# Joint Development at Park-and-Ride Lots: An Assessment of Services and Amenities

**Report 95.5**


**Washington State Transportation Commission**
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The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Washington State Transportation Commission or the Washington State Department of Transportation. This report does not constitute a standard, specification, or regulation.

# Executive Summary

In the past 40 years, retail and residential development patterns have shifted dramatically from central city concentration to ex-urban metropolises. One result of urban sprawl's separated land uses, low densities, and curvilinear street patterns is the poor performance of alternative transportation modes. Public transit serves such suburban neighborhoods with difficulty. To encourage suburban commuters to take transit instead of driving alone to work as single occupancy vehicles (SOVs), transportation planners have developed a number of strategies. Park-and-ride facilities offer opportunities to get people out of their SOVs into higher occupancy vehicles and get them to work. However, most people continue to drive alone to work and cite as a reason the need for a car with which to run errands during the day. A question is raised as to where people need to stop on their way to and from work. Can some of these trips be canceled by placing these services at the park-and-ride lots?

Joint development at park-and-ride lots involves a public-private partnership between businesses, transit agencies, and local governments. Such an arrangement consolidates retail services into a single area and, thus, has the potential to improve individual park-and-ride facilities and transit system networks. New retail stores on the premises can add to the attractiveness of parking lots with services such as a post office, coffee shop, or newspaper stand. Retail stores also have the potential to curb vandalism, to improve perceived safety, and to reduce potential opposition to the lot from nearby residents. The attraction of new capital funding sources and increased transit ridership may encourage transit operators and transportation policy-makers to support joint development.

This report examines several issues surrounding joint development at park-and-ride lots. First, joint development may benefit commuters, surrounding residential areas, and government agencies. Second, security concerns are a barrier to higher park-and-ride patronage; this report describes how joint development and other design techniques can improve personal and vehicle safety. Third, the results of a market feasibility study of convenience services at park-and-ride lot are examined to understand the range of potential services possible through joint development. Fourth, the results of a survey of park-and-ride patrons at three Puget Sound area facilities are considered. The survey was conducted to learn about park-and-ride lot users' attitudes towards the facilities, the quality of services currently offered, the elements users consider important, and the goods and services users would like available.

When trying to draw users to park-and-rides, transit agencies face a significant barrier in trying to maintain personal and vehicle security. According to the American Association of State Highway and Transportation Officials (AASHTO), security at park-and-ride lots is a primary factor in lot usage. Therefore, features that enhance security should be incorporated into lot design, including landscaping and lighting. Architectural landscaping techniques combined with roving security and retail activities provide natural observation and, therefore, increased security.

In addition to acting as "eyes and ears" to discourage criminal activity, retail development can reduce the need for people to make as many automobile trips by providing convenient services at the park-and-ride lot. Weslin Consulting, Inc., under contract with the Washington State Transportation Center, assessed the market feasibility of goods and services from the private sector's perspective. The following inventory of

various commercial ventures is discussed: convenience stores, gas stations, day care centers, automotive services, concierge services, and mobile services.

While the above study provided valuable groundwork on the feasibility of joint development at park-and-ride lots, it did not include market research of park-and-ride lot users. Consequently, the market research conducted for this report was aimed at understanding park-and-ride users' attitudes toward joint development, whether users would patronize these types of businesses, and whether the amenities would alter the users' experience with park-and-ride lots. The survey respondents were mostly frequent users; 70 percent used the lots five days a week. While most survey respondents (67 percent) were satisfied with the majority of design factors for park-and-ride lots, some were dissatisfied, primarily with vehicle safety and the lack of amenities. When asked what services people would like to see at their lot, the four most frequently chosen services were post office, gas station, coffee/pastry shop, and newspaper/magazine stand.

These types of convenient services added at park-and-ride lots could be an important factor in increasing the quality of park-and-ride and transit systems. Making the lots more attractive to users by adding convenient services and improving security with the presence of these services could help encourage people toward transit as an commuter alternative to the automobile.

## Introduction

Public transit can generally mitigate traffic congestion, air pollution, and parking problems in urban areas. In the past 40 years, however, land development patterns have shifted dramatically into sprawling ex-urban metropolises. The market has shifted from a fairly homogenous, mass consumption market to one that is fragmented according to changing tastes, attitudes, aspirations, and lifestyles (O'Brien and Harris 1991). One result of changing retail patterns and urban sprawl's separated land uses, low densities, and curvilinear street layouts is the poor performance of alternative transportation. Public transit serves suburban neighborhoods with difficulty.

In response, park-and-ride facilities offer opportunities to get people out of single occupancy vehicles (SOVs) into higher occupancy vehicles to get them to work. However, since most people continue to drive alone to work, a question is raised as to where people need to stop on their way. Can these trips be canceled by placing these services at the park-and-ride lots?

## Benefits of Joint Development at Park-and-Ride

If they are planned with care, park-and-ride facilities offer numerous benefits. Cost and time savings rank high among the users, while reductions in energy consumption, air pollution, and traffic congestion are among the social benefits (fig. 1).

A variety of public and semi-public agencies, including the following, may be involved in implementing park-and-ride programs:

- highway departments
- transit operators
- transit regulatory bodies
- traffic engineering departments
- zoning commissions
- planning commissions
- regional transportation planning agencies

### Figure 1. Benefits of Park-and-Ride Use

**For Individual User**

- Reduced fuel expenses
- Reduced vehicle depreciation
- Reduced vehicle maintenance costs
- Reduced travel-related fees (e.g., parking, tolls)
- Reduced insurance premiums
- Reduced stress
- Possible reduction in travel time

**For Society**

- Reduced traffic congestion
- Reduced energy consumption
- Reduced air pollution
- Reduced parking demand in CBD
- Improved mobility for transit-dependent populations
- Improved transit service

However, securing financing for new transportation projects, such as park-and-rides, is widely recognized as a serious problem nationwide, as well as in Washington state, where the effects of Initiative 601 are evident (Washington Department of Community Development 1986). Therefore, it is not surprising that the U.S. Department of Transportation reports significant growth in cooperation between the public and private sectors over the past decade (U.S. DOT 1989). For example, in Washington state the "Public-Private Initiatives in Transportation Program" established in 1993 allows the Washington State Department of Transportation to enter into agreements with the private sector to develop transportation and capital improvements jointly. Private investors' incentive derives from the provision that their costs, plus a profit, may be recovered through user fees, tolls, or other investment recovery mechanisms.

Examples of joint public-private development in transportation projects listed in the Urban Mass Transportation Administration's *Joint Development Handbook*[1] are on a large scale, including projects such as an office tower built in the air rights of a subway station or a retail mall entering directly onto a transit terminal (Municipality of Metropolitan Seattle[2] 1993). In a review of the literature addressing public/private development, Frank concluded that while much attention has focused on large-scale projects, little has been written on smaller-scale efforts (Frank 1990). Most research has focused on the potential for large-scale joint development in areas with high land values, such as central business districts. In contrast, park-and-ride lots are typically located on the urban fringe, where land values are comparatively low. Frank also found that the literature largely ignored joint development's potential for attracting new ridership; rather, he discovered an emphasis on alternative means of financing capital projects.

Nevertheless, interest in joint development of park-and-ride lots has increased in recent years because of their usefulness in responding to the needs of government agencies as well as the private sector. A joint park-and-ride lot development arrangement benefits transit operators and policy-makers by furthering several transportation policy goals. More attractive park-and-ride lots and the addition of staffed retail outlets on the park-and-ride premises offers the potential to reduce vandalism, improve perceived safety, increase use of transit, and reduce the number of single occupant vehicles on the roads each day.

In addition, park-and-ride lots offer potentially convenient places to locate additional services that would address the "stop and shop" commuting pattern. For example, a 1987 survey found that 70 percent of the respondents living on the east side of Lake Washington reported such a need to run errands on the way to and from work (Municipality of Metropolitan Seattle 1987). Where do people make stops on the way to and from work? A study in Tennessee revealed that the most frequently cited reasons for stopping on the way to or from work were to eat, to buy gas, go to the bank, and to drop-off/pick up children at day care or school (Municipality of Metropolitan Seattle 1993). Reasons cited less frequently were education, work-related, doctor's appointments, entertainment, and exercise. The study measured a per-person average of 1.7 stops in the morning commute and 3.0 stops in the evening.

Park-and-ride lots are logical places to locate convenience goods and services, especially given the time constraints faced by busy commuters. In fact, the very characteristics that make a site attractive as a park-and-ride lot, such as good location, visibility, size, and access, also make a site attractive for commercial development. Sites that are closest to consumers and far from competitors are highly prized (Davies and Rogers 1984).

1 The Urban Mass Transportation Administration (UMTA) became the Federal Transit Administration (FTA) under the 1991 Intermodal Surface Transportation Efficiency Act.

2 Municipality of Metropolitan Seattle changed its name to King County Department of Metropolitan Services in 1994.

As figure 2 suggests, there is significant overlap when comparing important locational criteria for siting a park-and-ride lot with the criteria for siting a retail space.

Parking lot operators and the business community also obtain several potential benefits from establishing various commercial outlets (such as convenience stores, coffee kiosks, and other amenities) in conjunction with park-and-ride lots. Private investors would gain from the ready-made market and locational advantages provided by park-and-ride lots, while transit passengers would benefit from the convenient access to goods and services. Figure 3 highlights the benefits of joint development at park-and-ride lots. If park-and-ride lots are located in lots used for other purposes (for example, a parking lot used for park-and-ride during the day, and other businesses at night), other benefits could result. Because it allows for the sharing of expenses, planned joint use of parking spaces with theaters or other night activities may be more efficient (Frank 1990). Use of existing parking space at theaters or other businesses also has the environmental advantage of not adding impervious surfaces for a separate park-and-ride lot (Municipality of Metropolitan Seattle 1993).

A Citizen's Transit Advisory Committee in Seattle recently proposed a "Total Trip System" that efficiently brings transit riders together with the services they need (Municipality of Metropolitan Seattle 1993). The Committee explained that most people have many things to do besides getting to and from work, when they make local trips. According to the Committee report, "to win over customers from the automobile, transit must provide a competitive trip experience." The Committee also reported that "the success of transit depends on creating a seamless system of service integrating transportation facilities with the services people want to use" (Municipality of Metropolitan Seattle 1993). This would mean locating services at or close to transit facilities.

Joint development at park-and-ride lots can be complex because it requires close cooperation, and sometimes contractual agreements, among the public and private entities involved (Ellis, Bennett, Rossam 1971). Decision-making processes are typically much slower in public agencies. In real estate development, where timing can be all-important, the uncertainties and delays in project completion may "scare off" private investors (Weslin Consulting Services 1989).

An additional barrier is that transit operators do not usually own the property on which park-and-ride lots are sited. Federal and state monies fund the vast majority of park-and-ride lots in the central Puget Sound area. This makes the pursuit of joint development more difficult, because each agency with an interest in the land may have its own restrictions and rules regarding secondary use. However, most agencies allow some private development, as long as the relevant restrictions are observed (Frank 1990).

Furthermore, policies and regulations developed by the transit operators themselves could hamper private sector interest in joint development. For example, the prohibition against eating or drinking on buses may be an issue. People who buy a cup of coffee while waiting for the bus are likely to want to take it onboard. Thus, amending rules to allow beverage consumption on buses would be one idea to consider (Municipality of Metropolitan Seattle 1987).

## Security

When trying to draw people to park-and-ride and transit, a significant issue that transit agencies face is maintaining vehicle and personal security at the lots. Figure 4 highlights factors that influence a person's perceived safety. Joint use of park-and-ride lots and other security improvements can improve the perceived security of park-and-ride users and their vehicles and increase use of the lot. Planning to ensure user safety and security when designing transit facilities is important because there are times of low use of the system when criminals could work undisturbed. In 1989, the United States Department of Transportation published "Market-based Transit Facility Design"(U.S.

**Figure 2. Locational Criteria for Park-and-Ride Lots and Retail Space**

| Criteria | Park-and-Ride | Retail Space |
|---|---|---|
| Distance to Downtown | • | |
| Access to Freeway | • | • |
| Freeway Congestion | • | |
| HOV Lanes | • | |
| Arterial Volume | • | • |
| Visibility from Freeway and Arterial | • | • |
| Catchment Area for Arterial Traffic | • | • |
| Local Demographics | | |
| Land Use and Zoning | • | • |
| | • | • |
| Other Park-and-ride Lots | • | |
| Other Retail Space | • | • |
| Institutional Issues | • | • |
| Development Interest | • | • |

**Figure 3. Benefits of Joint Development of Park-and-Ride Lots**

- A boost to the community's economic development
- Increased returns on developers' investment
- Greater use of public transit
- Better urban design
- Cost efficiencies in the construction of both public and private facilities
- Limited recovery of transit capital costs
- Opportunity to manage and control urban growth
- Safer, faster, more reliable public transit
- Improved service at transit stations

**Figure 4. Factors That Influence Perceived Security in Public Transportation**

- **Personal characteristics**
  - age
  - sex
  - health
  - experience
- **Station factors**
  - lighting
  - cleanliness
  - maintenance
  - age of station
  - level of sensory aggravation
  - visibility
  - crime rate in area surrounding station
- **Situational factors**
  - familiarity or unfamiliarity with station
  - habitual or novel trip
  - size of traveling party
  - passenger density
- **Security response**
  - Official presence (guard, ticket taker, etc.)
  - Television surveillance
  - Emergency phones
  - Alarm
- **Expectations**
  - General reputation of the transit system
  - Crime history of facility
  - Media coverage of crime history

DOT 1989). According to the DOT guide, besides architectural landscaping and roving security or transit personnel, retail and other service activities at the lot can increase security with natural observation. (U.S. DOT 1989)

According to American Association of State Highway and Transportation Officials (AASHTO), security of park-and-ride lots is a primary factor in lot usage and, therefore, features to enhance security should be incorporated into lot design. Published in 1992, the "Guide for the Design of Park-and-Ride Facilities" states that "The designer must develop a thorough understanding of crime levels and the land use patterns in the immediate area of a planned facility. A careful review of local crime patterns may provide guidance on the design elements required for specific security needs." (AASHTO 1992)

AASHTO states that "if well done, landscaping could increase the feeling of security for lot users." AASHTO suggests several other tools that enhance security of patrons and vehicle property at the lots (AASHTO 1992).

