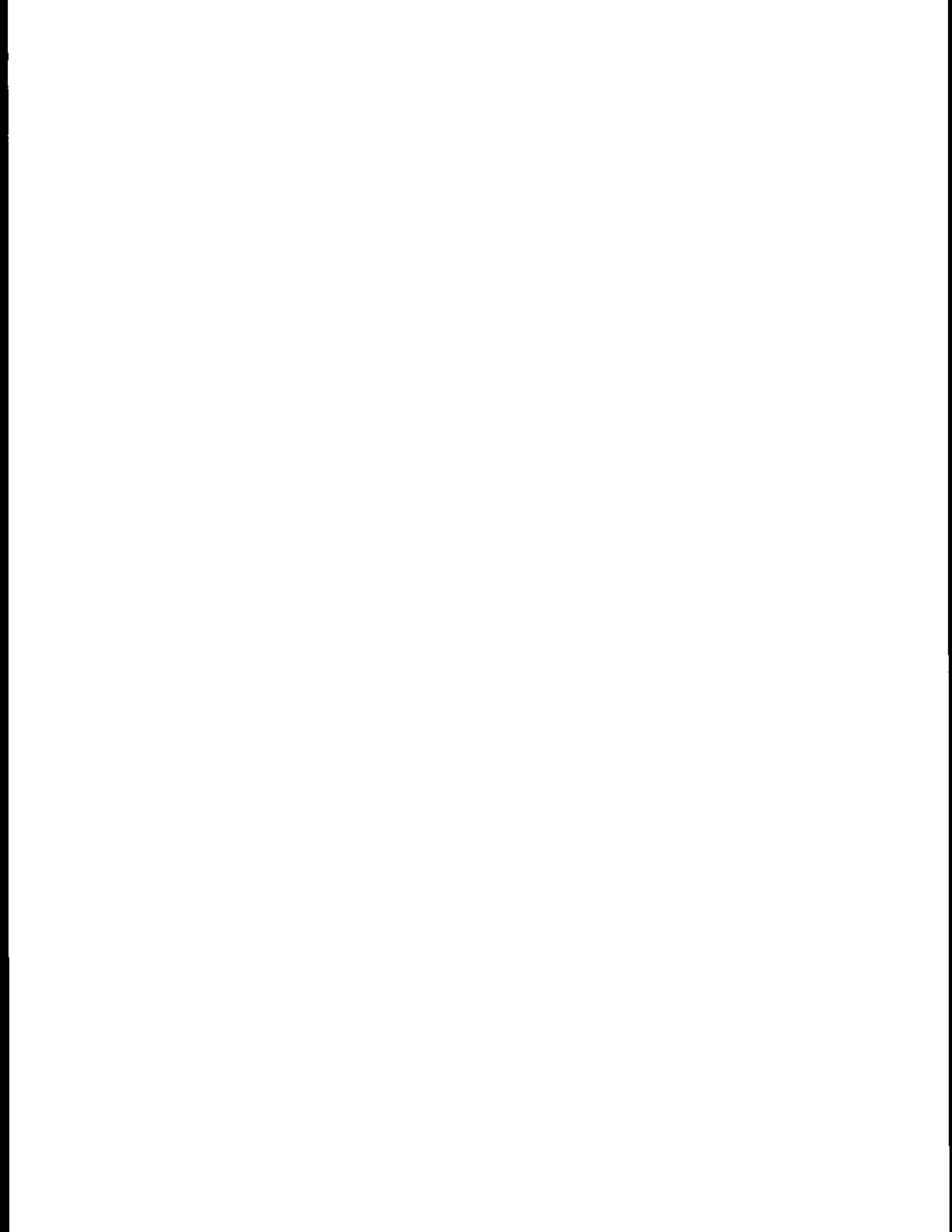
During the test, participants could access the TIC by either telephone or pager. The TIC included a database of registered participants, and automatically maintained a record of participants' use of the system, the menus accessed, and the ride groups. It also prompted users to log rides and deleted expired ride-offer messages.

Over the 5-month period from November 1993 to March 1994, the 53 participants offered approximately 496 rides. During the same period, participants sought 145 rides, but received information on possible rides only 40 times. Six ride matches were recorded by the system. Since participants were only encouraged, and not required to log matches, it is possible that more rides were actually made. In addition, 30 requests for traffic information and 6 requests for transit information were made. During the same period, 112 non-participants requested information from the TIC by telephone (2, 10).

Researchers at the University of Washington identified the following conclusions from the Bellevue Smart Traveler project (10).

- Participants were amenable to the dynamic ridesharing idea, liked the technology and presentation of information, but were unwilling or unable to form rides for a variety of reasons. These included the small number of participants, the short duration of the project, the lack of HOV lanes serving Bellevue, limitations with the technology, and concerns about riding with strangers.

- Providing additional incentives to participants such as financial incentives from employers, stronger management support, prearranged pick-up and drop-off points, and additional HOV facilities may increase the use of real-time ridematching capabilities.
- Technology improvements identified for future projects included two-way paging, adding capacity to list more than two ridesharing messages, and using the Internet.



## **CHAPTER THREE—DEVELOPMENT OF THE DYNAMIC RIDEMATCHING SYSTEM**

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### **Development and Organization of the SST**

The SST represented one element of SWIFT, a multifaceted ITS Field Operational Test. The purpose of the SWIFT Operational Test was to determine the efficiency of an Intelligent Transportation System (ITS) communications system in the Seattle area. The SWIFT project team members included the Federal Highway Administration, the Washington State Department of Transportation, the University of Washington, King County Metro, Metro Traffic Control, Seiko Communications Systems, IBM, ETAK, and Delco Electronics Corporation.

SWIFT incorporated an FM subcarrier High Speed Data System developed and commercially deployed in the Seattle area by Seiko Communications System Inc. The major elements of SWIFT focused on providing travelers in the Puget Sound region with traffic and transit information through the use of Delco radio receivers, IBM portable computers, and Seiko Message Watches™.

The SST demonstration was funded by FHWA, with additional resources provided through Transportation Northwest (TransNow), which is the University Transportation Center in Region 10. The SST component of the ITS Field Operational Test was funded at \$100,000. An additional \$70,000 was provided by FHWA to assist with the surveys and ongoing monitoring, and \$35,000 was provided through TransNow to further support the test. This funding supported one full-time staff person over the course of the project, a computer programmer during the system development, the marketing and promotional activities, and other supporting assistance.

The development of the dynamic ridematching system was initiated in 1995 by researchers in the Department of Electrical Engineering at the University of Washington. A number of technologies and techniques were considered for the system. The combination of a Web Page on the Internet and e-mail was selected based upon availability to the target user groups. These systems are available on a 24-hour basis to students, faculty, and staff at the University. In addition, individuals in these groups tend to be computer literate and use e-mail and the Internet on a regular basis.

The dynamic ridematching system was developed during 1995 and early 1996. The research team at the University completed a number of steps to design and implement the system. These included designing the temporal and spatial matching capabilities, the Web Page, and the e-mail connections. Each of these elements is described in this chapter.

## System Design

Providing the capabilities to dynamically match potential carpoolers involved a variety of factors. Most of these elements are not normally considered with the more traditional forms of ridematching. First, the system had to be capable of matching an individual's trip request from multiple origins to multiple destinations. Second, since these trip requests could be made at any time for travel at any time, the system had to accommodate daily commute trips, the traditional market for rideshare programs, and non-recurring trips requested on short notice. To meet these demands, the SST had to be able to quickly identify possible matches and had to provide a mechanism for easy and fast communication between participants.

The SST was designed to meet the needs of individuals interested in forming ongoing carpooling arrangements, as well as those interested in offering or obtaining a ride for a single trip. The various components of the system are described next, along with examples of how participants could access the various elements.

