

Appendix A

Barriers and Opportunities Technical Memo

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TO: Daniel Rowe, King County Metro Transit
SUBJECT: Barriers and Opportunities Technical Memo
King County Multifamily Park & Ride
DATE: June 11, 2015

This Technical Memo presents an assessment of barriers and opportunities to utilizing surplus parking in multifamily (MF) buildings for park & ride (P&R) users. The intent of the Memo is to provide guidance on the most promising business models to pursue, and to identify areas of supplemental research needed to support business model development. The potential business models range from a private model to a public model, with several possibilities for “hybrid” models that would combine desired features from private and public models.¹

The project team conducted assessments of barriers and opportunities in the following categories:

1. Opportunity Mapping
2. Market Acceptance
3. Regulations
4. Design
5. Technology

Each of these topics is summarized below, and further details can be found in the Appendices.

1. Opportunity Mapping

The project team evaluated a set of factors to identify areas of opportunity by leveraging geospatial data and previous parking demand models.² Overall, the mapping revealed that there is ample supply of surplus parking in multifamily (MF) buildings throughout King County that could support a MF P&R program. The analysis also revealed how different “filters” could be applied to locate opportunity sites according to their appropriateness to different business models. The methodology for the opportunity mapping is illustrated in Figure 1.

Note that this analysis is designed to assess opportunities for MF parking to provide access to high-capacity transit. There is also potential to design a MF P&R system around providing parking for people who wish to join vanpools or carpools. Opportunity mapping for vanpools and carpools would require a set of filters different from those described in this memo that apply to transit. Developing a MF P&R program intended to serve vanpool and/or carpool users is beyond the scope of the present work, but should be considered for future study.

¹ See the March 2015 *Multifamily Park & Ride Pricing White Paper* for descriptions of the business models

² See Appendix 1 for further details

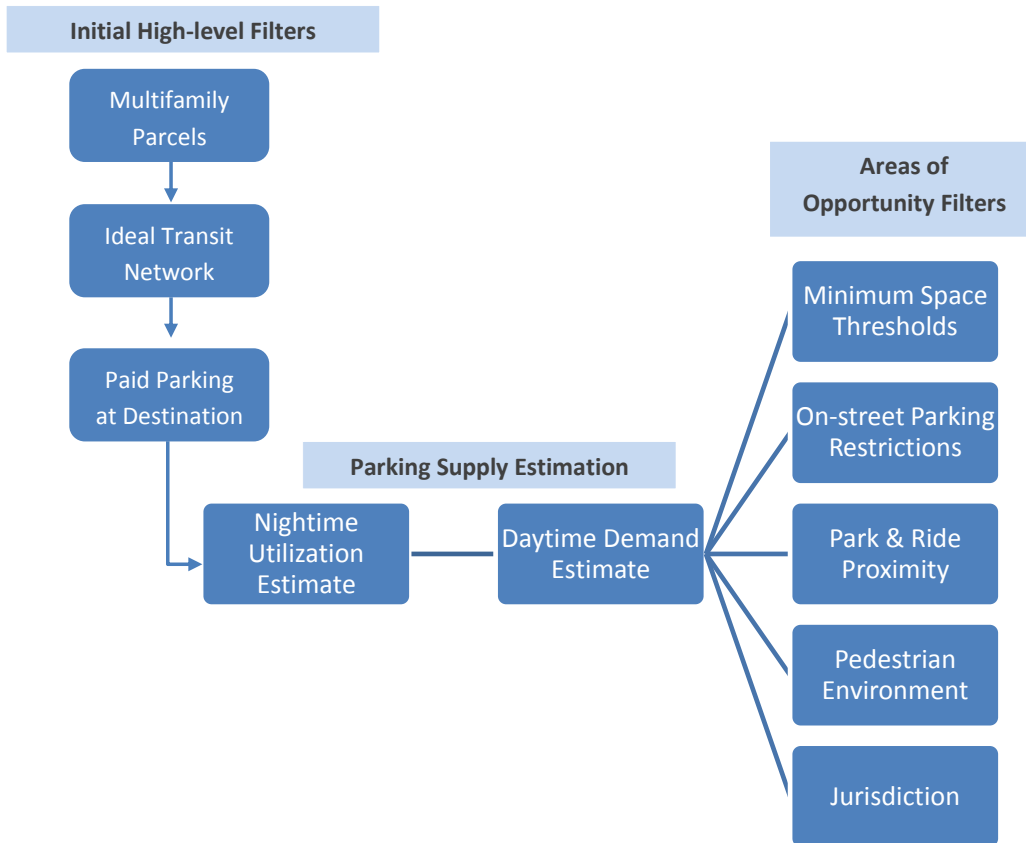


Figure 1: Opportunity Mapping Process

Initial High-level Filters

A set of three primary filters was first applied to the county-wide set of parcels in order to narrow the list of potential MF P&R sites. These filters identified a subset of potential parcels that hold promise for a multifamily shared-use parking program. The primary filters included:

- *Multifamily Parcels:* King County Metro staff provided the full set of parcel data filtered by present use which included apartments, condominiums, and nursing homes³. In total, there are over 11,000 multifamily parcels and covered a majority of the jurisdictions within King County.
- *Ideal Transit Network Proximity:* King County Metro staff defined a subset of routes that provide frequent or express service during the peak period as this type of service is favored by park & rides users. A distance of 1/10th of a mile was used as a buffer around each stop to filter the list of MF properties down to close to the ideal transit network⁴. The filter provided a subset of 3,240 parcels within the county.
- *Paid Parking at Destination:* A shared-use priced parking business model would only be applicable for users of routes that are destined for areas with paid off-street parking⁵. The subset of parcels was further reduced by 600 parcels by removing any that were on routes destined for areas with free off-street parking.

³ A full list of land uses included can be found in Appendix 1

⁴ The distance of 1/10th of a mile is the approximate distance the current park & ride users must walk from the lot to the transit stop

⁵ Source: Puget Sound Regional Council off-street parking study, 2013

Parking Supply Estimation

With the initial multifamily parcels identified, the project team developed a process to estimate the available daytime parking space availability. The process began by applying the Right Size Parking demand calculator⁶ to estimate the peak utilization of the residential parking supply and adjusting the demand for daytime usage with factors developed by the Urban Land Institute (ULI) and the Institute of Transportation Engineers (ITE)⁷. Additionally, automobile mode split data from the Puget Sound Regional Council travel demand model provided further adjustments to the daytime usage estimation⁸. This analysis yielded an estimated 71,320 available stalls (during the midday) on 2,637 parcels in King County.

Areas of Opportunity Filters

With the baseline set of potential sites identified along with the estimated daytime supply, a number of filters were applied to identify different subsets of areas of opportunity. Depending on the chosen business model, different combinations of filters may be appropriate. For example, a business model that focuses on working with a limited number of property owners may require the set of potential sites to be only those with a large number of available spaces. This would provide economies of scale and offer a higher incentive for larger property owners to participate in the program. The following filters were tested to further narrow the opportunity sites:

- *Minimum Space Thresholds:* This filter reflects an assumption that the more parking that is available at a given site the more likely it will be a viable opportunity for a shared-use pricing model. This would make the site more attractive to parking operators and/or building owners. Results of the minimum space threshold filters are shown in the table below.

Minimum Space Thresholds and Impact on Parcel and Space Availability

Minimum Space Threshold	Parcels	Available Daytime Spaces
None	2,637	
10	993	64,180
20	623	58,930
50	346	50,040

- *On-street Parking Restrictions in Seattle:* This filter reflects an assumption that priced shared parking is likely to be more viable if the nearby on-street parking is restricted or priced. Data for jurisdictions other than Seattle were limited and were not as extensive city-wide as with the data from Seattle. Therefore, the sensitivity of the parking

⁶ <http://www.rightsizeparking.org/>

⁷ Appendix 1 provides a summary of the comparison between the ITE and ULI demand estimates were compared

⁸ Puget Sound Regional Council Travel Demand Model 2015

restriction filter was tested on parcels located in Seattle, which removed between 5% and 15% of the available supply of stalls in the city. This sensitivity analysis will inform future application of the parking restriction filter for other jurisdictions depending on the chosen pilot sites and business model⁹.

- *Proximity to Park & Rides with > 90% utilization:* This filter identifies sites that could capitalize on demand that is not being met by nearby existing full P&Rs. Parcels within one mile of an over-utilized P&Rs (over 90%) were identified from the initial subset of parcels. Application of this filter eliminated roughly 60% of the available supply of stalls. This filter would only be applied in cases of a MF P&R program intended specifically to supply additional P&R parking near over-utilized P&Rs; the filter would not be relevant for a system that was intended to create P&R parking in places not near existing P&Rs. With this in mind, for this analysis the available stalls located along the ideal transit network corridors but not proximate to over-utilized P&Rs are still considered as their own market and were not removed.
- *Pedestrian Environment:* A Walkscore of 70 or greater was used as a proxy to identify sites likely to have a pedestrian environment that would be attractive to MF P&R users. This filter is based on an assumption that MF P&R users are likely to be walking further distances than they have been accustomed to, and therefore the pedestrian environment would be an important factor in their decision to use the system. This filter removed between about 60 to 80% of the available supply of stalls, with the most elimination occurring when the highest available space threshold was also applied as a filter. Note that this filter may not be appropriate to apply in all contexts. For example, there may be overutilized P&R lots in areas with low walkability that are nevertheless excellent locations for MF P&R.

Additional Criteria

As the list of potential sites is further reduced during the business model development process, additional criteria may be applicable to identify priority areas. This includes evaluating the access shed of potential P&R locations and understanding the potential market reach of these areas.

King County Metro and Sound Transit have identified user locations of a sample of P&Rs based on license plate surveys. As shown in the Figure 2, the access-sheds of different P&Rs vary across the region, with the average user of the Overlake Transit Center P&R traveling 2.6 miles and a typical user of the Auburn Station P&R traveling 4.1 miles. As business models are refined, this type of analysis will assist in understanding the potential market reach of each potential site.

⁹ For example, if pilot sites are located in a certain jurisdiction, additional data on all forms of parking restrictions (paid, residential parking zones, no parking zones, etc.) will be collected.

Travel patterns were also investigated to supplement the opportunity mapping. As a test case, data for the Overlake P&R in Redmond were analyzed, based on the PSRC's travel demand model that provides origin-destination flows of P&R users for home-based work trips. The sample traffic analysis zone (TAZ) 274 was chosen for display as it encompassed a high percentage of users of the Overlake P&R. As shown in the Figure 3, 70% of trips were destined for Downtown Seattle, First Hill, South Lake Union and Uptown, while 12% were destined for Redmond. The information will help refine the business models by providing an understanding of how travelers typically use the system, and the likely size of the catchment area.

Figures 4 and 5 highlight the change in the spatial distribution of parcels based on application of one set of filters. Figure 4 shows all MF parcels identified from the initial present use filter (the filter that identified whether the parcel contained a MF use). Figure 5 shows an example filter that highlights only those parcels that are within 1/10th of a mile of an ideal transit network stop, have a Walkscore above 70 and have at least 10 spaces available during the day. This example shows how various filters may be applied to identify potential pilot sites as the preferred business model is refined. A description of the market acceptance and the potential business models is included in a later section.

