

White Paper: Park & Ride Pricing in Multifamily Developments

Key Concepts and Current Trends

Executive summary

This white paper presents an overview of the key concepts and current trends related to the Park & Ride Pricing in Multifamily Developments Project, a project funded by the Federal Highway Administration's (FHWA) Value Pricing Pilot Program grant. The paper gathers current data and emerging practices for using parking at multifamily (MF) properties as paid park & ride (P&R) space near transit services. In locations where demand for transit-user parking exceeds supply, multifamily properties may be good sources for such off-site parking. The research for this paper looked at data related to: P&R users; shared spaces at MF properties for non-residents; technology; and transit agencies P&R practices. These findings will help set the stage for further analysis to identify the best areas of opportunity, leading to a business model for a pilot project.

Summary of Key Findings

- P&R users value reserved spaces, are willing to pay more for them and walk farther to transit to use them.
- Mobile payment services are already taking hold in both public and private sector parking, and numerous software startups are attempting to enter the market.
- In areas with high demand for parking, several firms are currently providing parking management services that enable non-residents to park in MF buildings.
- Many transit agencies in major cities price P&R parking, and several of them have partnered with external phone/web/app-based services to collect payment.

1. Introduction

This paper gathers current data and emerging practices for using parking at MF properties as paid P&R space near transit services. The study provides background for the FHWA grant-funded project "Park & ride Pricing in Multifamily Developments." The objective of that project is to explore opportunities for a priced market for leased P&R spaces at MF developments near high capacity transit services.

Increasingly in the Puget Sound region there is more demand than supply for parking at public P&R lots at busy transit centers. Yet building more dedicated transit-user parking is costly, controversial, and counter to fostering walkable, affordable communities.

Existing off-site parking spaces may offer opportunities to increase transit parking supply without building more public parking, with its attendant public costs, time, and social and environmental implications. More specifically, MF properties may be good sources of such off-site parking, particularly during the daytime when tenants vacate some spaces just as transit users seek parking.

The larger project will involve spatial data collection and analysis, stakeholder interviews, and assessment of barriers and opportunities, all of which could lead to viable business models for MF P&R that can be tested in pilot programs.

The purpose of this white paper is to document the key concepts and current trends relevant to the Multi Family Park & Ride (MF P&R) concept. From this starting point, the project will analyze the best areas of opportunity based on factors such as transit quality, local land use, P&R user data, and parking demand and supply. Building on that data and analysis, the project will then layer on additional factors such as market acceptance, parking pricing, and technology to identify the best opportunities, and to develop a viable business model for a pilot project.

The white paper seeks to answer a set of key questions associated with the following four topics:

1. Users: Who are P&R users? What is important in their decision about access to transit? What causes them to choose a park and ride over other options? What is the potential market for this project given P&R usage characteristics? What are the current market trends for priced parking? How might this knowledge guide our product and pilot implementation?
2. MF Shared Parking: What is the current status of paid shared parking in MF developments? Are there examples of shared parking for transit use in MF developments? What characteristics are shared by places that support paid shared parking in MF developments?
3. Technology: What are the latest trends in shared parking and mobile technology to manage parking? What characteristics are shared by places that support paid shared parking in MF properties?
4. Transit Agencies: How are transit agencies currently handling management and/or pricing in their P&R lots? What partnership concepts are transit agencies using to increase access to their services?

The following sections summarize the opportunities, barriers, and potential business models for creating a priced market for P&R in MF parking lots near high capacity transit. An accurate and thorough assessment of both barriers and opportunities will be critical for determination of the best business models. Barriers that are deemed insurmountable may eliminate certain business models, while a complete understanding of the opportunities will provide the rationale for assessing the options.

2. Opportunities

This section addresses opportunities categorized by the four primary topics: P&R Users, Technology, MF Shared Parking, and Transit Agencies.

P&R Users

One of the most important findings revealed in user surveys (see Appendix A1 for details) is that users value reserved spaces enough that they are willing to pay more for them even if it requires walking farther to transit.

At the busiest public P&Rs there aren't enough parking spaces to meet demand, and lots fill early in the day. Some users alter their schedules to arrive early enough to reliably find a space. However, later users, including some in lower-paid service industry or shift jobs, do not have the same opportunity. For those able and willing to pay, a guaranteed spot even off-site may lure some users away from unreserved P&Rs, relieving some pressure on the public lot.