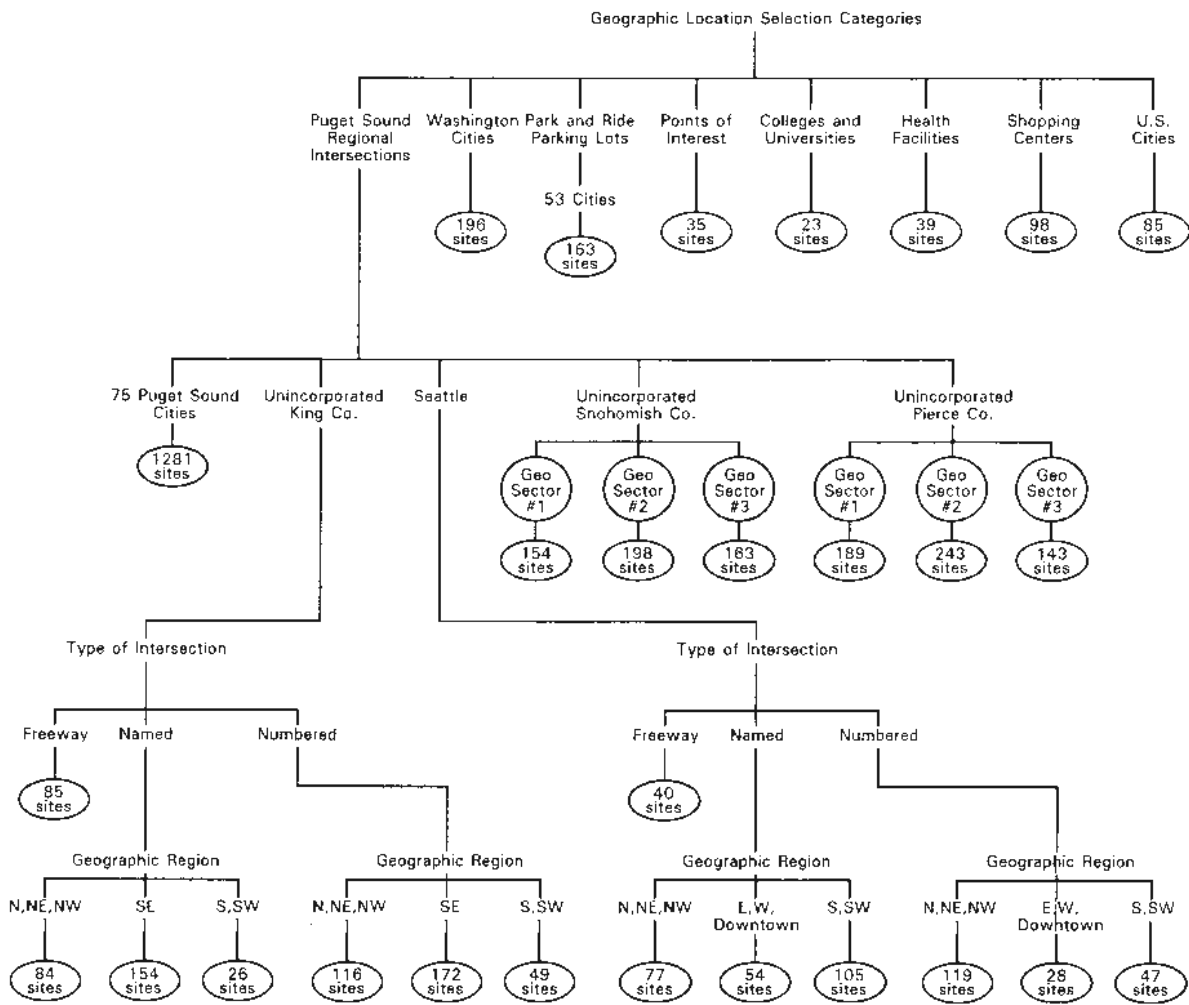
Two of the unique elements in the system design were accommodating the desired travel times and identifying origins and destinations. To provide flexibility in the matching of trips, a time range or window was used for both the requested departure and arrival times. A search structure was developed to allow users to easily identify their desired origins and destinations. A series of pull-down menus were developed based on the search tree illustrated in Figure 1. The search tree contains four levels, with each level containing more detail.

As shown in Figure 1, the first level contains eight general categories. These are cities, park-and-ride lots, points of interest, colleges and universities, health facilities, shopping centers, U. S. cities, and regional intersections. The first seven categories contain specific sites and locations for users to select. The eighth category — regional intersections — provided three additional levels, allowing users to identify specific intersections based on the cities or counties, roadway classifications, and geographic regions.

This approach was selected for ease of use by participants. For example, a participant starting a trip at a park-and-ride lot, shopping center, university, or other major point of interest need only access the first level. An individual wishing to select a specific intersection might need to use all four levels. It also simplified the link to the geographical information system (GIS). Some 3,500 latitude and longitude geo-coordinates, which were taken from the U.S. Census Bureau's Topologically Integrated Geographic Encoding and Referencing (TIGER) files, are included in the system (1).

Once a user enters their origin, destination, and time of travel request, the matching capabilities of the system are activated. Using a series of commands, the database is queried for potential matches. The requested time of travel is examined first, followed by the geographical locations. The first temporal match looks for common departure times within the identified ranges. The geographical database is then searched for common origins and destinations. This

search uses a default value of 15 percent of the length of the trip in all directions. A participant can change this default value, however, to either broaden the search range to 25 percent or narrow it to 5 percent.



Source: (1)

**Figure 1. SST Search Tree with Geographical Locations**

Potential matches are identified through this process. The name, telephone number, and e-mail address of participants with similar origins, destinations, and time of travel are displayed on the screen. The individual requesting the match is then free to contact these participants and arrange sharing a ride.

A further option was developed to enhance the ease of making contact with a possible ride match. An automated e-mail alternative was designed and integrated into the system. This option automatically sent a pre-formatted e-mail message to those participants identified as potential matches. Information on their trip and either their telephone number or e-mail address was included in the message.

The SST was also designed with the capability to send e-mail messages to a participant's Seiko watch. As discussed in more detail in Chapter Three, the Seiko watches were not widely distributed. As a result, this element of the demonstration was not used extensively.

Integrating this system into the Internet required a number of steps. First, the SST web site had to be developed. As illustrated in Appendix A, the SST web site included an explanation of the project, the participant registration form, and the trip request or trip offer forms. Second, SST researchers designed the real-time ridematching system, which included databases containing information on participants and their trips, and routines to match specific requests.

### **Accessing the SST**

Although the design of the SST was relatively complex, the system was easy for participants to access and use. A potential participant first accessed the web site by entering either their student or staff identification number or user password. The individual then completed an SST application form, which included their telephone number and e-mail address, but not their home address. The participant could request a trip at the time they registered and on an ongoing basis.

Three types of potential matches could be requested. These were regular commute trips, additional regular trips, and occasional trips. A user entered the origin, destination, day of week, departure time, and arrival time for each trip type they would like to check for a rideshare match. The system then identified potential matches. The SST automatically generated and sent an e-mail message with this information if the user desired or the participant could call the potential matches.

Thus, like more traditional ridematching services, making the actual connection with potential rideshare partners was left up to the SST participants. The automatic e-mail feature enhanced the ease of communicating with possible matches, but did not alleviate the need for participants to take action themselves.



## CHAPTER FOUR—IMPLEMENTATION AND OPERATION OF THE SEATTLE SMART TRAVELER

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Implementation and operation of the SST occurred over a 15-month period from mid-March 1996 to June 1997. The major activities conducted during this time period included marketing and promoting the project, providing assistance to participants, purging and updating the rideshare database periodically, and ongoing monitoring. These elements are highlighted in this chapter.

### Marketing the Seattle Smart Traveler

A number of methods were used to market the SST to students, faculty, and staff at the University and to recruit participants. These included printed materials, SST insulated mugs, the SST Web Page, and e-mail. These promotional activities were coordinated with marketing the University of Washington U-Pass program and the Metro regional rideshare program. The major elements of the SST marketing program were the following:

**SST Brochure.** A brochure on the SST was developed and distributed to students, faculty, and staff at the University. The slogan *Are There Really Carpools on the Information Superhighway?* provided the theme for the brochure, which explained the dynamic ridematching concept in simple terms. The brochure included an example of the automatic e-mail trip response generator and included the SST Home Page address. A copy of the brochure is provided in Appendix B.

**SST Insulated Mug.** An insulated coffee or soft drink mug was provided free to individuals registering for the SST. The mug included the SST logo, slogan, and Home Page address. Individuals had to stop by the SST office on campus to pick up a mug.

**U-PASS Users Guide.** Information on the SST was included in the U-PASS Users Guide for the 1996-1997 school year. The U-PASS Users Guide is distributed to all students, faculty, and staff at the start of each academic year. The page in the Guide on ridematching and carpooling promoted both Riderlink, Metro's regional rideshare matching system, and the SST. Riderlink was suggested for individuals whose schedules remain the same from week to week, while the SST was promoted for people with variable schedules and more flexible commute options. The text notes that the two systems specialize in different types of commutes, but encourages individuals to register for both to increase the potential of finding carpool partners. The text also states that the "SST is produced and maintained by the ITS Research Program in the College of Engineering. Funding for the project is guaranteed through July 1997. It may, however, become a permanent program." A copy of the ridematching page from the 1996-1997 U-PASS Users Guide is provided in Appendix C.

**News Articles.** Information on the SST was included in periodic articles in the student newspaper and other campus publications. A major story on the project, *Carpooling is Easier than You Might Think*, was published in The Daily of the University of Washington in May of 1996 (11), and other stories highlighted the project over the 15 months of operation.

**Internet.** The SST World Wide Web Page was used to both market the project and to register participants. The Web Page, located at <http://sst.ivhs.washington.edu/sst/>, contained information on the services available, registration forms, and other information on the project. The Internet site also included links to other rideshare, transit, and transportation web pages in the Seattle area. Appendix A contains examples of pages from the SST Internet site.

**Electronic Mail.** University of Washington staff also used e-mail to promote the SST. E-mails were sent to different campus user groups. Appendix D provides one example of an e-mail sent to the Internet Roadside Café user group.