- Passive security elements including fences, hedge material, the number and location of entrance/egress points, and scaling of amenities to the size of the lot

- Adequate lighting to serve as a deterrent to vandalism in the parking area and shelters
- Good visibility to and from adjacent roads and buildings
- Telephones at the park-and-ride lot allow patrons to reach emergency services
- In areas with extensive security problems, gate controls, television monitoring or roving patrols

## Market Feasibility of Various Commercial Ventures

The Washington State Transporta-tion Center (TRAC) has conducted prelim-inary research on joint development of park-and-ride facilities in the Puget Sound region. A project subcontractor, Weslin Consulting Services, of Bellevue, Washington, reports that a number of actions have been taken by public agencies in other areas to promote and simplify joint development projects. Figure 5 lists these guidelines for successful joint development (Weslin Consulting Services 1989).

Weslin Consulting assessed the market feasibility of specific types of goods and services at Puget Sound area park-and-ride sites from the private sector investor's perspective (1989). The following inventory of various commercial ventures draws heavily on findings from that report (fig. 6).

**Convenience Stores.** Convenience stores serve consumers who want quick, nearby service. (Weslin Consulting Services 1989). They encompass food service, mini-marts, and personal services, such as dry cleaning, film processing, and video rentals. Quick service is achieved by concentrating on items that are normally purchased separately. The trade area for a convenience store is typically two to three miles, and half of their sales are generally to residents who live within one mile. Store operators view park-and-ride commuters as an added, rather than primary, source of business (Weslin Consulting Services 1989). Because highly visible site exposure, easy egress/ingress, and signage are critical for convenience stores, prime arterial frontage would be essential. Typical land requirements for convenience stores range from 12,000 to 18,000 square feet (12,000 is equivalent to 28 parking spaces). Weslin Consulting recommended that convenience retail stores be considered for joint use.

**Gasoline.** Gasoline sales usually accompany merchandise sales at convenience stores. In fact, gasoline sales account for about 60 percent of convenience store sales (Weslin Consulting Services 1989). However, the acceptability of gasoline sales at park-and-ride sites could be an issue for transit authorities because of the associated fire hazard.

**Day Care Centers.** Although day care centers do not require prime arterial frontage like convenience stores, visibility is still important. Parents have a pronounced tendency to use the day care facility closest to their home or neighborhood school. The maximum trade radius for a proprietary day care site is normally about three miles. However, day care sites at park-and-ride lots would exceed this radius (Weslin Consulting Services 1989). General requirements for day care centers include the following:

- Trade area with a population of 25,000 to 30,000
- High density of families with children ages 0-14
- Minimum land requirements of 30,000 square feet (equivalent to 69 parking spaces)

Given these requirements, proprietary day care could be market feasible at some park-and-ride sites, especially those with adjacent green space. National and regional proprietary day care center providers interviewed by Weslin Consulting for the TRAC study expressed some interest in exploring joint development at park-and-ride lots (Weslin Consulting Services 1989).

## Figure 5. Guidelines for Successful Joint Development

- Establish a clear public policy, demonstrating to potential investors that the agency is (a) serious about joint development; and, (b) that it will keep its commitment to the project.
- Consolidate responsibility for the project in one agency or department. When project responsibility is fragmented, misunderstandings and conflicting signals are likely.
- Develop expertise in real estate and economic development. Planning the project wisely from the beginning and negotiating solid, realistic agreements is likely to avert many problems that have surfaced in other projects.
- Analyze the real estate market and local economy thoroughly. If the proposed joint development is out of step with local and regional markets, success is unlikely.
- "Set the table" for the developer. The agency should prepare the groundwork for the project by resolving the public issues and having all pertinent information available for the developers from the outset.
- Adopt integrated policies, regarding the planning and implementation of joint development projects.
- Work to ensure that both public and private sector entities embrace the need for a genuine partnership; wherein both sides have active leadership, clearly understood objectives, flexibility for negotiating alternate plans, and shared planning and implementation responsibilities.

## Figure 6. Types of Businesses for which Joint Development May Be Feasible

- Day care centers
- Convenience stores
- Film processing
- Video rentals
- Shoe repair
- Concierge service
- Florist
- Mobile refreshment vendor

**Automotive services.** Automotive service centers typically provide tires, batteries, and repair service. Minimum site size is 14,000 square feet. The equivalent land absorption required would be 32 parking spaces. The minimum space required for an automotive lube center is 18,000 square feet, equivalent to 41 parking spaces (Weslin Consulting Services 1989). A 500-car park-and-ride lot could only support an on-site automotive lube center for the equivalent of only 20 days per year. Therefore, Weslin Consulting concluded that these facilities would be a poor candidate for joint development.

**Concierge service.** To operate a service at a park-and-ride lot, the concierge would develop contractual agreements with vendors in the trade area surrounding the park-and-ride site. The on-site concierge service would offer a menu of services to commuters, most of which could be completed during the work day. The concierge would collect payment for services and then would pay the various service providers minus a percentage of the gross sales (Weslin Consulting Services 1989). The bundle of services offered could include the following:

- dry cleaning/alterations
- shoe repair
- auto detailing
- auto servicing
- flowers/balloons
- entertainment tickets
- travel
- video rental
- film processing
- personalized shopping
- gift wrapping/shipping
- company party arrangements
- reminder service
- search and quote service
- house/yard cleaning
- goods returned to retail stores
- courier services

The transit authority could integrate the concierge service into an enclosed commuter waiting area. Concierge service operators would have to be convinced that sufficient fees could be generated to cover operating expenses, debt service, and a reasonable profit (Weslin Consulting Services 1989). The risk to transit authorities of leasing space to a concierge service would be minimal. In the case of market failure, the space could simply revert to the commuter waiting area. In many respects, a concierge service would also reflect the image of the transit authority in the minds of commuters. Therefore, selection of a high-quality operator would be advisable Weslin concluded that joint development of a concierge service at targeted park-and-ride sites would be an excellent idea, warranting further study (Weslin Consulting Services 1989).

**Mobile Services.** Mobile services vend coffee, soft drinks, and snacks from a vehicle, which could serve park-and-ride users during peak morning commute hours (Weslin Consulting Services 1989). It is uncertain whether a mobile service would be viable in the absence of site-specific feasibility studies. A key problem associated with park-and-ride locations is the limited time during which consumers are on-site to patronize services. Therefore, vendors view rider demand as merely offering an extra margin of investment safety over the primary demand (derived from the surrounding trade area). However, the idea of integrating an espresso stand at a kiosk inside an enclosed transit waiting area that offers concierge service does appear feasible (Weslin Consulting Services 1989).

## Survey of Park-and-Ride Users' Opinions

While the TRAC study provided valuable groundwork on the feasibility of joint use at park-and-ride lots, it did not include market research to learn what consumers themselves think and feel about the concepts, whether they would patronize the businesses, or whether the amenities would alter consumers' experience with a park-and-ride. Therefore, a survey at three park-and-ride lots in the Seattle metropolitan area was conducted to begin to address these questions.

## Survey Objective

The survey objective was to gather information on the following issues:

- What users think about the park-and-ride lots and the quality of the services offered
- What elements users regard as important at park-and-ride lots
- What goods and services (if any) users would be interested in having available at park-and-ride lots

## Site Selection Criteria

The following criteria were used to select survey sites:

- Park-and-ride lot had to be high-capacity and well-used
- Park-and-ride lot had to have some form of joint use or adjacent services
- Park-and-ride lot had to be within biking distance of the researcher's home

Three park-and-ride lots were selected for the study based on these criteria: the Northgate, Kenmore, and South Bellevue Park-and-Rides. Figure 7 shows their locations.

**Northgate Park-and-Ride.** This lot was chosen because of its proximity to the Northgate Shopping Mall, and because it is large and fairly well utilized. This was the first park-and-ride lot constructed in Seattle, completed around 1970. Directly adjacent to Interstate-5, it has a 572-automobile capacity. In recent years, Metro has constructed an additional lot south of this lot, which relieved much of the overcrowding and reduced utilization to 72 percent.

Buses serve the lot at two stops, one in the middle and one at the edge of the lot. Bus service to downtown Seattle is frequent during peak periods, with an average, per-route headway of five to six minutes. Outside peak hours, service frequency for the lot is about six buses per hour. Many peak-hour buses are express routes, serving downtown Seattle and the University District.

The Northgate lot is equipped with a large shelter with benches. It also has a phone, newspaper vending machines, trash bins, transit system maps and schedules, and a bike rack. Generally, commuters come from the surrounding area and further north (Municipality of Metropolitan Seattle 1993). Residential land use surrounds the lot, and some users do arrive on foot. Figures 8.1, 8.2, 8.3 provide several views of the Northgate lot.

**Kenmore Park-and-Ride.** The chief reason for selection of this lot as a study site is that a vendor has set up a coffee/pastry kiosk 30 meters from the main shelter. In addition, this lot is large and well-utilized. Figures 9.1, 9.2, 9.3 show the lot and kiosk. It has 432 stalls and had a utilization rate of 95 percent in 1993 (Puget Sound Regional Council 1993). The Kenmore park-and-ride draws its users from the northwest Seattle area (Municipality of Metropolitan Seattle 1993).

Bus service to both downtown and the University District is frequent. There is also bus service to Bellevue. One bus route starts at a stop in the middle of the park-and-ride lot and then stops again at the main stop by the arterial (SR 522). The rest of the routes pass by on the arterial and only stop at the main stop.

The large bus shelters are equipped with benches, newspaper vending machines, a trash bin, a bulletin board, and a small, rather poor-quality bike rack adjacent to the shelter. A vendor has set up a coffee/pastry kiosk 30 meters from the main bus shelter by SR-522. The kiosk serves park-and-ride users as well as passing traffic. It is a private business, located on private property and has no connection with the lot operator. The kiosk is open from 5:00 am to 9:00 pm.

**South Bellevue Park-and-Ride.** This site was chosen because of the staffed Goodwill collection container located at the lot. This is a large, well-utilized lot with 470 spaces and a utilization rate of 74 percent. The lot is equipped with shelters with benches, a pay phone, trash bins, newspaper vending machines, and bicycle racks. Figures 10.1,

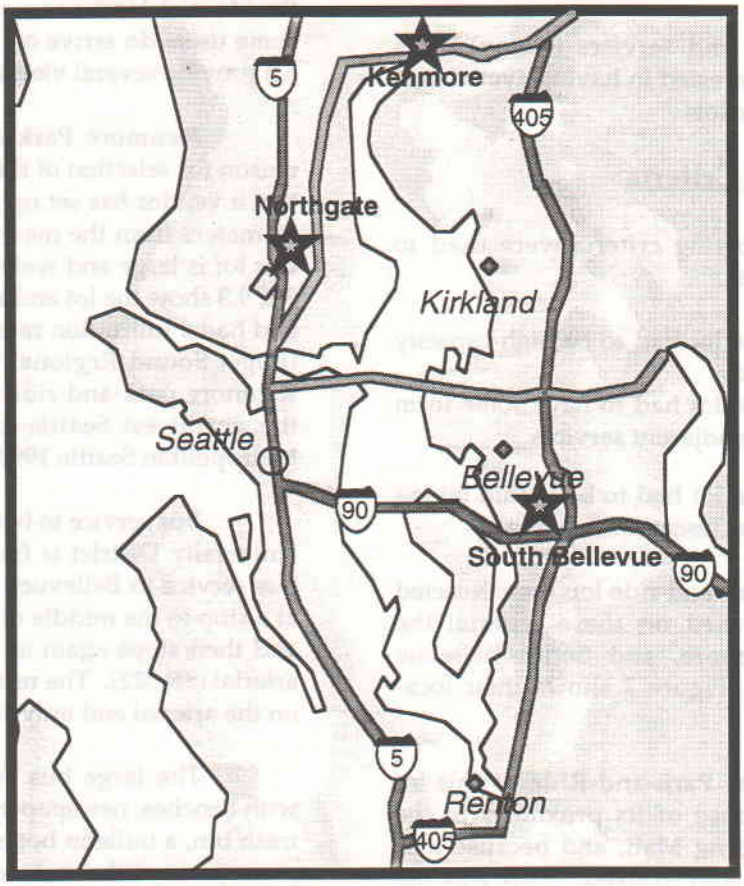


Figure 7. Location of surveyed lots

Figure 8.1. Northgate Park-and-Ride. Picture taken from northeastern corner toward the middle of the lot.

Figure 8.2. Northgate Park-and-Ride. Picture of shelter area.

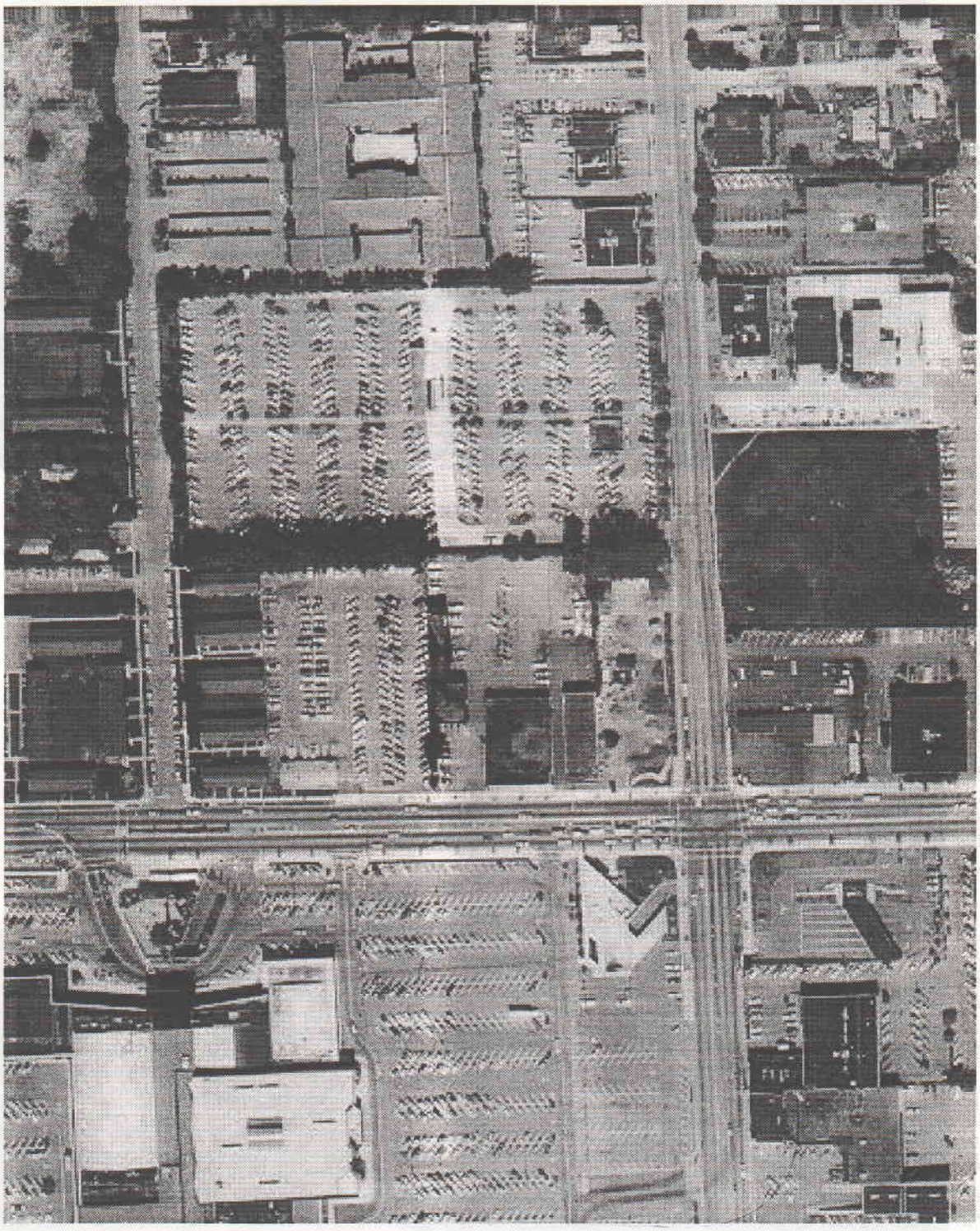

Figure 8.3. Aerial photo of Northgate Park-and-Ride. The lot is in the upper end. Northgate Mall is in the lower left corner.