Additional user characteristics derived from survey data¹ that bode well for MF P&R include:

- Many would use transit more if there was a P&R more convenient to their home. MF P&Rs could help with this, as they would likely be diffusely located, as opposed to the more centralized, large-scale agency P&Rs.
- Parking spaces at multifamily properties tend to become more available as some tenants leave for the day, just when transit riders seek parking. This alignment presents potential for shared-use.
- P&R users tend to be higher income commuters, who may be more amenable to paying a fee for parking if it saves them time.
- They value covered, secure parking, which would be provided in MF garages.
- Destination parking costs are a factor in commute-mode decisions, and parking in the region's growing CBDs is only going to become more expensive over time.
- One user survey found user interest in shopping-related amenities, which are sometimes found in or near mixed-use MF buildings.
- Some users may desire P&R for longer term needs such as out of town trips, and MF P&R is well suited for providing secure, covered parking that would be an attractive option. Note that this would not work for time sharing parking with residents, and would require an excess of parking capacity for the full day.

Technology

The spread of mobile apps can be expected to create a revolution in the paid parking business. Mobile payment services such as PayByPhone and PayMobile are already taking hold in both public and private sector parking, and numerous software startups are attempting to enter the parking management market (see Appendix A2 for a survey). The ongoing rapid evolution and adoption of mobile technology creates opportune timing for developing MF P&R over the coming years.

For MF P&R, the two key features that technology can address are the ability to reserve spots, and the ability to find available parking in real time. In the near-term, reservations and payment would be the easiest to implement. Ideally, the service could also eventually provide real-time locational availability. This would be particularly important for unassigned MF P&R, because many users may have multiple options for location, given that MF P&Rs may be small and diffusely located. The necessary technological functions are all there, as demonstrated by services such as ParkMe that provides an app-based service that allows users to locate, reserve, and pay for off-street parking.

MF Shared Parking

Our survey of MF properties currently selling excess parking to non-residents (see Appendix A3 for details) clearly demonstrates that there are willing buyers and sellers, as long as the price for parking is high enough to encourage owners of underutilized parking to make it available. Several parking management firms have established processes that could be readily applied to MF properties anywhere in the region.

The features that enable shared parking in MF garages do not add significant cost to construction, considering that stalls tend to cost in the range of \$40,000 each. Intentionally designing MF garages up front for shared parking that maximizes revenue may improve project feasibility in the eyes of lenders. In highly urbanized areas such as downtown Seattle and downtown Bellevue, parking management firms are seeing an increasing demand for garage design that enables paid shared parking for non-residents.

¹ See Appendix A1

According to managers and operators, security and access issues do not present a serious obstacle in most buildings (see Appendix A3). Based on initial surveys in Capitol Hill, most residents appear to be comfortable with the idea of allowing non-residents access to their parking garages.

Transit Agencies

Appendix A4 presents a survey of transit agencies and their P&R practices. Many agencies charge for parking, but those that do tend to have P&Rs that are located in highly urbanized settings, where presumably parking is scarce and prices are high. The MBTA charges at all of its P&Rs, many of which are located in suburban towns outside Boston, and is a good example of how it is possible to price parking in less urban areas.

Most agencies that price P&R parking have partnered with external phone/web/app-based services such as ParkMobile to collect payment. These same payments systems could be easily adapted to collect payment at MF P&Rs. Some agencies have integrated parking payment into their fare payment systems.

Four of the 12 agencies surveyed offer paid reserved parking on a monthly basis. BART appears to be the only agency that offers reserved parking on a daily basis. Reserved spots are priced higher than non-reserved spots, which in some cases are free. The trend toward priced parking as places urbanize is likely to drive a trend toward more reserved parking offered for an additional fee. This will help forge market acceptance of MF P&R, which is likely to be a reserved parking system.

In terms of local transit agencies, one of the most significant recent programs is Sound Transit's pilot to test strategies for enhancing access to transit by managing parking more efficiently. The pilot program includes the following elements:

1. Offer optional limited permit parking for frequent riders at selected locations (pilot finished in 2014)
2. Provide real-time customer information about parking availability--Sound Transit's pilot is studying three technologies (on going)
3. Collaborate with rideshare programs (on going)

In July 2014 Sound Transit completed a six-month permit parking pilot at the Mukilteo Sounder Station, Issaquah Transit Center, Sumner Sounder Station, and Tukwila International Boulevard Link Station. The goal was to help regular transit riders have more certainty about finding a parking space during busy morning commute hours. The pilot allocated approximately 40% of P&R spaces to frequent transit riders who registered for a permit for an administrative fee of \$5 for HOV and \$33 for SOV per quarter. The cost of the permits was structured to cover implementation costs (~\$20,000), be appealing to regular riders, and to create clear incentive for carpooling.

There was demand for the majority of the SOV permits, and most who participated found the parking reliability to be worth the permit cost. The success of this project can be expected to help build momentum toward broader implementation of managed parking at P&Rs in King County.