All of these methods were used to market the SST and to encourage participants to register. Although the promotional efforts were ongoing, major activities were focused on the start of each quarter at the University. Initially it was anticipated that Seiko watches, similar to those used in the Bellevue Smart Traveler, would be offered as an incentive to encourage participation in the SST. Only 20 of 150 watches were distributed, however, due to low interest and the requirement that individuals had to agree to carpool, fill out a survey and enter their trips, and pick up a watch at the SST office. University representatives indicated that the Internet and e-mail messages were the most effective marketing techniques (12, 13).

### **Implementing and Operating the Seattle Smart Traveler**

The SST was introduced in mid-March of 1996. The marketing efforts described previously were used to raise awareness among students, faculty, and staff at the University and to promote participation in the project. Marketing activities coincided with the start of each 10 week quarter at the University, with the major efforts focused on the start of the fall quarter in September 1996.

The SST Internet-based ridematching system was relatively easy to operate and maintain, as it was designed to be self-contained. Purging or updating the database to remove the names of individuals no longer participating in the project represented the major ongoing operating need. During the demonstration, the SST Project Manager was kept busy recruiting participants, answering telephone and e-mail questions from users, updating the participant database every quarter, coordinating with other ITS and rideshare programs in the region, monitoring use, and developing and administering the survey of users at the end of the project. The system still exists, but regular purging of files and other maintenance is not being performed due to lack of funding.

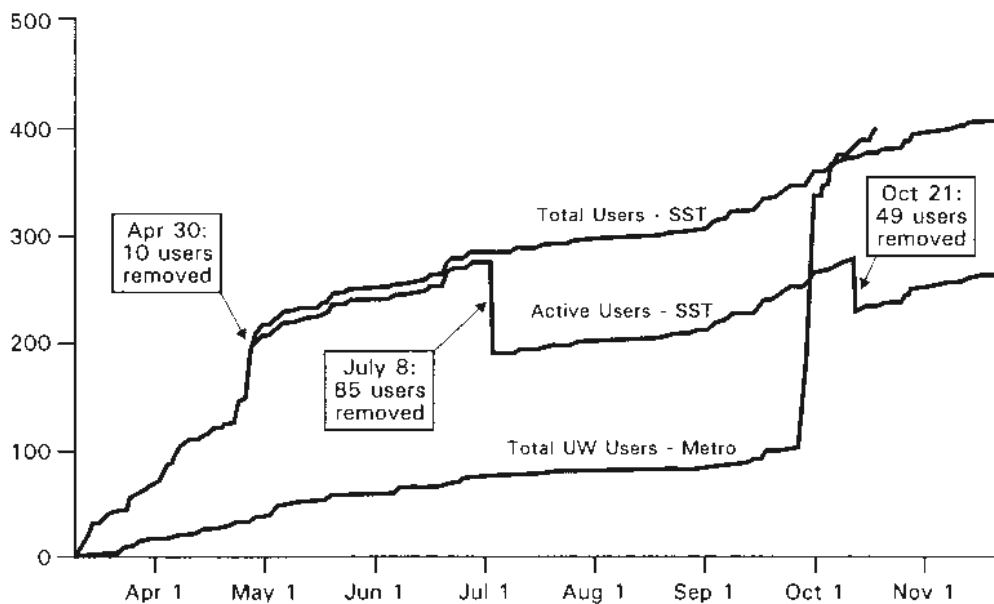
## CHAPTER FIVE—ASSESSMENT OF THE SEATTLE SMART TRAVELER

A number of activities were conducted to monitor and assess the impact of the SST. These efforts were coordinated between researchers at the Texas Transportation Institute and the University of Washington, with assistance from Volpe Center staff. The National APTS Evaluation guidelines (14) were also used in conducting the assessment of the SST.

Use of the SST dynamic ridematching system was tracked by University of Washington researchers over the 15-month demonstration. In addition, two surveys were conducted during the last month of the test. First, an e-mail survey was used to obtain information from participants who had requested a rideshare match or who had been on a match list. Second, a survey on the SST Web Page allowed all participants to provide general comments on the system and feedback about the test.

### SST Use

Figure 2 highlights the number of registered participants in the SST. Approximately 400 individuals registered for the SST through November 1996, with the actual number of active participants varying over the course of the demonstration.



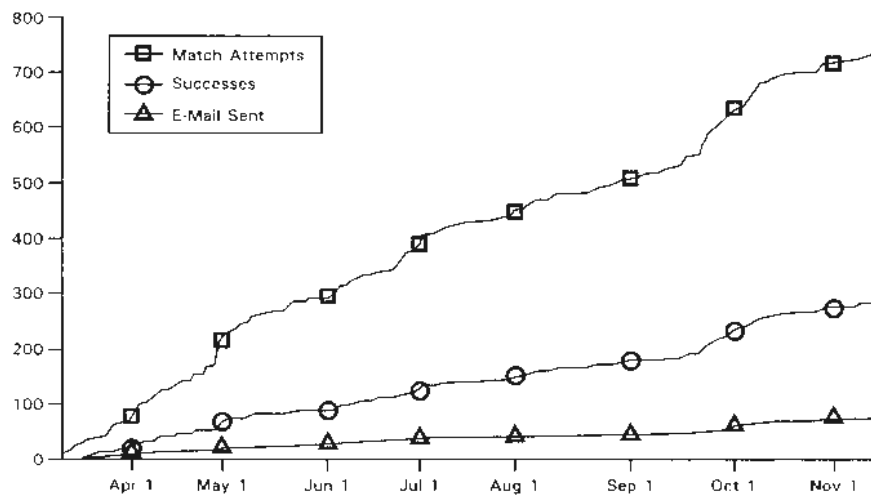
Source: (1)

Figure 2. SST Use

As illustrated in Figure 2, participation grew during the spring, summer, and fall of 1996. The largest number of active participants occurred in the spring and fall of 1996 when some 200 individuals were in the SST database. Figure 2 shows the periods at the end and the start of each quarter when the SST database was updated to eliminate individuals no longer wishing to participate. Although purging these individuals from the database reduces the total number of participants, and the potential pool of rideshare matches, it enhances the likelihood that possible matches will actually result in a successful carpool.

Figure 2 also includes the number of University of Washington students, faculty, and staff registered in Metro's ridesharing program. There was only a 20 percent overlap of individuals registering for both programs, indicating that they served different clientele. University researchers also tracked the time of day participants accessed the SST. Approximately 20 percent of the system use occurred outside the normal business hours of 8:00 a.m. to 5:00 p.m. (1). As noted previously, one of the reasons for selecting the Internet for the test was the ability to access the system on a 24-hour basis.

A total of 2,065 trips were registered in the database over the course of the demonstration. Figure 3 presents the cumulative number of attempted matches, the cumulative number of successful matches, and the cumulative number of e-mail messages sent to form a carpool. A match rate of approximately 30 percent was maintained during most of the demonstration (1). Approximately 10 percent of these matches actually resulted in a carpool trip (12).



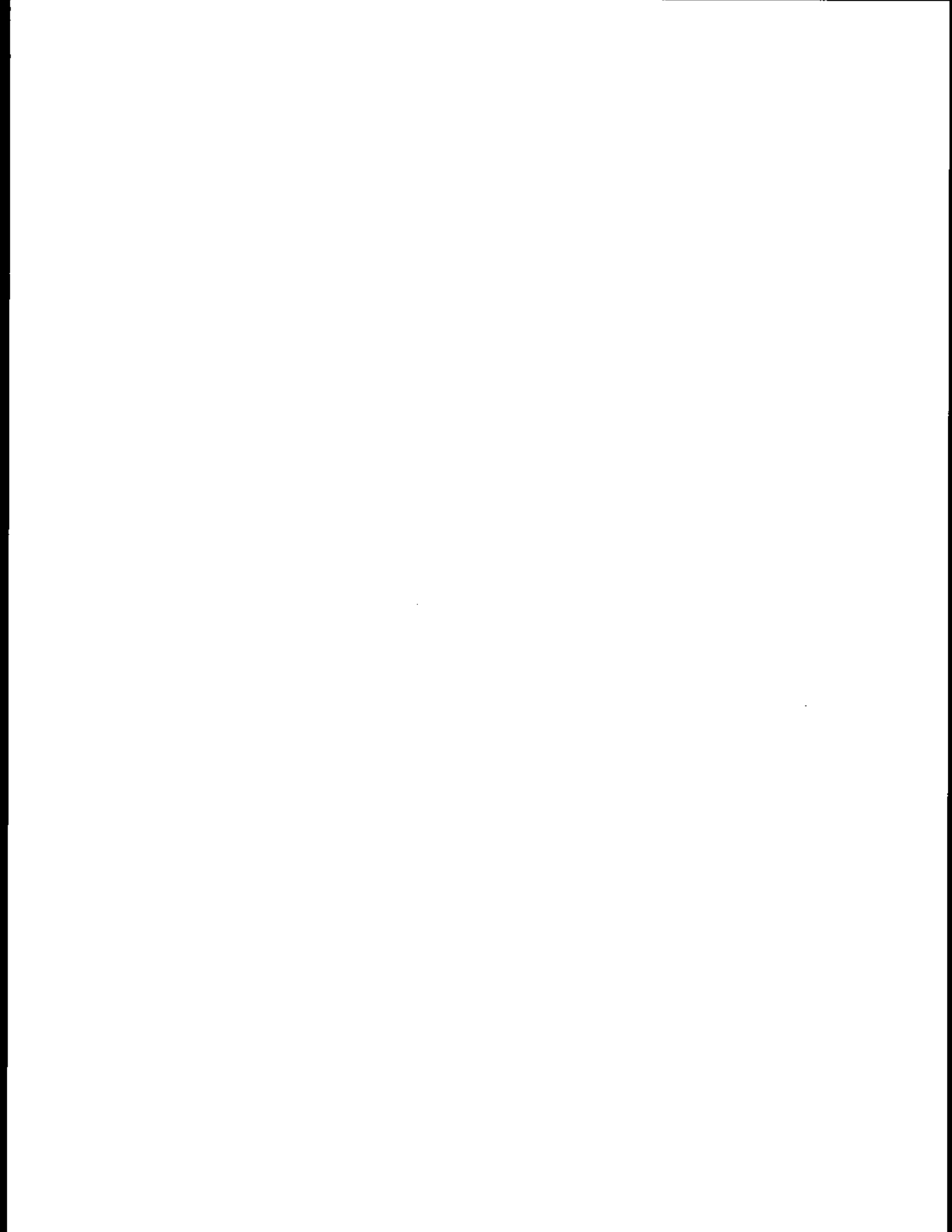
Source: (1)