Figure 9.1. Kenmore Park-and-Ride. Shelter area.


Figure 9.2. Espresso/deli kiosk adjacent to Kenmore Park-and-Ride.

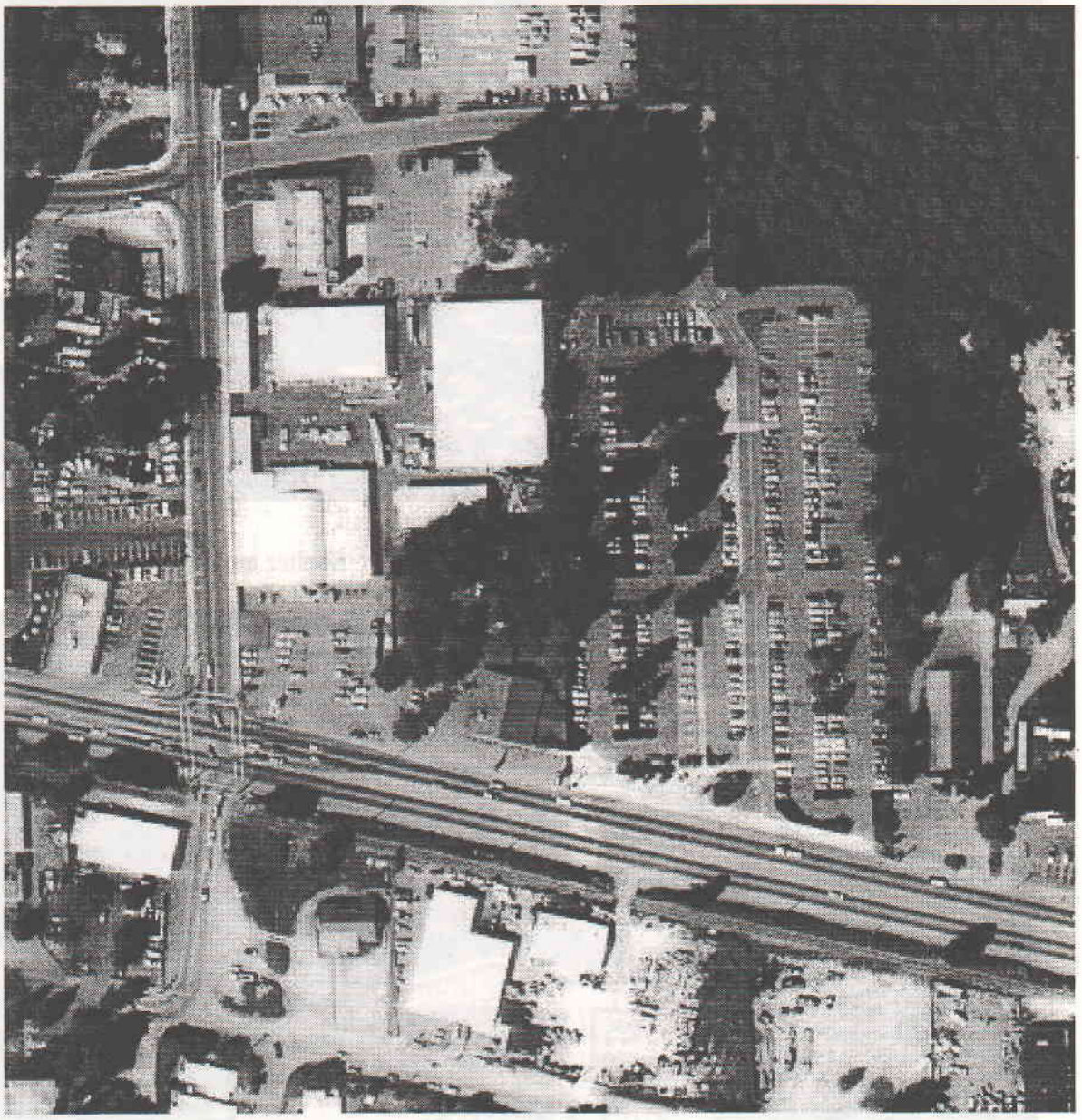

Figure 9.3. Aerial photo of Kenmore Park-and-Ride. The lot is to the right of the middle of the picture.

Figure 10.1. South Bellevue Park-and-Ride. The lot as seen from the north.

Figure 10.2. The Goodwill donation stand at South Bellevue Park-and-Ride.

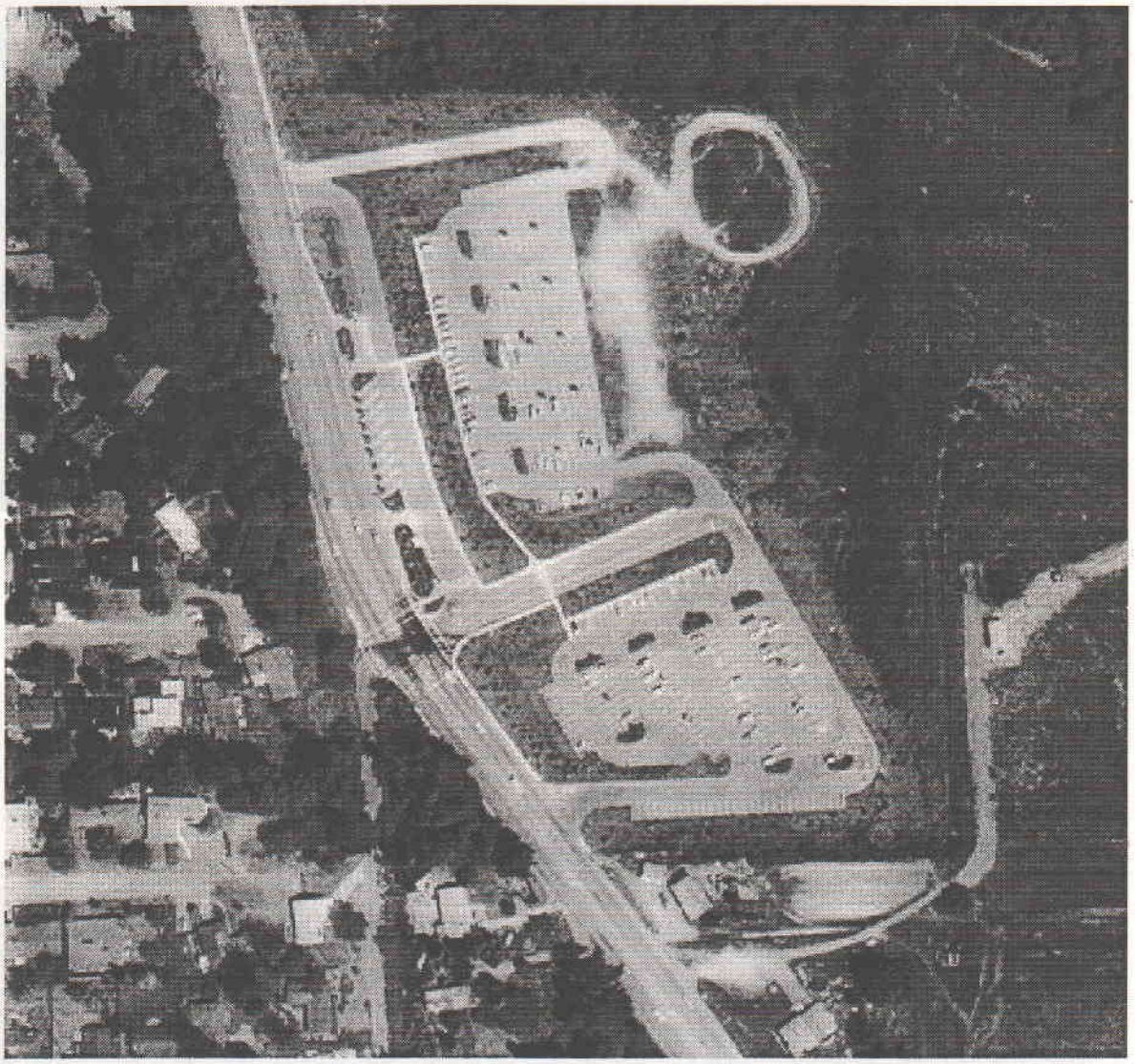

Figure 10.3. Aerial photo of South Bellevue Park-and-Ride. The lot was later expanded in the northeastern corner.

10.2, 10.3 show the lot and Goodwill donation stand. Goodwill, which rents space from Metro, staffs the container daily between 9:00 am and 5:00 pm. Commuters come from further south and east of Bellevue, and the lot has a broad draw pattern (Municipality of Metropolitan Seattle 1993). Some single-family homes are located nearby; otherwise, the park-and-ride is surrounded by green space.

Numerous bus routes, many of which travel to downtown Seattle, have an overall headway of about seven minutes during the peak hour. Several buses also travel north/south, serving destinations such as Bellevue and Renton.

## Survey Administration

The researcher recognized that time constraints on respondents would be a critical issue. People waiting for a bus may have just a few minutes to fill out questionnaires. He therefore kept the questions short. Both open- and closed-ended questions are important in market research, but given the pressing time constraints on people waiting for the bus, the researcher limited the questionnaire to closed-ended questions and a single, simple open-ended question for two of the three sites. Appendix A contains the questionnaires.

The researcher administered the surveys on three consecutive days between 5:00 am and 10:00 am:

- Wednesday, July 6, 1994 at the Northgate Park-and-Ride lot (original section north of mall)
- Thursday, July 7, 1994 at the Kenmore Park-and-Ride lot
- Friday, July 8, 1994 at the South Bellevue Park-and-Ride lot

Mornings rather than evenings were chosen because most users arrive at the park-and-ride a few minutes early to avoid missing their bus. On the other hand, most people are anxious about getting home quickly in the evening and would be less likely to take the time to complete a questionnaire. Preliminary observations showed that few people arrive and leave from lots during the middle of the day, which is not surprising given that most users are commuters.

The researcher conducted the surveys alone, wearing a University of Washington identification card pinned to his sweater and introducing himself in the following way: "Hi! I am a student at the University of Washington. I am working on a study of park-and-ride lots. I was wondering if you had a minute to answer this questionnaire?" At the same time, he held out one of the four clipboards with the survey, so they could see how short it was. The method for selecting subjects began by speaking to each person in sequence as he or she arrived at the shelter. Whenever possible, every person in the shelter was asked to complete the questionnaire. The last person to walk up to the shelter was approached if the group was too large to ask everyone.

The researcher tried to hand out as many questionnaires as possible to increase the number of responses. This was only possible if people were close together and did not demand too much attention (i.e., wanted to chat). A few people (about 10 percent) declined to answer the questionnaire, and the respondent's bus arrival cut short some interviews (another 15 percent). A small number of people (about 10 percent) misunderstood the directions to one question (Question 3), marking only partial answers. A survey was counted as complete if all questions were answered. Among the reasons given for declining to complete the questionnaire were a lack of glasses or that the bus would be arriving shortly.

During the early hours (5:00 am to 6:00 am), many people stayed in their cars until they could see the bus coming. This made the number of answers for this period smaller than anticipated. The researcher tried to avoid asking people who were walking to the park-and-ride from nearby homes, instead of driving. This was difficult in busy periods, so some close-by residents may be included in the survey results.

**Northgate Park-and-Ride.** The Northgate survey was performed Wednesday, July 6, between 6:00 am and 8:15 am, where bus headways are about four minutes. During this period, it was only possible to give questionnaires to the first few users who arrived for each bus. Otherwise, they would not be able to finish the questionnaire. At 10:00 am, when the researcher left, he judged the parking lot to be about 80 percent full.

**Kenmore Park-and-Ride.** The Kenmore survey was performed Thursday, July 7, where the majority of travelers departed between 6:00 am and 8:15 am. During this period, the buses arrived infrequently, no less than 15 minutes apart. This resulted in better time for each interview, but also left some calm periods in which there was no one at the shelter to interview.

When the researcher left at 10:00 am, roughly 20 parking spaces were still vacant, and 13 vehicles were illegally parked. Five cars were parked illegally in handicapped spaces. The rest were parked close to the bus stop in places where the internal roads were wide.

**South Bellevue Park-and-Ride.** The survey at the South Bellevue Park-and-Ride was performed Friday, July 8. The main number of travelers also departed between 6:00 am and 8:15 am. Between 9:00 am and 10:00 am, only about ten people used the stop.

Many bus routes serve the lot, but none with a higher frequency than every 15 minutes. Because of the longer walking distance from parked vehicles, people could not wait in their cars until the last minute to catch the bus. The longer wait at the stop resulted in an increased number of questionnaires handed out and a higher percentage of completion. In addition, the bus stop and shelter area were smaller here than at the other lots. Because people had to stand closer together, this made it easier for the researcher to hand out more surveys at the same time. He observed several carpools and vanpools leaving this lot. These passengers were not part of the survey group because they did not form their pools at the bus shelter. When he left the site at 10:00 am, about 130 parking spaces were vacant.