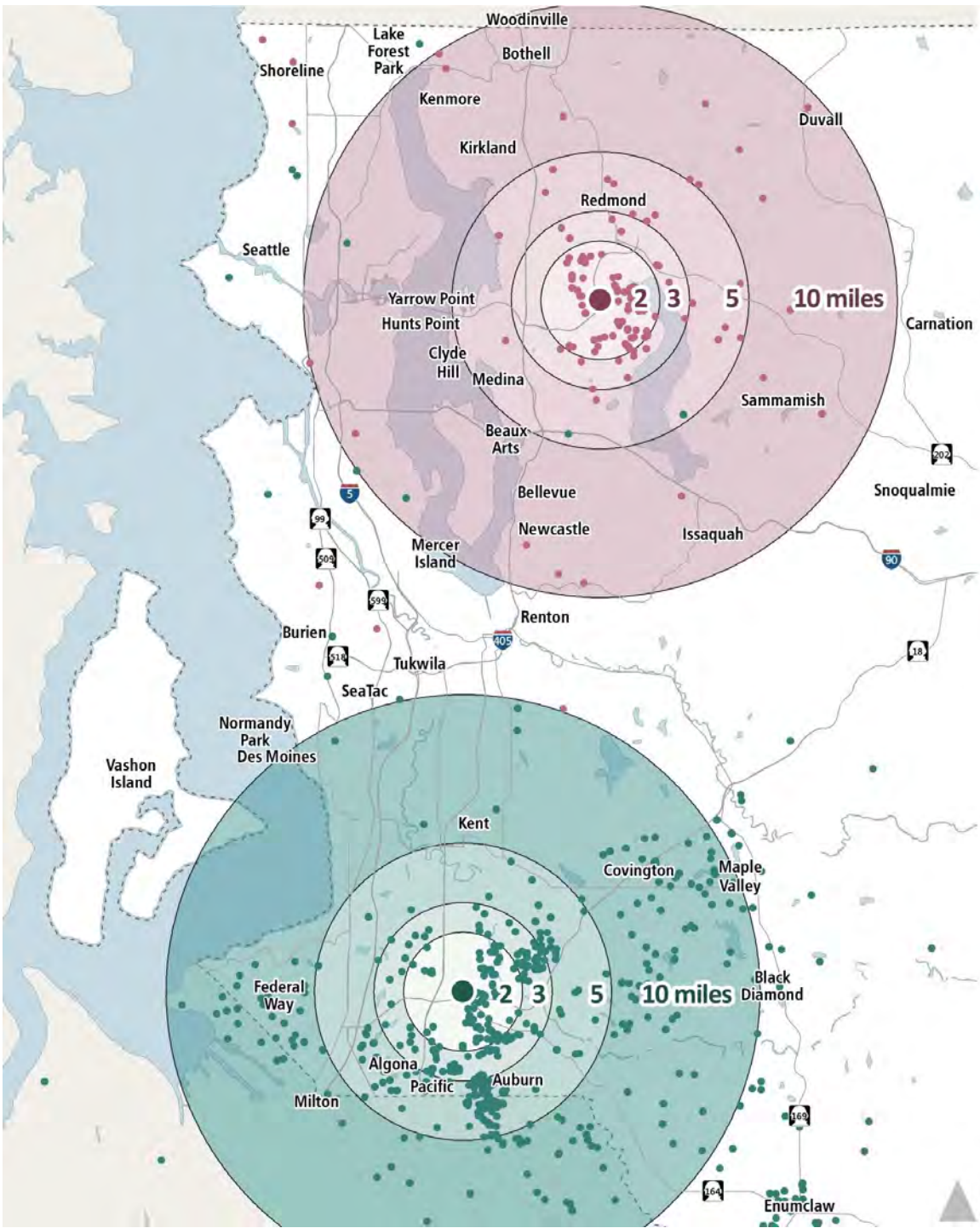


Figure 2: Transit access-sheds

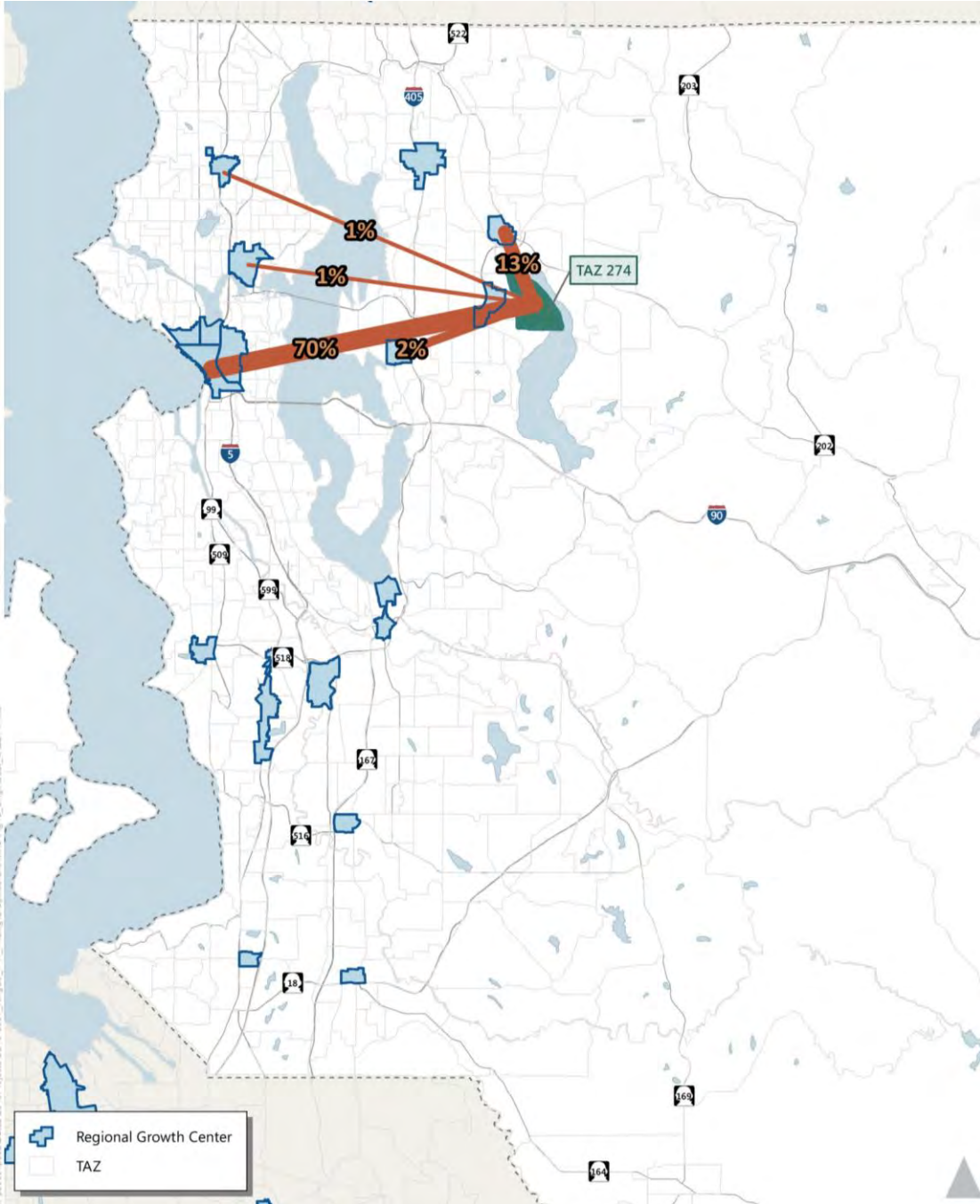


Figure 3: Origin-destination flows

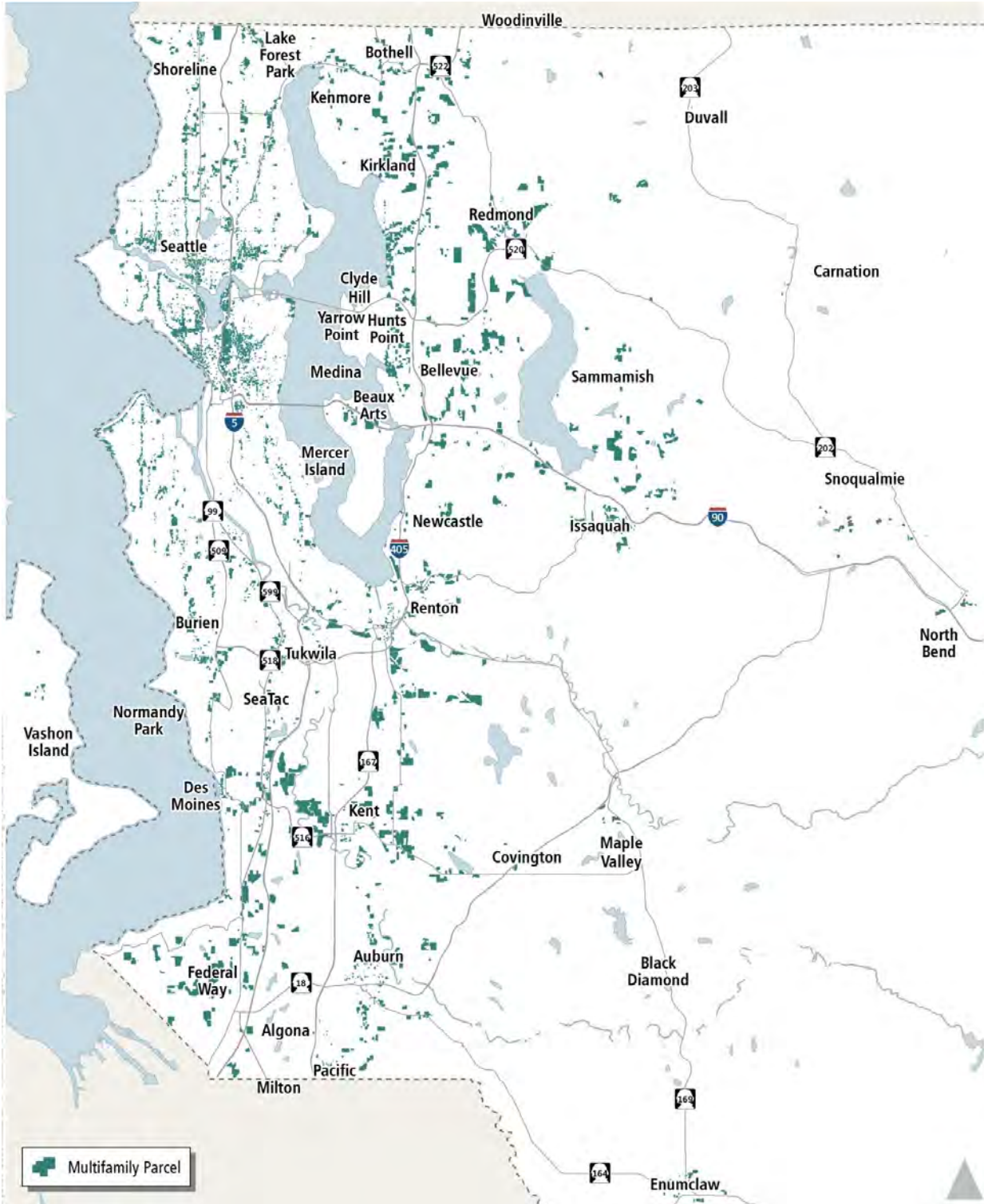


Figure 4: MF parcels identified from the present use filter

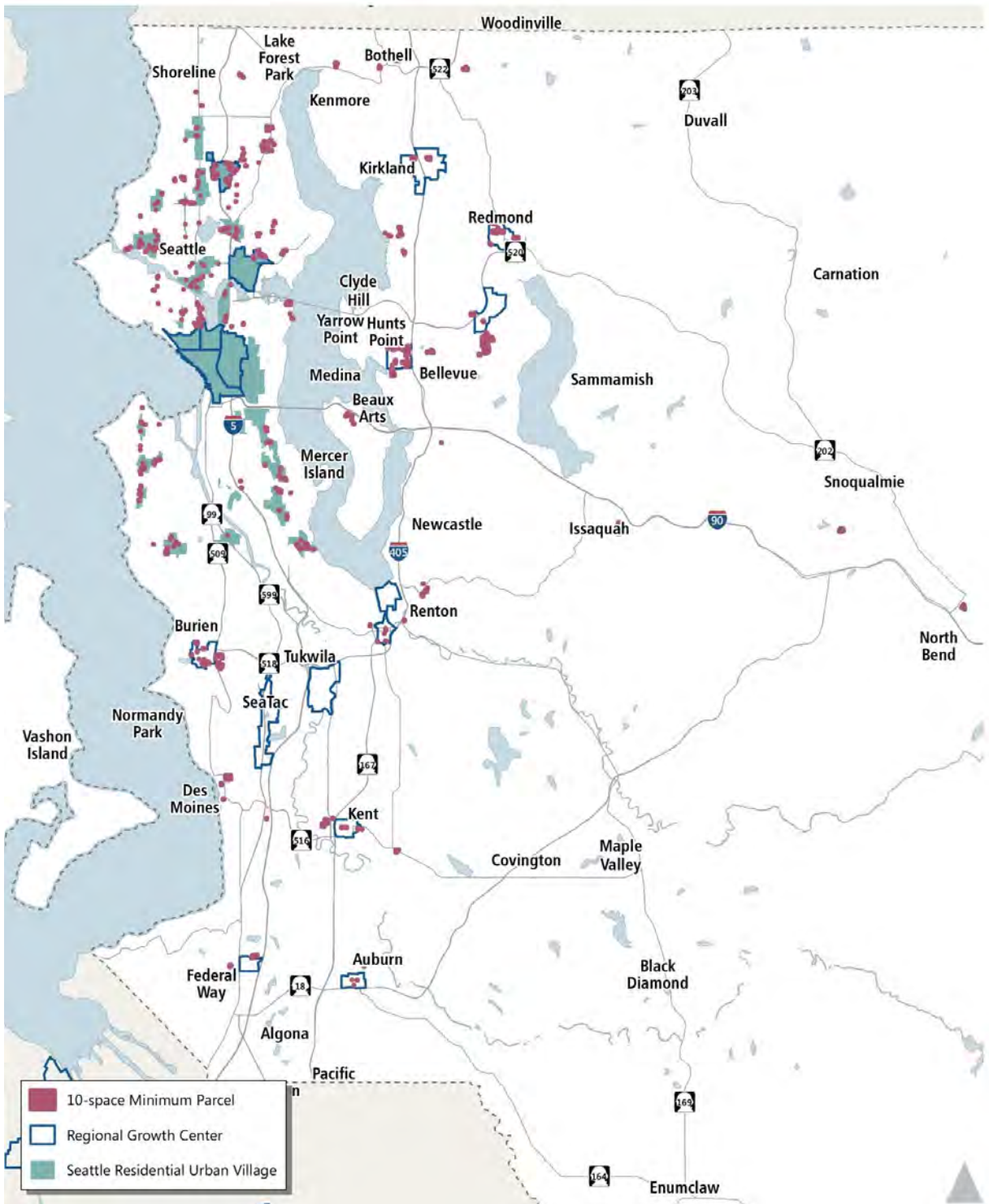


Figure 5: Parcels within 1/10th of a mile of an ideal transit network stop, with a Walkscore above 70, and at least 10 spaces available during the day

2. Market Acceptance

Building Owners and Managers

The likelihood of a business model to attract MF property owners to the program will be one of several factors that will influence the choice of the optimum business model.¹⁰ For most MF owners, financial returns will be the primary motivator. One simple metric that can be used to measure financial returns is Return on Cost (ROC), which is defined as $ROC = \text{Net Operating Income (NOI)} / \text{Costs}$. NOI is revenue minus operating expenses. Costs are the upfront investments required to launch the system.

Owner expenses associated with a MF shared parking system include a range of upfront costs and ongoing operational costs. In addition, there are other financial considerations such as unit marketability, competition from non-P&R parkers, risk versus return, and effects on the valuation of the building.

When parking revenue alone doesn't generate an adequate ROC, subsidies or other incentives may be necessary to attract building owners to the program. Incentives that could be provided by King County include cash incentives, free advertising, transit passes, lot maintenance, and use of revenue from desirable P&R spaces to subsidize less desirable spaces in MF buildings.

ROC will be a valuable tool to help assess the most promising business models to pursue for a given site or set of sites. If projected ROC is low, it will indicate that a hybrid or public business model would be necessary, because there would be the potential for public subsidies and incentives that would not be available in the case of a fully private business model.

Building Operator Interviews

For an initial assessment of market acceptance among building operators, the team conducted interviews with two building operators, upon which the following observations are based:¹¹

- The total profit generated by the program is as important as the profit per space; it's probably not worth dealing with the management headaches for three or four spaces.
- Identified opportunities include serving P&R users that aren't adequately served at existing P&R lots (such as service workers who arrive later in the morning); buildings that are in neighborhoods suffering from P&R spillover, and finding buildings with enough surplus parking and in areas where parking revenue generates enough profit to make the hassle and risk of program participation worthwhile.
- Many of the potential barriers are financial; however, there are also non-financial barriers such as parking regulations, and the actual or perceived issues that building tenants might have with giving garage access to non-residents.
- Both neighborhood support and support of the program at the city level will likely be crucial to success.

¹⁰ See Appendix 2 for further details

¹¹ See Appendix 3 for further details

- Ideally spaces would be dedicated to P&R users as opposed to mixed with tenant parking, and P&R users would be vetted and/or tracked. (Note that this is one building operator's opinion and if implemented would mean that only excess parking above peak utilization would be available for P&R.)

Parking Operator Interviews

For an initial assessment of market acceptance among parking management firms, the team conducted interviews with three parking operators: Diamond Parking, SP+, and ImPark.

Diamond Parking

Diamond Parking has been managing MF parking and selling parking to non-residents since 2008, when the recession motivated owners of underutilized parking to seek new sources of revenue. Diamond manages 78 MF properties in Seattle, and a total of about 120 in the greater region.¹² Key points from the interview are as follows:¹³

- Price is important, but lack of parking supply is the main factor for determining an attractive opportunity
- Without a third party vendor, most owners do not have the means to market, communicate and manage both enquiries and sales
- Rates are determined by a combination of the local market, congestion, and what on-site tenants are paying
- They have not employed app based technologies, and they appear to be waiting for the app market to mature a bit more
- Focus on monthly parking sales as most facilities are gated access, making daily and hourly sales difficult (note that daily and hourly use could be enabled with access cards issued to users who are regular enough to make card distribution with the expense)
- Target 30% of gross revenue for its fee
- Prefer facilities that provide gated access because this makes the distribution of access (AVI cards, etc.) easier and reduces labor.
- Security has not been an issue in the facilities that Diamond operates, though it is of high interest to owners.
- There are no additional legal or insurance issues that apply compared to their normal parking operations
- Separation of elevators and pedestrian portals from direct access into interior building space is very important.
- Surface lots can be very attractive to users because of perceptions of safety that some users have about garages
- Overall, they believe that this will continue to be a growing market

SP+

SP+ currently manages a total of 200 facilities at MF properties in King County, and serves as a liaison for owners to market and provide parking access to non-tenants. The majority of these properties are in the Seattle City limits and in Bellevue, with a small number along the I90

¹² An initial interview with Diamond Parking was documented in the team's March 2015 *Multifamily Park & Ride Pricing White Paper*

¹³ See Appendix 7 for a more detailed write up of the interview.

corridor. SP+ began providing this type of shared use service in 2013 as a response to customer demand. Key points from the interview are as follows:¹⁴

- SP+ sees a growing opportunity for non-tenant shared parking
- At many properties that provide non-tenant access they are running waiting lists as demand is very high.
- Customers usually contact them by phone or through their webpage, but they would be very interested in mobile apps.
- The separation of elevators and pedestrian portals from direct access into interior building space is very important.
- Surface lots have the disadvantage that the hang-tag process can be labor intensive.
- Getting long-term commitments from a property owner to provide parking to non-tenants is very difficult.

Impark

Impark currently manages a large number of parking facilities at MF properties, almost exclusively in downtown Seattle. They do sell access to non-tenants but is it not a large portion of their business or something they actively promote at this time to clients. Key points from the interview are as follows:¹⁵

- Currently, a program like this would not be attractive to them, especially outside downtown where parking is typically free; they believe it will become more attractive as more P&Rs start charging for parking.
- They do like the concept of a large supply of parking being assembled and turned over to a private vendor.
- Solutions are generally easy for security, managing access into sites and insurance/liability.
- Impark takes from 15% to 30% for monthly parking fees.
- They suggested a lease back arrangement for which King County would lease stalls from a property owner at a rate that attracts participation, then work through a private vendor to sell the stalls at a lower rate.

Customer Input

The team is currently planning to conduct focus groups to test market acceptance of users. Capitol Hill Housing's District Shared Parking Pilot project conducted interviews with residents and potential users, and found that:¹⁶

- 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 the condo building would be concerned about security.

¹⁴ See Appendix 7 for a more detailed write up of the interview.

¹⁵ See Appendix 7 for a more detailed write up of the interview.

¹⁶ Based on December 2014 draft reports for the King County Right Size Parking Project

3. Regulations

An examination of municipal codes for shared use parking in 11 King County cities found no examples of explicit allowances for sharing underutilized MF parking with non-resident individuals.¹⁷ The survey did not find any explicit disallowances either. A MF P&R shared parking system is technically supplying “commercial” parking, a designation that in most codes is limited to either strict accessory designations, or to on-site users or adjacent users. This lack of defined regulations will have to be addressed for any business model pursued.¹⁸

In the case of a totally private business model, it may be possible for owners and parking operators to provide the MF P&R service in the absence of explicit regulations, though there could be some risk associated with that kind regulatory ambiguity. Parking management firms such as Diamond Parking are currently selling MF parking to non-residents, primarily in Seattle, but also in smaller cities such as Bellevue, Kirkland, Redmond, and Burien. For the MF parking they manage and sell to non-residents, Diamond Parking uses a contract that is no different from the contract they use with any other private parking lot owner, and the insurance and liability issues are also no different.

If the business model involves King County and direct collaboration with cities, then formal adoption of new regulations might be required. New codes will likely have to address:

- Allowance for MF to share parking with private individuals who have no connection to the property or to an adjacent property
- An exemption from proximity requirements that typically apply to conventional shared parking
- A new type of contractual agreement, since conventional shared parking contracts are typically made between property owners. One option is user “license” agreements, which are common to the industry and set the terms related to liability, protocols for use, term and termination, renewal and general rules and responsibilities.

King County may play a role in the above by facilitating regulatory updates in partner cities. The need for this work supports the case for a business model that is not purely private, i.e. either hybrid or public.

¹⁷ See Appendix 4 for further details

¹⁸ See Appendix 5 for further details

4. Design

The physical design of parking lots is not likely to be critical to success, but can be expected to augment the likelihood of success.¹⁹ The main factors are for the most part common sense: convenience of access (i.e. getting in and out), perceptions of security (i.e., gate systems, lighting, openness, and cleanliness) and understandability (i.e. signage and wayfinding).

The single most important specific design feature in structured parking is pedestrian entrances and exits that do not connect directly to the private interior spaces of the residential building. Another important factor that can be a barrier in many existing lots is when too many stalls are assigned to specific units. Segregating a residential-only section from a shared section that includes parking for both guests of residents and MF P&R users may ease concerns of residents, however that segregation also eliminates resident-only designated stalls from the shared pool.

Currently most MF shared parking is occurring in garages, simply because demand tends to be higher in more urban areas where garages are found. Compared to garages, surface lots have the inherent advantage of simply communicating ease of access, safety, and legibility. On the other hand, surface lots tend to be more spread out, which may require longer walks out of the lot. Garages have the advantages of added security and weather protection.

All of the above design factors would apply equally to any shared parking business model. If the desired features are not in place, the upfront costs to install them can be high, e.g. a new parking entrance gate. Parking management firms such as Diamond would not be willing to make such investments, because contracts and ownership can change rapidly. Owners would be unlikely to make such investments unless the returns were guaranteed to be relatively high. Thus a hybrid or public business model would be advantageous, because of the potential for subsidies that could cover upfront costs to improve design, if needed.

¹⁹ See Appendix 6 for further details

5. Technology

An initial survey of technology companies that provide services related to the needs of this project concluded that the ongoing rapid evolution and adoption of mobile technology creates opportune timing for developing MF P&R over the coming years.²⁰ For example, SP+, JustPark, ParkMe, and ParkWhiz, have already developed technology that allows users to find, reserve, and pay for parking in commercial lots. To supplement this information, the team had discussions with two local tech companies: Parkt and Luum.



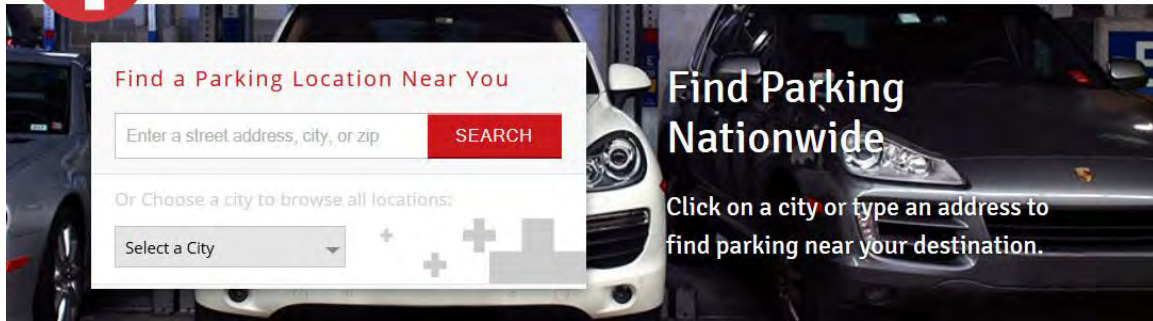
Parkt (firm contact: Tov Arneson)

Parkt connects parkers to shops, restaurants and other merchants who provide parking validations, and allows them to combine validations from multiple merchants and “bank” them for later use. Parkt previously worked with Laz Parking (Boston based) to develop a smartphone-based valet system similar to Zirx.²¹ They moved on from that business model after recognizing that the most important factor is price, i.e. there is usually plenty of parking supply, but people don’t want to pay for it. They decided the best way they could offer innovation was to recognize that the endpoint is connecting parkers to services they want, not the parking itself.

Parkt’s business model is to charge the merchants a fee, but only when they make sales to people who have used their service to find parking. It is essentially a service that is funded by merchants who recognize it as a way to bring in more customers. Overall, Parkt’s business model is not closely related to what’s needed for MF P&R. However, they do have extensive expertise in transactions with individual parking users.

²⁰ See the March 2015 *Multifamily Park & Ride Pricing White Paper*

²¹ Zirx allows smartphone app users to leave their car with a roaming valet, who then parks the car in a remote lot. The valet later retrieves the car and returns it to the owner when requested.



Luum: (firm contact: Tyler Simpson)

Luum provides a software platform for customers looking to “improve your parking situation, lower your neighborhood or environmental impact, or reduce traffic congestion.” So far their target market has been large institutions such as Children’s Hospital. Parking management is the primary component of their services, and they work with parking garage owners to manage daily parking. Their services also include shuttle management, ride matching, individualized reports on employee commuting methods, and various other TDM services intended to reduce automobile mode share. They charge about \$3 per employee per month for their full package, but that could be less for single services such as parking management alone.

The Luum system could be tailored to manage MF P&R. They are currently in discussions with the City of Seattle and King County. They have recently begun discussing opportunities with private building owners and developers. Luum could be a key partner in the business model development.

6. Next Steps and Further Data Collection

The next phase of the project will focus on developing business models. The following seven objectives have been proposed to evaluate and compare potential business models:

1. Is the model financially self-sustaining?
2. Does the model increase ridership by offering P&R spaces at a price and level of convenience that attracts P&R users?
3. Does the model provide enough incentive (financial or other) to attract multifamily owners?
4. Does the model reduce the need to build new P&R spaces?
5. Does the model promote social equity?
6. Does the model promote shared parking?
7. Does the model catalyze the market for priced parking?

For next steps to refine the areas of opportunity, the following data needs are anticipated:

- Collection of additional P&R user license plate data to improve understanding of P&R catchment areas
- Video counts of cars entering and leaving select MF parking facilities to test assumptions about how parking utilization changes over a 24 hour period
- Jurisdiction-based on-street parking data (if available)
 - Street right-of-way where parking is allowed (to identify the location of free on-street parking versus streets with only travel lanes)
 - Street right-of-way where parking is restricted/paid (currently have for a subset of jurisdictions)
- The initial, GIS-based opportunity mapping results will be refined by zooming in on sites with high potential and ground-truthing the locations with local data and site assessment. This truth-testing is expected to include:
 - Specific site layouts of potential pilot sites
 - Existing parking space utilization data for potential pilot sites
 - Origin-destination GPS data on selected subareas based on potential pilot sites
 - More-detailed amenity data on potential pilot sites beyond current Walkscore index

Next steps concerning market acceptance, regulations, and technology is expected to involve the following:

- Additional interviews with building owners, especially those owners of properties that have been identified as high-priority opportunity sites
- Additional interviews with parking operators, in particular to answer new questions specific to certain business models as they are developed
- Focus groups with potential MF P&R users
- More in-depth discussions with city planning and transportation staff, to be targeted by municipality as locational opportunities become better understood

- Continued discussions with technology providers such as Parkt and Luum
- Interviews with additional technology providers whose relevance to the project may increase as specific business models are further developed
- Development of preliminary financial pro formas for the most likely business model cases

Ultimately, the team intends to narrow down the potential business models to the two most promising to be further developed for possible pilot implementation. Financial pro formas will be fully developed for the two selected business models.