Figure 3. SST Matches

## SST Survey Results and Characteristics of Participants

As noted, approximately 400 individuals used the SST dynamic ridematching system during the demonstration. The ongoing monitoring by University of Washington staff and the survey results provide the following information on SST participants and their use of the system.

- Faculty and staff comprised approximately 68 percent of the users, while students represented 32 percent. Student use increased in the fall and winter of 1996, however.
- The vast majority of the participating faculty and staff had regular work hours. The student's schedules varied more by day of the week, but approximately 60 percent indicated fairly regular commute schedules.
- Slightly over 90 percent of the trips registered in the database were categorized by the participants as traditional commute trips for work or school. The remaining trips were classified as either recurring, non-commute trips, and dynamic or non-recurring trips.
- Approximately 700 matches were requested. Of these, some 150 matches (21 percent) were made. The individuals requesting the match were provided with the names of potential riders. At least 41 (about six percent) individuals actually established a carpool for the requested trip.
- Of the 141 participants responding to the e-mail survey in May and June of 1997, 31, or 22 percent, indicated that they did share a ride with someone as a result of using the SST.
- University of Washington researchers noted that at least one SST match resulted in the formation of a permanent carpool arrangement.
- Forty-five individuals responded to the survey on the SST Web Page. This survey focused on the ease of use of the Web Page and SST system, normal commute modes, and general reactions to the test. The overall comments were positive related to use of the SST system. A few respondents suggested that the length of the forms and the process may inhibit some potential users.
- Most participants were regular users of e-mail and the Internet and most reported being able to access both systems at home and at work.
- Thirty-eight percent of the respondents normally commute by bus, while 37 percent carpool, 25 percent drive alone, and 5 percent bicycle.
- Thirty-five individuals said they would use SST for a match when their normal commute mode was not available, although most noted that they normally ask a friend for a ride.



## CHAPTER SIX—CONCLUSIONS

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The SST successfully demonstrated the use of an Internet-based dynamic ridematching system. The project developed and tested the application of a dynamic ridematching program in a university environment. The results from the demonstration indicate that the SST provided a mechanism for individuals to conveniently access ridesharing information and to request and obtain potential matches.

The following conclusions can be drawn from the project based on a review of available information, the survey results, and interviews with SST and University staff.

- The project successfully developed a dynamic ridematching system using the Internet and e-mail technologies. The cost of developing the SST was comparable to the costs often associated with the development of a traditional computer-based ridematching system. For example, in 1995 the Metropolitan Transit Authority of Harris County obtained a new rideshare computer system for the Houston area for a capital cost of approximately \$250,000 (15).
- As noted previously, 150 matches were made based on some 700 requests, and 41 carpools were actually formed for the requested trip. Although some of these carpools were regular commute trips, the system was used for instant or spontaneous trips.
- The number of individuals actually sharing rides appears to be similar to the experience with conventional rideshare programs. A 1997 survey conducted by the Center for Urban Transportation Research of the Miami area Gold Coast Commuter Services rideshare database provides comparable information on a more traditional program. The survey found 724 valid users in the database. Sixty percent, or 432 individuals, indicated they had received a match list. Of these, 77 percent attempted to contact someone on the list, and 6 percent (26 individuals) reported actually forming a carpool (16).
- The SST was marketed to University students, faculty, and staff, and was operated successfully over a 15-month period. Promoting the system through the Internet and by e-mail appeared to generate the best response. The SST operated without any major technical problems. The self-contained nature of the SST provided for relatively easy maintenance and operation.
- The system could be transferred to other metropolitan areas with modifications to the geographic database and with the use of more advanced computer hardware and software available since the development of the SST.
- The SST appears to have reached a new group of potential rideshare participants, who were not previously registered in the Metro rideshare program, as there was only a 20 percent overlap among participants in both programs.

- The SST provided service available outside the normal 8:00 a.m. to 5:00 p.m. business day. This feature seemed to be attractive to participants, as approximately 20 percent of the use occurred outside this period.
- Follow-up projects in the Seattle area are building on the development of the SST and the experience gained in the demonstration. The Greater Redmond Transportation Management Association is currently working on developing and testing the next generation dynamic ridematching system.

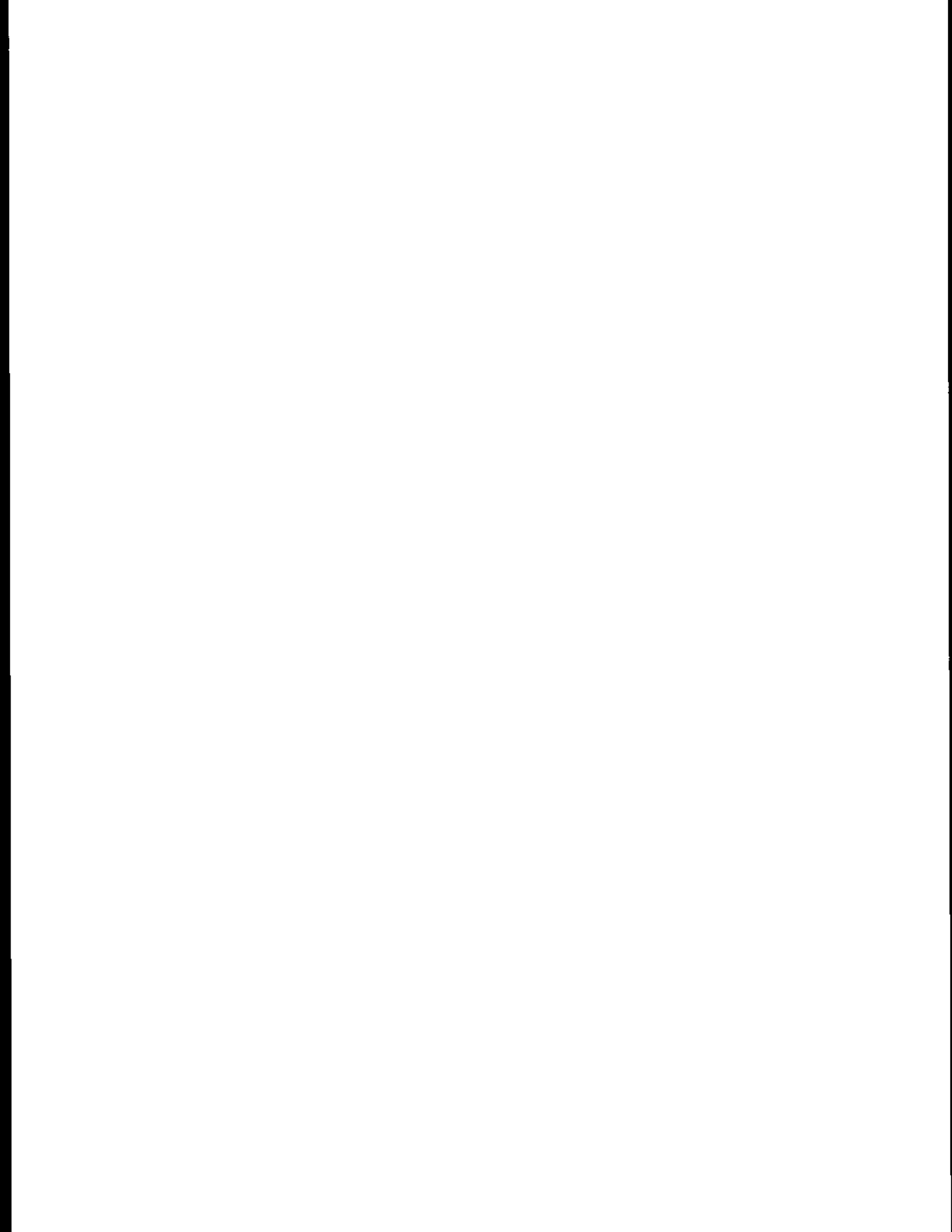
In addition to these conclusions, the project results, survey responses, and interviews with University of Washington and SST staff identified the following issues that may have limited use of the system.