3. Barriers

The biggest potential barrier to MF P&R is pricing. If users are not willing to pay enough for parking to make it worth the effort for owners, MF P&R will not happen. As shown in Appendix A3, in markets where parking tends to be relatively scarce and expensive, the private market is already stepping in to provide solutions that could be implemented to enable MF P&R. The reality is that in many of the more suburban areas of King County parking prices are likely too low, as indicated by the lack of MF owners attempting to sell their excess parking in these areas.

The value that users place on a reliable, reserved parking spot can be expected to be one of the primary determinants of viable pricing in MF P&R. If that value is high enough for enough users, then it is more likely that prices can be set high enough to interest MF owners in participating. Assessing that value up front will be difficult -- pilot programs would likely be necessary to accurately quantify what users value and the associated pricing limits.

Another part of the challenge is cultural. People are used to free parking, and they will tend to balk at any new system that charges for parking. Even at Northgate, a relatively urban area, only one fifth of users said they would be willing to pay \$3 for parking. It may be that the common aversion to paying for parking is based more on emotion than logic, in which case it could be overcome with education about the full costs and value of using a P&R.

One factor that can help make the pricing environment more favorable for MF P&R is for cities to manage on street parking (with time limits, parking charges and RPZs), and for transit agencies to charge for their P&R lots. This would also change the entire demand and supply for P&R parking. But such changes tend to be politically charged, and so are difficult to implement.

User awareness can be expected to be a potential barrier. MF P&Rs may not be visually noticeable to motorists, and their locations may be unpredictable compared to a standard P&R that is prominently located next to a station. One user survey found that most riders find P&Rs because they can see them from their regular commute routes. These issues could be addressed through marketing and by mapping web sites and apps that provide MF P&R locations.

Zoning may create barriers in some municipalities. Shared parking regulations vary between cities. Some have no code barriers to shared parking, and some do. Cities may have code that precludes sharing of required stalls even if they are underutilized.

Lastly, the reality and/or perception of additional management headaches and security issues for building owners and tenants are potential barriers. However, as described above in Section 2, in areas where parking is expensive, these barriers have already been overcome by parking management firms that are currently managing paid parking for non-residents in MF buildings.

4. Business Models

Private Model

The private business model described here would be one in which MF P&R parking is managed by a private parking management firm, and applies mobile technology that allows users to locate, reserve, and pay for parking in real time. Parking management firms have already developed viable business models for MF shared parking by non-residents in high demand areas, primarily downtown Seattle. Technology companies have already developed apps that provide all the needed features.

The biggest barrier to this business model is that the price a P&R user is willing to pay for a reserved spot may be limited to the market price of parking in the immediate area. In much of suburban King County the market price of parking is likely to be too low to generate an adequate return to the building owner after accounting for the additional costs associated operating the MF P&R program.

In urban area's the challenge may be that P&R users are forced to compete with high paying non-P&R monthly/daily/hourly parkers in garages that are open to allowing non-tenants to park.

Public Model

Most transit agencies manage their own P&Rs, and many have engaged private companies to manage parking payment and reservations. Agencies could take on the primary management role for MF P&R, contracting directly with building owners for access to their garages. With these agreements in place, agencies could then manage the MF P&Rs just like they manage their normal P&Rs, using a third party management company or technology to handle the transaction.

This model would require the most expense and effort for the transit agency, but could also enable more control over implementation timing, since it does not have to wait for private market parking pricing conditions to become favorable. Another benefit of the public model is the transit agency would have more control over price which could help alleviate concerns about the social equity impacts. Implementation would rely on the transit agency proactively initiating a new program in a timely fashion, and could require a level of funding not feasible for transit agencies that have other budget priorities. If a Public model is implemented out ahead of the market, it cannot be expected to create net positive revenue in the near-term.

Hybrid Public-Private Model

If operators cannot charge a sufficiently high price for the MF P&R parking, the risk for owners is likely to outweigh the return, and the private business model will not be feasible. One solution is for transit agencies and/or municipalities to provide subsidies to the owners or operators. This could come in the form of a set subsidy per rented stall, payment for infrastructure needed to implement the system, such as gates or signage, security improvements, or other upgrades and maintenance to parking areas. Additional outreach, marketing, or technology investments could be made by the Public sector to help catalyze the market. These subsidies could be justified based on the public benefit of MF P&R. More specifically for transit agencies, they could be justified by increased revenue or the costs saved by not building more P&R facilities.

This model would require a greater commitment of resources from agencies and/or municipalities, but it could also achieve some of the efficiencies of the private market. Because the transit agency would be taking the up-front risk and providing the initial momentum to get the project started, implementation could be quicker compared to the fully private model, which means waiting on certain market conditions to materialize. Also, after the initial expense, ongoing costs to the transit agency would be reduced as the private sector takes more responsibility for operating costs.

The primary challenges for implementing this model would be the management of contractual agreements and financial transactions between the County and private property owners, potential legal roadblocks, and the need for King County identify a source of up-front funding.