## Survey Responses

A total of 191 responses were obtained during the three-day survey period, distributed as follows:

| | |
|---|---|
| Northgate P& R | 56 |
| Kenmore P&R | 48 |
| South Bellevue P&R | 87 |
| Total responses (all sites) | 191 |

### Survey Response Bias

The survey methodology may potentially influence the interpretation of the results. For example, because respondents were drawn exclusively from a potential respondent pool of park-and-ride users only, the results can only reflect the opinions of people who either are satisfied with the public transportation system and are willing to use the service provided by park-and-ride lots; or who have no other choice but to ride the bus. This survey did not capture the opinions of people not using the lots.

There are some data available from other studies on non-rider attitudes. Figure 11 outlines a survey of non-riders in the Seattle region in 1986 conducted to show why people do not ride the bus. In addition, a survey conducted in the late 1970s showed that the following service factors have the greatest influence on why non-riders do not take the bus (King County Department of Metropolitan Services 1994):

- number of transfers to destination
- travel time on the bus
- distance from work to the bus stop
- frequency of bus service
- hours of bus service

| Reason for not riding METRO | Former regular riders | Other current riders |
|---|---|---|
| Persons asked | 778 | 1,195 |
| Prefer/need car | 42% | 51% |
| Changed work/school situation | 27 % | 4% |
| Bus route problems | 21% | 34% |
| Do not travel far/often | 17% | 22% |
| Bus schedule problems | 8% | 11% |
| Dislike bus | 4% | 6% |
| Other | 6% | 11% |
| Do not know/refused | 1% | 0% |

Figure 11. Reasons for Not Riding the Bus.

Both studies suggest that the main reasons for not using transit service are related to the quality of the bus service, which is usually not extensive enough in terms of either geographic coverage or frequency.

There are other potential biases associated with the pool of riders who completed the survey. Persons arriving just before the buses were leaving were not always able to finish the survey. Therefore, survey results may be biased toward the responses of "early bird" patrons, i.e., those arriving early for their bus. This bias may be mitigated because some of the people arriving late were so late that they missed the bus, allowing them to complete the survey.

Finally, all survey work was conducted during a "holiday week," with only four regular business days. Therefore, there may have been fewer travelers than in average weeks. This might create a potential for bias if those with a greater tendency to take time off in such situations were not representative of those who did not have that tendency. In addition, the researcher conducted the South Bellevue survey on a Friday, a day which typically has somewhat less work-bound traffic than midweek.

## Survey Questions and Results

The following is a summary of survey responses for all participants (results of the three sites were combined):

Question 1. *How often do you use a park-and-ride lot?*

- 5 times per week
- 3-4 times per week or less

The only user characteristic the researcher attempted to elicit was frequency of use. The objective of the survey was to learn not about users' sex, age, or income, but about their perceptions and preferences regarding the park-and-ride system. Personal questions were also avoided since people often refuse to participate in surveys with such questions. Nonetheless, the researcher felt that how often people use a park-and-ride lot could be related to the amenities they would want. A study of travel patterns revealed that most park-and-ride lot users are commuters who use the lots frequently. (See Appendix C, for discussion of user characteristics) Three categories of uses were created for Question 1. The researcher anticipated that most respondents would be in the first group; that is, people who use the lot five times a week.

Respondents answered Question 1 as follows:

- 70 percent use the lots five days a week
- 22 percent use them three to four times a week
- 8 percent use them less than three times a week

As expected, the number of frequent users is very high, although not quite as high as reported in other studies. A possible explanation lies in the very small sample size. In addition, at the peak travel time, when most commuters travel, only a small percentage of users was surveyed. Conversely, the researcher surveyed a larger share of the people traveling outside peak hours.

Question 2. *How satisfied are you with this park-and-ride lot?*

- very satisfied
- somewhat satisfied
- no opinion
- somewhat dissatisfied
- very dissatisfied

This question was designed to learn about people's opinions toward large lots with satisfactory bus service and some amenities. The researcher offered five different options, from very satisfied to very dissatisfied. (See Appendix B for complete questionnaire results.)

The degree of general satisfaction among the users turned out to be high:

- 67 percent were very satisfied
- 30 percent were somewhat satisfied

This gives a total of 97 percent who report some degree of satisfaction. Only 1.6 percent (three persons) reported some degree of general dissatisfaction. This result is very similar to the results reported from leased park-and-ride lots, where 95 percent of the users of Seattle's leased park-and-ride lots were satisfied that the lots met their needs (Municipality of Metropolitan Seattle 1993).

Many details of a park-and-ride lot may annoy users if the lot is not adequately constructed and designed. The researcher wanted to get an overview of what these problems might be and how important the users themselves think those problems are. Design guidelines and previous surveys provided the bases for the list of details. The initial goal was to separate general satisfaction and importance of the details into two questions with five response options for each. However, this was not possible if the questionnaire was to be only one page long. Therefore, it was decided to have only three response options in each category and to combine the two questions of satisfaction and importance into one. The result was a list with response options for satisfaction on the left side and for importance on the right.

Because overall satisfaction, from the customer's perspective, is not a simple weighted sum of individual factor ratings (Dutka 1994), the researcher expected varying results on the different factors that were not necessarily consistent with the overall general rating that was asked for in Question 2.

Question 3. *What factors are you satisfied/dissatisfied with, and how important are these factors to you?*

| Satisfied | Dissatisfied | Very important | Somewhat important | No opinion/ Unimportant |
|---|---|---|---|---|

- Access (convenience, signage)
- Number of parking spaces
- Ease of moving around in lot
- Vehicle safety
- Personal safety
- Comfort (shelter, benches, etc...)
- Information (bus routes, etc...)
- Beauty/ Cleanliness
- Amenities (papers, snacks, etc...)
- Bus services
- Other (please specify) _____

The responses for Question 3 for all three park-and-ride lots are shown in figures 12 and 13. Satisfaction with the access (convenience, signing), number of parking spaces, and ease of moving around in the lot ranged from 84 to 92 percent. Since these factors are related to traffic, it appears that an adequate job has been done in designing the traffic environment in and around these lots. Because about 80 percent also reported that the first two of these factors are very important, planners have been correct in emphasizing these design factors. Only 64 percent were satisfied with the security of their vehicles and 15 percent were dissatisfied. Many of these people have either had their own cars broken into or knew someone who has. This suggests that more still needs to be done to deter criminal activities from the lots and to improve perceived vehicle security.

Overall, 85 percent were satisfied with personal safety at the lots. Almost all the users felt that personal and vehicle safety were very important (94 and 92 percent, respectively).

Although the difference in importance between vehicle safety and personal safety is small, there might be good reasons why they are different. Some people were driven to the park-and-ride by others and, therefore, did not have to worry about vehicle safety. Another reason might be the accidental inclusion of nearby residents not using park-and-ride lots. These two groups would naturally care less about vehicle safety than those driving to and parking at the facilities.

Between 64 and 73 percent of the respondents reported to be satisfied with each of the factors of comfort, information, and beauty/cleanliness of the lot. Although less than ten percent voiced dissatisfaction with these factors and only 35 to 48 percent said they were very important, the large "somewhat important" group shows that people care about them. While probably not the decisive factor in people's choices of using a park-and-ride lot, the transit system could benefit from improvements in these aspects of the service.

The factor "amenities (papers, snacks, etc.)" received varying response. Only 37 percent of the respondents reported being satisfied with this factor, but fully 50 percent had no opinion. Only 11.0 percent thought this was a very important element and 14 percent were dissatisfied. While this variation suggests that amenities are something many travelers do not care about, a fair number of users report that it is important to them. To retain these users, and perhaps to attract new users, improvements in this area may be worthy of consideration.

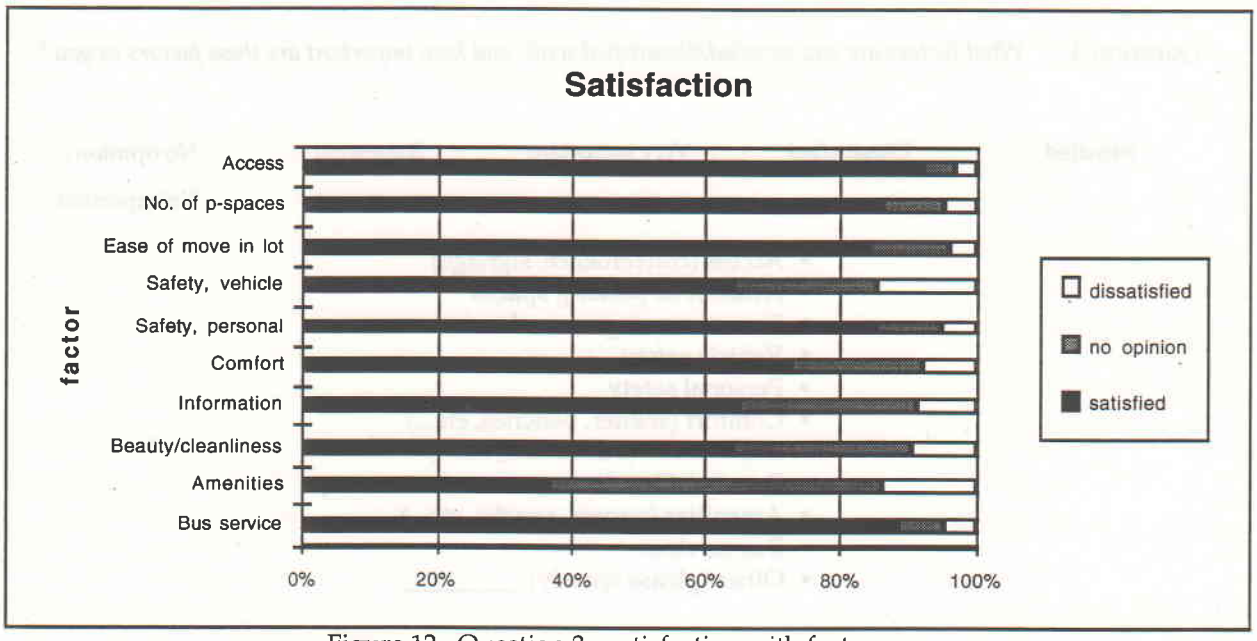


Figure 12. Question 3 - satisfaction with factors

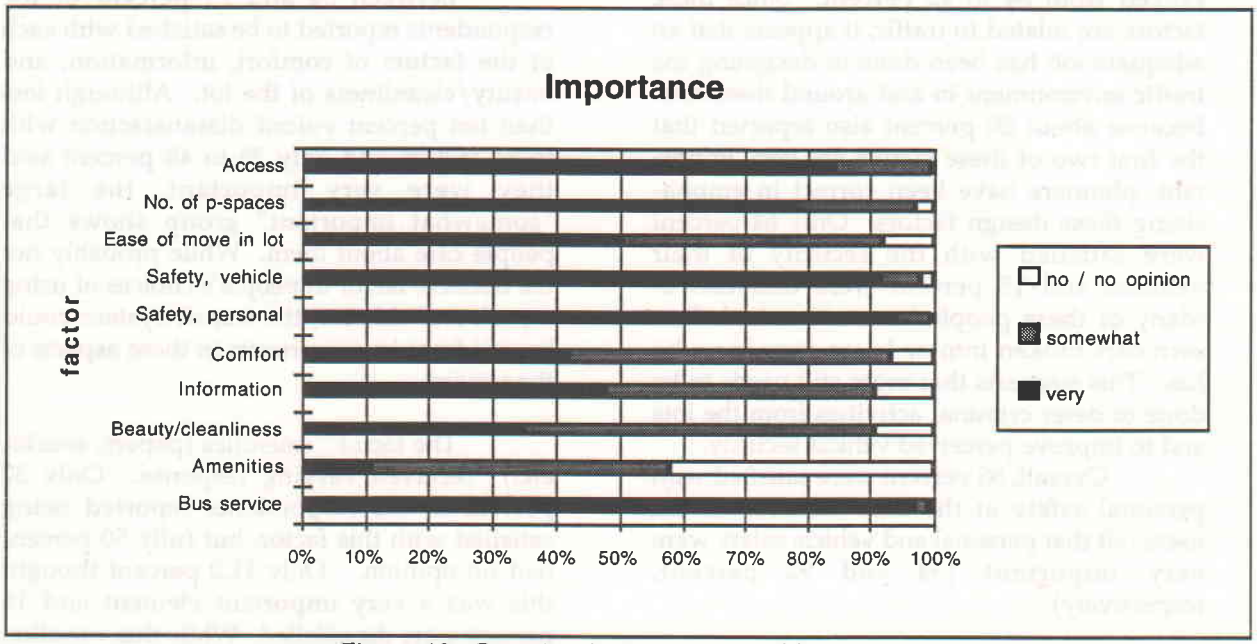


Figure 13. Question 3 - importance of factors

Bus service is the single most important factor in park-and-ride lot service. According to the respondents, 97 percent considered this very important, a few percentage points more than security.

Respondents at the Northgate park-and-ride lot reported very little satisfaction with the beauty/cleanliness of their facility compared to respondents at Kenmore and South Bellevue sites. This finding suggests that the owner and operator should take a closer look at improving aesthetics and maintenance at this lot.

South Bellevue respondents had the highest degree of satisfaction in almost all categories, yet the lowest general satisfaction in Question 2 ("How satisfied are you with this lot?"). At South Bellevue, 62 percent were very satisfied versus 70 percent average for the other two. An explanation for this might be the high percentage of people dissatisfied with vehicle safety at South Bellevue, 20 percent, compared to an average of 11 percent for the other lots. If this is the correct explanation of the high general dissatisfaction at South Bellevue, it reflects a belief by users that security is important.

Question 4. *Use of adjacent services:*

| | |
|---|---|
| Northgate: | *Do you use Northgate mall?" "If yes, how often?"* |
| Kenmore: | *"Do you use the coffee kiosk adjacent to the lot?" "If yes, how often?"* |
| South Bellevue: | *"Do you think the manned stand increases security at the lot?"* |
| All: | *"Does it influence your choice of using this park-and-ride lot?"* |

One goal of providing convenience services at park-and-ride lots is to encourage transit use. Therefore, it is important to ascertain whether extra services will have such an effect. There is at least some local evidence for this: a survey of workers in King County indicated that commuters were more likely to spend money at a shopping center where they parked to catch a bus or meet a carpool (Municipality of Metropolitan Seattle 1993).

Question 4 offers a way to explore whether existing services at or close by the park-and-ride lots influence a patron's decision to use the lot. Each of the three lots has at least one service that might alter the choice made. The difference in wording in Question 4 is due to the different kind of services located at each lot.