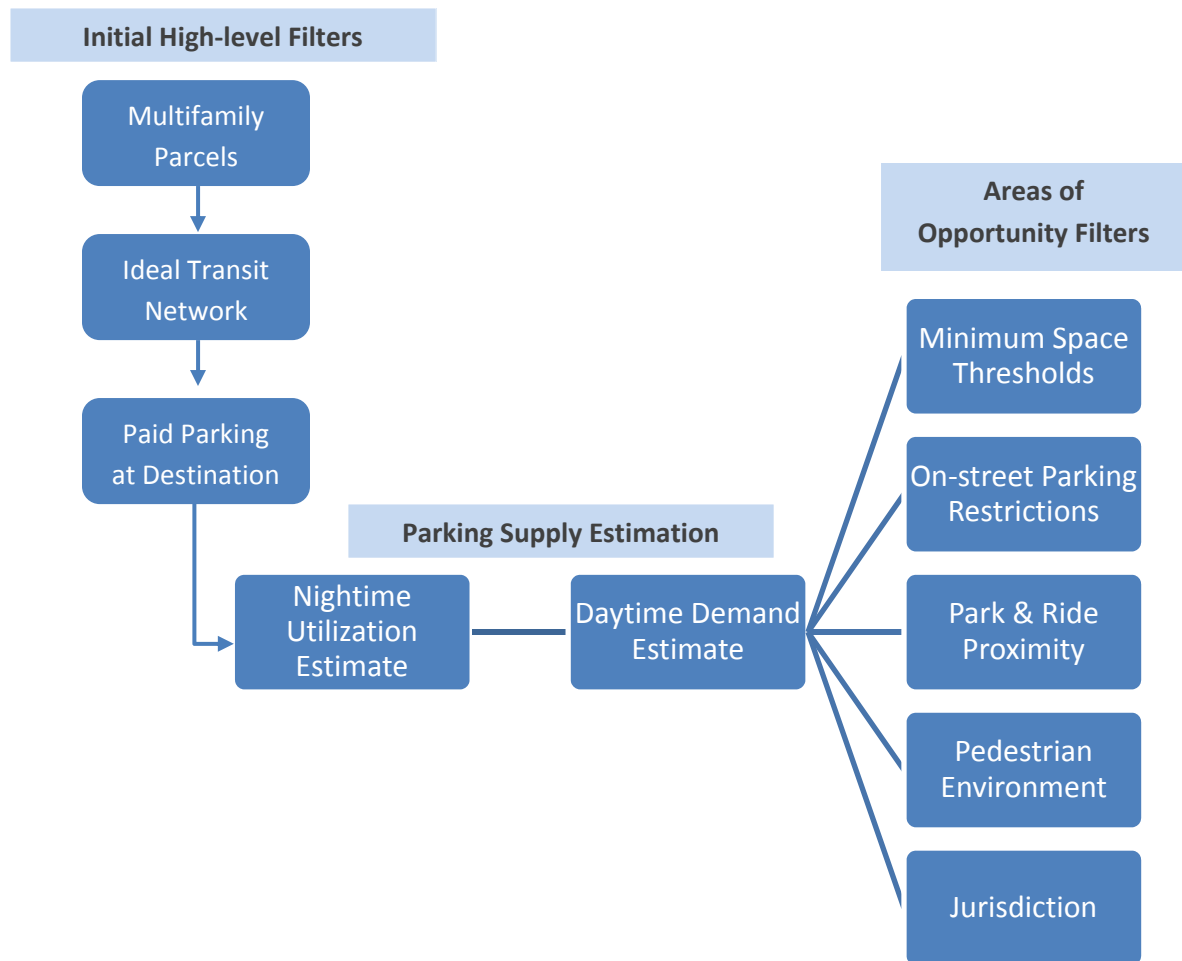
Appendix B

Opportunity Mapping

APPENDIX B: OPPORTUNITY MAPPING

Areas of Opportunity Analysis

With over 600,000 parcels in King County, the project team required a manageable set of potential sites to evaluate as part of the business model and pilot program development. In order to identify the potential areas of opportunity for a multi-family shared parking program, the project required an understanding of existing park & ride utilization, transit service provision, priced parking locations, the pedestrian environment and daytime parking space availability. These and additional factors were applied as a means to narrow the list of potential multi-family sites and identify areas where clusters of parcels could be candidate locations. With a large range of potential business models available at this stage in the project, a flexible list of viable sites was necessary before conducting further evaluation. The chart below highlights the overall process and the following section details how the various factors were included in the analysis to highlight various areas of opportunity.



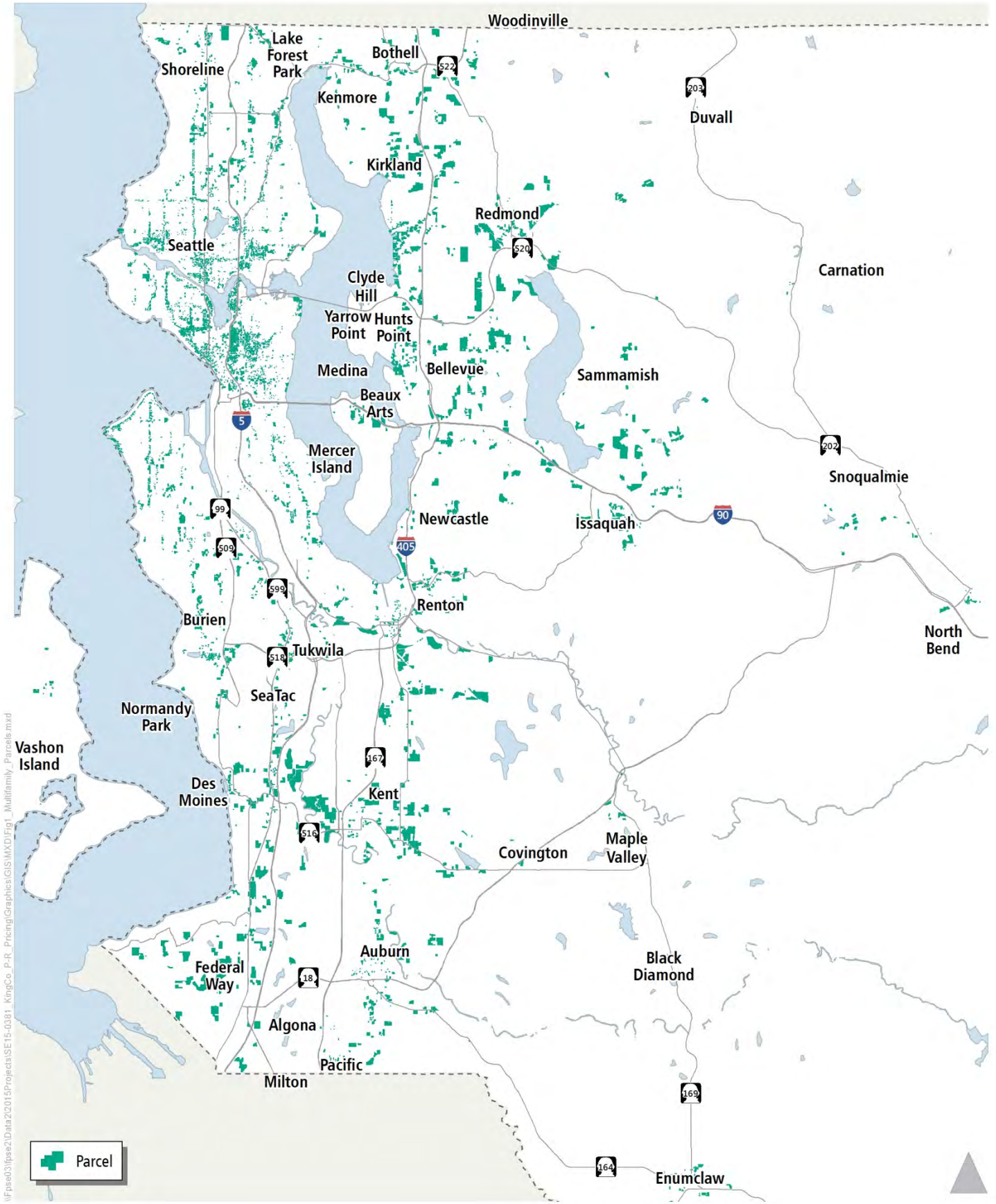
Multifamily Parcels

While traditional apartments and condominiums are suitable sites for potential shared parking, additional land use and building types may also be candidates for the project. This includes sites such as nursing homes and retirement facilities. King County Metro staff provided the full set of parcel data filtered by the desired present use which included the following:

- Apartment
- Mixed-Use Apartment
- Co-op Apartment
- Residential Condominium
- Mixed-Use Condominium
- Retirement Facility
- Nursing Home
- Rooming House

In total, this included over 11,000 parcels and covered a majority of the jurisdictions within King County. The parcel data was supplemented with data from the King County Assessor's office that included relevant data such as number of units, parking spaces and unit sizes¹. The detailed space and unit information was utilized to identify the estimated number of spaces available to be shared during the daytime period and is described in a later section. **Figure 1** highlights at a county level the general density and location of the potential parcels filtered by present use noted above.

¹ For parcels that did not have parking data from the Assessor's office, the sites were assigned a minimum of one parking space per residential unit and were supplemented with Right-Size Parking model estimates to provide a conservative estimate of available supply. This process was only required on approximately 5% of the parcels.



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Figure 1
Filtered Selection of Multifamily Parcels

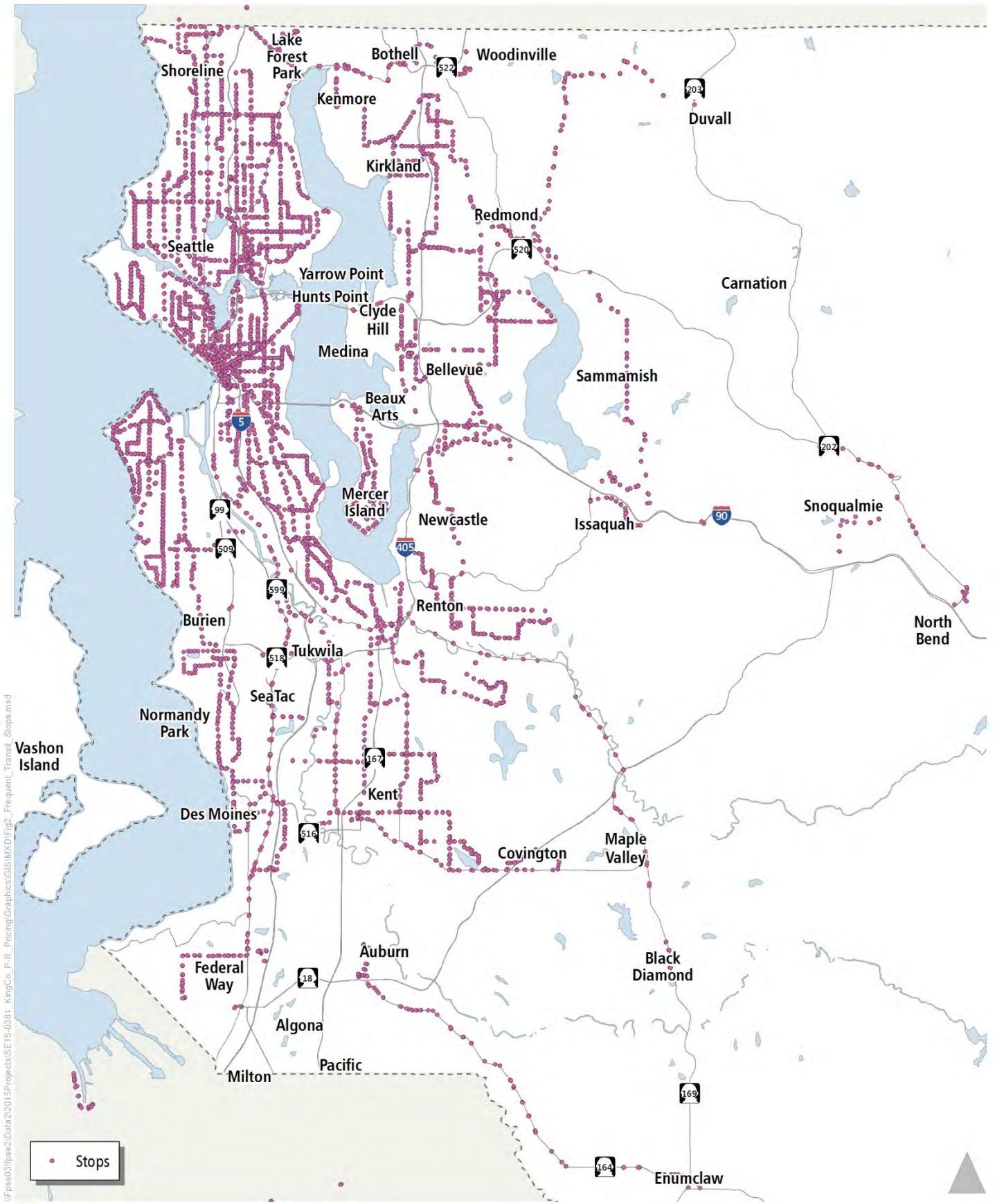
Ideal Transit Network

On average, users of park & rides utilize routes that operate with frequent or express service during the peak period. Potential users of a shared multifamily parking location would likely follow this trend and would use the shared parking to access frequent routes as part of their commute, rather than during midday or off-peak travel. King County Metro staff provided a list of routes to include in the “Ideal Transit Network” filter which are summarized in **Table 1**. **Figure 2** shows the location of the transit stops of these routes.

Table 1. Ideal Transit Network Routes

1	17	49	76	121	167	210	245	308	522	577 PT	675 RRE
2	18	50	77	122	173	211	250	309	532 CT	578 PT	676 RRF
3	19	55	98	123	177	212	252	311	535 CT	586 PT	773
4	21	56	99	124	178	214	255	312	540	590 PT	775
5	26	57	101	140	179	215	257	316	542	592 PT	795
7	28	60	102	143	186	216	260	342	545	594 PT	952
8	29	62	106	150	190	217	265	355	550	595 PT	981
9	36	64	107	152	192	218	268	358	554	596 PT	984
10	37	65	110	153	193	219	269	372	555	599 LINK	994
11	40	67	111	154	197	232	277	373	556	601	Sounder
12	41	68	113	157	201	237	301	510 CT	560 PT	671 RRA	
13	43	70	114	158	202	242	303	511 CT	566 PT	672 RRB	
14	44	74	116	159	205	243	304	512 CT	567 PT	673 RRC	
15	48	75	120	161	209	244	306	513 CT	574 PT	674 RRD	

An initial filter to narrow the list of potential parcels included parcels within 1/10th of a mile around each ideal transit network stop. The distance of 1/10th of a mile is the approximate distance that current park & ride users must walk from the closest points of a garage or lot to the stop location. The number of parcels intersecting a 1/10th mile buffer of an ideal transit network stop is 3,240, with a sizable density of parcels in North Seattle, South King County and on the Eastside as shown in **Figure 3**. More detailed analysis of actual walking distance based on site layout and sidewalk locations will be conducted as specific sites are identified for potential pilot program testing. The subset of 3,240 parcels was carried forward for further analysis to narrow the list of potential sites.



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Figure 2
Ideal Transit Network Stops



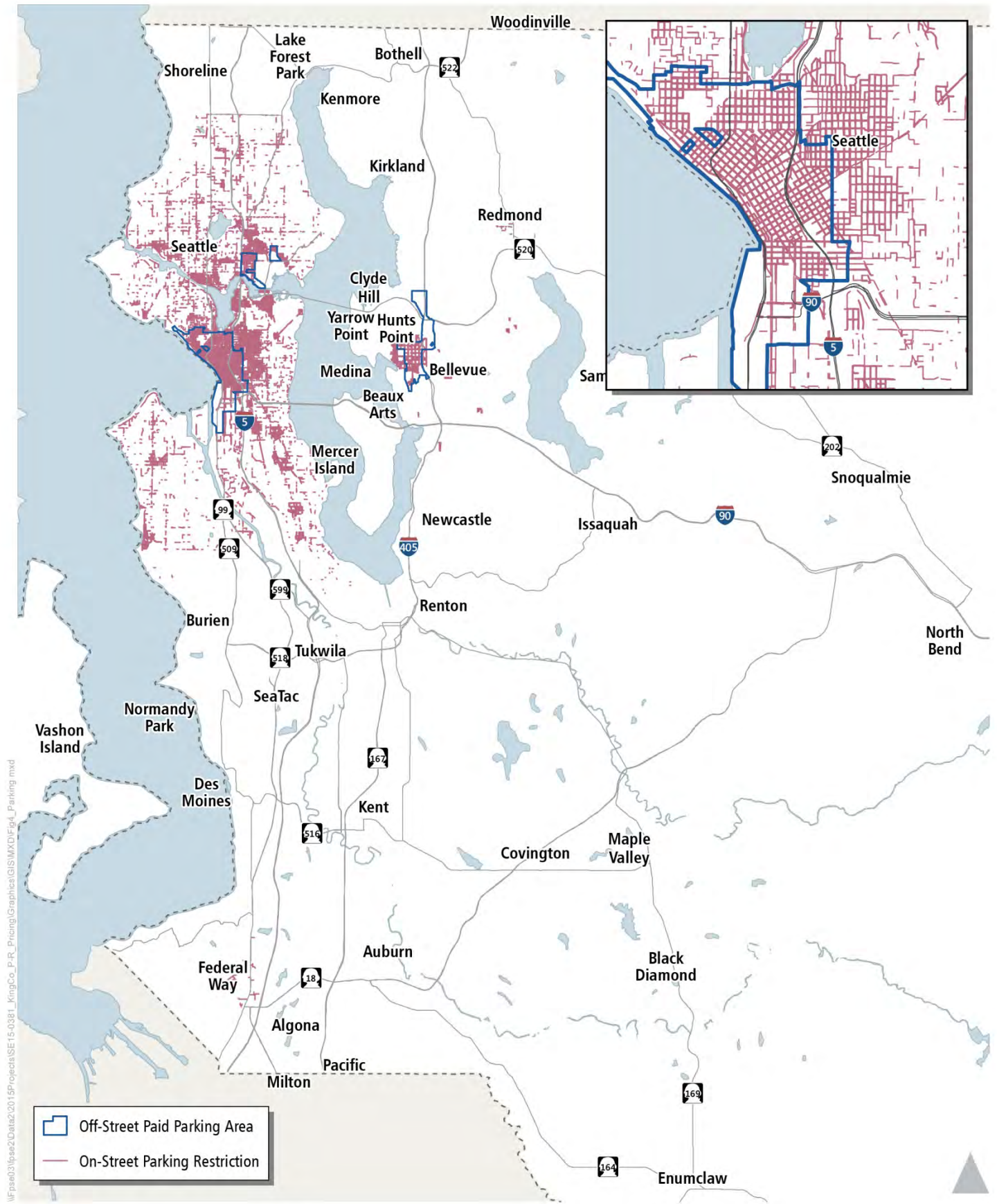
V:\Faso03\pae2\Data\2015\Projects\SE15-0381_KingCo_P-R_Pricing\Graphics\GIS\MXD\Fig3_Parcel_0_fm.mxd



Figure 3
 Parcels Intersecting a 1/10 Mile Buffer Around the Ideal Transit Network Stops

Paid Parking at Destination

A key influence on travel demand patterns is the location of paid parking. A potential user of any shared-use priced parking program may be more willing to pay for parking if their final destination has paid parking. They would likely drive the entire trip if they had free parking at their destination unless other factors impeded that option such as parking availability, congestion or if they valued the ability to read or do work while in transit. Data for paid off-street parking areas were provided by the Puget Sound Regional Council while the cities of Seattle, Redmond, Bellevue, Shoreline and Federal Way provided on-street paid or time-based parking restriction locations. The highest densities of parking restrictions encompass Downtown Seattle, the University of Washington, Capitol Hill, and Downtown Bellevue as shown in **Figure 4**. The off-street parking filter kept only those parcels that were located on a transit route where there was paid parking within 200 feet of the destination of the route. This filter only removed 600 parcels as the transit network is built primarily on routes that access areas with paid off-street or restricted on-street parking, such as major employment locations.



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Figure 4

Paid or Restricted Off-Street and On-Street Parking Areas



Available Daytime Parking Space Supply

The previous filters provided a base list of parcels for additional evaluation based on their estimated daytime parking supply. The project team utilized parking demand estimates based on data from the Right-Size Parking (RSP) model, the Institute of Transportation Engineers (ITE) and the Urban Land Institute (ULI). These sources and the method in which their models were applied are described below.

Right-size Parking Model

The RSP model, developed in 2012 through King County Metro, estimates parking space utilization at a residential site based on a number of local factors including unit size, transit service, housing and jobs density and location. For example, in areas with more frequent transit service and smaller unit sizes has on average lower parking demand per residential unit as compared to areas with less transit service and larger units or number of bedrooms. Much of the inputs to the RSP model was provided by the King County Assessor's Office and was supplemented with data collected for the modeling process. For each parcel, the RSP model equation was applied to estimate the peak residential demand of the site based on a parking demand-to-unit ratio. The following steps involved adjusting that peak demand by the estimated reduction in demand during daytime hours.

Daytime Demand Adjustment – Comparison of Methods

While peak residential parking demand occurs between 11 PM and 6 AM, the areas of concern for this project are the daytime period while people are typically at work and additional spaces are available. Studies have been conducted by national organizations to understand the time-of-day variation in residential parking demand. Two key sources – ULI and ITE - were used to identify a preferred method for daytime demand adjustment.