5. Next Steps

Overall, the information presented above indicates great potential for a priced market for leased P&R spaces in MF parking lots near high capacity transit. All the basic components of such a system are already emerging independently in some locations, including mobile technology for parking, non-resident parking in MF buildings, and partnerships between transit agencies and external parking management firms. In addition, user surveys indicate that current P&R users would find value in this service.

The potential barriers to MF P&R are likely to exist around the cost/benefit with the property owners and managers. For example, will the cost (infrastructure, security, risk, etc.) be outweighed by the benefit (adequate return on investment from parking fees)? It is also unknown whether the market price of parking will be sufficiently high enough to make it attractive to MF owners. These barriers could be overcome through hybrid business models in which the public sector assumes some of the cost.

Building on this preliminary assessment, the next steps will be to more thoroughly assess opportunities and barriers to determine and develop the most promising business model. The opportunities and barriers described above will be assessed from multiple perspectives, including owners, managers, and users. The opportunities with a favorable cost/benefit ratio will be assessed for proof of concept, and different scenarios will be packaged together for testing. The application and feasibility of business models will be influenced by factors including:

- Business model in markets with priced parking
- Business model in suburban markets with surplus free parking
- Business model with structured parking, surface parking
- Business model near existing park and ride versus areas that could use a P&R

More research and data analysis will be conducted as this project continues to identify opportunities, and how the business models can overcome potential barriers.

Appendix A: Summary of Research

A1. P&R Users²

In 2014 WSDOT published a study providing utilization and user survey data collected from 17 of the busiest park and ride facilities in the Central Puget Sound Region.³ The key findings are:

- 25% of users surveyed are willing to pay a fee for unreserved P&R.
- 50% of users are willing to pay a fee if P&R spaces could be reserved.
- Users are willing to pay more for guaranteed P&R spaces than for non-guaranteed P&R spaces.
- 25% of users are willing to pay for a guaranteed space a 10-15 minute walk from the transit station.
- 40% of users are willing to park at a satellite location a 10-15 minute walk away to obtain a guaranteed parking space.
- Users are willing to pay the same amount for a non-guaranteed P&R space as for a guaranteed space located a 10-15 minute walk away.

Relevant general findings include:

- People primarily use the P&R lots as a means to access transit services and not for other, non-transit uses.
- The primary reasons for using P&Rs were to save money and to relax during the commute (it can be assumed that P&R users do not expect to save overall travel time).
- Relatively few respondents indicated that environmental issues or parking availability at the destination were reasons they used P&Rs.
- Improving bicycle and pedestrian access/facilities would not entice a significant number of users to change to these modes (given current free Park and Ride conditions).

While this study was focused on increasing non-SOV use of P&Rs, it recommended:

- Implement parking fees for SOVs to dis-incentivize their use.
- Implement parking permits that allow P&R users (especially those in multi-occupant vehicles) to reserve parking spaces within the lots.
- Consider using available parking lots near the P&R for overflow or SOV parking.

King County Metro Transit's 2014 Access to Transit Phase 1 Report⁴ includes the following summary of P&R users based on surveys taken in the regions of Sacramento, northern Virginia, Chicago, Seattle, and Phoenix:

- P&R users have other mobility options and take transit by choice
- P&R users have significantly higher incomes than local bus riders
- The majority of P&R users (more than 60 percent) travel to the CBD for work more than four times per week

² Note that the user surveys discussed in this section can be expected to exhibit statistical biases. For example, asking users how much they are willing to pay produces unreliable answers. Willingness to pay can be more reliably estimated based on user actions with respect to time and the cost of parking versus driving.

³ <http://www.wsdot.wa.gov/Research/Reports/800/830.1.htm>

⁴ <http://mkcclegisearch.kingcounty.gov/LegislationDetail.aspx?ID=2108240&GUID=511122B2-C9D0-4E76-983D-428FEB3C8892&Options=ID|Text|&Search=2015-0032>

- Parking at the destination is expensive
- Convenient, frequent bus service is offered at the P&R
- Most riders find park & ride facilities because they can see them from their regular commute routes

King County Metro's 2013 Rider/Non-Rider Survey Report⁵ found that:

- The typical P&R catchment area is approximately a 3 mile radius
- 12% of P&R users arrive by walking or biking

King County Metro's 2012 Northgate Transit Center Survey Report⁶ found that:

- Only 19% of P&R users are willing to pay \$3.00 per day to park in a new parking structure.

A 2013 commuter survey conducted in Houston⁷ asked SOV commuters what would cause them to choose another way to get to/from downtown and found that:

- 8% would switch modes if there were a P&R more convenient to their home
- 9% would switch modes due increased parking costs at their intended destination

A 2013 P&R survey⁸ conducted by Phoenix region's transit system Valley Metro found that:

- Proximity to users' homes is the primary reason stated for choosing a P&R, while the transit route that serves the P&R facility is the second most common reason.
- The most requested P&R improvement is for covered parking followed by real time transit information.