At the Northgate Park-and-Ride, 77 percent reported that they used the nearby Northgate Mall (300 meters away), but only six percent said that it influenced their choice to use that facility. The mall visiting frequency varied significantly; the mean was about two weeks. In contrast, 13 percent of the respondents at the Kenmore park-and ride answered that they used the espresso/deli kiosk. The frequency varied between daily and occasional use. Nobody felt that it influenced their choice of using that park-and-ride lot.

At the South Bellevue Park-and-Ride, 74 percent of the users believed that the manned Goodwill donation stand increased security; 14 percent also said that it influenced their choice of using that lot.

Since the South Bellevue respondents believe the Goodwill stand improves security at the lot, one would expect that they were more satisfied with security than users at the other two lots. However, the results show that this is only partly true. Only 2 percent are dissatisfied with personal safety, compared to an average of eight percent at the other two lots. But, the dissatisfaction with vehicle security at South Bellevue is as high as 20 percent, while the number dissatisfied for Kenmore and Northgate is 11 percent.

Question 5. *Use of potential services: If these amenities were at or adjacent to the park-and-ride lot, would* ***YOU*** *use them:*

- Coffee/pastry vendor
- Fax/Copy center
- Bagel/donut shop

- Postal service
- Newspaper/magazine vendor
- Convenience store
- Video rental
- Take-out food
- Film processing
- Gas station
- Dry cleaners
- Other auto services
- Shoe repair
- Concierge services offering these
- Florist stand and other services
- Other: _____

Question 5 attempts to address the difference between what professionals and the literature claim to be suitable services at park-and-ride lots and what users themselves actually prefer. Also, because there is a possibility that people will say that they want services that they do not plan to use themselves, but would like to have available "just in case," the researcher emphasized that the question refers to amenities that they would use themselves by emphasizing "**YOU**" in boldface, underlined capital letters.

In generating a list of services to include on the questionnaire, the researcher consulted retail literature, including: the annual "Financial Studies of the Small Business" (Financial Research Associates 1992), the Urban Land Institute report "Dollar $ Cents of Convenience Centers" (Urban Land Institute 1988), and earlier studies. The resulting list emphasizes inexpensive, simple, and frequently used services, e.g., convenience stores. Also added were some services that people use infrequently, such as shoe repair. Since most people use their cars to get to the park-and-ride lot, auto services were included on the list. Finally, since Weslin Consulting had a positive evaluation of the potential of concierge service, it was also added to the list.

Figure 14 shows the overall response to Question 5. One issue with this type of question is whether people's response to a hypothetical question would correspond with their real-life behavior. The coffee/deli kiosk adjacent to the Kenmore Park-and-Ride is an

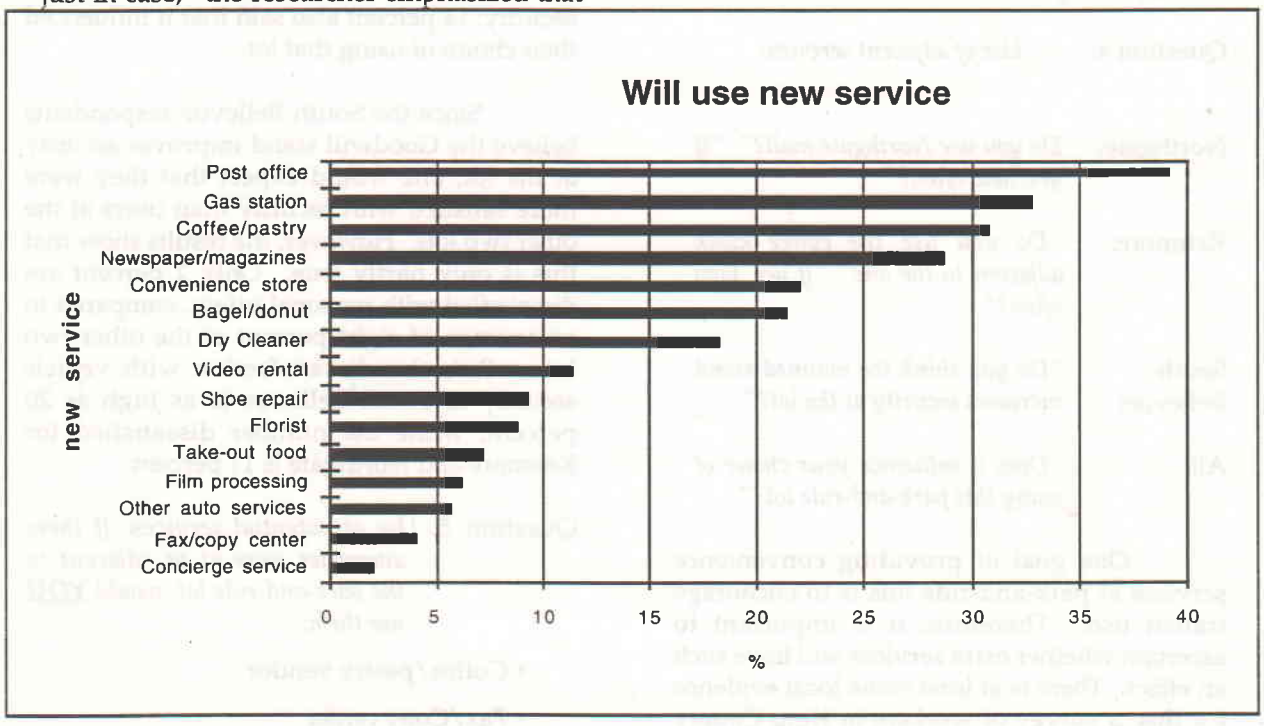


Figure 14. Question 5 - will use new service

interesting case in point. Of the 56 respondents at Kenmore, 13 percent said they used the kiosk. At the same time, 14 percent of the respondents marked down in Question 5 that they would use a coffee/pastry stand if it were provided. The majority of people who said they would use a coffee/pastry stand were people who were using the existing kiosk already. Three people (five percent) not using the existing stand said they would use one if it were available.

These numbers showing the use of the coffee/deli kiosk are especially interesting in relation to numbers from the two other lots. An average of 38 percent of the respondents at Northgate and South Bellevue said they would use a new coffee/pastry stand, three times higher than at Kenmore. No other amenity in the survey produced such a wide range of responses.

Other amenities (besides a coffee/pastry stand) with large variations in responses between sites are post office (from 31 percent to 52 percent) and dry cleaners (from 10 percent to 24 percent). A possible explanation for these differences might be that some neighborhoods already have sufficient offerings of these services outside the park -and-ride lot, whereas other areas do not.

The number of replies in these surveys is too small to draw a definite conclusion for Question 5. Planners need to be aware of these problems between "stated" and "actual" preferences when calculating expected use of new services.

From the results from Question 5, three sets of popularity are seen:

- services chosen by nearly 30 percent or more of the respondents
- services chosen by approximately 20 percent
- services that less than 12 percent said they would use

The first group, with the top four choices, post office, gas station, coffee/pastry, and newspaper/magazine, included only services that people purchase frequently. These are services that can be used quickly and with a minimum of comparison and evaluation. Most people use all four top choices. All choices in the first group are services with small variations in price and fairly small variations in quality. In fact, for the top choice, post office service, the price and quality are uniform.

The second group is somewhat more mixed. Convenience store and bagel/donut shop are used fairly often, but more as an impulse. People in workplaces with at least semi-formal dress codes use dry cleaners; others may use them occasionally.

The third group includes services used relatively infrequently. Some are more impulse-related (video rentals, take-out food). For others, the price variation can be large, so that people may want to comparison-shop (auto service, florist).

Concierge service was the last option on the questionnaire list and was also the least frequently chosen. Several people said yes to many services, yet they did not mark this choice down. A possible explanation may be that people do not know what concierge service is. The questionnaire answered this question partially by saying "concierge service offering these and/or other services." This definition may have been insufficient.

Other amenities in which respondents expressed interest were the following:

- rest rooms (three people)
- change machine (two people)
- pay phone (one person)
- clock (one person)

These are all services that many people may need occasionally. Usually, people can plan so they do not need a rest room or a change machine, and most people wear a watch. A pay phone is an inexpensive

service to provide and would improve personal security (it is currently at two of the three lots).

**Survey Results Summary**

The survey respondents were mostly frequent travelers who consider bus service and security important. While most were satisfied with the majority of design factors for park-and-ride lots, some were dissatisfied, primarily with vehicle safety and the lack of amenities. The surveys also confirmed the desirability of locating services that are frequently used and that require little pre-purchase consideration on the part of the consumer adjacent to or at park-and-ride lots. If the nearby services are useful enough to consumers, then they may be a factor in encouraging people to use transit. However, planners must be cautious in forecasting mode choice changes, because people's claims of what they would do may differ from their actual behavior.

## SUMMARY

When implementing joint development at park-and-ride lots, thorough planning should be done to ensure that high quality, and desired services should be provided to encourage people to switch out of their single occupancy vehicles. Park-and-ride lots are busy activity points in the morning and evening hours, making them economically interesting to businesses. This survey found that 70 percent of respondents used the lot five days a week and almost all had some degree of satisfaction with their lot, making these people frequent customers for any amenities located at the park-and-ride lots.

New services adjacent to park-and-ride lots should be of a type that people use frequently, and that do not require much pre-purchase consideration. Findings from this research suggest that the following services would work better than others:

- Convenience store
- Dry cleaner
- Gasoline station
- Kiosk selling newspapers, magazines, coffee, and pastries
- Post office

Although banking services, such as an ATM machine, were not included in this analysis, other studies suggest they could be of interest to park-and-ride users. Again, planners should use care when interpreting these results, since people's predictions of their own behavior may be different from the actual behavior.

After cost, bus service, and the traffic environment, park-and-ride users are concerned about information, comfort, and cleanliness at park-and-ride lots. Personal and vehicle security is also very much on people's minds. Personal security is important in people's decision to use public transportation; vehicle security is important when deciding to park-and-ride. People are deterred from bus transit if they perceive it as unsafe, despite whatever other positive elements it may feature.

While there are no reports yet that state whether the donation stands at Seattle's park-and-ride lots actually increase security at the lots, survey results at the South Bellevue park-and-ride indicate that people perceive them as doing so. The survey also indicates that a manned service can influence lot use. Interestingly, the employee manning the Goodwill collection stand at the Bellevue Park-and-Ride stated that use of his station by park-and-ride users was negligible, and that most donations came from people stopping by midday. The Goodwill employee believed, however, that his presence had helped reduce car break-ins.

Other types of manned services, especially if they are outdoors, could produce a comparable effect on perceived security; as such, they could be useful in park-and-ride lots. The importance of security at park-and-ride lots and the scarcity of detailed suggestions for ensuring security in the official design guidelines and manuals suggests that more needs to be done in this field, including

examining which factors influence perceived security, and to what extent.

Locating services at park-and-ride lots raises several planning and policy issues. The development and activity associated with park-and-ride facilities may change elements of adjoining land use patterns (CH2M Hill 1981). Questions regarding land use and zoning for joint developments at park-and-ride lots and the specific services intended to be offered would need to be addressed. Business impacts on surrounding commercial centers would need to be considered carefully.

As urban sprawl and traffic congestion worsen in American cities, park-and-ride lots may become increasingly important. Joint development with convenient services can be an important factor in increasing the quality of park-and-ride systems. Making lots more attractive to users by adding convenient services and improving security with the presence of these services could help encourage people to consider transit as an alternative to the automobile.

## APPENDIX A - Questionnaires

# APPENDIX A: QUESTIONNAIRES

Form used in interviews with users at Northgate park-and-ride lot. (Reduced 25%)

## PARK-AND-RIDE SURVEY

Northgate

1. *How often do you use a park-and-ride lot ?*

- ❒ 5 times per week
- ❒ 3-4 times per week
- ❒ less

2. *How satisfied are you with this park-and-ride lot ?*

- ❒ very satisfied
- ❒ somewhat satisfied
- ❒ no opinion
- ❒ somewhat dissatisfied
- ❒ very dissatisfied

3. *What factors are you satisfied dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| ❒ | ❒ | ❒ | Access (convenience, signing) | ❒ | ❒ | ❒ |
| ❒ | ❒ | ❒ | Number of parking spaces | ❒ | ❒ | ❒ |
| ❒ | ❒ | ❒ | Ease of moving around in lot | ❒ | ❒ | ❒ |
| ❒ | ❒ | ❒ | Safety for vehicle | ❒ | ❒ | ❒ |
| ❒ | ❒ | ❒ | Personal safety | ❒ | ❒ | ❒ |
| ❒ | ❒ | ❒ | Comfort (shelter, benches, etc.) | ❒ | ❒ | ❒ |
| ❒ | ❒ | ❒ | Information (busroutes etc.) | ❒ | ❒ | ❒ |
| ❒ | ❒ | ❒ | Beauty / cleanliness | ❒ | ❒ | ❒ |
| ❒ | ❒ | ❒ | Amenities (papers, snacks, etc) | ❒ | ❒ | ❒ |
| ❒ | ❒ | ❒ | Bus service | ❒ | ❒ | ❒ |
| ❒ | ❒ | ❒ | Other : ..... Please specify | ❒ | ❒ | ❒ |

4. *Do you use Northgate Mall which is close to the park-and-ride lot ?* ❒ Yes ❒ No
   *If yes, how often ?* _____
   *Does the Mall influence your choice of using this park-and-ride lot ?* ❒ Yes ❒ No

5. *If these amenities were at or adjacent to the park-and-ride lot, would* ***YOU*** *use them:*

- ❒ Coffee / pastry vendor
- ❒ Bagel / donut shop
- ❒ Newspaper / magazine vendor
- ❒ Video rental
- ❒ Film processing
- ❒ Dry cleaner
- ❒ Shoe repair
- ❒ Florist stand
- ❒ Fax / copy center
- ❒ Postal service
- ❒ Convenience store
- ❒ Take-out food
- ❒ Gas station
- ❒ Other auto services
- ❒ Concierge service offering these and/or other services
- ❒ Other : ..... Please specify

**Thank you for your time !**

Form used in interviews with users at Kenmore park-and-ride lot. (Reduced 25%)

## PARK-AND-RIDE SURVEY

Kenmore

1. *How often do you use a park-and-ride lot ?*

- ☐ 5 times per week
- ☐ 3-4 times per week
- ☐ less

2. *How satisfied are you with this park-and-ride lot ?*

- ☐ very satisfied
- ☐ somewhat satisfied
- ☐ no opinion
- ☐ somewhat dissatisfied
- ☐ very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | Access (convenience, signing) | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Number of parking spaces | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Ease of moving around in lot | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Safety for vehicle | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Personal safety | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Comfort (shelter, benches, etc.) | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Information (busroutes etc.) | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Beauty / cleanliness | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Amenities (papers, snacks, etc) | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Bus service | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Other : ..... Please specify | ☐ | ☐ | ☐ |