Studies conducted by ULI estimated that typical daytime residential parking demand is only 70% of the peak demand while ITE estimates concluded that daytime demand was 50% of the peak amount. The studies were based in more suburban areas where a higher proportion of residents drive to work. The estimates for this project required an adjustment based on the underlying auto mode split for each parcel to account for variation from the conditions observed in the ULI and ITE studies. For example, a parcel in an area with a much lower auto mode split than the suburban average would have a daytime demand adjustment factor higher than 70% as more of the residents' vehicles would remain on-site during the day. The reverse is true of parcels in areas with higher auto mode splits than the suburban average. To test the accuracy of these two daytime adjustment methods, the estimates for a sample of parcels were compared against actual daytime counts collected during a previous Mixed-Use Parking Project (MUPP) study. The data for the MUPP study were collected from sites located in urban and suburban locations throughout King County. The sites were identified based on the structure of the shared used parking supply. Many sites segregated the parking between commercial and residential users while some employed a shared model that did not identify spaces by residential or retail. **Table 2** shows that the ITE demand adjustment factor is a closer estimate of actual daytime demand as compared to ULI, with a majority of the ITE site estimates within 10% of actual supply available. The ITE estimate was chosen as the preferred method to estimate daytime demand for further analysis.

Table 2. Model Comparison

Site Name	Daytime Supply Available			Percent of Daytime Supply Available			Difference in Supply to Actual	
	Actual	ULI	ITE	Actual	ULI	ITE	ULI	ITE
507 Northgate Apts.	71	50	70	46%	32%	45%	-30%	-1%
Circa Greenlake	151	141	171	57%	53%	64%	-7%	13%
Courtyard Off Main	68	53	71	44%	34%	46%	-22%	5%
Leva on Market	176	153	191	52%	45%	56%	-13%	9%
Tera Apts.	80	78	112	38%	40%	57%	4%	50%

Areas of Opportunity Results

With the estimated daytime parking space availability calculated for each parcel, the list of potential sites could be narrowed further with additional filters adapted to a variety of business models. For example, a business model that focuses on working with a limited number of property owners may require the set of potential sites to be only those with a large number of available spaces. This would provide economies of scale and offer a higher incentive for larger property owners to participate in the program. In contrast, a business model that is adaptable to small sites and requires minimal coordination between property owners and limited upfront investment may work best with a larger number of sites, even those with a low parking supply. In this business model example, the preference may be dispersed geographic coverage in order to reach as many areas as possible as opposed to concentrating resources within a limited number of jurisdictions. Finally, a business model may be more appropriate for attracting customers near over-utilized park & rides or a model may work best if targeted to certain jurisdictions based on their land use code and their support of shared-use parking. All of these business model examples highlight the fact that it was important at this stage of the project not to narrow the list of potential sites. Therefore each of the following filters were applied separately to understand their potential impact on reducing the number of candidate sites and to develop parcel sets that could be applied to different business models. The filters applied are listed below while details of each filter and results are summarized in the following section.

- Minimum parking space availability thresholds
- On-street parking restrictions in Seattle
- Park & Ride proximity
- Pedestrian environment
- Jurisdiction (for code-based assessment)

Minimum Parking Space Thresholds

The project team applied a number of minimum thresholds to understand how these filters narrowed the list of potential sites. For each parcel, a minimum filter was applied to identify all sites that had at

least 10, 20 and 50 spaces available during the daytime period. The results of these filters are provided in **Table 3** with the number of parcels and parking spaces summarized.

As expected, the minimum threshold of 10 spaces allows a large number of parcels to remain in the study set. However the smaller threshold adds a marginal number of spaces as compared to larger space minimums. As business models are developed, the appropriate minimum space threshold will provide a filter to identify potential sites for further evaluation. The minimum space threshold may be adjusted to account for variations in residential parking demand such as visitors, sick days and margins of error within the RSP model.

Table 3. Minimum Space Thresholds and Impact on Parcel and Daytime Space Availability

Minimum Space Threshold	Parcels	Available Daytime Spaces ²	Potential Applicable Business Model Elements
None	2,637	71,320	Third-party business model or other low investment model
10	993	64,180	Low investment, limited property management coordination
20	623	58,930	Mix of low and high investment requirement, potential coordination with jurisdiction
50	346	50,040	Large property management, higher investment costs

Figure 5, Figure 6 and Figure 7 highlight the general spatial distribution of potential sites based on the three minimum threshold filters. In general there is good distribution of potential parcels throughout the county, with notable concentrations of sites near Northgate in Seattle, in Redmond, Bellevue and areas near Kent and Renton. While higher minimum thresholds reduce the geographic coverage, the viability of certain business models may require only sites with a large amount of available daytime spaces.

² Total number of parking spaces estimated to be available during the daytime period based on the RSP model and the ITE demand estimates previously described.

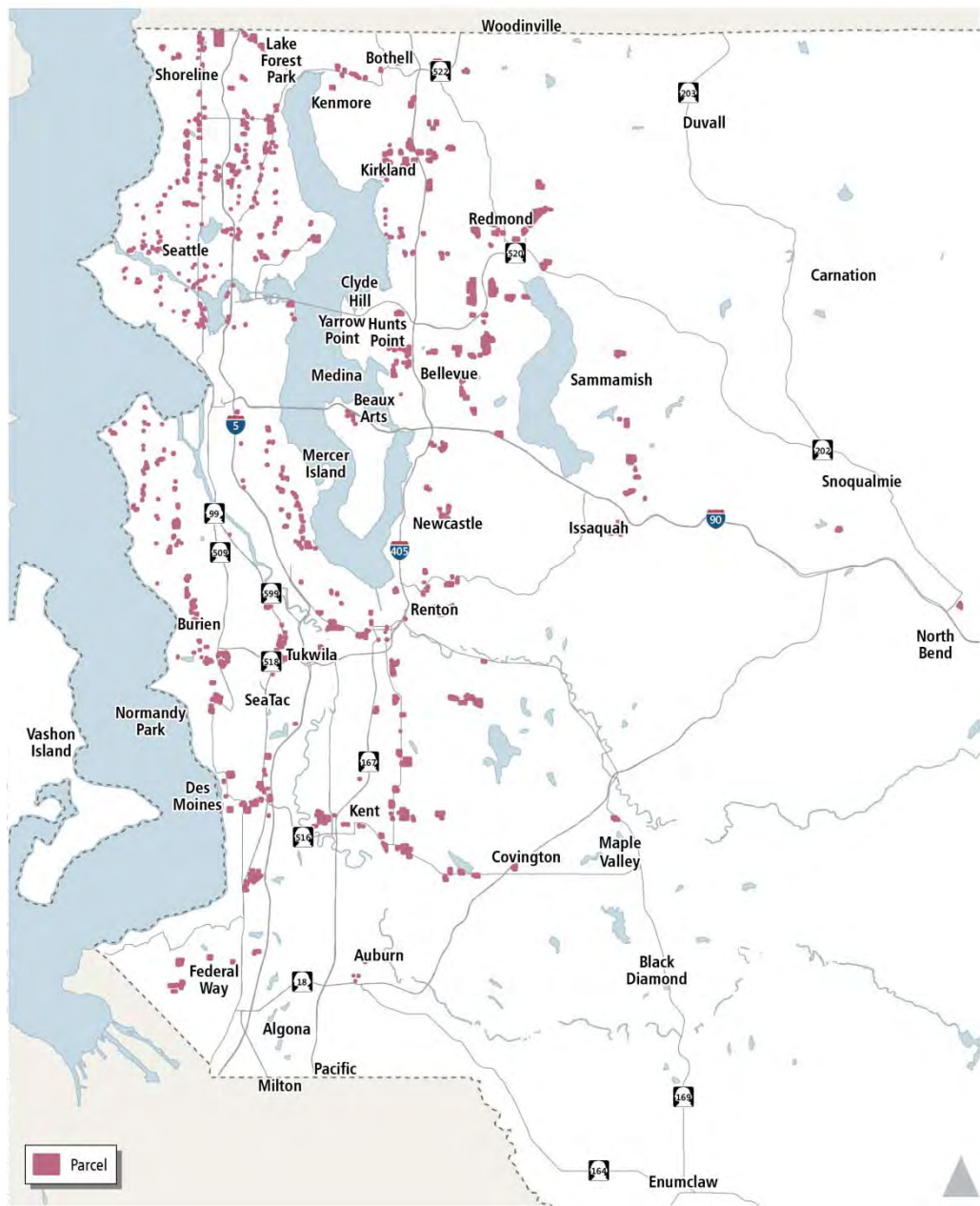


Figure 5
Parcel Distribution – 10-Space Minimum



Figure 6
Parcel Distribution – 20-Space Minimum

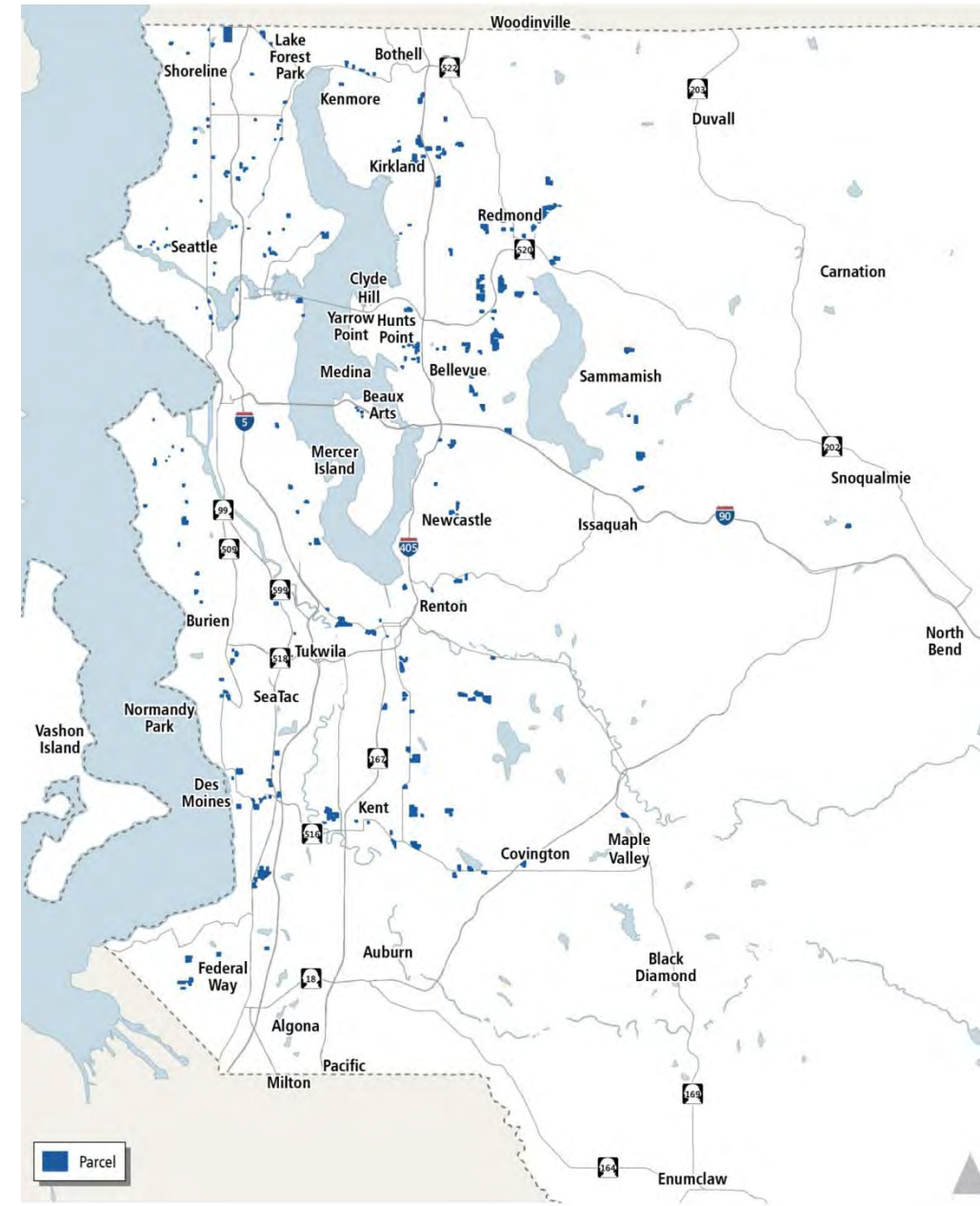


Figure 7
Parcel Distribution – 50-Space Minimum

On-street Parking in Seattle

Priced shared parking may only be viable if the nearby on-street parking is restricted or priced, otherwise there is no market for users to pay for parking unless security or availability become a factor. To understand the extent of restricted and priced parking, data provided by the Seattle Department of Transportation identified streets with these attributes. Data for other jurisdictions were limited and was not as extensive city-wide as with the data from Seattle, therefore the parcels in Seattle were evaluated to understand the sensitivity of using on-street parking restriction as a filter. Filtering the potential sites from the previous minimum threshold subsets yielded the following results as shown in **Table 4**. In general, this filter reduced the potential site list by between eight and 24 percent and the total number of available spaces by between five and 15 percent.

Table 4. On-street Parking Restriction Sensitivity Test

Filter	Minimum Space Threshold	Parcels	Available Daytime Spaces	Reduction in Parcels	Reduction in Spaces
Seattle	10	412	14,190		
Within 200 feet of restricted on-street parking	10	313	12,020	24%	15%
Seattle	20	197	11,590		
Within 200 feet of restricted on-street parking	20	162	10,260	17%	11%
Seattle	50	80	7,890		
Within 200 feet of restricted on-street parking	50	74	7,470	8%	5%

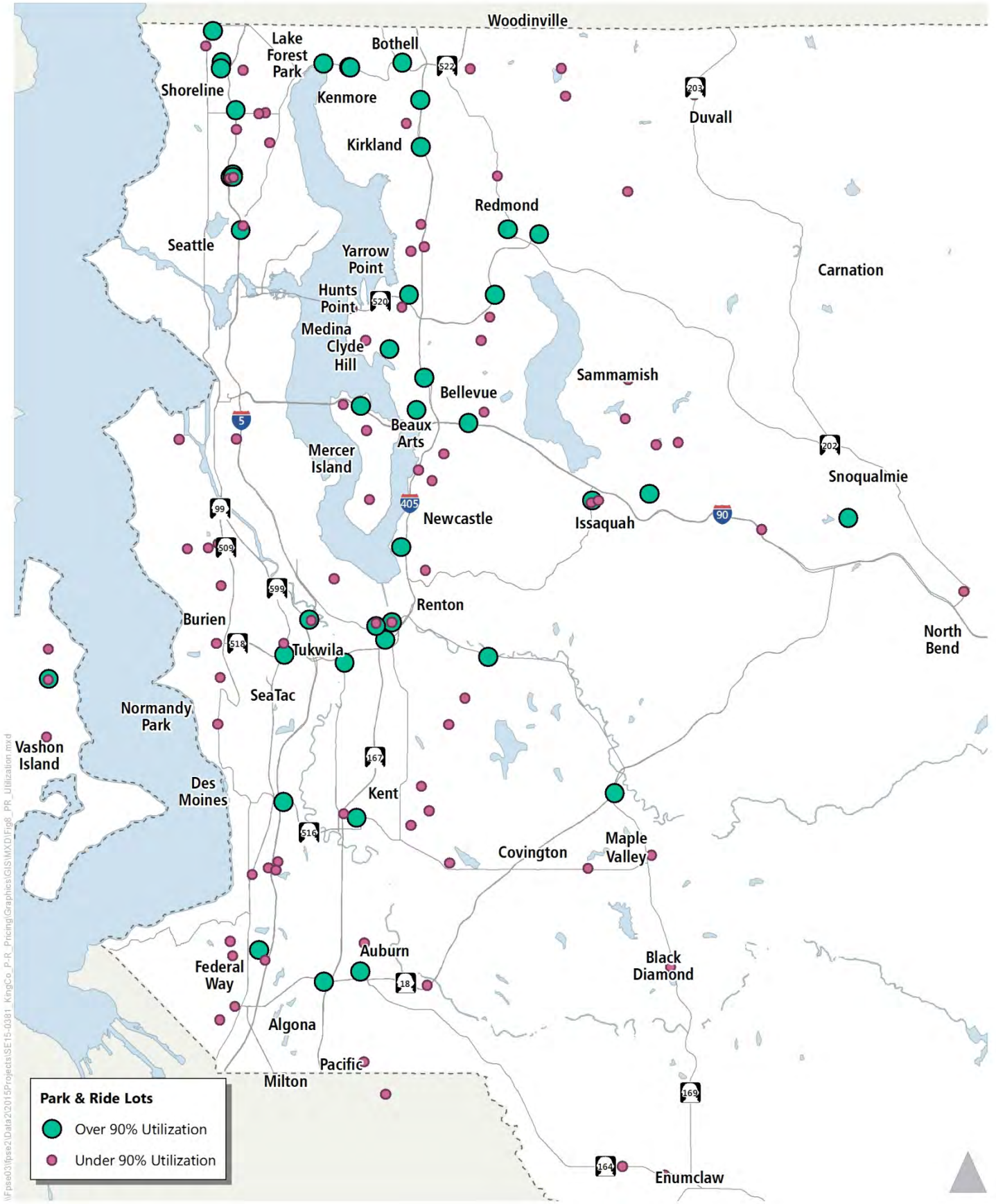
Park & Ride Utilization

A key goal of the project is to relieve over-utilized park & rides and decrease the need for King County Metro or other agencies to have to build additional parking. Additionally, there may be latent demand for transit from people who are currently unable to utilize the park & ride lots and thus elect to drive. Potential users of crowded park & ride lots may be willing to access the same transit route at a different lot close to the original park & ride. Identifying potential sites within a mile of an over-utilized park & ride would provide a list of viable sites for this type of market. King County Metro provided data on park & ride lot utilization for the third and fourth quarter of 2014. Lots with over 90% of their spaces used for either time period were identified and are shown in **Figure 8**. The previous subset of parcels was filtered by identifying those within a mile of an over-utilized park & ride lot and is summarized in **Table 5**. This filter reduces the number of potential sites while still maintaining a high number of available daytime spaces.

Table 5. Park & Ride Filter Results

Minimum Space Threshold	Filter	Parcels	Available Daytime Spaces
10	No filter	993	64,180
	Park & Ride Filter	328	25,920
20	No filter	623	58,930
	Park & Ride Filter	243	24,690
50	No filter	346	50,040
	Park & Ride Filter	147	21,590

The lots with less than 90% utilization are also shown for context in **Figure 8**. As potential sites are further defined and pricing models are developed, identifying under-utilized lots will highlight areas that may not have demand for park & ride usage. However, areas where an over-utilized park & ride lot is in close proximity to an under-utilized lot should be studied further to understand the nature of this difference in demand.