- The project may have been implemented a little before the real boom in Internet use. The Internet is available to many more people today and a current project may have wider appeal and use.
- The technology available at the time for developing the dynamic ridematching capabilities was somewhat cumbersome. The resulting systems, while state-of-the art at the time, could be greatly improved with the technology available today. For example, the number of screens required to register and request a match could be greatly reduced given current technology. These improvements would make the system more user friendly.
- The SST may have been viewed by some potential users as too temporary or too experimental. As noted in Chapter Three, some of the news articles and information in the U-PASS brochure noted that the SST was a temporary program and that it was operated by researchers in the ITS program. These types of comments may have led some students, faculty, and staff to think of the SST as an experiment or research project rather than a ongoing service, and may have limited their participation.
- Coordination among University researchers and staff with the U-PASS program, Metro's rideshare program, and other agencies appears to have been good. There may have been some conflicts between the more academic or research focus of the SST and the applied interest of other public agencies, however.
- Other incentives are still needed to help promote ridesharing. These may include HOV facilities, parking incentives, and other techniques to encourage carpooling.
- One limitation to ridesharing continues to be concerns about sharing rides with strangers. Although some of the features of the SST were designed to help address this concern, the system was not able to overcome this issue.



Given the experience with the SST, it appears that additional research and tests of dynamic ridematching are warranted. The following suggestions are offered based on the experience with the SST, survey responses, and interviews with SST and University of Washington staff.

- Continue the development of advanced ridematching systems using the Internet, e-mail, telephone, pager, and other advanced technologies. The experience from the SST indicates that there is a market for these types of services and that use of advanced technologies reaches new target groups. The project being undertaken by the Greater Redmond Transportation Management Association represents one such effort, but other demonstrations could be undertaken.
- Continue to promote the use of dynamic ridematching services in a wide range of environments. Additional tests may be considered at other universities, at single large employers, at major employment centers, or other settings.
- Continue to explore the factors that influence commute behavior and the use of carpooling or other HOV modes. Elements such as incentives and disincentives, parking policies and pricing strategies, employer programs, and other factors could be included in these studies.



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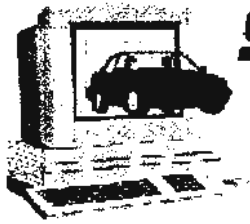
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**APPENDIX A—Example of SST Web Page**

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# ***Seattle Smart Traveler***

## **Off-line Demonstration**

### **UW Affiliation Verification**

SST is only available for use by students, faculty and staff at the University of Washington. Enter the requested information, then click on "Verify UW Affiliation."

Please enter your name (Last and First) as it appears on your Student or Staff card.

Last Name:  First Name:

Enter your student or staff id number:   
(Staff ID is last 6 digits of Social Security Number - no hyphen)

**Verify UW Affiliation**

**Clear**



## ***Seattle Smart Traveler***

### **Off-line Demonstration**

## **Conditions of Use**

In order to participate in SST, you must read and signify your acceptance of all of the following conditions of use:

1. I agree to provide all required information during the registration process.
2. I agree to receive phone calls and/or e-mail messages from other SST participants.
3. I understand that SST only provides information that will enable me to form carpools.
4. I waive all claims I may have against the University of Washington for any injury or damage occurring as a result of my participation in this on-line registration system or in carpooling with persons whose names were obtained through SST.

Indicate your acceptance of these conditions, then click on "Record Acceptance" below.

- I have read and understand the statements above, and I **ACCEPT** these conditions, and wish to participate in SST.
- I **DO NOT ACCEPT** the above stated conditions.





# Seattle Smart Traveler

## Off-line Demonstration



When you see this icon, do not use your browser's back feature.

# Record Your Contact Information and Password

### How Can You Be Contacted?

In the spaces below, enter the phone number and e-mail address at which you want to be contacted by others to arrange to share a trip together.

- Contact phone number (XXX) XXX-XXXX:   
 Extension (optional):
- Contact E-Mail:

### Choose a password

When you log on to SST in the future, you will be asked for your student or staff ID number and your password. This password can be any combination of lower case and upper case letters, numbers or special characters up to 10 characters long.

**CAUTION:** *You should NOT select a password for use with SST that, if the confidentiality of that password is compromised, will create security problems for you on other systems.*

Determine your password, and type it into the box below. Confirm your password by retyping it in the second box.

Password:

Retype password:

When the contact information and password you have entered is correct, click on "Record Contact Info and Password." Press "Clear" if you wish to reenter the information.

<b>Record Contact Info and Password</b>	<b>Clear</b>
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# ***Seattle Smart Traveler***

## **Off-line Demonstration**

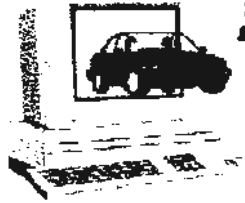


## **Identify the Trips You Make**

Beginning with the next screen, you will define for SST the trips you make during the week. This is a four-step, repetitive process:

1. Consider the **days** on which you travel at the **same times**, between the **same places**. Select those days from the list and enter the **travel times** for those days.
2. Select the **starting point** of your trip.
3. Select the **end point** of your trip.
4. Review your trip schedule, edit trips if necessary, and return to Step 1 to **add additional trips** to complete your registration.

**On to the Trips!**



# Seattle Smart Traveler

## Off-line Demonstration

### Daily Schedule

**Note:** You will return to this page as often as necessary to define a schedule for a different type of trip or for other days when your travel times differ.

---

#### Type of Trip

**First,** select the type of trip for which this schedule applies:

(Remember, a "trip" for SST's purposes is one-way only. A "round trip" is considered to be two one-way trips.) [\[Help\]](#)

1.  **Regular Commute** trip: The primary trip you make during each day.
  2.  **Additional Recurring** trip: Any additional trip you take during any day which is made on a weekly basis.
  3.  **Occasional** trip: A one time, or limited time trip. If you select this option, you must enter the DATE or DATES (mm/dd) on which you will make this trip.
    - Trip date, or first date of trip: , 1996.
    - Last date of trip, (leave blank for one time trip): , 1996.
- 

#### Trip Days

**Second,** indicate the days on which the schedule below is applicable. [\[Help\]](#)

Mon  Tue  Wed  Thu  Fri  
 Sat  Sun

---

#### Trip Times

**Third,** select the earliest and latest times at which you wish to begin and complete your trip: *Hint: To increase your chances of finding travel partners, enter broad time ranges for both your departure and arrival times.* [\[Help\]](#)

What time would you like to **depart** from your starting point?

Earliest:  :  am  
 Latest:  :  am

---

What time would you like to **arrive at** your **destination**?

Earliest:  :

Latest:  :

## Return Trip

Lastly, decide if you wish to carpool on the **return** trip:  Yes  No

*Hint: Check "Yes" only if the return trip is to be made on the same day as the first leg of the trip.*

*Otherwise, check "No", and enter it as a separate, additional trip. [Help]*

Please review the information you have entered above. If necessary, return to the incorrect field and change it. Click on "Record This Schedule" when all the information is correct.

**Record This Schedule**

\*\*\*\* HELP SECTION BELOW \*\*\*\*\* HELP SECTION BELOW \*\*\*\*

## "Daily Schedule" Screen -- Help Section

This is the screen in which you begin to define your travel schedule. If your travel schedule is the same on each day of the week, then you may be able to define it by completing this page only once. If, however, you travel at different times on different days of the weeks, you may need to return to this screen on multiple occasions.

### Type of Trip

This section relates to the different types of trips that people make.

**Regular Commute** trips are the ones made most frequently. This is generally the trip made between home and work or school, every day of the week (even if it is made at different times each day.) By definition, you can have at most two regular commute trips on any given day (e.g., one from home to work or school, the second from work or school to home.)

An **Additional Recurring** trip is any trip you make on a weekly basis, on the same day each week. An example would be a student who comes to campus each day at 8:00, and returns home at 5:00 (the commute trip), but goes to an internship off campus twice a week, leaving for the intership at noon and returning to campus at 4:00 (the recurring trip.) Another example might be a professor who has a regular Wednesday lunch meeting downtown. The trip from campus to the meeting location is the additional recurring trip. There is no limit to the number of additional recurring trips that you can have.

An **Occasional** trip is a trip that is only made once, or for a limited time. Because SST can help you find and communicate with travel partners so quickly, you can use it to find a ride (or rider) for a trip

that you don't normally make -- someone else may make this trip on a regular basis! Examples of occasional trips are abundant: you get an invitation to go sailing, but you must meet your friend at the marina; there is a three day workshop that you'd like to attend, and you want to find a ride to it; etc. There is no limit to the number of occasional trips that you can have. **If** you are going to define an occasional trip, you **must** enter the date you are going to make the trip, or the first and last date on which you will make the trips.

[\[Return\]](#)

---

## Trip Days

Once you have determined the type of trip you will be defining, you must next determine on what days you will travel at the same time. The default values are Monday thru Friday. You may deselect (or select) any of these days by clicking on the box next to its name.