4. *Do you use the espresso-kiosk that is adjacent to the bus stop?* ☐ Yes ☐ No
   *If yes, how often ?* _____
   *Does the kiosk influence your choice of using this park-and-ride lot ?* ☐ Yes ☐ No

5. *If these amenities were at or adjacent to the park-and-ride lot, would* ***YOU*** *use them:*

- ☐ Coffee / pastry vendor
- ☐ Bagel / donut shop
- ☐ Newspaper / magazine vendor
- ☐ Video rental
- ☐ Film processing
- ☐ Dry cleaner
- ☐ Shoe repair
- ☐ Florist stand
- ☐ Fax / copy center
- ☐ Postal service
- ☐ Convenience store
- ☐ Take-out food
- ☐ Gas station
- ☐ Other auto services
- ☐ Concierge service offering these and/or other services
- ☐ Other : ..... Please specify

**Thank you for your time !**

Form used in interviews with users at South Bellevue park-and-ride lot. (Reduced 25%)

## PARK-AND-RIDE SURVEY

South Bellevue

1. *How often do you use a park-and-ride lot ?*

- ☐ 5 times per week
- ☐ 3-4 times per week
- ☐ less

2. *How satisfied are you with this park-and-ride lot ?*

- ☐ very satisfied
- ☐ somewhat satisfied
- ☐ no opinion
- ☐ somewhat dissatisfied
- ☐ very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | Access (convenience. signing) | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Number of parking spaces | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Ease of moving around in lot | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Safety for vehicle | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Personal safety | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Comfort (shelter, benches, etc.) | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Information (busroutes etc.) | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Beauty / cleanliness | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Amenities (papers. snacks. etc) | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Bus service | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | Other : ..... Please specify | ☐ | ☐ | ☐ |

4. *Do you think that the manned Goodwill container at the park-and-ride lot increases the security at the lot?* ☐ Yes ☐ No

*Does the manned stand influence your choice of using this park-and-ride lot ?* ☐ Yes ☐ No

5. *If these amenities were at or adjacent to the park-and-ride lot, would* ***YOU*** *use them:*

- ☐ Coffee / pastry vendor
- ☐ Bagel / donut shop
- ☐ Newspaper / magazine vendor
- ☐ Video rental
- ☐ Film processing
- ☐ Dry cleaner
- ☐ Shoe repair
- ☐ Florist stand
- ☐ Fax / copy center
- ☐ Postal service
- ☐ Convenience store
- ☐ Take-out food
- ☐ Gas station
- ☐ Other auto services
- ☐ Concierge service offering these and/or other services
- ☐ Other : ..... Please specify

**Thank you for your time !**

**APPENDIX B** - Survey Results

# APPENDIX B: SURVEY RESULTS

## Questionnaire results, total for all three park-and-rides, all categories of riders.

1. *How often do you use a park-and-ride lot ?*
   - 134 5 times per week
   - 41 3-4 times per week
   - 16 less

   A total of 191 answers.

2. *How satisfied are you with this park-and-ride lot ?*
   - 127 very satisfied
   - 58 somewhat satisfied
   - 3 no opinion
   - 2 somewhat dissatisfied
   - 1 very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 176 | 9 | 6 | Access (convenience, signing) | 161 | 29 | 1 |
| 165 | 17 | 9 | Number of parking spaces | 149 | 36 | 6 |
| 161 | 23 | 7 | Ease of moving around in lot | 97 | 79 | 15 |
| 122 | 41 | 28 | Safety for vehicle | 175 | 12 | 4 |
| 163 | 18 | 10 | Personal safety | 179 | 11 | 1 |
| 139 | 37 | 15 | Comfort (shelter, benches, etc.) | 80 | 98 | 13 |
| 124 | 51 | 16 | Information (busroutes etc.) | 92 | 81 | 18 |
| 122 | 51 | 18 | Beauty / cleanliness | 67 | 106 | 18 |
| 70 | 95 | 26 | Amenities (papers, snacks, etc) | 21 | 90 | 80 |
| 169 | 12 | 9 | Bus service | 185 | 4 | 2 |
| - | - | * | Other: Pay phone:1 Scheduling:1 | * | - | - |

4. Not applicable.

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 59 | Coffee / pastry vendor | 8 | Fax / copy center |
| 41 | Bagel / donut shop | 75 | Postal service |
| 55 | Newspaper / magazine vendor | 42 | Convenience store |
| 22 | Video rental | 14 | Take-out food |
| 12 | Film processing | 63 | Gas station |
| 35 | Dry cleaner | 11 | Other auto services |
| 18 | Shoe repair | 4 | Concierge service offering these and/or other services |
| 17 | Florist stand | * | Rest room:3 Change machines:2 Pay phone:1 Clock:1 |

**Questionnaire results, total for all three park-and-rides, people parking there five times a week.**

1. *How often do you use a park-and-ride lot ?*
   - 134 5 times per week
   - 3-4 times per week
   - less

2. *How satisfied are you with this park-and-ride lot ?*
   - 85 very satisfied
   - 46 somewhat satisfied
   - 1 no opinion
   - 1 somewhat dissatisfied
   - 1 very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 128 | 4 | 2 | Access (convenience, signing) | 117 | 16 | 1 |
| 118 | 10 | 6 | Number of parking spaces | 107 | 24 | 3 |
| 117 | 12 | 5 | Ease of moving around in lot | 68 | 56 | 10 |
| 84 | 28 | 22 | Safety for vehicle | 122 | 9 | 3 |
| 115 | 13 | 6 | Personal safety | 125 | 8 | 1 |
| 97 | 25 | 12 | Comfort (shelter, benches, etc.) | 52 | 72 | 10 |
| 89 | 44 | 11 | Information (busroutes etc.) | 65 | 58 | 11 |
| 83 | 35 | 16 | Beauty / cleanliness | 46 | 74 | 14 |
| 47 | 68 | 19 | Amenities (papers, snacks, etc) | 15 | 63 | 56 |
| 118 | 11 | 5 | Bus service | 130 | 3 | 1 |
| - | - | 1 | Other : .. Scheduling ..... | 1 | - | - |

4. Not applicable.

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 40 | Coffee / pastry vendor | 4 | Fax / copy center |
| 27 | Bagel / donut shop | 47 | Postal service |
| 34 | Newspaper / magazine vendor | 33 | Convenience store |
| 15 | Video rental | 9 | Take-out food |
| 8 | Film processing | 45 | Gas station |
| 28 | Dry cleaner | 9 | Other auto services |
| 15 | Shoe repair | 4 | Concierge service offering these and/or other services |
| 6 | Florist stand | 2 | Other : .. Rest rooms ..... |

**Questionnaire results, total for all three park-and-rides, people parking there three to four times a week.**

1. *How often do you use a park-and-ride lot ?*
   - \- 5 times per week
   - 41 3-4 times per week
   - \- less

2. *How satisfied are you with this park-and-ride lot ?*
   - 32 very satisfied
   - 9 somewhat satisfied
   - \- no opinion
   - \- somewhat dissatisfied
   - \- very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 36 | 4 | 1 | Access (convenience, signing) | 30 | 11 | - |
| 35 | 5 | 1 | Number of parking spaces | 29 | 9 | 3 |
| 33 | 7 | 1 | Ease of moving around in lot | 21 | 15 | 5 |
| 27 | 11 | 3 | Safety for vehicle | 37 | 3 | 1 |
| 37 | 4 | - | Personal safety | 38 | 3 | - |
| 31 | 9 | 1 | Comfort (shelter, benches, etc.) | 19 | 19 | 3 |
| 24 | 12 | 5 | Information (busroutes etc.) | 19 | 16 | 6 |
| 28 | 12 | 1 | Beauty / cleanliness | 13 | 24 | 4 |
| 16 | 20 | 5 | Amenities (papers, snacks, etc) | 1 | 23 | 17 |
| 39 | - | 2 | Bus service | 40 | 1 | - |
| - | - | - | Other : ..... | - | - | - |

4. Not applicable.

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 13 | Coffee / pastry vendor | 1 | Fax / copy center |
| 10 | Bagel / donut shop | 19 | Postal service |
| 12 | Newspaper / magazine vendor | 7 | Convenience store |
| 7 | Video rental | 4 | Take-out food |
| 3 | Film processing | 15 | Gas station |
| 6 | Dry cleaner | 2 | Other auto services |
| 3 | Shoe repair | - | Concierge service offering these and/or other services |
| 9 | Florist stand | 1 | Other : .. Change machine ..... |

**Questionnaire results, total for all three park-and-rides, people parking there less than three times per week.**

1. *How often do you use a park-and-ride lot ?*
   - \- 5 times per week
   - \- 3-4 times per week
   - 16 less

2. *How satisfied are you with this park-and-ride lot ?*
   - 10 very satisfied
   - 3 somewhat satisfied
   - 2 no opinion
   - 1 somewhat dissatisfied
   - \- very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 12 | 1 | 3 | Access (convenience, signing) | 14 | 2 | - |
| 12 | 2 | 2 | Number of parking spaces | 13 | 3 | - |
| 11 | 4 | 1 | Ease of moving around in lot | 8 | 8 | - |
| 11 | 2 | 3 | Safety for vehicle | 16 | - | - |
| 11 | 1 | 4 | Personal safety | 16 | - | - |
| 11 | 3 | 2 | Comfort (shelter, benches, etc.) | 9 | 7 | - |
| 11 | 5 | - | Information (busroutes etc.) | 8 | 7 | 1 |
| 11 | 4 | 1 | Beauty / cleanliness | 8 | 8 | - |
| 7 | 7 | 2 | Amenities (papers, snacks, etc) | 5 | 4 | 7 |
| 12 | 2 | 2 | Bus service | 15 | - | 1 |
| - | - | 1 | Other : .. Pay phone ..... | 1 | - | - |

4. Not applicable.

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 6 | Coffee / pastry vendor | 3 | Fax / copy center |
| 4 | Bagel / donut shop | 9 | Postal service |
| 9 | Newspaper / magazine vendor | 2 | Convenience store |
| - | Video rental | 1 | Take-out food |
| 1 | Film processing | 3 | Gas station |
| 1 | Dry cleaner | - | Other auto services |
| - | Shoe repair | - | Concierge service offering these and/or other services |
| 2 | Florist stand | 1 | Other : Pay phone, rest rooms, clocks, change machines |

**Questionnaire results for Northgate, total for all users.**

1. *How often do you use a park-and-ride lot ?*

32 5 times per week
12 3-4 times per week
4 less
A total of 48 answers

2. *How satisfied are you with this park-and-ride lot ?*

32 very satisfied
13 somewhat satisfied
2 no opinion
1 somewhat dissatisfied
- very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 45 | 3 | - | Access (convenience, signing) | 45 | 3 | - |
| 40 | 5 | 3 | Number of parking spaces | 37 | 7 | 4 |
| 40 | 6 | 2 | Ease of moving around in lot | 32 | 13 | 3 |
| 27 | 15 | 6 | Safety for vehicle | 41 | 5 | 2 |
| 39 | 5 | 4 | Personal safety | 44 | 4 | - |
| 30 | 14 | 4 | Comfort (shelter, benches, etc.) | 22 | 23 | 3 |
| 31 | 13 | 4 | Information (busroutes etc.) | 23 | 20 | 5 |
| 17 | 20 | 11 | Beauty / cleanliness | 19 | 26 | 3 |
| 13 | 26 | 9 | Amenities (papers, snacks, etc) | 6 | 24 | 18 |
| 41 | 6 | 1 | Bus service | 46 | 2 | - |
| - | - | 1 | Other : .. Scheduling ..... | 1 | - | - |

4. *Do you use Northgate Mall which is close to the park-and-ride lot ?*

37 Yes 11 No

*If yes, how often ?*

1/month:6
2/month:8 weekends:1
1/week:6 5/week:2
every 2.day:2 7/week:1

*Does the Mall influence your choice of using this park-and-ride lot ?*

3 Yes 45 No

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 23 | Coffee / pastry vendor | - | Fax / copy center |
| 12 | Bagel / donut shop | 19 | Postal service |
| 13 | Newspaper / magazine vendor | 9 | Convenience store |
| 8 | Video rental | 4 | Take-out food |
| 2 | Film processing | 14 | Gas station |
| 5 | Dry cleaner | 3 | Other auto services |
| 1 | Shoe repair | 1 | Concierge service offering these and/or other services |
| 5 | Florist stand | * | Other: Rest rooms: 2. Change machines: 2. Clocks: 1. |

**Comments received on questionnaires at Northgate Park-and-Ride**

[Dissatisfied with scheduling,] too much [buses] 6-8, not often earlier/later.