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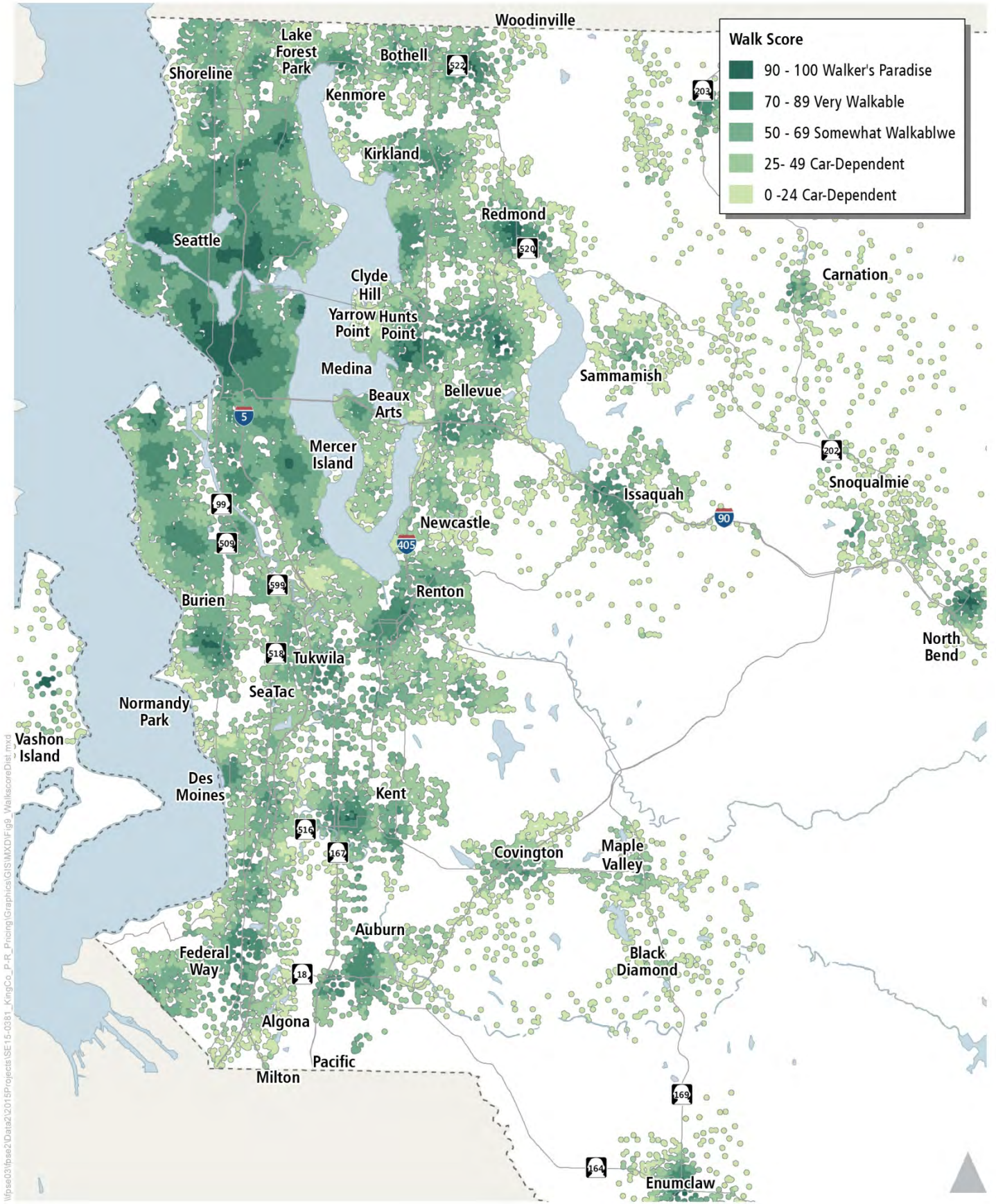
Figure 8
Park & Ride Utilization

Walkscore

Amenities such as coffee shops, food marts or other retail establishments within or adjacent to a potential shared parking site may improve the viability of that site as a park & ride facility. Additionally, the pedestrian environment surrounding a site is an important factor to improve the transfer from parking space to transit stop. While detailed information on amenities and the pedestrian environment is not available throughout the county, the Walkscore of an area serves as a good proxy of the overall environment. Walkscore considers amenities within walking distance of a parcel along with elements conducive to a safe pedestrian experience such as higher intersection density to derive an overall “walkability index”. The Walkscore of each census tract centroid is shown in **Figure 9**. A Walkscore above 70 out of 100 is considered a “Very Walkable” area where most errands can be accomplished on foot. The Walkscore of each parcel was applied as a filter to identify those potential sites with a good pedestrian environment and higher density of amenities. As shown in **Figure 10**, a majority of the sites with at least 10 spaces available are in more walkable areas near growth centers and urban villages. The results of the filter on the previous minimum space threshold amounts are summarized in **Table 6**.

Table 6. Walkscore Filter Results

Minimum Space Threshold	Filter	Parcels	Available Daytime Spaces
10	No filter	993	64,180
	Walkscore Filter	471	25,260
20	No filter	623	58,930
	Walkscore Filter	276	22,720
50	No filter	346	50,040
	Walkscore Filter	141	11,690



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Figure 9
Walk Score Distribution

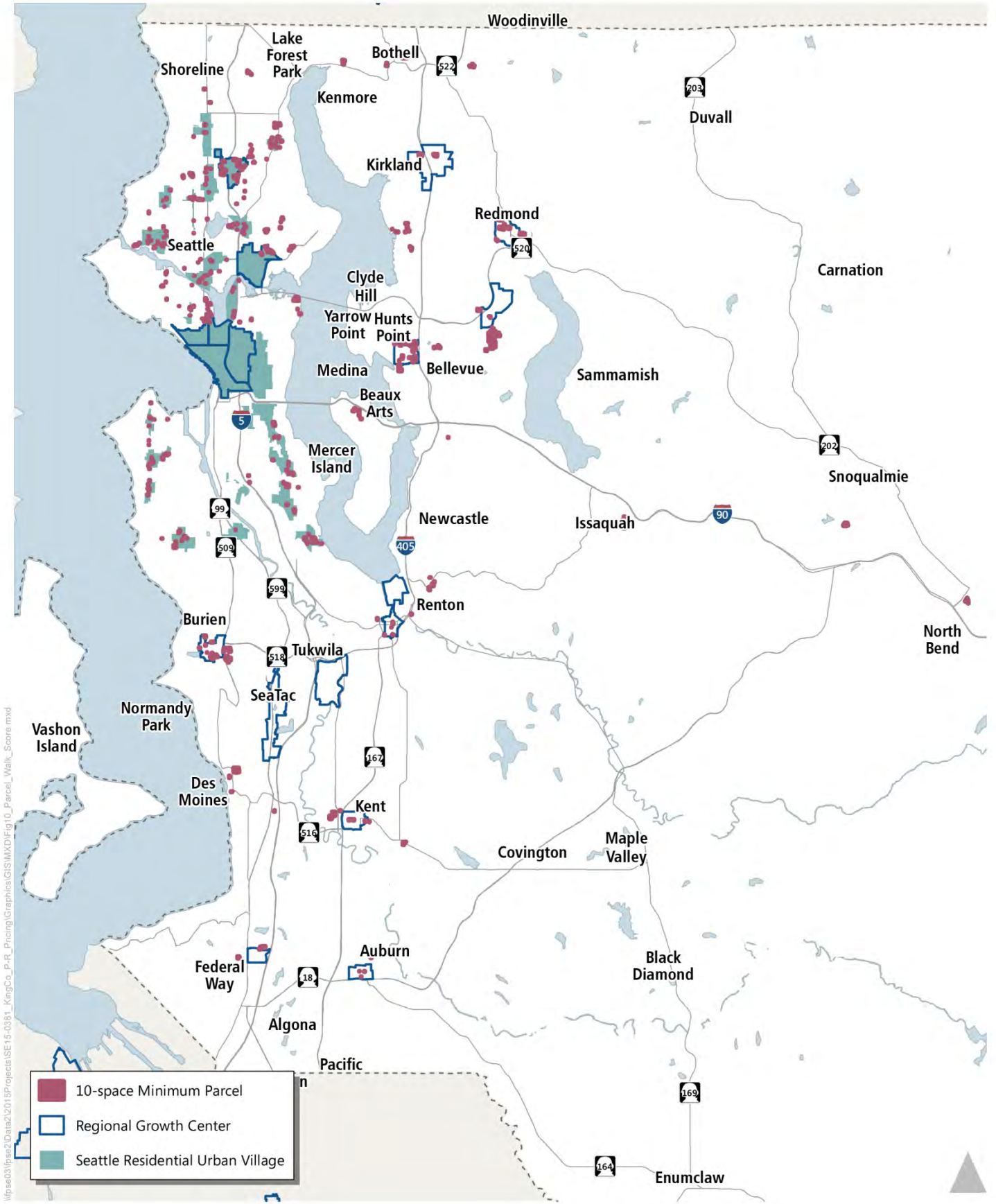


Figure 10
Parcels with a Walk Score Above 70



Jurisdiction Filter

Potential business models may be refined by the specific regulations of any participating jurisdictions, depending on land use code related to shared-use parking. **Table 7** summarizes the number of parcels and available spaces according to jurisdiction based on a 20-space minimum threshold. The highest concentration of potential sites is in the City of Seattle, while Bellevue, Kent and Redmond have at least 5,000 spaces available. Additionally, a number of jurisdictions contain at least 10 parcels that may be included in a future pilot program. Depending on the viability of the land use code of the jurisdictions, a potential business model may be applicable to a number of cities. Conversely, a business model focused on working in specific jurisdictions because of supportive policies may only be viable in those areas with a large number of potential sites or available spaces.

Table 7. Number of Parcels and Available Spaces by Jurisdiction

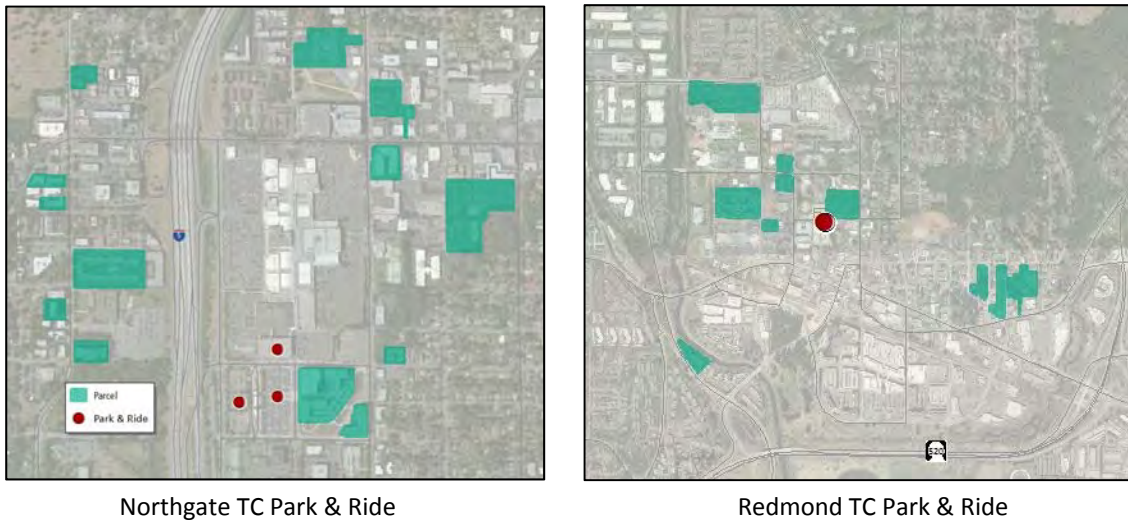
City	Parcels	Available Daytime Spaces
Seattle	193	11459
Bellevue	80	8791
Kent	51	6568
Kirkland	36	3956
Renton	35	4318
Redmond	33	5096
Shoreline	32	2068
Burien	31	1476
Des Moines	22	1836
Unincorp. King County	16	2674
Federal Way	15	2486
Kenmore	11	722
Bothell	10	1537
Issaquah	9	706
Tukwila	9	550

Detailed Area Analysis Examples

Utilizing various combinations of the above filters yields a narrower list of potential sites. Each of these combinations may be applicable to a set of business models based on the types of parcels identified and the general areas of site density. For example, utilizing the 20-space minimum threshold and the one-mile park & ride buffer³ in combination with the Walkscore filter yields 112 potential parcels and 8,240 available parking spaces. Two with a collection of potential sites are the Northgate area of Seattle and Downtown Redmond as shown in **Figure 11**. These areas as examples of the spatial distribution of parcels around a park & ride. During the business development process, parcels in certain targeted areas may be evaluated further to understand the actual site layout and the viability for shared-use parking.

³ Only those park & rides above 90% utilization

Figure 11. Potential Sites in Northgate TC and the Redmond TC Areas

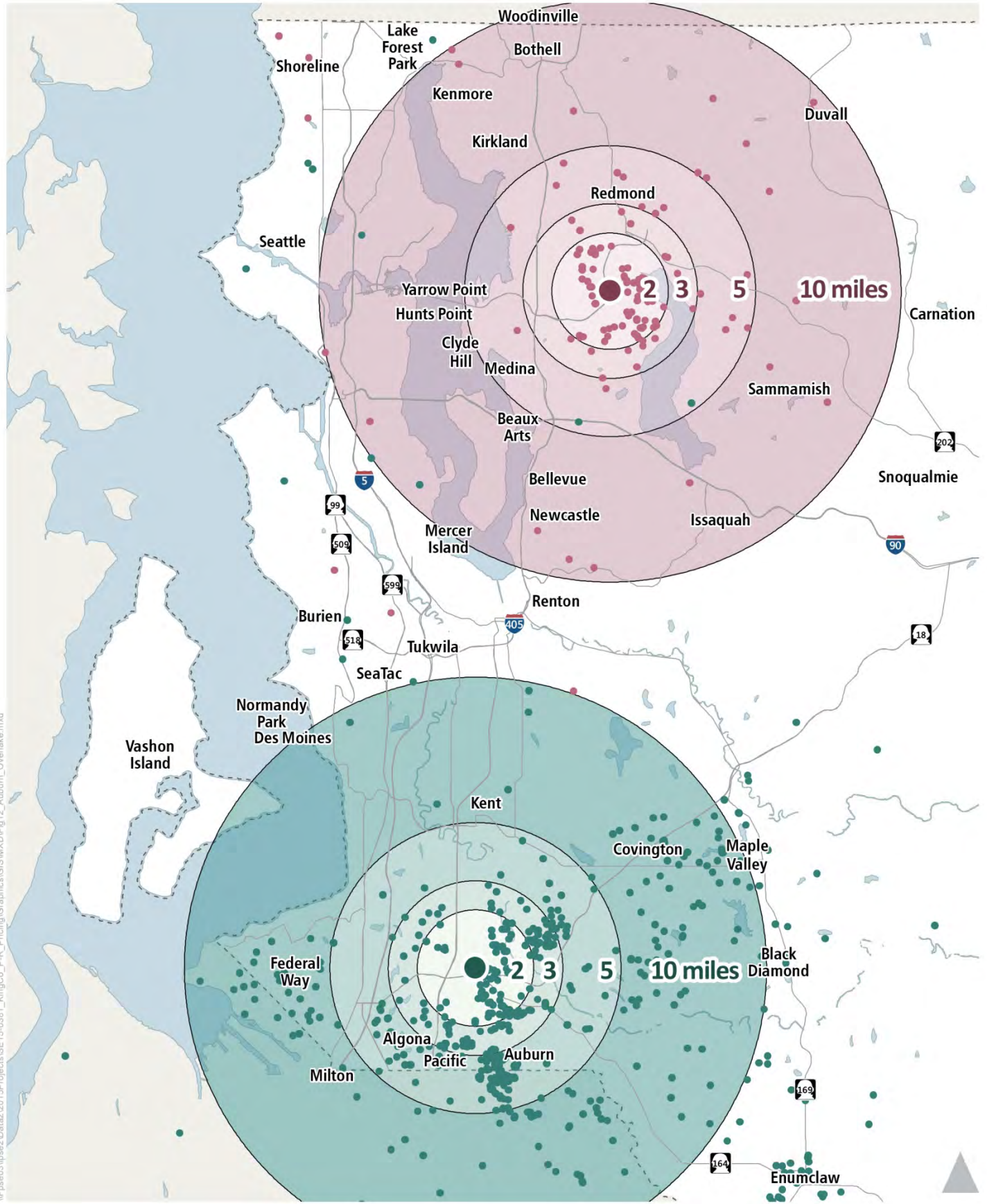


Additional Evaluation Criteria

As the list of potential sites is further reduced during the business model development process, additional criteria may be applicable to identify priority areas. This includes evaluating the access shed of potential park & ride locations and understanding the market potential of these areas.

Park & Ride Access Sheds

Sound Transit and King County Metro have conducted license plate surveys of a sample of park & ride locations to understand the average distance and origin for typical users of the park & rides. Each of these origin points were geocoded and aggregated to understand the access shed for the sampled lots. As an example, the average distance for a park & ride user of the Overlake Transit Center is 2.6 miles, with 50% of users travelling less than two miles. **Figure 12** highlights the spatial distribution of the roughly 150 origins. Contrast this location with the garage at Auburn Station, in which only 12% of users travel less than two miles and the average distance is 4.1 miles. These varying market areas highlight the need to approach each potential site with refined market evaluation statistics such as expected average access shed and the estimated population within that shed. As additional license plate surveys are collected by King County Metro, a set of park & ride typologies will be created that provide the context to understand the viability of each potential site.



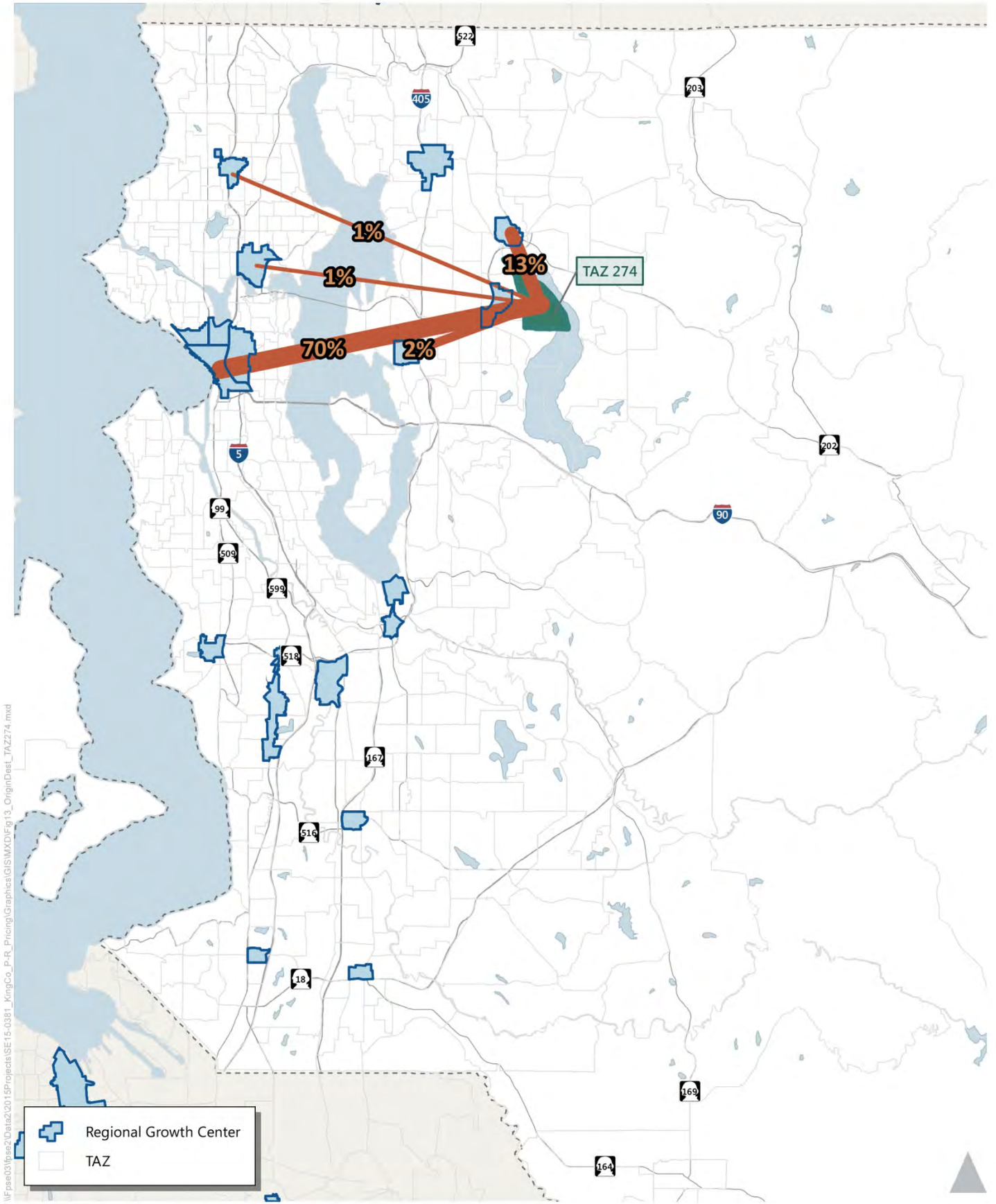
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Figure 12
Origin Locations for Users of Auburn Station Park & Ride and Overlake TC Park & Ride

Origin-Destination Patterns

Beyond understanding potential market areas for project sites, evaluating the travel patterns of park & ride users may yield additional information to prioritize potential areas of opportunity. One method for analysis is utilizing GPS data from providers such as Streetlight to understand actual travel patterns. This type of data may be leveraged in the future as the areas of analysis are further refined. Beyond observed data, travel demand models can provide an estimate of travel patterns. Among a variety of metrics, the PSRC travel demand model provides origin-destination flows of park & ride users for home-based work trips. Combining the observed park & ride data from the previous section with the travel model may provide insight into the probable destinations of users of a potential shared-use lot. **Figure 13** shows one example of this type of analysis for a traffic analysis zone (TAZ) in Redmond that contained the highest proportion of users of the Overlake TC Park & Ride. It highlights the aggregated model-based origin-destination flows of all drive-access to transit trips originating from the specified TAZ. As expected, a high proportion of park & ride trips (70%) are destined for TAZs in the Seattle Downtown, First Hill, South Lake Union and Uptown urban growth centers while 12% are destined for Redmond. This type of analysis can be replicated for any number of TAZ and park & ride combinations. The information will help prioritize potential sites and refine the business models by providing an understanding of how travelers may use the system.