It will be easiest and fastest to start by selecting all the days on which you travel between the same origin and destination. When selecting the travel times in the next section, use the times which occur most frequently. Then, once you have identified your origin and destination, you can change the travel times only for those days which are different.

An example: Assume you commute between home and school, Monday through Friday. Assume also that your Mon., Wed., and Fri. schedule is 8:00 am to 5:00 pm, and your Tue., and Thur. schedule is 10:00 am to 2:00 pm. You should select all days, Mon. through Fri. in this section, and in the section below, and on the next screen, select times of 8:00 am and 5:00 pm. Once you have identified the origin and destination of this trip, you can edit it to change your travel times on Tue. and Thur. to 10:00 am and 2:00 pm.

[\[Return\]](#)

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## Trip Times

To allow us to consider every possible trip for matching purposes, SST asks you to define two time ranges (4 times) for each trip you make. This is different from other ridematching systems. SST needs to know both what time you leave your home (or other point of trip origin) and what time you arrive at school (or other trip destination).

Most people have SOME degree of flexibility with their travel times. This is why you are asked to provide a range of times at which you depart from your starting point, and at which you can arrive at your destination. The wider you can reasonably make this range, the more likely it is that you will find travel partners. The times requested here only refer to the times at which you can **leave** your origin, and at which you can **arrive at** your destination. If you will make a return trip back to your original starting point, see below.

[\[Return\]](#)

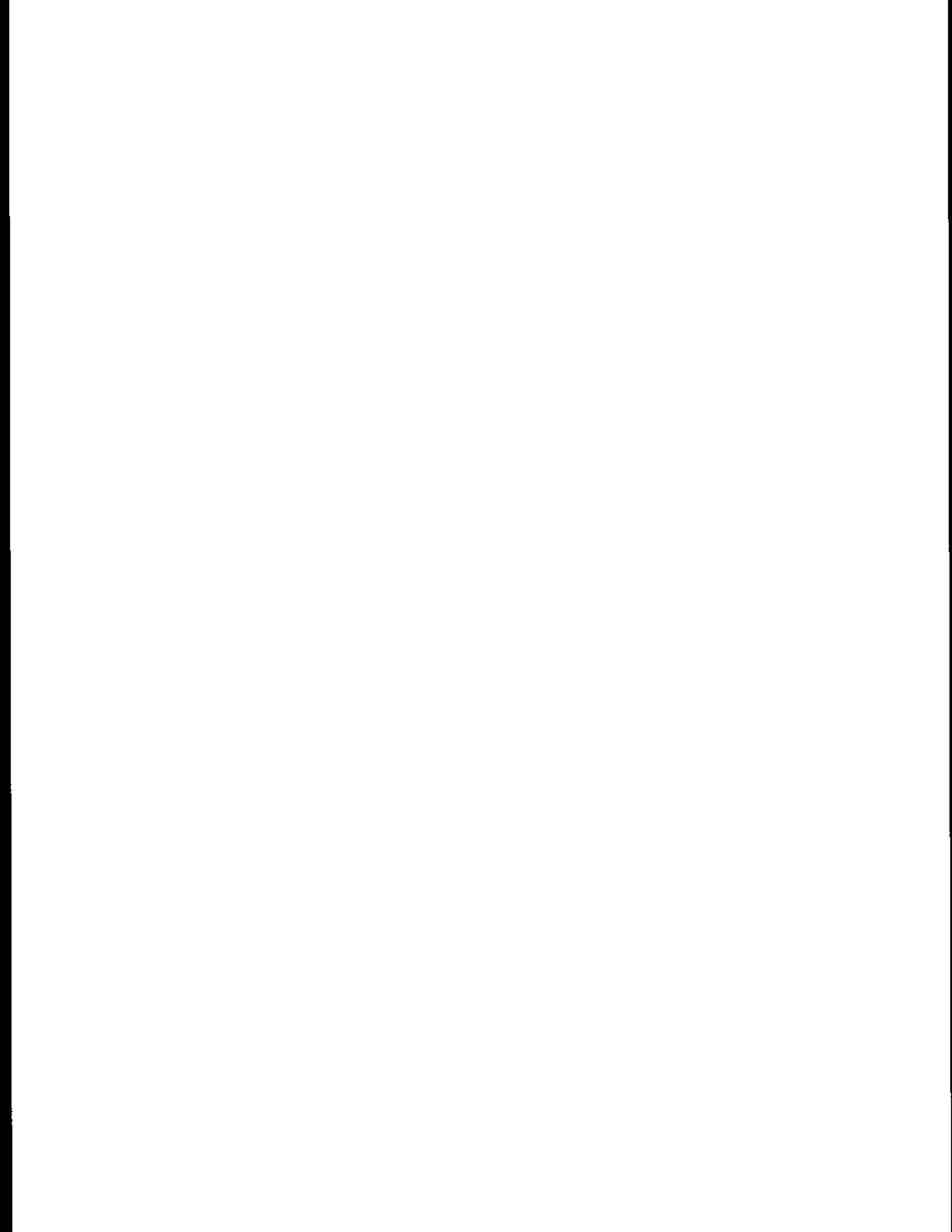
---

## Return Trip

Many people are only interested in finding travel partners for one leg of a journey -- they already have satisfactory travel arrangements for the other leg. If, however, you wish to find a partner for both your trip **to** a certain destination, and the return trip **from** that destination, you should select "yes." If you are making a trip with three or more points (e.g., home to school to work to home), you should select

"no," and enter each trip separately.

[Return]



## APPENDIX B—SST Brochure

---

### Carpooling in the Age of Information

- Completely automated, user-directed registration and matching via the World Wide Web:  
<http://sst.ivhs.washington.edu/sst/>
- Maximum flexibility -- conforms to *your* schedule
- Matches based on *individual trips* (not weekly schedules)
- Travel throughout the region, the state, and even the entire U.S.!
- For exclusive use of the students and staff at the *University of Washington!*

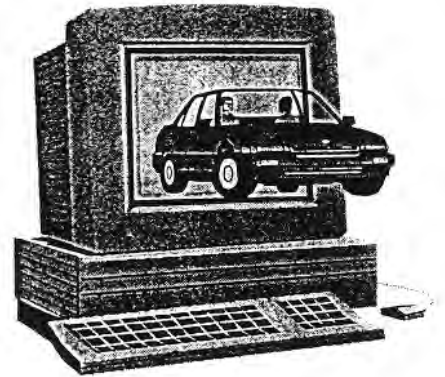
### **Seattle Smart Traveler:**

<http://sst.ivhs.washington.edu/sst/>

Seattle Smart Traveler is produced and maintained by:

ITS Research Group  
University of Washington  
Box 352500

<http://sst.ivhs.washington.edu/sst/>  
**Seattle Smart Traveler**  
ITS Research Group  
University of Washington  
College of Engineering  
Box 352500  
Seattle, WA 98195-2500



Are there really ...

**Carpools**  
on the  
Information  
Superhighway?

There are at the  
**University of Washington!**

**Seattle Smart Traveler:**  
<http://sst.ivhs.washington.edu/sst/>

Nonprofit Organization  
U.S. Postage  
PAID  
Seattle, WA  
Permit No. 62

## Seattle Smart Traveler

"SST" -- a *new* way to get around!

### A New Way to Think of Carpools

A carpool is nothing but two people sharing a trip together. So that's how SST finds potential carpool matches: **one trip at a time.**

With SST, carpools can be as *flexible* as your schedule. On *different days*, you can carpool at *different times*, or to *different locations*. You can even carpool for trips you only make once in a while -- or once in a lifetime!

### A New Kind of Mobility

Because SST can help you find travel partners for **every** trip you make, at **any** time of the day, SST can provide you with the **mobility** once only available to you in your own private vehicle: the **freedom** to go **wherever** and **whenever** you want.

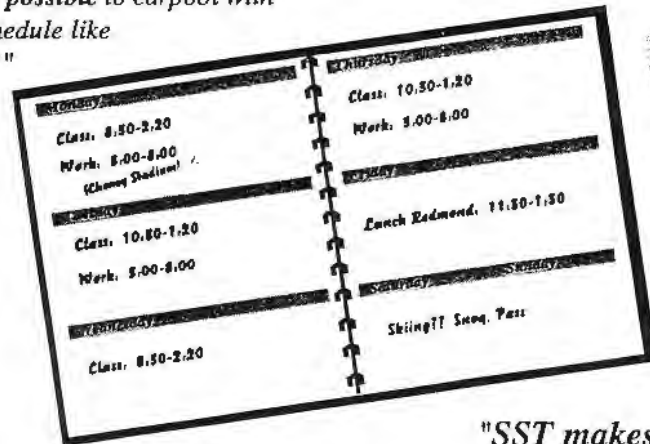
Of course, SST is really better than **traveling alone**, because as a carpool you can take advantage of free flowing HOV lanes, priority access at on-ramps, and reduced price parking at many locations -- including on campus!