In 2012 the Minnesota Department of Transportation published the Central Minnesota Commuter Study,⁹ which included the following relevant user survey results:

- User mode split for travel to the P&R was:
 - 50% SOV
 - 30% transit
 - 8% carpool
 - 6% walk
- Restrooms were the most common improvement listed

A 2005 UC Berkeley Study of P&R in the San Francisco Bay Area¹⁰ found that:

- Users would be more willing to pay for parking that was fenced, security patrolled, and lighted, with shelters for waiting
- Users had concerns about lot security, the lack of lighting, and the quality of transit services offered.

⁵ <http://metro.kingcounty.gov/am/reports/2013/2013-rider-non-rider-survey.pdf>, see p.79

⁶ http://metro.kingcounty.gov/am/reports/2012/northgate_transit_center_survey_report_3-2012.pdf

⁷ www.downtownhouston.org/site_media/uploads/attachments/2014-04-08/2013_Commute_Survey_Report.pdf, see p.110

⁸ http://www.valleymetro.org/images/uploads/misc_reports/PNR_Survey_Results_Final_Report_010714.pdf

⁹ <http://www.dot.state.mn.us/d3/commuter/>

¹⁰ <http://trb.metapress.com/content/f2185732j23w1303/>

- Almost all users were commuters; most drove alone and made long trips to work, many more than 30 miles one way

In 1998 the Chicago Transit Authority surveyed 1,758 P&R users on weekdays at 15 P&R lots,¹¹ and relevant findings include:

- Targeted marketing and investment in new facilities would have a positive impact on overall ridership.
- The top reasons users choose P&R are: fastest way to make the trip, high cost of parking at destination (\$10.29 daily mean), and dislike of driving.
- Users showed the most willingness to try shopping-related amenities (convenience mart, fast food and grocery outlet) over amenities related to automobile servicing.
- Compared to typical transit users, P&R users showed substantially higher household incomes and travel frequencies.
- P&R users made predominantly work-related trips to and from Chicago's CBD.

A2. Multifamily Shared Parking

Key questions that this section seeks to address are: What is the current status of paid shared parking in MF properties? What sorts of characteristics are shared by places that support paid shared parking in MF properties?

Selling excess parking in multifamily buildings to the general public is becoming common practice in Seattle, but tends to be concentrated in areas where parking is scarce and prices are high, such as downtown, Capitol Hill, and Ballard. A sampling of multifamily properties managed by Diamond,¹² IPM, and Republic are listed in Table 1 below. The prices in Kirkland and Tacoma provide an indication of the lower limits of price feasibility.

Table 1: Sample list of MF properties that sell parking to non-residents

| Name | Location | Monthly Rate | Daily Parking | Operator |
|------------------------------|-------------------|--------------|---------------|----------|
| Juanita Village | Juanita, Kirkland | \$42 | yes | Diamond |
| Merrill Gardens | downtown Kirkland | \$100 | yes | Diamond |
| Renton Transit Center Garage | downtown Redmond | \$35 | yes | Diamond |
| Washington Sq. Retail Garage | downtown Bellevue | \$130 | yes | Diamond |
| Senior Housing (surface lot) | Everett | \$42 | yes | Diamond |
| Joule Apartments | Capitol Hill | \$190 | yes | Diamond |
| Legacy at Pratt Apartments | Central District | \$91 | yes | Diamond |
| Holland highrise on Pine | Downtown Seattle | not yet open | data n/a | IPM |
| QFC | Pike/Pine | \$189 | | |
| Merrill Place Condos | Pioneer Square | data n/a | yes | IPM |

¹¹ <http://trb.metapress.com/content/617t30228uk67483/fulltext.pdf?page=1>

¹² Full list has been requested from Audrey Church at Diamond

| | | | | |
|---------------------------|------------------|---------------|-----|----------|
| Metropolitan Tower Garage | Downtown Seattle | data n/a | yes | IPM |
| Tower 801 | Downtown Seattle | \$250 | no | Republic |
| The Cairns | South Lake Union | \$200 - \$250 | no | Republic |
| The Landes | First Hill | \$214 | no | Republic |
| James Apartments | Downtown Seattle | \$185 - \$250 | yes | Republic |
| Fountain Court | Belltown | \$175 - \$250 | yes | Republic |
| Moda Apartments | Belltown | \$200 - \$275 | yes | Republic |
| Metro on First | Uptown | \$150 | yes | Republic |
| Queen Anne Square | Uptown | \$140 | yes | Republic |
| Thea's Landing | Downtown Tacoma | \$75 | yes | Republic |
| The Esplanade | Downtown Tacoma | \$75 | yes | Republic |
| Villaggio Apartments | Downtown Tacoma | \$105 | no | Republic |