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Figure 13
Origin-Destination Flows of Park & Ride Users in TAZ 274 in Redmond

Appendix C

Parking Demand Time-of-Day Variation Analysis



APPENDIX C: PARKING DEMAND TIME-OF-DAY VARIATION ANALYSIS

BACKGROUND

In order to understand the time-of-day variation of parking demand at residential properties, the project team evaluated seven locations throughout King County. The data collection consisted of a nighttime assessment of parking occupancy and supply supplemented with video recording of vehicles entering and leaving the site over the course of 24 hours. The video was reviewed to determine changes in overall parking occupancy at 15-minute intervals. Results are presented below.

RESULTS

Time-of-day variation patterns were fairly consistent between the sites, and we can draw the following conclusions:

- At night, when the parking utilization is the highest, about 35% of the parking stalls at a typical multifamily site are unused. Nighttime peak occupancy on average was 65% of the total supply as shown in **Table 1**
- By 8:30am, there are fewer people in the parking lot and about 59% of the parking stalls are unused
- Parking demand is lowest between 10am to 4pm with about 70% of the stalls unused, which equates to a demand level that is about half of the peak nighttime demand
- Parking utilization increases after 4pm with 59% of the stalls being unused by 6pm (which is about the same utilization as 8am) and 52% of the stalls going unused by 8pm
- Lowest occupancy during the day was on average 41% of the peak nighttime occupancy and 27% of total parking supply.

Time Period	Percent of Total Spaces Available
All Day	35%
8:30am - 6pm	59%
10am - 8 pm	52%

COMPARISON TO MODEL ESTIMATES

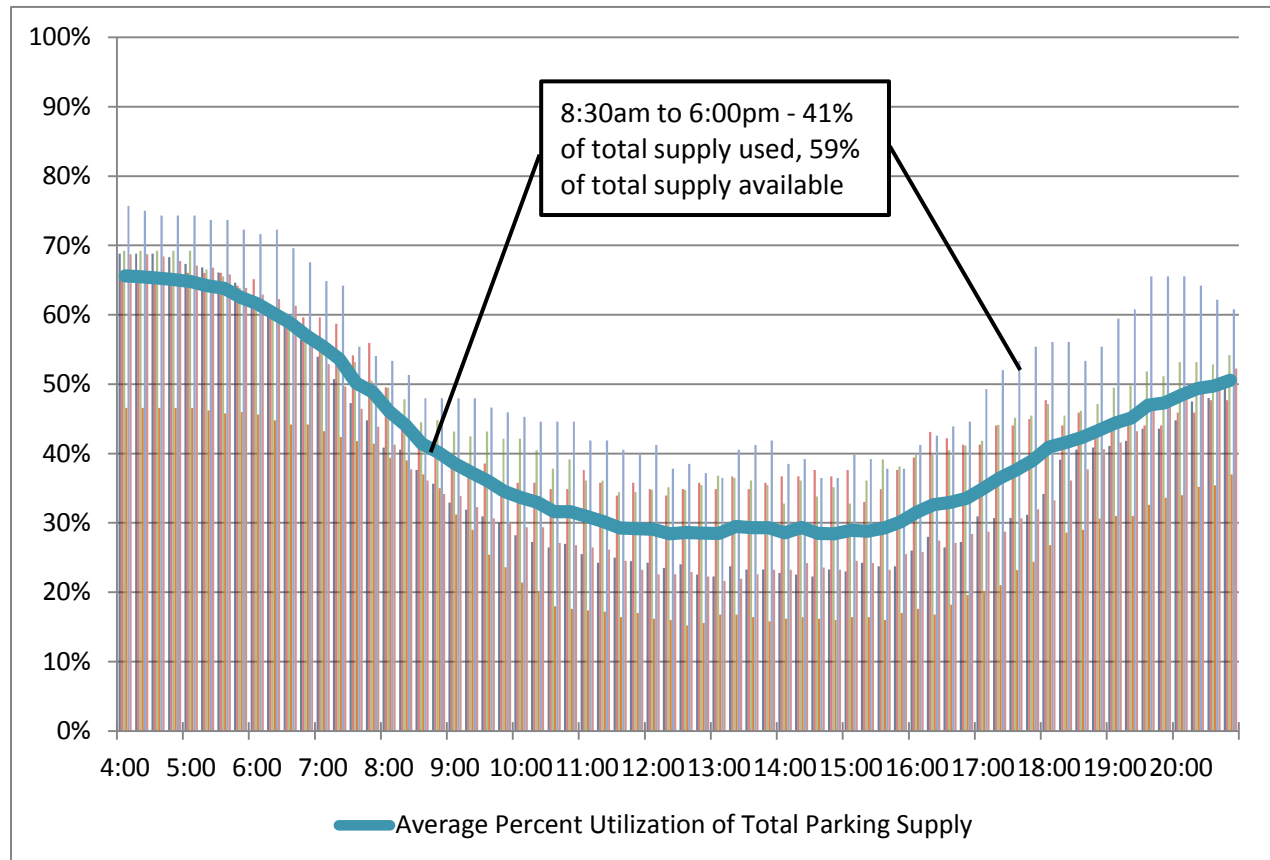
A model developed to estimate daytime and nighttime occupancy was consistent with actual results measured for both periods at the seven sites. The model estimated on average 11% more spaces occupied during the nighttime period and an average of 17% more spaces during the daytime period compared to actual results. The difference would be 6% for the daytime period if the outlier "Site 6" were removed.



Table 1. Data Collection and Model Comparison Results

Site	Data Collection								Model Estimates				Model Comparison	
	Parking Supply	Nighttime Occupancy	Nighttime Percent	Lowest Daytime Occupancy	Lowest Occupancy Percent of Nighttime	8:30 am Occupancy	6 pm Occupancy	Daily Supply Peak	Parcel-data Supply	RSP Nighttime Demand	Lowest Occupancy	Daily Supply Peak	Difference to Nighttime Demand	Difference in Daily Peak Supply
1	383	245	64%	108	44%	173	158	275	392	237	119	273	-5%	1%
2	299	204	68%	98	48%	133	141	201	305	253	95	210	22%	-4%
3	109	75	69%	36	48%	45	52	73	110	76	Site was not part of daytime demand model			
4	310	199	64%	67	34%	112	103	243	331	266	113	218	25%	11%
5	500	227	45%	76	33%	185	134	424	490	264	127	363	19%	17%
6	148	111	75%	54	49%	71	83	94	143	132	87	56	23%	68%
7	404	269	67%	90	33%	152	138	314	404	230	109	295	-14%	6%
Average			65%		41%								11%	17%

Figure 1. Time-of-day Variation in Parking Demand at Study Sites



Appendix D

White Paper: Park & Ride Pricing
in Multifamily Developments

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>

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>

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>

Appendix E

Multifamily Park & Ride Focus Groups



APPENDIX E:

King County Metro

Multifamily Park & Ride Focus Groups – Final Report

Project Introduction & Background

The demand for King County's park & ride facilities continues to grow. Currently, there are over 20,000 park & ride stalls owned and operated between King County Metro Transit. Many of these lots are near or at capacity, by as early as 7:00 a.m. With such high utilization, King County is now looking for new ways to accommodate park & ride users without investing in new, costly parking infrastructure.

Recently, King County was awarded the Federal Highway Administration's (FHWA) Value Pricing Pilot Program grant to explore the potential of developing a marketplace for leased park & ride spaces. Past work by King County's Right Size Parking Project demonstrated that a sizeable number of spaces in multifamily developments are continually left vacant. This proposed pilot program looks to utilize the surplus of vacant multifamily stalls by offering them to nearby park & ride users. In doing so, King County will alleviate the need to spend large sums of money building additional park & ride garages, while building owners will also be able to increase the earnings from their existing parking investments.

In order to assess the interest in this potential program, King County conducted two separate focus group meetings, between April 27th and 28th. The first group was comprised of seven transit users, and the second group consisted of ten non-park & ride users / non-transit users. Each group was screened by Pacific Market Research in order to establish a diverse mixture of participants, varying in age, gender, ethnicity, income, household typology, and home geography (questionnaire can be found in Appendix A). In breaking the groups apart between transit users and non-transit riders, facilitators were better able identify the opportunities to improve service and also what changes might entice current non-transit riders.

The focus groups discussed in this document were conducted in order to gauge park & ride users', and potential users', thoughts and concerns about paid park & ride parking in multifamily developments. The key objectives of the focus groups were to:

- Identify key reasons why a participant chooses to use P&Rs
- Identify what potential P&R users want
- Identify reasons why a participant chooses one P&R location over another location
- Measure participants interest in potential alternatives to current P&Rs and what amenities (such as reserved spots, safety, nearby retail) are desirable to P&R users.
- Identify whether users would pay for this program and if so, how much they would pay.

King County, in partnership with VIA Architecture, Fehr + Peers, Kidder Mathews, and Rick Williams Consulting, is collecting data surrounding current utilization for both park & rides and neighboring multifamily developments, user travel distances, and mode split. Additionally, the working group is developing three potential business models to share with both potential partnering building owners and the group's project stakeholders. Through stakeholder and owner feedback, the project team will decide how the program should be facilitated, either publicly held by King County, privately operated by the various building managers, or a public private hybridization model.

Focus Group Results

The following section details the results and format of the two focus group meetings. Both meetings followed the same structure, and were broken into four main parts (Discussion outline in Appendix B):

- Background / Introductions
- Experience with Transit / Park-and-Ride
- Location and Price
- Marketing the Program

Below is a summarization of the main points and takeaways from each group.

Transit Riders: Background / Introductions (Meeting Held: April 27, 2015)

- 7 participants
- Reasons for Choosing Transit:
 - convenience (does not have to deal with downtown parking / traffic)
 - cost (often the cheapest option)
 - environmental conservation
 - added time to relax / work on other tasks
- Most travel within 20 minutes of their homes to a park-and-ride facility

Transit Riders: Experience with Transit / P&R

- Primarily positive experiences with park-and-ride facilities
- Many were adjusting their schedules to get arrive early at park-and-rides or requesting drop-offs from family members
- Suggestions on ways to improve park-and-rides:
 - Increase overall supply to many lots
 - Add real-time bus information
 - Increase seating opportunities at bus stops
 - Improve internal and external wayfinding

Transit Riders: Location and Price (for a guaranteed parking stall)

- Few participants had experience using a parking garage / mixed use parking facility
- Primary concerns
 - Must be close to transit stop
 - Must be secure, well lit, gated, and separate from residents' parking

Transit Riders: Marketing the Program

- Establish legible signage to and from transit stops
 - Must be able to know when the bus is arriving at a stop before leaving the park-and-ride
- Web / phone based app for finding and reserving stalls
 - Needs identifiable branding that shows these lots are part of the park-and-ride system
- Participants also noted the program could offer equitable benefits
 - Having reserved stalls would allow those without normal commuting hours to still use park-and-ride to access transit

Transit Rider Focus Group Park & Ride Results					
<i>Participant</i>	<i>Original Response to paying for P&R</i>	<i>Key Benefit Needed in Order to Pay*</i>	<i>Willingness to Pay /per day (\$)</i>	<i>Willingness to Pay / per month (\$)</i>	<i>Distance Willing to Walk (miles)</i>
Participant 1	less than bus fare	Seating at transit stops	3	60	<.5
Participant 2	No	Near transit stop	7	0	.25
Participant 3	No	-	0	0	<.25
Participant 4	No	Secure	0	0	-
Participant 5	No	Seat on the bus	1	20	.33
Participant 6	No	Real-time bus signage	5	20	<.5
Participant 7	No	Adequate Lighting	3	20	<.5
Average			\$2.71	\$17.14	.38 miles

**Reliability (parking stall available upon arrival) was consistently voiced as the main reason to consider paying for parking*

Non- Transit Riders: Background / Introductions (Meeting Held: April 27, 2015)

- 10 participants
- Current Apprehensions to Transit:
 - Free parking at work
 - Service requires indirect routes
 - Service requires too many transfers
 - There is not enough service
- Identified Benefits of Transit:
 - Increased exercise from walking to transit facilities
 - Added free time
 - Ease of travel to and from downtown
- All participants stated they would take transit if it were a “better” (faster, more convenient, or direct) option
- Many currently have free parking at work, but had taken transit before / still take transit 1-2 times /per week

Non- Transit Riders: Experience with Transit / P&R

- Many participants had used park-and-ride facilities for specific events (sports or concerts)
 - Participants found transit to be “much faster when going to Mariners’ games or something with big crowds”
- Lots were said to be consistently full
- Several participants felt transit would be a better for them (or their family / friends) if their destinations had better proximity to transit
- Safety was a noted concern
 - Lack of lighting / limited visibility to the outside in garages
- Participants were also engaged to think about if they would use this option if they changed places of employment

Non- Transit Riders: Location and Price (for a guaranteed parking stall)

- Preferences for multi-family program
 - Surface lot is preferred
 - Area must be well lit / secure
 - 5-15 minute walk to the servicing transit facility
 - “the cost of the park & ride and transit must be cheaper than driving [all the way to work] in order to outweigh the convenience of having my car right there.”
- Residents of partnering buildings should have to pay less for their parking if it is shared with park-and-ride users

Non- Transit Riders: Marketing the Program

- Web / Phone based app would be necessary
 - Need to be able to reserve stall
 - Integrate into “One Bus Away” or a transit app to know when transit is coming
- Market the new spaces on buses, at existing park-and-ride facilities, or by mail
 - “additional park-and-ride stalls can be found at...”

Non- Transit Rider Focus Group Park & Ride Results					
<i>Participant</i>	<i>Original Response to paying for P&R</i>	<i>Key Benefit Needed in Order to Pay*</i>	<i>Willingness to Pay/ per day (\$)</i>	<i>Willingness to Pay/ per month (\$)</i>	<i>Distance Willing to Walk (miles)</i>
Participant 1	No	-	2	50	.5
Participant 2	< ½ current cost	Security / Lighting	-	140	<.25
Participant 3	< current cost	Reliability/affordability	10	75	.75
Participant 4	< Downtown	Info. on transit app	15	-	.75
Participant 5	< driving to work	-	4	50	.25
Participant 6	< transit cost	Surface Lot	2	40	-
Participant 7	< driving to work	WiFi Access	2.50	40	-
Participant 8	< driving to work	No Transfers	3	30	-
Participant 9	< ½ current cost	Security / Lighting	-	30	-
Participant 10	< driving to work	Real-time Signage	3	60	-
Average			\$5.19	\$57.22	.5 mile

**Reliability (parking stall available upon arrival) was consistently voiced as the main reason to consider paying for parking*

Conclusions

Through the two focus groups, it can be seen that the potential multifamily park & ride pilot program appeals to both current transit users and non-transit users, alike. Both groups noted that many of the current park & ride facilities are at, or near, capacity and that the congestion often leads to them needing to find other accommodations or foregoing transit all together. Participants generally saw the merit in paying for a guaranteed parking stall and were willing to pay about \$3/ per day. Throughout both groups, the reliability of knowing a stall would be available upon arrival was listed as the key benefit that would compel them to pay for a park & ride stall. This reliability ensured users the freedom to run their schedules independently of park-and-ride availability. Both groups felt transit did not offer enough competitive advantages to replace the convenience of driving and, as a result, prices for park & rides must be below that of driving and parking at work. Additionally, participants from both groups felt that the shared facilities needed to be safe, accessible, and within a short walking distance of the transit station. While distances and preferences to surface or garage lots varied between participants, most felt under a quarter-mile was within reason to walk to the transit stop. Participants were also wary of what tenants of the buildings may think as well. Many felt park & ride parking should be separated from resident parking and that there should be added security with more people walking around the garages.

Although concerns were raised about sharing residential facilities, access, and safety, the focus groups voiced strong support for adding additional guaranteed parking. The described partnership program was seen as a potential solution to current park & ride congestion, especially for workers who do not arrive early in the morning or those that need the assurance of a consistently available stall. Through these two focus groups continued interest in park & ride programs, and the potential to price park & ride parking to better manage parking space availability, is apparent. With this increasing interest, the proposed program will not only be essential for accommodating growth but adding convenience and reliability for current and new users.

Appendix A: Pacific Market Research Participant Screening Criteria

Multi Family right-size parking

Focus Group Recruitment Screener

Hello, my name is _____ and I'm calling on behalf of King County Metro. This is not a sales call. We are conducting a series of small group discussions to get people's opinions about some new concepts related to parking and public transit.

Would you be interested in participating in a small group discussion, which would last two hours with about 8 other people? If you're interested and you qualify, we would pay you \$125 cash for your participation.

Are you interested in participating?

- Yes *(proceed to Q1 below)*
- No – not interested *(try and convince them how important their opinion is. If cannot be swayed, ask for another adult household member who might be interested)*
- No – *(thank them for their time and end call)*

If they have questions about participating, tell them that they can call Daniel Rowe King County Metro, at 206-477-5788

1. Have you participated in a focus group before? If so, was it:
 - In the last 6 months (thank and terminate)
 - Over 6 months ago
 - Never

2. Do you consider yourself to be someone who always, sometimes, rarely, or never enjoys speaking in a small group of people?
 - Always
 - Sometimes
 - Rarely (hold)
 - Never (thank and terminate)

3. Do you or does anyone in your household work for a transportation agency?
 - No
 - Yes (thank and terminate)
 - Don't know/refused (thank and terminate)

4. Do you regularly use a Park & Ride at the beginning or ending of your commute to or from work or school?
- No (SKIP TO #6)
 - Yes (Ask remaining questions, then recruit for Group 1)
5. Which Park & Ride do you use most often? (ANSWER, THEN SKIP TO #9)
- Bellevue (South Bellevue)
 - Greenlake (I-5 & 65th St)
 - Issaquah Highlands
 - Kirkland (South Kirkland)
 - Northgate
 - Renton
 - Tukwila
 - Other: specify _____
6. Do you regularly drive to work or school?
- No (thank and terminate)
 - Yes (Ask remaining questions, then recruit for Group 2)
7. When you drive to work or school, do you park in either Bellevue or Seattle? Seattle includes downtown, Belltown, South Lake Union, the University District, Capitol Hill, First Hill, the International District and SoDo.
- No (SKIP TO #9)
 - Yes
8. Is that parking paid for by you or your employer, or is it free?
- Free parking
 - Paid parking (self-paid)
 - Paid parking (employer-paid)
 - Paid parking (employer subsidized *and* self-paid)
9. From where do you commute?
- Bellevue
 - Kent
 - Kirkland
 - Northgate
 - Redmond
 - Renton
 - Seattle
 - Other: specify _____
10. What are your typical working hours? (Select the one which best fits the respondents schedule) (RECRUIT MIX OF SHIFTS)
- Business day or morning shift (9 a.m. – 5 p.m.)
 - Late morning shift (10 a.m.-6 p.m.)

- Mid-day shift (1 p.m. – 9 p.m.)
- Evening shift (4 p.m. – 11 p.m.)
- “Graveyard” or overnight shift (Midnight – 7 a.m.)

11. Do you work in a service/retail position?

- No
- Yes

12. What is your occupation?

- Other: specify _____

13. Where do you work?

- Other: specify _____

ARTICULATION QUESTION:

And now a quick question just for fun. If you could invite any person to dinner, living or deceased, who would it be and why?

- Articulate
- Not articulate (thank and terminate)

→ USE ARTICULATION QUESTION TO ASSESS RESPONDENTS ABILITY TO ARTICULATE AND TO BE CREATIVE. IF RESPONDENT SAYS THEY ‘DO NOT KNOW’, OR GIVES A SHORT RESPONSE WITHOUT ELABORATING, THANK and TERMINATE.

→IF RESPONDENT HAS DIFFICULTY HEARING, IS HARD TO UNDERSTAND, HAS POOR LANGUAGE OR HAS AN EXTREMELY HEAVY ACCENT, OR YOU HAVE THE SLIGHTEST DOUBT AS TO HIS/HER ABILITY TO COMMUNICATE, THANK AND TERMINATE.

14. Which of the following age ranges includes your age? (Recruit a mix in each group)

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65 and older

15. Do you live in a single family residence or in a multi-family residence?

- Single family (detached house or town house)

Multi-family (apartment, duplex/triplex)

16. What race would you classify yourself as?

- Black/African American
- White/Caucasian
- American Indian or Alaska Native
- Asian
- Native Hawaiian or other Pacific Islander
- Some other race or combination of races (please specify) _____

17. What was your approximate household income in 2014?

- Less than \$30,000
- \$30,000-\$49,999
- \$50,000-\$74,999
- \$75,000-\$99,999
- \$100,000-\$124,999
- \$125,000-\$149,999
- \$150,000 or more

18. Gender (recruit males and females, doesn't need to be evenly split but want a mix)

Standard Invitation: As I mentioned before, we are conducting a small discussion group with about 8 other people. The discussion will last 2 hours, refreshments will be served, and you will receive \$125 to thank you for your participation.