### Don't Wait -- Sign Up Now!

<http://sst.ivhs.washington.edu/sst/>

*Exclusively for use by University of Washington students, staff and faculty.*

"Is it possible to carpool with a schedule like *this?*"



A schedule like this is actually pretty typical at the UW. However, with over 50,000 students, faculty and staff, there is a good chance that someone else is making each and every one of these trips! Remember, your trip to work might be someone else's trip home!

And when you share that trip, you both benefit!

"SST makes it possible!"

### A New Way to Find Matches

When you register to carpool with SST, you'll want to tell us about **every** trip you make during the day. SST stores these trips individually and matches based on individual trips. This means you may have different people on your list for each similar trip you make, and it also means you are more likely to find people who really share your travel plans!

SST also lets you **change your schedule** and search for new matches **whenever you want**, taking advantage of the most current information available!

### A New Way to Connect with Travel Partners

By now, everyone knows of the power of **e-mail**. SST allows users to take advantage of e-mail to quickly and easily -- **just one click** -- send a message to any or all potential travel partners.

Matchlist

Search Results for George Washington:

Your trip on: M W departing 0740-0800  
From: NE 145th Ave/I-5 To: UW - Main Campus  
1 John Adams 555-1212 jadams@uw.washington.edu

Your trip on: MT T departing 1330-1400  
From: UW - Main Campus To: Cheney Stadium  
2 Ben Franklin 555-2323 bfrank@uw.washington.edu

Automatic E-Mail Generator

In the box above, enter the match #s (space separated) of those who you want to receive an SST e-mail message, then click on "Send."



## RIDEMATCH

Commuters to the University have two rideshare systems to choose from so chances of finding a rideshare partner are better than ever!

Which one is best for you?

If your schedule remains the same from week to week, fill out the ride-match form at the back of this guide and drop it into campus mail (no postage necessary!) or call the Transportation Office at 543-0450. Your name will be entered into the Regional Ridematch System. Or, access Riderlink on the Web at <http://transit.metrokc.gov> to fill out and submit a rideshare application. You will be sent the names and phone numbers of commuters near you who are interested in carpooling or vanpooling to campus. You can also indicate if you would like to meet at a convenient park & ride lot, where you can leave your car free all day. You simply call the people on your list and make the arrangements.

If your schedule varies daily, or you require more flexibility in your commute, you'll want to register with Seattle Smart Traveler (SST), a rideshare system that is available exclusively to the UW and is accessed through the Internet. (SST is produced and maintained by the ITS Research Program in the College of Engineering. Funding for the project is guaranteed through July 1997. It may, however, become a permanent program.) Access SST at <http://sst.ihms.washington.edu/sst/> to enter all the trips for which you want to find rideshare partners. Simply follow the on-screen directions. If there are others who match your trip criteria, a list will be automatically generated on screen; you can even send an automatic e-mail message to any or all potential travel partners!

Although the two systems specialize in different kinds of commutes, we encourage you to register in both systems to increase the likelihood of finding rideshare partners.

## CARPOOLING

Carpooling is a great way to take advantage of the U-PASS: You'll get free parking on campus which can save up to \$42 per month; have access to high-occupancy-vehicle (HOV) lanes and on-ramps for a faster commute; and still enjoy the comfort, freedom and flexibility of driving or riding in a personal vehicle.

**Students:** Three or more students per vehicle may park on main campus providing all passengers have a valid U-PASS. There are three reserved car-

pool areas that are available on a first-come, first-served basis: The Central Plaza Garage (entrance at NE 41st and 15th NE), lot N5 (entrance at NE 45th and 17th NE), and Padelford Garage (entrance at 25th NE and NE 44th). When you stop at the gatehouse, be sure to have your U-PASSES out and ready to show to the traffic guide.

U-PASS carpools of two or more park in lot E1 for free on a first-come, first-served basis. Enter at the south gate

between 7:00 a.m. and 10:00 a.m., and park in one of the best spots in E1. Stop at the gatearm to show your U-PASSES to the parking attendant and receive a one-time parking card to use upon exiting the lot.

If you arrive after 4:00 p.m., carpooling is an even better deal: You only need two students with U-PASSES to park on main campus in the Central Plaza Garage, lot N5, Padelford Garage, or in E12 (Husky Stadium lot) or S1 (behind the Health Sciences Center). Just stop at the gatehouse, show your U-PASSES, and get free parking!

Students can participate in a permit carpool with a faculty or staff member but cannot be issued the permit. See the list of requirements under "carpool parking permit" in the Faculty/Staff section, below.

**Faculty/Staff:** Faculty and staff U-PASS carpools of two or more have two ways to carpool and two ways to save money!

- ◆ Form or join a carpool that regularly commutes to campus and get a free carpool parking permit, or
- ◆ Share the ride on occasion and receive a free, one-time carpool parking permit from the gatehouse.

**Carpool parking permit:** To be eligible for a carpool parking permit, members of a faculty-staff carpool must meet certain requirements including:

- ◆ operate as a carpool at least three days a week
- ◆ work at the University District campus site
- ◆ present valid U-PASS on your UW identification card when applying for permit

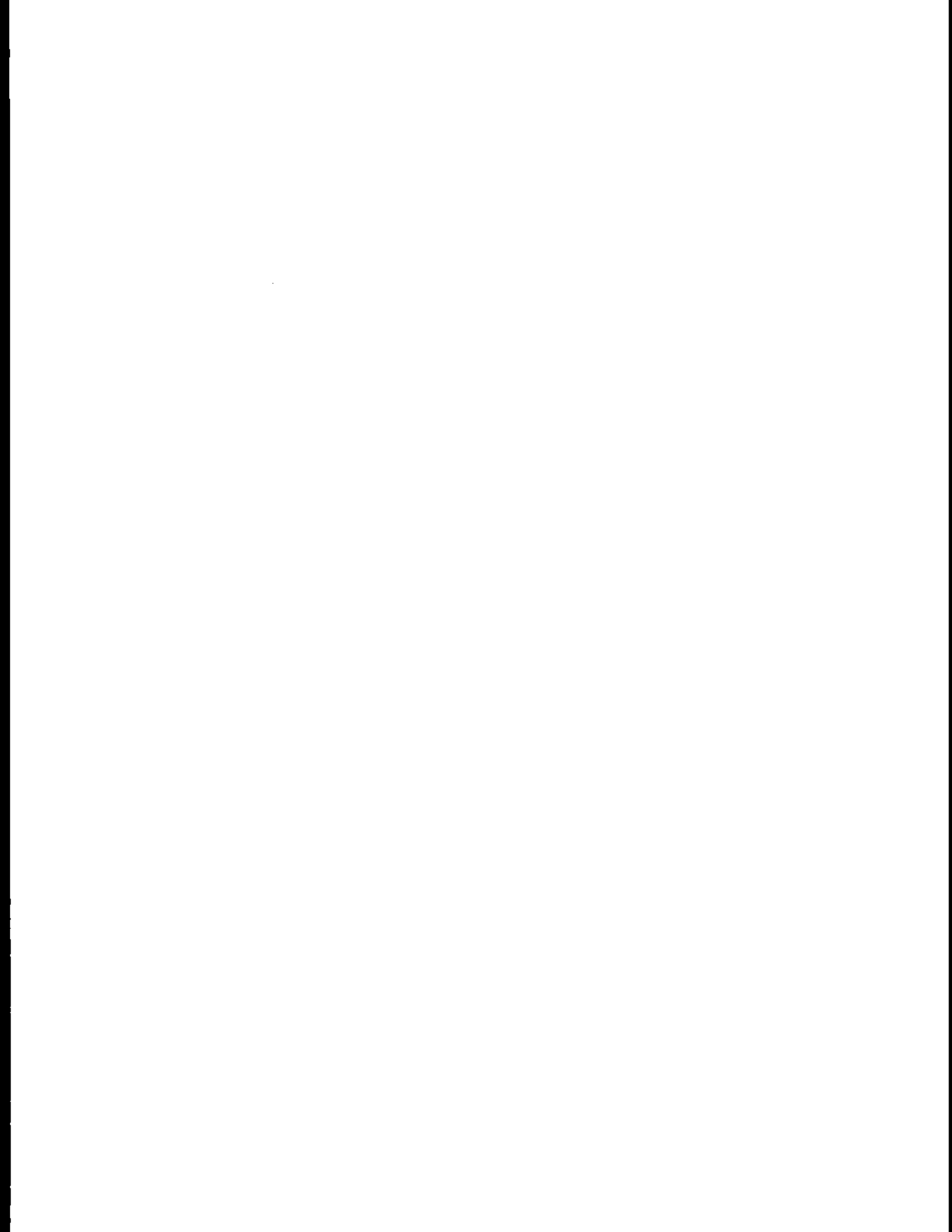
- ◆ begin work at about the same time
- ◆ live outside the no-carpool zone (roughly one mile from campus—call Parking Services at 685-1543 if you're not sure whether you're outside this area)
- ◆ live within a logical commute path of each other

Call Parking Services at 685-1543 for more information about carpool permits.

To keep our records up to date, a parking services staff member telephones carpool members on occasion to see how well the carpool is working and to gather suggestions for improving the University's carpool program.