The following information is based on a conversation with Audrey Church of Diamond Parking:

- The loss of surface lots to development and the increasing price of parking are driving more and more MF owners to sell parking to outside customers. But outside Seattle's high demand neighborhoods and in most of the suburban cities parking prices are still too low to make it attractive for owners to sell parking to non-residents.
- Diamond typically captures 30% or more of the user parking fee for their shared parking services (note that for larger parking operations in downtown the parking management firm's cut can be as low as 11%).
- Most of their customers are people commuting to work, and the typical time window that users get a reserved monthly space is 7am to 6pm, Monday through Friday. Outside users are often charged less per month than residents, which can create friction with residents, though it can be justified by the limited time outside users have access.
- In general, security has not been a major issue, and they have never had a serious security violation in any of the properties they manage. Users are well identified and usually have access cards that create a record of when they come and go. Most owners are concerned at first, and sometimes Diamond will implement a small trial program to gain their confidence.
- Garage layout has typically not been a deal breaker—Diamond has been able to make pretty much any building work. There are, however, features that will help make the parking more marketable, such as lighting and convenient entries. Diamond has worked with multiple owners/developers to help them design garages that are well-suited for selling excess parking to non-residents.
- One of the biggest barriers is buildings that have dedicated stalls for each unit, since this removes inventory and flexibility. Diamond wonders if new City code could be implemented to prevent assigning stalls to units.

- Diamond does not care how small the parking lot may be—even a few stalls is worth it for them, because their management processes are all set up. More typically it's the owners who aren't interested in selling a small number of stalls because it doesn't represent much revenue, though that attitude is evolving as parking prices rise.
- The one deal breaker they have experienced is an owner who wanted all parking users to be given a background check as intensive as what is done for the housing tenants. This was not financially feasible for Diamond.

Capitol Hill Housing's District Shared Parking Pilot project conducted interviews with property owners, managers, and potential users. Relevant findings include:¹³

- Most buildings had assigned parking spaces. Several property managers have larger buildings in other neighborhoods that have unassigned spaces, but they feel more of a need to assign spaces in a small garage.
- Properties generally charge more for non-tenants.
- Owners/managers agreed that safety and security issues could be addressed successfully in most cases. They did not feel that safety was a concern for monthly leases with non-tenants. But hourly parking presents a challenge of identification. They also brought up the option of segregating a residential section from a shared section, a strategy many of them already employ.
- Users pay monthly parking prices ranging from \$135 to \$278.50 with the higher end of the range providing a guaranteed space.
- In general residents were comfortable with sharing and believed that most people in Pike Pine apartment buildings would be similarly comfortable.
- Resident concerns over allowing non-tenant access to garages were that residents should be given a priority for spaces, and that HOA (condo) rules prevented this type of sharing and that many people in her building would be concerned about security.

Two key areas of agreement between Diamond's experience and the Capitol Hill Housing surveys are:

- Security issues can be addressed, and both owners and residents are comfortable with non-residents parking in their buildings.
- Too many assigned spaces in garages is a potential barrier.

A3. Technology

This section discusses trends in mobile technology to manage shared parking in MF P&Rs. Below is a summary list of parking management firms that apply web-based interfaces and apps:

ParkMobile¹⁴

¹³ Based on December 2014 draft reports

¹⁴ <http://us.parkmobile.com/>

Parkmobile provides on-demand and prepaid mobile payments for on- and off-street parking, and allows consumers to transact real-time payment for parking privileges in both on- and off-street environments. Their services are used in more than 600 locations in the U.S. by millions of registered users. They provide service for two locations in downtown Seattle and one in Bellevue. It is used by the Chicago Transit Agency. Parkmobile recently established a joint venture with SP+.

SP+

SP+ is a diverse provider of professional parking, ground transportation, facility maintenance, security and event logistics services to real estate owners and managers in a wide array of markets. SP+ offers the Click and Park parking prepayment system, which enables consumers to reserve and pay for parking online in advance.¹⁵ SP+ also provides management services for residential properties.¹⁶

JustPark¹⁷

JustPark is Europe's leading provider of pre-bookable parking, connecting drivers in search of parking with anyone who has a space going spare, whether in a car park, private driveway, church, school, or pub. JustPark also operates in many U.S. cities, and provides search services targeted on transit, including BART, CTA, and MTA.

ParkMe¹⁸

Allows users to reserve a guaranteed parking spot in advance. They send an email confirmation that users show when they arrive. (Note: The ParkMe web site sends you to ParkWhiz for Seattle reservations.)