**Questionnaire results for Northgate, people parking five days a week.**

1. *How often do you use a park-and-ride lot ?*
   - 32 5 times per week
   - \- 3-4 times per week
   - \- less

2. *How satisfied are you with this park-and-ride lot ?*
   - 22 very satisfied
   - 8 somewhat satisfied
   - 1 no opinion
   - 1 somewhat dissatisfied
   - \- very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 31 | 1 | - | Access (convenience, signing) | 31 | 1 | - |
| 28 | 3 | 1 | Number of parking spaces | 23 | 7 | 2 |
| 29 | 2 | 1 | Ease of moving around in lot | 20 | 10 | 2 |
| 19 | 10 | 3 | Safety for vehicle | 28 | 3 | 1 |
| 26 | 4 | 2 | Personal safety | 30 | 2 | - |
| 21 | 9 | 2 | Comfort (shelter, benches, etc.) | 14 | 16 | 2 |
| 19 | 9 | 4 | Information (busroutes etc.) | 15 | 13 | 4 |
| 10 | 12 | 10 | Beauty / cleanliness | 13 | 17 | 2 |
| 11 | 15 | 6 | Amenities (papers, snacks, etc) | 5 | 14 | 13 |
| 27 | 5 | - | Bus service | 30 | 2 | - |
| - | - | 1 | Other : .. Scheduling ..... | 1 | - | - |

4. *Do you use Northgate Mall which is close to the park-and-ride lot ?*
   26 Yes 6 No

   *If yes, how often ?*
   1/month: 5
   2/month: 5 5/week: 2
   1/week: 2 7/week: 1

   *Does the Mall influence your choice of using this park-and-ride lot ?*
   3 Yes 29 No

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 14 | Coffee / pastry vendor | - | Fax / copy center |
| 9 | Bagel / donut shop | 11 | Postal service |
| 9 | Newspaper / magazine vendor | 6 | Convenience store |
| 5 | Video rental | 3 | Take-out food |
| - | Film processing | 9 | Gas station |
| 4 | Dry cleaner | 2 | Other auto services |
| 1 | Shoe repair | 1 | Concierge service offering these and/or other services |
| - | Florist stand | 1 | Other : .. Rest Room ..... |

**Questionnaire results for Northgate, people parking three to four times a week.**

1. *How often do you use a park-and-ride lot ?*
   - \- 5 times per week
   - 12 3-4 times per week
   - \- less

2. *How satisfied are you with this park-and-ride lot ?*
   - 8 very satisfied
   - 4 somewhat satisfied
   - \- no opinion
   - \- somewhat dissatisfied
   - \- very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 11 | 1 | - | Access (convenience, signing) | 10 | 2 | - |
| 9 | 2 | 1 | Number of parking spaces | 10 | - | 2 |
| 9 | 2 | 1 | Ease of moving around in lot | 9 | 2 | 1 |
| 6 | 4 | 2 | Safety for vehicle | 9 | 2 | 1 |
| 11 | 1 | - | Personal safety | 10 | 2 | - |
| 7 | 4 | 1 | Comfort (shelter, benches, etc.) | 6 | 5 | 1 |
| 10 | 2 | - | Information (busroutes etc.) | 6 | 5 | 1 |
| 5 | 7 | - | Beauty / cleanliness | 5 | 6 | 1 |
| 1 | 8 | 3 | Amenities (papers, snacks, etc) | - | 8 | 4 |
| 12 | - | - | Bus service | 12 | - | - |
| - | - | - | Other : ..... | - | - | - |

4. *Do you use Northgate Mall which is close to the park-and-ride lot ?*

   10 Yes 2 No

   *If yes, how often ?*

   1/month: 1
   2/month: 3 every 2.day: 1
   1/week: 4 weekends: 1

   *Does the Mall influence your choice of using this park-and-ride lot ?*

   \- Yes 12 No

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 7 | Coffee / pastry vendor | - | Fax / copy center |
| 3 | Bagel / donut shop | 7 | Postal service |
| 3 | Newspaper / magazine vendor | 2 | Convenience store |
| 3 | Video rental | 1 | Take-out food |
| 2 | Film processing | 4 | Gas station |
| 1 | Dry cleaner | 1 | Other auto services |
| - | Shoe repair | - | Concierge service offering these and/or other services |
| 5 | Florist stand | 1 | Other : ... Change machine ..... |

**Questionnaire results for Northgate, people parking less than three times a week.**

1. *How often do you use a park-and-ride lot ?*
   - \- 5 times per week
   - \- 3-4 times per week
   - 4 less

2. *How satisfied are you with this park-and-ride lot ?*
   - 2 very satisfied
   - 1 somewhat satisfied
   - 1 no opinion
   - \- somewhat dissatisfied
   - \- very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 3 | 1 | - | Access (convenience, signing) | 4 | - | - |
| 3 | - | 1 | Number of parking spaces | 4 | - | - |
| 2 | 2 | - | Ease of moving around in lot | 3 | 1 | - |
| 2 | 1 | 1 | Safety for vehicle | 4 | - | - |
| 2 | - | 2 | Personal safety | 4 | - | - |
| 2 | 1 | 1 | Comfort (shelter, benches, etc.) | 2 | 2 | - |
| 2 | 2 | - | Information (busroutes etc.) | 2 | 2 | - |
| 2 | 1 | 1 | Beauty / cleanliness | 1 | 3 | - |
| 1 | 3 | - | Amenities (papers, snacks, etc) | 1 | 2 | 1 |
| 2 | 1 | 1 | Bus service | 4 | - | - |
| - | - | - | Other : ..... | - | - | - |

4. *Do you use Northgate Mall which is close to the park-and-ride lot ?*
   1 Yes 3 No

   *If yes, how often ?* _____

   *Does the Mall influence your choice of using this park-and-ride lot ?*
   - Yes 4 No

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 2 | Coffee / pastry vendor | - | Fax / copy center |
| - | Bagel / donut shop | 1 | Postal service |
| 1 | Newspaper / magazine vendor | 1 | Convenience store |
| - | Video rental | - | Take-out food |
| - | Film processing | 1 | Gas station |
| - | Dry cleaner | - | Other auto services |
| - | Shoe repair | - | Concierge service offering these and/or other services |
| - | Florist stand | 1 | Other : Rest rooms, clocks, change machines |

**Questionnaire results for Kenmore, total for all users.**

1. *How often do you use a park-and-ride lot ?*
   - 28 5 times per week
   - 18 3-4 times per week
   - 10 less

   A total of 56 answers

2. *How satisfied are you with this park-and-ride lot ?*
   - 41 very satisfied
   - 13 somewhat satisfied
   - 1 no opinion
   - 1 somewhat dissatisfied
   - - very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 47 | 4 | 5 | Access (convenience, signing) | 43 | 13 | - |
| 44 | 9 | 3 | Number of parking spaces | 42 | 13 | 1 |
| 43 | 9 | 4 | Ease of moving around in lot | 28 | 24 | 4 |
| 39 | 12 | 5 | Safety for vehicle | 54 | 1 | 1 |
| 47 | 5 | 4 | Personal safety | 54 | 2 | - |
| 42 | 9 | 5 | Comfort (shelter, benches, etc.) | 30 | 25 | 1 |
| 36 | 13 | 7 | Information (busroutes etc.) | 29 | 21 | 6 |
| 45 | 10 | 1 | Beauty / cleanliness | 24 | 29 | 3 |
| 19 | 29 | 8 | Amenities (papers, snacks, etc) | 12 | 23 | 21 |
| 50 | 2 | 4 | Bus service | 53 | 1 | 2 |
| - | - | 1 | Other : .. Pay phone ..... | 1 | - | - |

4. *Do you use the espresso-kiosk that is adjacent to the bus stop?*
   7 Yes 49 No

   *If yes, how often ?*
   2/month: 1 5/week: 1
   2/week: 1 occasionally: 2

   *Does the kiosk influence your choice of using this park-and-ride lot ?*
   - Yes 56 No

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*
   - 8 Coffee / pastry vendor
   - 15 Bagel / donut shop
   - 17 Newspaper / magazine vendor
   - 6 Video rental
   - 5 Film processing
   - 9 Dry cleaner
   - 5 Shoe repair
   - 10 Florist stand
   - 6 Fax / copy center
   - 29 Postal service
   - 13 Convenience store
   - 5 Take-out food
   - 19 Gas station
   - 1 Other auto services
   - 1 Concierge service offering these and/or other services
   - 1 Other : .. Pay phone .....

**Comments received on questionnaires at Kenmore Park-and-Ride.**

My car has been broken into twice [,once here, once at Bothell P/R.]

No pay phone !

[Dissatisfied, need] more buses.

[Dissatisfied,] Bus can't return into lot on some routes.

Bus routes going to Bothell on Bothell way:

- no crosswalks (overhead) for passengers
- it's very dangerous crossing the road to get to Kenmore P/R

I've called 3-4 times to complain of patrons double parking when there are plenty of spots open. Nothing done.
Also there should be a overpass walkway across highway! Crosswalk at Knoll Lumber is dangerous!

[Bus service dissatisfying,] stops too early [buses departs too early].

[Comfort satisfying,] except when cold + wet (drafty).

Too many papers [vending machines].

I think it [the deli and espresso kiosk] is an eyesore.

No [I will not use new amenities at or adjacent to the lot] - I have my favorites.

**Questionnaire results for Kenmore, total people parking there five times a week.**

1. *How often do you use a park-and-ride lot ?*
   - 28 5 times per week
   - \- 3-4 times per week
   - \- less

2. *How satisfied are you with this park-and-ride lot ?*
   - 19 very satisfied
   - 9 somewhat satisfied
   - \- no opinion
   - \- somewhat dissatisfied
   - \- very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 26 | 1 | 1 | Access (convenience, signing) | 23 | 5 | - |
| 22 | 4 | 2 | Number of parking spaces | 25 | 3 | - |
| 21 | 4 | 3 | Ease of moving around in lot | 14 | 12 | 2 |
| 20 | 5 | 3 | Safety for vehicle | 27 | - | 1 |
| 24 | 2 | 2 | Personal safety | 27 | 1 | - |
| 20 | 3 | 5 | Comfort (shelter, benches, etc.) | 15 | 13 | - |
| 20 | 4 | 4 | Information (busroutes etc.) | 16 | 11 | 1 |
| 23 | 5 | - | Beauty / cleanliness | 13 | 13 | 2 |
| 6 | 16 | 6 | Amenities (papers, snacks, etc) | 7 | 14 | 7 |
| 26 | 1 | 1 | Bus service | 26 | 1 | 1 |
| - | - | - | Other : ..... | - | - | - |

4. *Do you use the espresso-kiosk that is adjacent to the bus stop?*
   2 Yes 26 No

   *If yes, how often ?*
   5/week: 1
   2/month: 1

   *Does the kiosk influence your choice of using this park-and-ride lot ?*
   \- Yes 28 No

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 4 | Coffee / pastry vendor | 2 | Fax / copy center |
| 8 | Bagel / donut shop | 15 | Postal service |
| 5 | Newspaper / magazine vendor | 10 | Convenience store |
| 4 | Video rental | 3 | Take-out food |
| 3 | Film processing | 13 | Gas station |
| 6 | Dry cleaner | 1 | Other auto services |
| 4 | Shoe repair | 1 | Concierge service offering these and/or other services |
| 6 | Florist stand | - | Other : ..... |

**Questionnaire results for Kenmore, total for people parking there three to four times a week.**

1. *How often do you use a park-and-ride lot ?*
   - \- 5 times per week
   - 18 3-4 times per week
   - \- less

2. *How satisfied are you with this park-and-ride lot ?*
   - 16 very satisfied
   - 2 somewhat satisfied
   - \- no opinion
   - \- somewhat dissatisfied
   - \- very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 14 | 3 | 1 | Access (convenience, signing) | 11 | 7 | - |
| 15 | 3 | - | Number of parking spaces | 10 | 7 | 1 |
| 15 | 3 | - | Ease of moving around in lot | 9 | 7 | 2 |
| 12 | 6 | - | Safety for vehicle | 17 | 1 | - |
| 16 | 2 | - | Personal safety | 17 | 1 | - |
| 14 | 4 | - | Comfort (shelter, benches, etc.) | 9 | 8 | 1 |
| 9 | 6 | 3 | Information (busroutes etc.) | 8 | 6 | 4 |
| 14 | 3 | 1 | Beauty / cleanliness | 5 | 12 | 1 |
| 8 | 9 | 1 | Amenities (papers, snacks, etc) | 1 | 8 | 9 |
| 16 | - | 2 | Bus service | 18 | - | - |
| - | - | - | Other : ..... | - | - | - |

4. *Do you use the espresso-kiosk that is adjacent to the bus stop?*
   3 Yes 15 No

   *If yes, how often ?*
   2/week: 1
   occasionally: 1

   *Does the kiosk influence your choice of using this park-and-ride lot ?*
   \- Yes 18 No

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 1 | Coffee / pastry vendor | 1 | Fax / copy center |
| 3 | Bagel / donut shop | 6 | Postal service |
| 5 | Newspaper / magazine vendor | 2 | Convenience store |
| 2 | Video rental | 1 | Take-out food |
| 1 | Film processing | 4 | Gas station |
| 2 | Dry cleaner | - | Other auto services |
| 1 | Shoe repair | - | Concierge service offering these and/or other services |
| 2 | Florist stand | - | Other : ..... |

**Questionnaire results for Kenmore, total for people parking there less than three times per week.**

1. *How often do you use a park-and-ride lot ?*
   - \- 5 times per week
   - \- 3-4 times per week
   - 10 less

2. *How satisfied are you with this park-and-ride lot ?*
   - 6 very satisfied
   - 2 somewhat satisfied
   - 1 no opinion
   - 1 somewhat dissatisfied
   - \- very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 7 | - | 3 | Access (convenience, signing) | 9 | 1 | - |
| 7 | 2 | 1 | Number of parking spaces | 7 | 3 | - |
| 7 | 2 | 1 | Ease of moving around in lot | 5 | 5 | - |
| 7 | 1 | 2 | Safety for vehicle | 10 | - | - |
| 7 | 1 | 2 | Personal safety | 10 | - | - |
| 8 | 2 | - | Comfort (shelter, benches, etc.) | 6 | 4 | - |
| 7 | 3 | - | Information (busroutes etc.) | 5 | 4 | 1 |
| 8 | 2 | - | Beauty / cleanliness | 6 | 4 | - |
| 5 | 4 | 1 | Amenities (papers, snacks, etc) | 4 | 1 | 5 |
| 8 | 1 | 1 | Bus service | 9 | - | 1 |
| - | - | 1 | Other : .. Pay phone ..... | 1 | - | - |

4. *Do you use the espresso-kiosk that is adjacent to the bus stop?*
   2 Yes 8 No
   *If yes, how often ?* occasionally: 1
   *Does the kiosk influence your choice of using this park-and-ride lot ?*
   \- Yes 10 No

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 3 | Coffee / pastry vendor | 3 | Fax / copy center |
| 4 | Bagel / donut shop | 8 | Postal service |
| 7 | Newspaper / magazine vendor | 1 | Convenience store |
| - | Video rental | 1 | Take-out food |
| 1 | Film processing | 2 | Gas station |
| 1 | Dry cleaner | - | Other auto services |
| - | Shoe repair | - | Concierge service offering these and/or other services |
| 2 | Florist stand | 1 | Other : .. Pay phone ..... |

**Questionnaire results for South Bellevue, total for all people parking there.**

1. *How often do you use a park-and-ride lot ?*
   - 74 5 times per week
   - 11 3-4 times per week
   - 2 less

   A total of 87 answers

2. *How satisfied are you with this park-and-ride lot ?*
   - 54 very satisfied
   - 32 somewhat satisfied
   - \- no opinion
   - \- somewhat dissatisfied
   - 1 very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 84 | 2 | 1 | Access (convenience, signing) | 73 | 13 | 1 |
| 81 | 3 | 3 | Number of parking spaces | 70 | 16 | 1 |
| 78 | 8 | 1 | Ease of moving around in lot | 37 | 42 | 8 |
| 56 | 14 | 17 | Safety for vehicle | 80 | 6 | 1 |
| 77 | 8 | 2 | Personal safety | 81 | 5 | 1 |
| 67 | 14 | 6 | Comfort (shelter, benches, etc.) | 28 | 50 | 9 |
| 57 | 25 | 5 | Information (busroutes etc.) | 40 | 40 | 7 |
| 60 | 21 | 6 | Beauty / cleanliness | 24 | 51 | 12 |
| 38 | 40 | 9 | Amenities (papers, snacks, etc) | 3 | 43 | 41 |
| 78 | 5 | 4 | Bus service | 86 | 1 | - |
| - | - | - | Other : ..... | - | - | - |

4. *Do you think that the manned Goodwill container at the park-and-ride lot increases the security at the lot ?* 64 Yes 23 No

   *Does the manned stand influence your choice of using this park-and-ride lot ?* 12 Yes 75 No

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 28 | Coffee / pastry vendor | 2 | Fax / copy center |
| 14 | Bagel / donut shop | 27 | Postal service |
| 25 | Newspaper / magazine vendor | 20 | Convenience store |
| 8 | Video rental | 5 | Take-out food |
| 5 | Film processing | 30 | Gas station |
| 21 | Dry cleaner | 7 | Other auto services |
| 12 | Shoe repair | 2 | Concierge service offering these and/or other services |
| 2 | Florist stand | 1 | Other : .. Rest Rooms ..... |

**Comments received on questionnaires at South Bellevue Park-and-Ride**

More trees should have been left for shading purposes.