The discussion group will be held on:

- Group 1 – Users/riders (**Q#4=Yes**) – Monday, April 27th at NW Insights in Seattle from 7:00 – 9:00 p.m.
- Group 2 – Non-users/non-riders (**Q#6=Yes**) – Tuesday, April 28th at Consumer Opinion Services in Burien from 7:00-9:00 pm
- Group 3 – “Floater” group (date, time, venue not set) might include riders or non-riders

Note that we cannot provide child care and children will not be allowed in the discussion group.

Will you join us?

- Yes (*proceed to “address” paragraph at the end of this document*)
- No – not available at that time (*ask about calling back if another group is added on another day*)
- No – not interested after all (*try and convince them how important their opinion is. If cannot be swayed, thank them for their time and end call*)
- No – (thank them for their time and end call)

If they are not interested, ask if we can re-contact them if the date or time of the focus group changes.

Contact Info

So that we can send you directions and a letter to confirm your participation, may I please have your contact information? We will use this information *only* to schedule the focus group. After your focus group is completed, we will destroy this personal information.

Name: (VERIFY CORRECT SPELLING) _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Email: _____

We will call you the day before the focus group to remind you about the group. Is it ok to call you at this number or is there a better phone number to reach you?

- YES, OK TO CALL THIS NUMBER
- NO, CALL DIFFERENT NUMBER -- > RECORD NUMBER BELOW

NUMBER TO CALL TO REMIND: _____

Thank you for agreeing to participate. We look forward to seeing you.

Appendix B: FOCUS GROUP INTERVIEW GUIDE

KING COUNTY
PARK AND RIDE FOCUS GROUPS – Interview Guide
<u>NON TRANSIT RIDERS GROUP</u>
April 27, 2015
<p>Note: Green text is info to prompt after “top of mind” answers, Red Text is altered from transit users interview guide for non-transit users Gray text is optional – only use if we can get anyone to say yes to using transit or paying for parking first, then to prompt for how they would decide how much they would pay</p>

Jemae [INTRODUCTION & WELCOME – JEMAE SPENDS 5-10 MINUTES INTRODUCING THE PURPOSE OF THE FOCUS GROUP AND PROVIDING KEY INFORMATION POINTS ABOUT THE PROJECT AND HOW INFORMATION FROM THE FOCUS GROUP WILL BE USED]

- We are working with King County Metro Transit to improve the transit system for current transit riders and for potential new riders. [such as you, or someone you may know]
- We know that in some areas of King County, such as Northgate or Kirkland, the existing free Park-and-Ride is full by 7 or 8 am, We are looking for ways to provide more park-and-ride options.
- This focus group was put together to talk to people who are not currently taking transit. We are hoping tonight to learn your thoughts on what would need to be in place to make transit and park-and-rides an option for you and others like you.
- As you know, this is being filmed and taped. In addition, Rick and I will note some key ideas on flip charts. Either way, you are being heard and we value your input.

Jemae FOCUS GROUP INTRO QUESTIONS:

Validating questions – FINISH INTRO AND THESE QUESTIONS BY 7:20; ACCOUTING FOR STARTING A BIT LATE

- 1. Please go around the room and state your name, where you commute from and to (work or school), if you ever transit today, and how often.**
 - [SHOW OF HANDS- SOH] Are your parking costs covered by your place of employment/or free where you work?
 - Does your employer also cover any or all transit costs for employees who choose transit?
 - If so, do many of your coworkers take transit?
 - [SHOW OF HANDS- SOH] How many of you occasionally take transit to work? Or to events?
 - [AROUND TABLE - ART] If you do, what are the reasons you don't drive your car on those days?
 - If you do use transit, why do you use transit?
 - Price of parking
 - Convenience: more convenient to your home, shopping errands near the site

- iii. Quality of Life: [protect planet, read book or work, less traffic hassle]
- iv. Other considerations?¹

Rick 2. Experience with Transit and Park and Rides START AT 7:20 – Finish by 7:40

- a. [SHOW OF HANDS- SOH] Have you ever considered taking transit as your primary means to get to work?
 - i. If no, what would need to change to make you or others reconsider? [transit not being stuck in traffic, more frequent service, WiFi on BRT Rapid Ride, clean ,
- b. [SHOW OF HANDS- SOH] Have any of you used a park-and-ride in KING COUNTY in the recent past?
 - i. If so, how far do you travel to reach the park-and-ride?
 - ii. What has been your experience with using P&R’S (e.g., low/high occupancies, easy/hard to find space, etc.)?
 - iii. From what you know about P&R, what could be done to improve the park and ride experience]? [Safety, lighting, reserved spots, covered from rain
- c. [[ART]] Are there those of you who would like to use a P&R but sometimes cannot? Briefly describe those reasons. [park and rides are full]
- d. Have you ever attempted to use a P&R but it was full? If so, what did you do? (e.g., in a parking lot, on-street near a P&R or in a neighborhood near a transit stop)?

3. Location and Price START AT 7:40

Intro:

You may have to think about this from the point of view of someone who does not ride transit now.

One of the ideas we are working on is to possibly offer new park and ride locations in apartment buildings that have room, and in parking lots next to transit stops. For example, there are some apartment buildings near park-and-rides in Redmond, or along new RapidRide lines, that have more parking spaces than their residents need. Could they offer the extra parking as guaranteed Park&Ride (P&R) spaces? We are hoping tonight to learn your thoughts on what would need to be in place to make that work.

¹ Note: Green text is info to prompt after “top of mind” answers,

Red Text is altered from transit users interview guide for non-transit users

Gray text is optional – only use if we can get anyone to say yes to using transit or paying for parking first, then to prompt for how they would decide how much they would pay

Rick Location: (20 min)

- a. [SOH] Have you ever parked in mixed use building? [For example, Thornton Place is an apartment building near Northgate that offers parking for retail shoppers and transit riders, or you may have parked in a Grocery Store parking garage (PCC, Trader Joe's, Safeway) in an apartment building].
- b. [ART] Tell me what did you like or not like about the experience?
- c. [SOH] If there was guaranteed parking near frequent fast reliable transit, would you consider parking in privately owned buildings or parking lots near the transit stops if it was reasonably close ?

[ART] What elements or amenities would make this attractive? [TYPE OF SPOT OR SHOPPING CLOSE BY: reserved, secured, covered, after peak hours, the best spots at existing P&R, more convenient to your home, shopping errands near the site, longer term, secure parking for out of town trips, etc.]
- d. [ART] How far from a transit stop would SOMEONE be willing to walk if private secure parking opportunities were available?
- e. [ART] What are some of the opportunities or challenges you see in using private buildings and parking lots to provide parking to transit riders? [Two examples, an apartment building near a RapidRide line that had extra parking spaces available to transit riders; or an apartment building's surface parking lot, reserving the spaces closest to the P&R for transit riders to use].
 - i. [ART] Are there issues with garages or surface lots that make them a better or worse choice? {safety, awkward interactions with residents, someone asking you what you're doing there}

Jemae Pricing: (20 min)

- f. [ART] Do you think people would be willing to pay for a guaranteed space if it was close to a transit stop?
 - i. What if someone arrived at a free park-and-ride and could not find a spot, would they be willing to pay for a guaranteed parking spot close by or on-site?
- g. [ART] What features would a park-and-ride parking space need to have for someone to be willing to pay to park there?
[TYPE OF SPOT or SHOPPING OR LONG TERM TRIPS: reserved, secured, covered, after peak hours, the best spots at EXISTING P&R, more convenient to your home, shopping errands near the site, longer term, secure parking for out of town trips, etc.]
- h. [WRITE DOWN ANSWER then ART] How much **PER DAY or PER MONTH** would you OR do you think someone would be willing to pay if KC Metro or Sound Transit could guarantee the ideal park-and-ride spot close to frequent transit? [including at an existing park-and-ride]
Note: The goal is to have them give a top of mind answer, then probe with "Destination, Type of Spot, and Quality of Life Questions"; then ask again, "now how much are you willing to pay?"
- i. [ART] How would people decide how much they are willing to pay? (pitch follows)
 - i. based on your destination –if the P&R price was half of what you would pay at your destination?
 - ii. based on the type of parking spot: reserved, **secured**, covered, **after peak hours**, the **best spots at existing P&R**, more convenient to your home, **shopping errands** near the site, **longer term**, secure parking for out of town trips, etc.]

- iii. based on improving your quality of life [riding transit and reading a book/rest/work, avoiding driving in traffic, knowing you are protecting air quality and our environment, knowing you have a the flexibility of spot guaranteed,etc.]²
- iv. Other considerations?
- j. Would you prefer to pay monthly[SOH], or on a daily as-needed[SOH] basis?
- k. [WRITE DOWN AGAIN then ART or SOH at each level?]
Now that you have considered these benefits, how much do you think someone would be willing to pay?
 - i. \$7 a day (aka early bird parking w no traffic); \$5, \$3, \$2 - occasionally
 - ii. \$150, \$100, \$60 a month (\$3 daily), \$50 a month, \$40 (\$2 a working day);

Rick

4. Information/Marketing **START AT 8:20**

- a. If you were looking for a private park and ride **space**, what is the best way for you to find out **where parking spaces** are available when you need one?
 - Apps
 - A branded program?
 - Signage at existing Park-and-Rides
 - Website
 - Others
- b. If we launch this **program** to make private parking facilities were made available for transit riders, what is the best means to let people know about the **availability of this new program of offering private park-and-ride** spaces to potential users?
 - o Apps
 - o A branded program?
 - o Signage at existing Park-and-Rides
 - o Website
 - o Others

Jemae

5. General **START AT 8:35**

- a. What questions do you have?
- b. What additional thoughts do you have?
- c. Do you think this is a feasible idea?

² Note: Green text is info to prompt after “top of mind” answers,

Red Text is altered from transit users interview guide for non-transit users

Gray text is optional – only use if we can get anyone to say yes to using transit or paying for parking first, then to prompt for how they would decide how much they would pay

Appendix F

Parking Operator & Tech Company Interviews

APPENDIX F: PARKING OPERATOR & TECH COMPANY INTERVIEWS

1. *Interview with Audrey Church (Diamond Parking) conducted Friday, March 27, 2015*

Diamond Parking currently manages a total of 120 facilities at MF properties in King County. Diamond serves as a liaison for owners of these properties to market and provide parking access to non-tenants seeking parking. Of this total 78 properties are in the Seattle City limits and approximately 42 are outside Seattle in areas like the University District, Bell Town and Burien.

Diamond began providing this type of shared use service around 2008. They found that the challenges of the recession created surpluses in private parking supplies at MP properties and the economics of attracting non-resident trips to these facilities compelled owners of parking to contact Diamond for help in generating additional revenue at their sites.

Diamond has found that their services are very effective in areas where both parking pricing and congestion are in place. They have found that even in congested areas, parking is generally available (in MF properties) but without the third party vendor (like Diamond), private property owners do not have the means (or capacity) to market, communicate and manage both enquiries and sales. Though pricing is always a factor that supports these types of shared program, Audrey did mention that congestion and lack of information on parking availability are success factors. In other words, she felt that pricing is not a requirement.

Rates vary as does the number of stalls that make a shared supply work. Rates are generally a factor of the local market, congestion and some relationship to what site tenants are paying. Some “conflicts” can arise if the non-tenant rate is lower than the tenant rate, but Diamond has had success in communicating the differences in rate. This is particularly true when Diamond time limits the non-tenant to, for instance, weekdays only between 6AM and 6PM. The number of stalls available is not a factor these days, particularly in facilities that already have counter systems that allow Diamond to manage parking availability in real time. To date, Diamond has not employed app based technologies, not for lack of interest but for the plethora of apps on the market. It appears Diamond is waiting for the app market to mature a bit more. Diamond also tends to focus on monthly parking sales (as opposed to hourly and daily rates) as most facilities are gated access, making daily and hourly sales difficult (and likely expensive if pursued). They do put pay stations in place in a limited number of facilities that allow “nesting” a set of parking stalls outside a resident/tenant area gate.

Financially, Diamond targets 30% of gross revenue as its fee for selling available supplies of parking in shared facilities. This percentage covers all costs that Diamond incurs, which can include marketing, sales, revenue collection, account management, and signage systems. Diamond did mention that if fees are less than 30% of gross, then a higher number of marketable stalls would be necessary.

Operationally, Diamond focuses on facilities that provide gated access because this makes the distribution of access (AVI cards, etc.) easier and reduces labor. They do have ungated lots but prefer the ease of access readers and control. Security has not been an issue in the facilities that Diamond operates, though it is of high interest to owners. Diamond endeavors to educate owners on the value of shared systems to them and is generally successful in overcoming issues related to perceptions of non-tenant use of these shared supplies. Diamond has found that there are no additional legal or insurance issues that apply to these types of operations as compared to their normal parking operations elsewhere. Typical garage keepers insurance is adequate. Diamond has increased its insurance coverage at the request of some owners, but has also declined to engage some opportunities because the requirements of the property owner would add too much cost to the operation and to Diamond.

As to design features of parking facilities, Audrey noted that (in garages) the separation of elevators and pedestrian portals from direct access into interior building space is very important. This eliminates issues with non-tenants have access to tenant areas. Basic issues related to lighting, signage and cleanliness was also noted. She also indicated that surface lots can be very attractive to users because of perceptions of safety that some users have about garages.

Overall, Diamond has been successful in managing shared facilities in King County. Diamond also believes that there is more untapped opportunity to expand these types of programs and would be interested in working with King County to identify surpluses of parking and integrating them into a more consolidated system. Diamond sees evolving opportunities with technology and also acknowledges that there are still gray areas in jurisdictional codes that need to be clarified to ensure that shared parking in this format (i.e., private property MF site to general parking users) is validated.

2. *Interviews with Nicole Hankins (SP+) conducted Tuesday, April 7, 2015 and Wednesday October 7, 2015*

SP+ currently manages a total of 200 facilities at MF properties in King County. At these facilities, SP+ serves as a liaison for owners of these properties to market and provide parking access to non-tenants seeking parking. The majority of these properties are in the Seattle City limits and in Bellevue, with a small number along the I90 corridor. SP+ also manages hundreds of non-residential parking sites as well (over 10,000 stalls).

SP+ began providing this type of shared use service in 2013 as a response to demand by customers calling SP+ seeking parking opportunities. At many properties that provide non-tenant access they are running waiting lists as demand is very high. To date, they have not actively sought out or recruited additional sites. The sites they currently manage in this way were generally at properties where they began with management contracts. Again the call in demand by people seeking parking led them to work with existing clients to open up their properties.

SP+ sees a growing opportunity for this type of shared parking and believes the role that King County could play in identifying opportunity sites and creating a “virtual supply” of parking would make it attractive to a third party operator. Assembling a large bulk supply of parking stalls allows for small and large sites to become marketable, as opposed to a third party operator trying to identify small sites individually and provide services. Small sites on their own would be difficult to “manage” or be attractive to a third party vendor. To date, they have not encountered any issues in jurisdictional codes that might prevent them from providing access to non-accessory users at these sites. They also indicated it is not something they considered they needed to check on.

People seeking parking from SP+ now usually contact them by phone or through their webpage. SP+ would be very interested in (and is actively looking at) app and mobile payment applications. They have developed a web portal through which they reserve, direct parkers and collect revenue for multiple sites. They also are working with other operators to get open inventory and use of the site is growing rapidly. They also feel that having a program that was branded so that specific users (in this case, transit riders) could envision this type of service as a one stop shop for “park and ride parking” is something that would be extremely beneficial. SP+ mentioned that they do not do a lot of marketing/branding around their program now as most of the business in this regard is call-ins or web enquiries.

SP+ does charge rates at some sites that are lower than rates paid by the tenants themselves, but haven't had many issues in explaining that to a tenant that might complain. The fact that access rights for a non-tenant are limited to Monday – Friday is fairly self-explanatory. Rates do vary by sites and SP+ charges a service fee of \$6.00 per pass issued and a percentage that varies by the site (usually the percentage is lower in larger facilities and higher in smaller facilities as volume of sales affects the economy of scale for managing and coordinating sales by site).

SP+ also runs numerous shuttle systems and believes that there could be ties between opportunity sites and transit stops that could be looped into a shuttle route, thereby being able to add sites that have supply but not be located in walking distance to the transit connection.

SP+ does not operate MF locations that provide hourly and daily rates. Their system is targeted to *monthly* parking that provides access via a hang-tag and/or electronic access card. They have not experienced issues with security or insurance liability. The fact that their “shared” operations evolved from within existing client contracts probably helped in mitigating any concerns related to security or liability as a professional trust relationship had already been established.

As to design features of parking facilities, SP+ noted that (in garages) the separation of elevators and pedestrian portals from direct access into interior building space is very important. This eliminates issues with non-tenants have access to tenant areas. Basic issues related to lighting, signage and cleanliness was also noted. Surface lots are always an option, though the hang-tag process can be a little more labor intensive for the operator. SP+ does have a consulting division for its clients that provide them with design/security advice and services to assist in “setting up” most any parking site to be successful. Usually, their consulting is pro bono if the work is expected to lead to a potential contract relationship.

A concern expressed is that at all their current shared sites; their agreements are short-term. Getting commitments from a property owner for longer-term arrangements to provide parking to non-tenants is very difficult. Any program of this type would need to recognize that and be proactive in continuing to grow the “virtual supply” as properties/sites roll out of the program. Another concern or suggestion moving forward is that start-up costs be separated out from expenses that might be included in the fee to the user. Start-up costs included signage, phone systems, and website/technology development. If they are included in the overall programming, they could have an adverse impact on pricing, thereby affecting the overall “profit” necessary to sustain the vendor and attract the building owner. This is not to say they couldn’t be spread into parking pricing, but it would be more feasible if they were handled through incentives or subsidies (at least at the inception of such a new program).

SP+ is intrigued with the shared use concept for park and riders. They have and are successfully managing shared parking at MF sites in King County. They have not traditionally targeted a specific user type (like transit riders) but feel it is a model that needs to be explored. They believe that branding, marketing and communication will be a key and that upfront legwork by King County to assemble an initial and meaningful supply of sites is what will make it attractive to private sector vendors.

SP+ is very supportive of the concept and would like to remain involved.

3. *Interview with Ed Danyluk (Impark) conducted Tuesday, April 8, 2015*

Impark currently manages a large number of facilities at MF properties, almost exclusively in the downtown. They do sell access to non-tenants but is it not something that is a large portion of their business or something they actively promote at this time to clients.

Impark does not think that a program like this would be attractive to them, especially outside downtown as they feel most opportunity sites would be suburban and the parking is already free, making a pay to park option difficult to market. They do believe the concept has merit, if it were combined with efforts to initiate pricing at existing high occupancy park and ride lots. This could make off-site options (at a lower rate) more attractive to users.

Impark does like the concept of a large bulk supply of parking being assembled and turned over to a private vendor. Assembling supply is a labor intensive process and having King County “kick start” something like this would save labor on the front end of a program like this and reduce the cost to a private vendor up front, allow for quicker launch of the program and create a critical mass of spaces to being managing. Like other interviewees, Impark believes marketing, communications and branding will be important. Also, like other interviewees, Impark does not do a lot of marketing given that current demands for parking drive interested customers to their website or call in center. A program like this, targeted to park and riders would likely need a higher level of branding and marketing to capture the attention of the intended customer.

Issues related to security, managing access into sites and insurance/liability issues were similar to previous interviewees. Solutions to these issues are generally easy and do not come at high cost to clients. Getting over these concerns with a prospective client falls more in the realm of education and personal assistance than real barriers to establishing these types of operations.

In management relationships where monthly access is the primary product, Impark generally takes a percentage of each sale. The percentage can range from 15% to 30% depending on the size and volume of demand. If pricing were very low (and therefore unappealing to Impark) it was suggested that a lease back arrangement by King County might be necessary. In other words, King County would lease stalls from a property owner at a rate that attracts participation, then work through a private vendor to sell the stalls at a lower rate. The management fee per transaction would part of the “subsidy” that King County would absorb to bring the supply on line and make it financially attractive to the property owner and the vendor.

Overall, Impark likes the concept but has some skepticism that the program can be successful in environments where parking is free. They also feel the program should be coupled with paid parking at existing park and rides to create a rate/demand model that makes off-site shared facilities more attractive to potential customers.

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4. *Interview with Tyler Simpson from LUUM conducted Wednesday, September 15, 2015*

LUUM is a cloud-based software solution organization current focused on developing transportation management solutions, particularly solutions that engage commuters. The interview with LUUM was organized around an interview guide that was sent to LUUM prior to the interview. The interview team focused conversation on several “capability questions” as a means to delve more deeply into whether an organization like LUUM was capable of delivering services and management envisioned in the current project business model. Also, the team was interested in learning from LUUM its thoughts on the feasibility of the project concept and business model.

Responses to the capability questions are summarized below as responses relate to each of the questions asked.

1. Is your company set up to perform physical site inspections (to make sure sites meet King County standards)?

- LUUM’s current business model is not set up to oversee or conduct physical site inspections.
- LUUM would likely need to partner with a parking operator in this regard. LUUM currently has relationships with local vendors to provide more of the “ground operations.”