ParkWhiz¹⁹

Allows users to reserve and pay for daily and monthly parking using the marketing slogan: *"It doesn't matter if you're an individual, small business, or parking management company, if you have a space, we sell it."* They currently only have a few lots in Seattle, and have been focused on service in NYC, SF, and Chicago.

PayByPhone²⁰

PayByPhone is available across North America and Europe in over 180 cities, with over three million users. Owned by PayPoint,²¹ which manages payments across all urban mobility services. SDOT uses PayByPhone for meters, and it is used by several large transit agencies for P&R payment.

Parkt²²

Use Parkt to find shops, restaurants and other merchants who will pay your parking fees as a thank you for your business. Shop with a single merchant to validate a portion of your parking, or stack offers from multiple merchants to earn free parking.

Parkable²³

¹⁵ <http://us.parkmobile.com/news/parkmobile-usa-inc-announces-joint-venture-sp-plus-corporation-provide-demand-and-prepaid>

¹⁶ <http://www.spplus.com/ResidentialServices/>

¹⁷ <https://www.justpark.com/us/bart-parking/>

¹⁸ <https://www.parkme.com/>

¹⁹ <http://www.parkwhiz.com/>

²⁰ <https://paybyphone.com/mobile-apps/>

²¹ <https://www.paypoint.com>

²² <http://www.parkt.com/>

By using crowd-sourced data the app instantly updates when a parking lot is marked as either full, limited, or open. Best of all, it's free. Currently operational at RTD-Denver P&Rs.

Park Circa²⁴

Park Circa connects people who have empty parking spaces during a set time to people that need them. They enable coordination between neighbors and friends. They help organize and publish parking schedules and facilitate payment between parties, so that people can find parking when they need it and where they need it. Drivers find a place to park, and space owners make some money on their empty driveways.

Bikelink²⁵

On demand bike parking system that is currently used in several areas of the US including by Metro at 10 locations in King County.

Zirx²⁶

Offers an app for on-demand valet parking wherever users may be looking for parking. Operating in LA, SF, and Seattle (downtown and SLU only). Valets roam the neighborhood waiting for users and park cars in pay lots, typically. They have been in contact with Diamond Parking hoping to set up a quantity discount, but Diamond is not interested in giving them a break.

Capitol Hill Housing's District Shared Parking Pilot project conducted interviews with potential users and found that:²⁷

- They all expressed interest in the idea of a mobile app that would identify real time available parking spaces and enable purchases. They were most interested in this feature to find a garage space on a day when they were in a hurry or were having an especially hard time finding a street space. Most participants thought that a lot of residents in Pike Pine had experience using Car2Go and Uber and would be comfortable with smart phone parking apps.

Audrey Church Diamond Parking said that Diamond Parking is not using any sophisticated technology such as smart phone apps to find and reserve short term parking, because most people don't think about it that way – yet.

A4. Transit Agencies

This table below provides a list of several transit agencies nationwide and how they handle management and pricing in their P&R lots.

²³ <https://itunes.apple.com/us/app/parkable/id577954935>

²⁴ <http://www.parkcirca.com/>

²⁵ <http://www.bikelink.org/>

²⁶ <http://zirx.com/>

²⁷ Based on December 2014 draft reports

Table 2: Survey of transit agencies and their approaches to pricing, reserved parking, and payment

| Agency | Pricing | Reserved Parking | Payment | Notes |
|---------------------------------|--|--|--|---|
| Denver - RTD ²⁸ | <ul style="list-style-type: none"> • A little under half of their P&Rs charge a fee • Patrons within the RTD park for free the first 24-hour period, and beyond that a \$2.00 daily fee applies • Patrons not in the RTD pay \$4.00 per day. • Customers may park up to 30 days. | <ul style="list-style-type: none"> • Patrons within the RTD may pay a monthly fee for reserved parking for arrival times between 5 a.m. and 10 a.m. Monday - Friday. • After 10 a.m, reserved parking spaces are available for anyone. | <ul style="list-style-type: none"> • Automated account with 15% discount • PayByPhone • Mobile website • ParkMobile app (additional nominal fee) | <ul style="list-style-type: none"> • |
| Chicago – CTA ²⁹ | <ul style="list-style-type: none"> • All 16 of CTA’s P&R lots charge for parking • Daily fees range from \$2 to \$5 for 12 hours | <ul style="list-style-type: none"> • Available at 14 P&R lots • Monthly fees range from \$40 to \$129 | <ul style="list-style-type: none"> • ParkMobile | <ul style="list-style-type: none"> • Some managed by municipalities and some private firms |
| Boston - MBTA ³⁰ | <ul style="list-style-type: none"> • Fee charged at all P&Rs • Rates range from \$4 - \$7 per day. • 55,000 spaces in 103 locations -- largest owner of off-street paid parking in New England | <ul style="list-style-type: none"> • Monthly Parking permits are available at many P&Rs | <ul style="list-style-type: none"> • PayByPhone • Recently dropped previous provider, ParkMobile | <ul style="list-style-type: none"> • Some P&Rs owned managed by municipalities |
| Portland – TriMet ³¹ | <ul style="list-style-type: none"> • Free at all 62 P&Rs • Overnight is permitted but with 24 hour limit | <ul style="list-style-type: none"> • N/A | <ul style="list-style-type: none"> • Many P&R lots are donated by churches and businesses and can be used on weekdays only. | <ul style="list-style-type: none"> • TriMet offers “Bike & Ride” facilities³² • Bike parking provided in a secure, enclosed building with keycard access • Uses Bikelink: http://www.bikelink.org/ |