Not many [parking spaces] if you need to go in late, though.

Broken glass stays too long.

I wish you wouldn't let people put crap on my windshield because it is ugly/wasteful.

Larger space in [bus-?] seats.

[Satisfied with bus service] as long as 213 stays. [Notice from Metro on shelter saying that a change in service is proposed from January 1995.]

[Bus service, dissatisfied] in January with new schedule. I will not be able to ride the bus. Not enough buses w/213 gone.

[No, not using Goodwill container, neither think it increases safety at the lot,] but nice having it there.

Maybe [using new amenities at or adjacent to lot, depending on quality.]

**Questionnaire results for South Bellevue total for all people parking there five times a week.**

1. *How often do you use a park-and-ride lot ?*
   - 74 5 times per week
   - \- 3-4 times per week
   - \- less

2. *How satisfied are you with this park-and-ride lot ?*
   - 44 very satisfied
   - 29 somewhat satisfied
   - \- no opinion
   - \- somewhat dissatisfied
   - 1 very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 71 | 2 | 1 | Access (convenience, signing) | 63 | 10 | 1 |
| 68 | 3 | 3 | Number of parking spaces | 59 | 14 | 1 |
| 67 | 6 | 1 | Ease of moving around in lot | 34 | 34 | 6 |
| 45 | 13 | 16 | Safety for vehicle | 67 | 6 | 1 |
| 65 | 7 | 2 | Personal safety | 68 | 5 | 1 |
| 56 | 13 | 5 | Comfort (shelter, benches, etc.) | 23 | 43 | 8 |
| 50 | 21 | 3 | Information (busroutes etc.) | 34 | 34 | 6 |
| 50 | 18 | 6 | Beauty / cleanliness | 20 | 44 | 10 |
| 30 | 37 | 7 | Amenities (papers, snacks, etc) | 3 | 35 | 36 |
| 65 | 5 | 4 | Bus service | 74 | - | - |
| - | - | - | Other : ..... | - | - | - |

4. *Do you think that the manned Goodwill container at the park-and-ride lot increases the security at the lot ?* 53 Yes 21 No
   *Does the manned stand influence your choice of using this park-and-ride lot ?* 10 Yes 64 No

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 22 | Coffee / pastry vendor | 2 | Fax / copy center |
| 10 | Bagel / donut shop | 21 | Postal service |
| 20 | Newspaper / magazine vendor | 17 | Convenience store |
| 6 | Video rental | 3 | Take-out food |
| 5 | Film processing | 23 | Gas station |
| 18 | Dry cleaner | 6 | Other auto services |
| 10 | Shoe repair | 2 | Concierge service offering these and/or other services |
| - | Florist stand | 1 | Other : .. Rest Rooms ..... |

**Questionnaire results for South Bellevue, total for all people parking there three to four times per week.**

1. *How often do you use a park-and-ride lot ?*
   - \- 5 times per week
   - 11 3-4 times per week
   - \- less

2. *How satisfied are you with this park-and-ride lot ?*
   - 8 very satisfied
   - 3 somewhat satisfied
   - \- no opinion
   - \- somewhat dissatisfied
   - \- very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 11 | - | - | Access (convenience, signing) | 9 | 2 | - |
| 11 | - | - | Number of parking spaces | 9 | 2 | - |
| 9 | 2 | - | Ease of moving around in lot | 3 | 6 | 2 |
| 9 | 1 | 1 | Safety for vehicle | 11 | - | - |
| 10 | 1 | - | Personal safety | 11 | - | - |
| 10 | 1 | - | Comfort (shelter, benches, etc.) | 4 | 6 | 1 |
| 5 | 4 | 2 | Information (busroutes etc.) | 5 | 5 | 1 |
| 9 | 2 | - | Beauty / cleanliness | 3 | 6 | 2 |
| 7 | 3 | 1 | Amenities (papers, snacks, etc) | - | 7 | 4 |
| 11 | - | - | Bus service | 10 | 1 | - |
| - | - | - | Other : ..... | - | - | - |

4. *Do you think that the manned Goodwill container at the park-and-ride lot increases the security at the lot ?* 9 Yes 2 No
   *Does the manned stand influence your choice of using this park-and-ride lot ?* 2 Yes 9 No

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 5 | Coffee / pastry vendor | - | Fax / copy center |
| 4 | Bagel / donut shop | 6 | Postal service |
| 4 | Newspaper / magazine vendor | 3 | Convenience store |
| 2 | Video rental | 2 | Take-out food |
| - | Film processing | 7 | Gas station |
| 3 | Dry cleaner | 1 | Other auto services |
| 2 | Shoe repair | - | Concierge service offering these and/or other services |
| 2 | Florist stand | - | Other : ..... |

**Questionnaire results for South Bellevue, total for all people parking there less than three times per week.**

1. *How often do you use a park-and-ride lot ?*
   - \- 5 times per week
   - \- 3-4 times per week
   - 2 less

2. *How satisfied are you with this park-and-ride lot ?*
   - 2 very satisfied
   - \- somewhat satisfied
   - \- no opinion
   - \- somewhat dissatisfied
   - \- very dissatisfied

3. *What factors are you satisfied / dissatisfied with, and how important are these factors to you ?*

| Satisfied | No opinion | Dissatisfied | | Very important | Somewhat important | Unimportant /no opinion |
|---|---|---|---|---|---|---|
| 2 | - | - | Access (convenience, signing) | 1 | 1 | - |
| 2 | - | - | Number of parking spaces | 2 | - | - |
| 2 | - | - | Ease of moving around in lot | - | 2 | - |
| 2 | - | - | Safety for vehicle | 2 | - | - |
| 2 | - | - | Personal safety | 2 | - | - |
| 1 | - | 1 | Comfort (shelter, benches, etc.) | 1 | 1 | - |
| 2 | - | - | Information (busroutes etc.) | 1 | 1 | - |
| 1 | 1 | - | Beauty / cleanliness | 1 | 1 | - |
| 1 | - | 1 | Amenities (papers, snacks, etc) | - | 1 | 1 |
| 2 | - | - | Bus service | 2 | - | - |
| - | - | - | Other : ..... | - | - | - |

4. *Do you think that the manned Goodwill container at the park-and-ride lot increases the security at the lot ?* 2 Yes - No
   *Does the manned stand influence your choice of using this park-and-ride lot ?*
   - Yes 2 No

5. *If these amenities were at or adjacent to the park-and-ride lot, would **YOU** use them:*

| | | | |
|---|---|---|---|
| 1 | Coffee / pastry vendor | - | Fax / copy center |
| - | Bagel / donut shop | - | Postal service |
| 1 | Newspaper / magazine vendor | - | Convenience store |
| - | Video rental | - | Take-out food |
| - | Film processing | - | Gas station |
| - | Dry cleaner | - | Other auto services |
| - | Shoe repair | - | Concierge service offering these and/or other services |
| - | Florist stand | - | Other : ..... |

**APPENDIX C** - Characteristics of Park-and-Ride Users

A park-and-ride system provides an efficient division of functions between private transportation in the suburban zone and public transportation as a line-haul between a transit station and an employment center (Williams 1988). Many people are directly and peripherally impacted by park-and-ride lots:

- People who arrive by car or bike, park their vehicle, and then transfer to an HOV
- People who walk and then transfer to an HOV
- Bus riders who use the site as a transfer point between routes
- Residents and businesses located close to the lot
- People using the site or the surrounding area for recreation and other purposes
- Bus drivers and bus companies that service the lot

People who live close to park-and-rides perceive several impacts, including increased traffic flow on neighborhood streets and additional hazards to children playing outside and traveling to school. Vandalism and car theft is also a concern, but less than the "loss of their green space" or increased congestion around the facility. The majority of homeowners expected a park-and-ride to have little effect on their property values (The TRANSPO Group 1976).

For the user, the decision to park-and-ride is determined by the commuter's tradeoff between the inconvenience of using a park-and-ride and the high parking cost and congested traffic involved in driving to one's destination (Deen 1966). From a survey of studies on ridesharing and HOVs, researchers identified several reasons why people use park-and-ride and ridesharing programs (fig. 15). Many studies have revealed that cost is the most important factor in people's decision to rideshare, although other reasons include a desire to avoid congestion, parking scarcity, and stress (Bullard and Christensen 1981; Federal Highway Administration 1971; Williams 1988).

**Figure 15. Why People Rideshare?**

- **Cost.** The present high and/or increasing cost of parking at the destination
- **Distance.** Ridesharers commute for longer distances and times than solo drivers
- **Composition.** Carpools composed of unrelated individuals are destination oriented carpools with members typically working at the same location
- **Income.** Ridesharers generally have lower incomes than solo drivers
- **Available vehicles.** Ridesharers have fewer vehicles per household than solo drivers
- **Destination.** Ridesharing is highest for large companies of single-tenant sites with predominantly white-collar workers.

In a survey of 2,400 park-and ride users in Seattle, Wellander found that only 55 percent had previously used transit (Wellander 1985). This shows that park-and-ride lots play a significant role in attracting new transit ridership; they make transit both attractive and feasible to commuters in areas where it would not otherwise be viable. New park-and-ride patrons can be divided into three groups based on their previous mode choice (The TRANSPO Group 1976):

- Regular bus riders diverted from regular transit routes because of more attractive service frequency from the park-and-ride
- New bus riders from corridors covered by regular service
- New bus riders from areas not covered by regular service routes

One study showed that the majority of transit patrons who had switched to park-and-ride travel less than five miles from their homes to the lot, with this link accounting for about 25 percent of their total work trip (Gatens 1973). In another study, 58 percent of park-and-ride patrons traveled between one and three miles to the park-and-ride lot. Only 11 percent traveled over ten miles (Williams 1988). Recent data on park-and-ride lots in the greater Seattle area show that while the distance patrons travel to park-and-ride lots ranges from one-half mile to 15 miles, a majority of patrons travel less than three miles to the park-and-ride lot. The number of miles people say they would be willing to travel is generally around five miles (Municipality of Metropolitan Seattle 1993).

The Puget Sound region has a well-developed network of park-and-ride lots. A recent survey of bus riders showed that one in ten respondents had used a park-and-ride lot within the past 30 days. On average, respondents who use park-and-ride lots used them seven times in the past 30 days. Park-and-ride users tend to have stable travel routines; a San Francisco survey, for example, found that 73 percent of the users had used the lot for more than a year. The majority (68 percent) of the lot users parked their car at the lot and took the bus or met their carpool/vanpool (King County Department of Metropolitan Services 1994). This still leaves a large number who arrive by bike, on foot, or are dropped off. Another report indicated that kiss-and-ride drop-offs may represent between 20 to 40 percent of total peak-hour arrivals. The median driving distance for kiss-and-ride is one to two miles.

The same survey found that 79 percent of park-and-ride respondents traveled five days a week; 13 percent traveled four days a week; and 8 percent traveled three days a week. Results also revealed that of those who parked their vehicles in park-and-ride lots, 52 percent transferred to a bus; 35 percent transferred to a vanpool; and 13 percent transferred to a carpool. Studies of the parking duration for park-and-ride lots generally show that turnover per space is low, and that most users park their vehicles for eight hours or more. An average daily turnover of about 1.1 cars per space and about 1.2 transit boardings per parked car has been registered (Weant 1990). A 1985 summary of travel characteristics of park-and-ride lots suggested that more than 75 percent of those using the lots had come as drivers. About two-thirds of these patrons had driven alone, and almost all were traveling to or from work.

In theory, park-and-ride use is as applicable to shopping and personal business as it is to commuting; however, many studies indicate that commuters constitute the large majority of park-and-ride users. A recent Seattle-area study showed that 92 percent of park-and-ride users were traveling to work, while 6 percent were traveling to school (Municipality of Metropolitan Seattle 1993). A survey in the Bay Area showed that 98.9 percent surveyed were commuting to school or work (Williams 1988). However, it is worth mentioning that many park-and-ride lots are served by transit during peak periods only. If service frequencies were more consistent, it is possible that the percentage of shopping and personal business trips could increase.

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# About the Innovations Unit

The Innovations Unit is an advisory group to the Washington State Transportation Commission that conducts technology and policy research on emerging transportation developments and opportunities in Washington State. The goals of the Innovations Unit are to

- provide long-range program development support to the Transportation Commission,
- generate unfiltered visions of a wide range of future short-term and long-term transportation technology and policy options, and
- establish a research methodology that fosters development of innovative transportation concepts.

The Innovations Unit has three objectives representing successively more detailed and focused studies:

**Objective 1. Monitor emerging technologies and strategies.** Compile and synthesize up-to-date information about emerging and innovative transportation technologies, strategies, and policies.

**Objective 2. Research selected topics of Commission interest.** Conduct detailed background research of specific technology and policy issues, under the direction of the Commission's Policy Development Subcommittee. Produce a series of white papers outlining technology and policy implications germane to the Washington State transportation system.

**Objective 3. Support in-depth technology and policy research.** Conduct and/or coordinate detailed research of key enabling technologies, strategies, and policies.

The research activities of the Innovations Unit emphasize early, preparatory studies of emerging potential transportation solutions, and include interaction with elected officials, public agencies, university researchers, the private sector, and members of the public. Its activities are intended to complement and support in-depth applied research and implementation by the Washington State Department of Transportation (WSDOT) through its Research Office, and reinforce ongoing State Transportation Policy Plan activities.