2. Are you capable of managing/interfaces varying types of identification/access systems? For example, hang tags systems, access cards systems, license plate readers etc...

- LUUM current interfaces with some secured parking access systems (e.g., Seattle Children’s Hospital)
- LUUM feels that they can interact with most systems because of the state of current technologies (theirs and the garage/lot/building systems). However, there are definitely challenges based on the condition, type and age of systems in the field. LUUM has created some technology to collect data from card readers to allow information to be sent/collected by LUUM.
- LUUM believes that they are very capable of managing different “parking and/or pricing” rules that may vary between multiple sites. They already have multiple clients now whose systems are varied and require tailored management. They realize that the varied nature of potential sites assumed in the King County program will require this sort of tailoring and they believe they could adapt to those instances.
- They indicated that geo-locating from smart phones could be used instead of access cards to manage/control access and use of facilities without gates. They have an app they have developed for shuttle bus boarders from Children’s hospital lots, the geo-locating matches up which parking lot they used in order to charge the employee the appropriate parking rate. This, of course, would be an enhancement to what may be on a specific site.

3. How would LUUM deal with pricing and payment systems? Can LUUM collect revenue from users, account for it and make payments back to parking owners?

- Revenue collection from individual users is not their current business model. Their current model is based on “subscriptions” from businesses and they are paid a fee based on potential users derived from an existing employee payroll data base.
- To get to a payment system by individual users, there would need to be some kind of credit card system to link into to perform the function of the current payroll system format. This is not LUUM’s current model but the indicated that it is something that could be done.

4. Do you have a method for screening users and/or verifying that P&R spaces are serving carpoolers, van poolers, and transit riders?

- Not something within their current format, but it could be easily done.
- Could tie into the ORCA card to identify transit users
- ORCA seems to be a “best case option” at this time to take a look at, if ORCA could be used also to allow parking entry (King County notes is unlikely)

5. What level of customer service do you provide to P&R users? For example, can a P&R user contact customer support by phone 24/7 to be let out of a garage with a malfunctioning gate?

- The team did not get to this question with LUUM, but we could infer that as they do not currently engage in one-on-one relationships with individual users that they are not currently set up to do this. However, this could be a function of a partnership between LUUM and a more traditional parking operating vendor.
- Expressed concern about enforcement, particularly at open facilities. They also felt this could be solved in several different ways if license plates are a part of the access equation.

6. What range of services does your company offer? How is the range of services priced?

- LUUM is more of an information data base source that assists companies to “plan, execute and refine parking programs.” At present they are not actively managing supplies of parking directly.
- See: <http://www.luum.com/home/whatisluum>
- As stated above, they price their services directly to the business through a subscription fee based on a formula that quantifies the number of potential users. Also, the fee is usually associated with an aggregate group of employees working for a single employer.

7. How would you figure out fee and transaction costs?

- LUUM doesn’t do pricing models per se, particularly in the context of the King County business model.
- This does not mean that they would not be interested but they would likely rely on a transportation expert’s assessment (e.g., a transportation planning firm or in tandem with a parking vendor).

- They recognize the KC business model would likely require a fee per transaction format versus the subscription model they have. This type of format has been on their “future to do” list, but they need a reason to more actively pursue this type of model.
- Expressed interest in knowing how initial R&D costs for setting up the technology side of such a program would be carried in the on-going business model.

8. How would you split responsibilities between parking operator and technology role?

- Need more time to understand that but seemed to indicate that if this were something they did it would be in partnership with a parking operator.

9. Willing to work with King County to bring in properties?

- Not that interested in contracting with building owners, but they will talk about it and get back to us.
- Could be function of a parking operator (as part of a team).
- They need to know a rough idea of the scale of a pilot (i.e., potential number of sites, potential number of stalls, level of confidence that potential sites would be willing candidates).

10. What information do would need to make a business decision about developing new technology (so we could include that in our RFP or Business Model)

- Need # of spaces to start, and # as ramp up over 6 months.
- Potential for grant money to cover the technology R&D start up.
- A clearer picture of base level scenarios of functionality for pilot capacity.
- More information on who establishes rates – does it vary by property? Who decides that?

Appendix G

Summary of Local Code on Shared Parking

Appendix G: Summary of Local Code on Shared Parking

City	Agreement Required?	Study Required?	Adjacency?	Distance Requirement?	Share only beyond the sum of the uses?
Kirkland	Yes. Signed by property owners and approved by City Attorney, file with KC.	Yes. Parking demand study prepared by an engineer and approved by the City.	Unknown.	Unknown.	Yes. Shared parking area spaces must be equal to the greatest number of required spaces for uses operating at same time.
Tukwila	Yes. Property owners agree to a covenant recorded with KC.	Yes. A Parking study based on time of peak uses.	No. However, site should be proximate to transit.	Yes. The lot must be within 800 ft of primary commercial use.	No. Complementary Parking allows up to 10% of the usable floor area of a building without providing parking. ⁱ
Kent	Yes. Documentation requires review by City Attorney.	Yes. If reduction is to exceed 10% per use, then peak parking demand study required.	Unknown.	Yes. Facilities are located within 500 ft. of the buildings or use areas they serve.	No. The # of shared parking spaces is not less than the min. required by any single use.
Des Moines	Yes. A record or covenant filed and approved by the City Attorney.	Yes. Applicant must show no substantial conflict in principle operating hours. ⁱⁱ	Unknown	Yes. Located within 500 ft of facility.	No. A reduction up to 50% of required parking stalls, except for residential, may be authorized under certain conditions.
Federal Way	Yes. Owners sign an agreement acceptable to the City Attorney and recorded by KC Auditor.	Yes. A parking demand study prepared by a professional engineer. ⁱⁱⁱ	Yes. Buildings shall be connected by pedestrian facility.	Yes. No building or use shall be more than 500 ft away.	No. A 20% max. parking reduction is suggested as a guideline, but the planning director will ultimately determine reduction.
Bothell	Yes. A contact by property owners approved by the development director and recorded with KC Auditor.	Yes. A parking demand study prepared by an engineer required.	Yes. Must be a system of on-site and off-site facilities that are connected.	Yes. No facility farther than 800 ft from most remote facility.	No. Reductions may not be greater than the min. for any single use. ^{iv}

Appendix G: Summary of Local Code on Shared Parking

Bellevue (Outside the Downtown Districts)	Yes. Must file an agreement with KC Division of Records and Bellevue City Clerk.	Unknown.	Yes. If uses overlap in hours of operation, properties must share line. ^v	Yes. Properties must be within 1,000 ft with way finding and pedestrian facility.	No. Where uses do not overlap, property owner shall provide parking equal to greatest of uses. With no overlap, sum two use requirements and reduce by 10%. ^{vi}
Bellevue (Downtown Districts)	Yes. Must file an agreement with KC Division of Records and Bellevue City Clerk.	Unknown.	Yes. Adjoining properties also must provide pedestrian connections and way finding.	No. However Downtown-R District parking may only service users located in that district unless otherwise permitted through Design Review.	No. If overlapping hours of operation, reduce the sum of the uses by 20%. The Director may also approve further reductions. Where uses do not overlap, provide parking equal to the greater number of the two or more uses.
Renton	Yes. Agreement required by the Community and Economic Development Administrator and City Attorney.	Yes. A letter required justifying need for off-site parking.	No.	Yes. UC-N1 & UC-N2 Zones within 1,500 ft. All other zones, within 750 ft. These distances may be modified with a TMP. ^{vii}	Unknown. Joint use facilities for uses that have dissimilar peak-hour demands or if it can be demonstrated that the parking facilities to be shared are underutilized.
Shoreline	Yes. Agreement required.	Unknown.	Yes. Adjoining parcels that do not have conflicting parking demands.	Yes. located within 500 ft from the building it is intended to serve. ^{viii}	No. Reduction up to 25% may be approved by Director based on a combination of criteria. ^{ix}
Redmond	No.	No. But a study documenting peak use would be useful. ^x	No.	No.	No. As long as the spaces for transit do not cause a shortage of parking for the land uses directly associated with the parking.
Seattle					

Appendix G: Summary of Local Code on Shared Parking

- ⁱ Examples of complementary uses include: pharmacies in hospitals or medical offices, food courts or restaurants in a shopping center or retail establishments.
- ⁱⁱ No more than 1 hour of overlap in operating hours exists between primarily daytime uses (business/office, retail, household equipment shops, etc.) and primarily nighttime or Sunday uses (churches, bowling alleys, dance halls, theaters, bars, etc).
- ⁱⁱⁱ TDM options may be included to substantiate reduction.
- ^{iv} However, shared parking may be permitted only when total parking area exceeds 5,000 ft.
- ^v Properties must also have vehicle and pedestrian connections, and way finding.
- ^{vi} Accessory Parking Location permitted if subject property adequate visitor parking exists, adequate pedestrian, van or shuttle connection between sites exists, and sites are w/in 1,000 ft of each other.
- ^{vii} However in the R-10 and R-14 zones, shared parking garages are allowed provided design standards. In Center Downtown Zone, no distance requirement.
- ^{viii} In commercial zones, Director may make exception to this rule if applicant submits evidence of a long-term, shared parking agreement.
- ^{ix} Reduction up to 25% may be approved by the Director using a combination of the following criteria: shared parking agreement with adjoining parcels, HOV and/or hybrid or EV parking, high-capacity transit service available within a 1/2 mile walk shed, good pedestrian access (see code), concurrence with KC Right Size Parking data or other parking demand study results.
- ^x However, individual properties may have received development approval based off a study or agreement (TMP) or a cooperative agreement. In these specific cases, there might be concern that peak demand for the "on-site" use could be adversely affected.

Appendix H

Long Term Pro Forma



Appendix H:

Long Term Pro Forma

Priced Multi-family P&R Pro Forma (Monthly and Daily)

	Paid Monthly/ Dedicated Spaces	Paid Daily/ Spaces	Total Spaces	Assumptions:
Parking Facility:				
Total Parking Spaces	NA	NA	142	
Parking Facility Entrances	NA	NA	2	
Dedicated Monthly P&R Spaces*	50	0	50	35% of total parking spaces
Daily P&R Spaces (7am - 6pm)	0	14	14	10% of total parking spaces
Daily P&R Spaces (10am - 8pm)	0	10	10	7% of total parking spaces
<i>Total Available P&R Spaces</i>	50	24	74	
Annual Revenue:				
Parking Revenue per space/day	\$3.00	\$4.01	\$3.30	
Days/Month (Workdays only)	21	21	21	
Vacancy	10%	20%	13%	
<i>Total Effective Income</i>	\$33,816	\$19,515	\$53,331	
Annual Expenses:				
Parking Enforcement	\$0	\$0	\$0	Paid through towing fees
Parking Operator Fee**	\$13,526	\$7,806	\$21,332	40% of parking revenue
Sales Tax (Daily parking only)***	\$0	\$1,854	\$1,854	9.5% of parking revenue
Other Local Parking Tax (Daily parking only)	\$0	\$0	\$0	0.0% of parking revenue
Other	\$0	\$0	\$0	
<i>Total Expenses</i>	\$13,526	\$9,660	\$23,186	
Initial Investment:				
Signs(2per entrance + 1per five Gen Access spaces)	\$800	\$966	\$1,766	\$200 per sign
Traffic Impact Study	\$0	\$2,500	\$2,500	
Other****	\$0	\$0	\$0	
<i>Total One time Investment</i>	\$800	\$3,466	\$4,266	
Financing Assumptions:				
Loan to Value	65%	65%	65%	
Interest Rate	5.0%	5.0%	5.0%	
Amortization Period	20 years	20 years	20 years	
Loan Amount	\$520	\$2,253	\$2,773	
Down Payment (Equity Requirement)	\$280	\$1,213	\$1,493	
<i>Annual Debt Service</i>	\$42	\$181	\$222	
Returns:				
Annual Net Operating Income	\$20,290	\$9,855	\$30,145	
<i>Annual Cash Flow Before Tax</i>	\$20,248	\$9,674	\$29,922	

*A P&R stall reserved exclusively for one user for a period of 30 days or longer. **Includes fee collection, operational and revenue reporting, facility inspections, customer service, vehicle assistance, basic marketing, and other expenses related to program operations. It also includes limited garage/lot monitoring for parking violators. ***Dedicated monthly parking is typically exempt from sales taxes. Daily parking is subject to state sales taxes and all applicable local sales taxes. Some cities also impose additional taxes on commercial parking. ****All facilities will require one terms&conditions sign and one park&lock sign per entrance to be provided and installed at the owners expense. Some parking facilities may require additional up front investments to meet program requirements.

Appendix I

King County MFPR RFP - Draft

APPENDIX I:

**King County MFPR
Draft RFP Language
10/16/2015**

Request for Multi-family Park and Ride Parking Management Services Proposal

Introduction

King County Metro's Park and Ride Pricing in Multi-family Developments Program (Program) aims to connect transit riders with vacant parking spaces in multi-family buildings.

The Program will be lead by King County, which is responsible for working with municipalities to assure that the Program meets all local regulatory requirements. King County is also responsible for soliciting parking for Program inclusion from multi-family building owners, marketing the Program to Park and Ride (P&R) users, and working with stakeholders to determine the appropriate price of parking.

Once these Program elements are in place, and building owner(s) have agreed to participate, a preselected parking management and/or technology company will act as single point of contact for both the P&R user and the building owner. Depending on each building owner's preference, the physical parking spaces will be managed by the selected parking management and/or technology company, the building owner, or a combination thereof.

Purpose of RFP

The purpose of this Request for Proposal (RFP) is to select a parking management and/or parking technology company (Firm) to provide parking management services for the Program. The Program initially aims to "pilot" ten multi-family parking facilities representing approximately 500 multi-family P&R spaces; however, this number is expected to grow as additional properties are brought on line.

The pilot will begin with sites that provide close access to high frequency transit and that ensure minimal conflicts between residential tenants and new P&R users. Ideally sites will have existing on-site access systems (technology and/or user identification), minimal enforcement/compliance needs, and emergency protocols/procedures already in place. These site attributes would minimize overall operating costs and provide a more cost effective model for program initiation. The selected Firm will assist King County to filter initial pilot site opportunities and create a successful foundation for project initiation.

Basic Requirements

1. Complete Project Scope

Basic Requirements for the Multi-family Park and Ride parking management services Program are mandatory. Proposals failing to meet Basic Requirements will neither be scored nor considered. These components include: 1) Parking Management Services; 2) Parking Management Technology, Online Reservation Tools, and Other Technology functionality; 3) Customer Service; 4) Inspection and Enforcement services; 5) Cost/Pricing; 6) Liability; and 7) long term operation and maintenance for all systems deployed. The proposal should describe the Firm's approach to establishing their fee, and profit for the Program.

2. Establishment of Primary Contractor

King County will not serve as general contractor among multiple companies. Proposals featuring partnerships between two or more companies must clearly state which Firm will contract directly with King County, and which Firm(s) will be a subcontractor(s) to the primary contractor. The primary contractor shall carry all liability and responsibility associated with the County contract.

Project Scope of Work

1) Parking Management Services

Outlined below (A – F) are a range of responsibilities associated with the overall parking management services King County is seeking. Please review these responsibilities and provide a summary of your firm’s or project team’s capacity to fulfill these requirements and/or changes or additions that you would recommend to ensure that the services provided are done professionally, based in demonstrated experience in providing such services.

- A. The proposer must be a professional parking management and/or parking technology firm with at least 5 years of experience managing and operating multiple parking sites (i.e., large/small, surface lots, garages.)
- B. The Firm will contract directly with building owners to provide parking, unless local regulations dictate otherwise.
- C. The Firm will assist King County in conducting assessments of pilot sites to identify the best access and enforcement options based on existing technologies, layout and site conditions. This may be done early, to inform the pro forma for each site prior to a building owner signing onto the contract.
- D. Depending on each building owner’s preference, physical parking spaces will be managed by the selected Firm, the building owner, or a combination thereof.
- E. If requested, the Firm will support King County in setting the price of parking at each facility.
- F. The Firm is responsible for documenting and reporting all applicable tax issues. The program will initially focus on dedicated monthly parking P&R spaces which are exempt from most commercial parking taxes. As the program evolves, it may include short-term parking arrangements which are not typically exempt from commercial parking taxes.

2) Parking Management Technology, Online Reservation Tools, and Other Technology

Proposers must fully describe the approach, tasks, schedule and resources that will be employed to successfully implement the required parking management technology, online reservation tools, and other technology prior to going-live. Resources considered in this description must include, but are not limited to, specialized technology, skilled personnel, specialized tools, and ancillary goods. The description must explain the approach to planning, designing, and testing to achieve successful deployment. The proposer must identify which tasks it expects to perform and what resources it expects to be provided.

Proposers should state cost efficient and financially feasible solutions to provide compatibility between the proposed system and existing technologies where applicable. This must clearly show all integration related costs where reasonable, and feasible/realistic integration recommendations. Technology requirements include:

- A. Provide and operate an online tool that allows customers to find/identify participating lots/garages, reserve and pay for parking and gain access to parking spaces. The system must utilize an open architecture that allows all system components to integrate with agency owned interfaces. Please describe your capability and approach to providing an on-line access tool for customer.
- B. Provide all hardware, software, and ancillary components necessary to track the use of spaces, and grant P&R users access to both gated and gateless parking facilities. For gated facilities technology must be compatible with a wide range of existing third party access systems. If the use of geo-locating or other tracking devices are used, please describe how the Firm would handle privacy concerns and other issues related to the use these technologies.
- C. For parking management systems that require the customer to be in possession of hang tags, access cards, or other physical devices/items, please describe the process for getting these items to the P&R user.
- D. Please describe the processes, including any technology that will be used, to collect parking fees, report parking revenue, forecast parking revenue and parking occupancy trends, and distribute parking revenue between building owners and King County.
- E. Please describe limitations regarding the parking management technology systems proposed in this section including, but not limited to;
 - i. 24-hour per day, seven-day per week parking management.
 - ii. Monday through Friday, 6am to 8pm parking management
 - iii. Shared parking arrangements.
 - iv. Management of smaller parking facilities (10 or fewer P&R spaces), and larger parking facilities (200 or more P&R spaces).
 - v. A range of parking facility types including gated facilities, gateless facilities, surface lots, and facilities with multiple entrances and exists.

3) Customer Service

The Firm will act as a single point of contact for both the building owner and the P&R user. Please describe how you would provide and deliver the following customer service requirements.

- A. The Firm must be available to provide customer service to the P&R users by phone or online-chat between the hours 6am and 8pm.
- B. 24-hour emergency service during the work-week must either be provided by the Firm, or a plan must be outlined as part of this proposal to describe how on-site emergency issues will be dealt with using best available technologies based on the type of access system on site. Examples of an “emergency issue” include a P&R user that is stuck in a gated parking facility at 4am, or an inoperable access card denying entry into a parking facility.

- C. The Firm must be available to provide customer service to building owners during standard business hours.
- D. The Firm must provide updates related to Program operations to King County on a quarterly basis. Please describe existing reporting capabilities for operations, usage, revenue/expense tracking, customer services, and/or provide example formats currently in use.

4) Inspection and Enforcement

Outlined below (A – E), are a range of responsibilities associated with inspection and enforcement. Please review these responsibilities and provide a summary of your Firm’s capacity to fulfill these requirements and/or changes or additions that you would recommend to ensure that facilities meet basic standards. Also describe how user compliance can be maintained, while assuring a high standard of customer service and satisfaction (for the property owner and the P&R user).

- A. The Firm will be responsible for providing a list of King County’s parking facility requirements to each building owner, and for ensuring that each parking facility meets these standards. This may include both initial and ongoing facility inspections.
- B. The Firm must work with building owners on a case by case basis to determine how to best monitor the parking facility for security issues and parking violators.
- C. The Firm will coordinate with King County to screen P&R user participants to ensure that the parking is serving carpoolers, vanpoolers, and transit riders.
- D. The proposer must work with the building owner to insure that all necessary signage including, but not limited to, terms&conditions and park&lock signs are posted at parking facilities. All signage needs to comply with local regulations.
- E. Where applicable, the Firm must work with the building owner to provide all necessary facility upgrades required to meet King County’s parking facility requirements, and any other facility requirements necessary to participate in the Program.

6) Liability

- A. The Firm will work with King County to generate boilerplate language regarding the mitigation of building owner liability, and materials covering local parking regulations as they relate to the Program.
- B. Please describe your approach to providing liability coverage for parking operations at multiple and varied sites. Include options that you may provide to cover basic liability through your own garage keepers insurance and/or additional coverage that the building owner may need to add to participate in the program.

6) Cost/Pricing

- A. Please provide your cost estimate for managing and operating the elements of parking described in this RFP. Please outline any initial infrastructure and start up costs separately.

7) Proposed Implementation Schedule

TBD