**One-time carpool parking permit:** Two or more faculty or staff with valid U-PASSES can form an impromptu carpool. There are three reserved carpool areas that are available on a first-come, first-served basis: The Central Plaza Garage (entrance at NE 41st and 15th NE), lot N5 (entrance at NE 45th and 17th NE), and Padelford Garage (entrance at 25th NE and NE 44th). To save time at the gatehouse, have all members' U-PASSES out and ready to show to the traffic guide.





## APPENDIX D—Example of E-mail Message Promoting SST

Thu Jul 11 09:30:17 1996

1

From: Donald Loseff <loseff@ee.washington.edu>  
Subject: Seattle Smart Traveler Web Site  
To: netcafe@u.washington.edu  
Date: Thu, 11 Jul 1996 08:57:31 -0800

I am the project manager of the Seattle Smart Traveler, a new, Web-based Instant Rideshare Matching system which is currently available to members of the UW community. SST uses the "virtual" world of the Web to physically bring people together to help solve their "real" world commuting problems. I believe that the viewers of the Internet Roadside Cafe might be interested in learning more about SST.

SST is an experimental project developed and maintained by the Intelligent Transportation Systems Research Group in the College of Engineering. Professor Daniel Dailey is the Principal Investigator of the project. SST has been featured in articles in both "University Week" and "the Daily," as well as the spring issue of "UW News" and the newsletter of the Transportation Northwest Regional Center.

I invite you to visit SST at

<http://sst.ivhs.washington.edu/sst/>

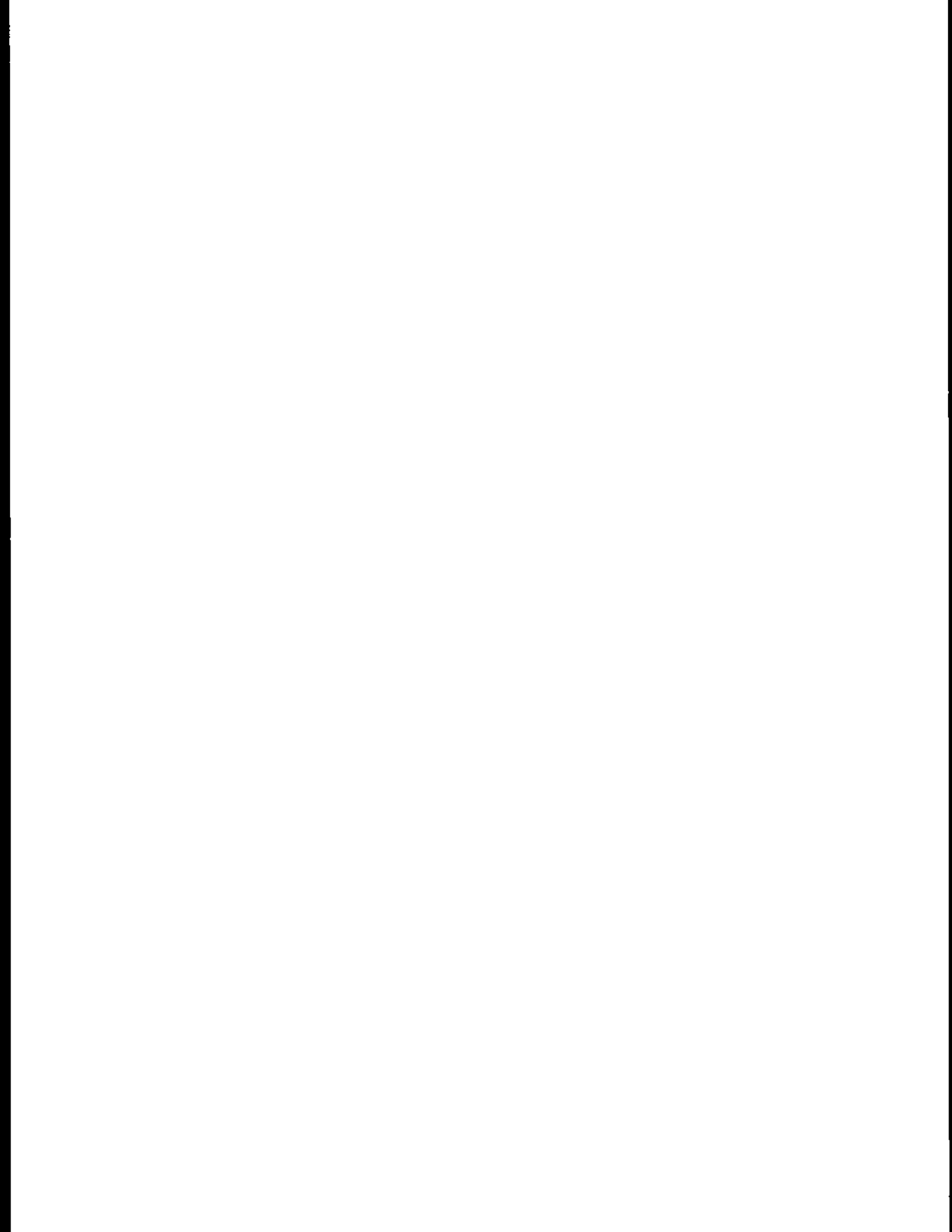
and explore this innovative use of the Internet.

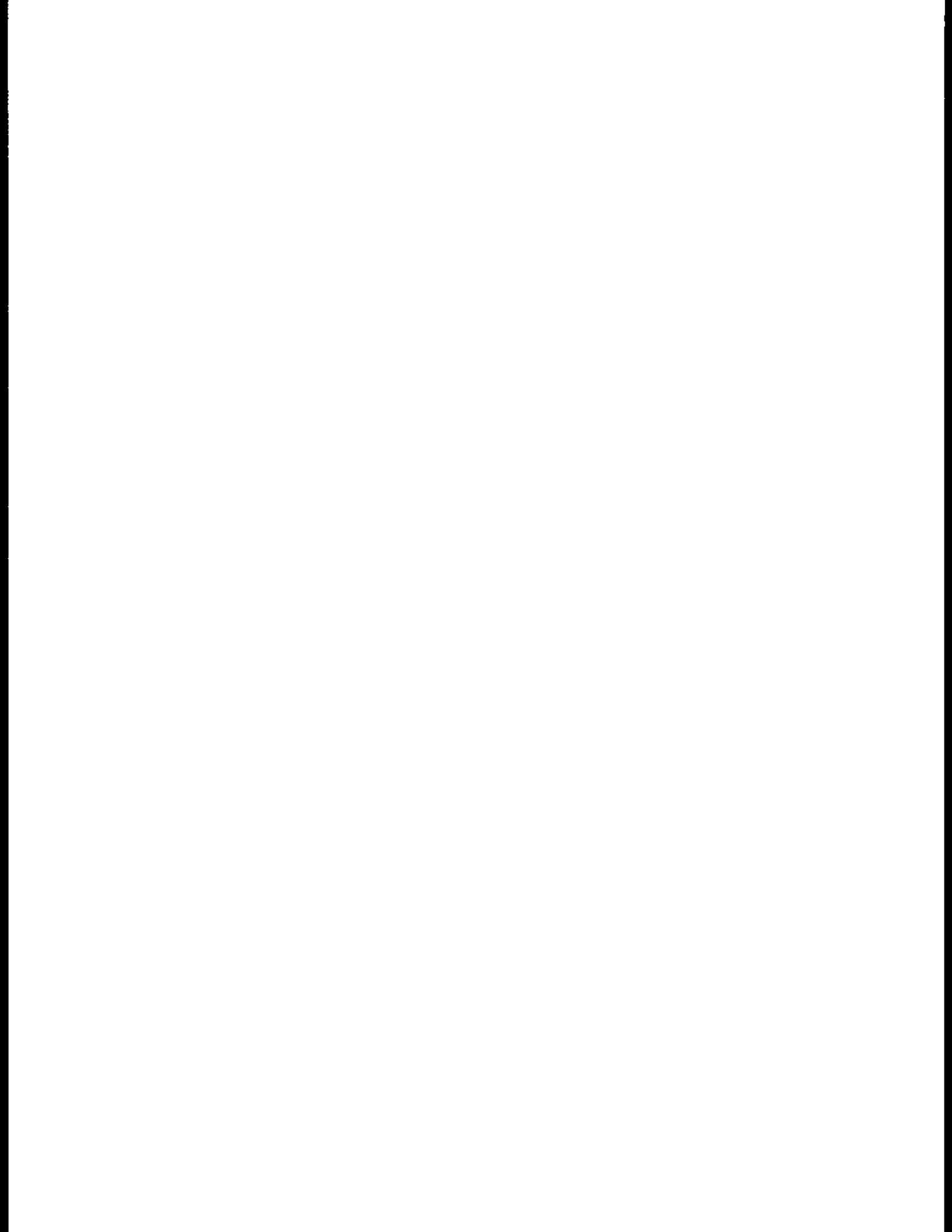
If you would like more information about SST, please feel free to contact me by email, or by phone at 616-4078.

Thank you for your interest.

```
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> *****  
Donald Loseff          *      Seattle Smart Traveler          *  
SST Project Manager    * http://sst.ivhs.washington.edu/sst/ *  
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> *****
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