²⁸ <http://www.rtd-denver.com/HowToPark.shtml>

²⁹ <http://www.transitchicago.com/parking/#mobile>

³⁰ http://www.mbta.com/riding_the_t/parking/

³¹ <http://trimet.org/parkandride/>

³² <http://trimet.org/howtoride/bikes/bikeandride.htm>

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|--|---|--|--|--|
| San Francisco – BART ³³ | <ul style="list-style-type: none"> Most BART P&Rs charge a daily fee | <ul style="list-style-type: none"> Single day, monthly, or airport/long-term permit Daily rates range from \$4 to \$7.50. Monthly permits range from \$30 to \$115.50 Reserved spots become available to the general public after 10am | <ul style="list-style-type: none"> EZrider: https://ezrider.bart.gov/ezrider/ Select-a-Spot: https://www.select-a-spot.com/bart/ | <ul style="list-style-type: none"> |
| LA – Metro ³⁴ | <ul style="list-style-type: none"> All non-reserved spaces are free, first-come, first-served | <ul style="list-style-type: none"> Available at 12 Metro Park & Ride locations Secures assigned space until 10:30am. After 11am all spaces become available | <ul style="list-style-type: none"> Park-by-Phone³⁵ | <ul style="list-style-type: none"> |
| Minneapolis/St. Paul – Metro ³⁶ | <ul style="list-style-type: none"> All P&Rs are free | <ul style="list-style-type: none"> N/A | <ul style="list-style-type: none"> N/A | <ul style="list-style-type: none"> |
| Atlanta – MARTA ³⁷ | <ul style="list-style-type: none"> All four of their P&Rs are free | <ul style="list-style-type: none"> N/A | <ul style="list-style-type: none"> N/A | <ul style="list-style-type: none"> |
| DC – Metro ³⁸ | <ul style="list-style-type: none"> Fees charged at all of their 43 P&Rs, typical rate of \$5/day Short-term metered parking is \$1 per hour | <ul style="list-style-type: none"> Offered at 35 P&Rs, monthly fee is \$45-\$65 in addition to the regular daily parking rate | <ul style="list-style-type: none"> SmarTrip® Cards³⁹ | <ul style="list-style-type: none"> |
| Dallas - DART ⁴⁰ | <ul style="list-style-type: none"> Free parking at all P&Rs | <ul style="list-style-type: none"> Pilot program at one station providing free reserved stalls for residents who display a valid resident parking permit on their vehicle | <ul style="list-style-type: none"> N/A | <ul style="list-style-type: none"> |

³³ <http://www.bart.gov/guide/parking>

³⁴ http://www.metro.net/around/paid_parking/

³⁵ <https://www.park-by-phone.com/Locations/California.aspx>

³⁶ <http://www.metrotransit.org/park-ride-lots>

³⁷ <http://www.itsmarta.com/park-and-ride-locations.aspx>

³⁸ <http://www.wmata.com/rail/parking/>

³⁹ <http://www.wmata.com/fares/smartrip/index.cfm>

⁴⁰ <https://www.dart.org/riding/paidparking.asp>

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|---|---|---|--|--|
| Sacramento – Regional Transit ⁴¹ | <ul style="list-style-type: none"> • Fee charged at six P&Rs • Daily Parking Fee: \$1 • Monthly Parking Pass: \$15 | <ul style="list-style-type: none"> • N/A | <ul style="list-style-type: none"> • online | <ul style="list-style-type: none"> • |
| Sound Transit ⁴² | <ul style="list-style-type: none"> • Free at 62 P&Rs | <ul style="list-style-type: none"> • Ran permit pilot program at four P&Rs in 2014 | <ul style="list-style-type: none"> • Payment for permit | <ul style="list-style-type: none"> • Board decision to expand pilot program for permits will be an important parking management decision for the region |

⁴¹ <http://www.sacrt.com/PP&R.stm>

⁴² <http://www.soundtransit.org/Rider-Guide/Parking>