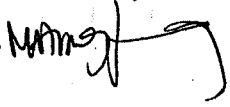**Bureau of Planning and Sustainability**
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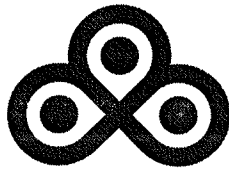# MEMO

DATE: December 13, 2012

TO: Mayor Sam Adams and Portland City Council

FROM: Susan Anderson, Director

SUBJECT: Accept reports on new apartments and parking

I am pleased to submit for your consideration and acceptance the Minimum Parking Requirements for Multifamily Buildings Memo referencing three pieces of research related to parking for multifamily buildings. This research includes:

1. Report titled "Parking Impacts for New TOD along Portland's Inner Corridors" prepared by David Evans and Associates, completed in November 2012

2. Research titled "Cost of Onsite Parking and Impacts on Affordability", completed in November 2012

3. Review of last six year's Portland permit data for multi-family projects.

The Bureau of Planning and Sustainability (BPS) presented this research at a public forum with the Planning and Sustainability Commission (PSC) on November 13, 2012. Members of the public testified on a range of topics including parking, design, notification, accessibility and concerns about change. Following testimony, the PSC directed BPS to evaluate near-term (pre-Comp Plan Update adoption) options for the PSC to review as well as longer-term options that could be integrated into the Comprehensive Plan Update.

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MEMO

DATE: December 13, 2012

TO: Mayor Adams and Portland City Council

FROM: Joe Zehnder, Chief Planner

CC: Susan Anderson, Director

SUBJECT: Minimum parking requirements for multi-family buildings

On December 20th, the Portland City Council will hold a public meeting with testimony on the results of a consultant study on vehicle use and parking impacts related to multifamily buildings without parking. This memo provides background on the current code, issues that community groups have raised and the results of the study. Planning and Sustainability Commission members' suggestions made following a public forum on November 13th are included at the end.

In the last year, there has been an increase in development of new multifamily buildings, including projects that do not include off-street parking for their apartments. Many of these buildings are being developed on sites on commercial streets in neighborhoods. The projects are being built under city policies and zoning codes that have been in place since the 1980s. Community members have reacted with concern about the number of these projects and about the new buildings' height, size, density, design and lack of off-street parking.

In response, the Bureau of Planning and Sustainability (BPS) undertook analysis to better understand these trends and potential impacts. This memo presents the following:

1. Background development of City policies regarding minimum parking requirements.
2. Summary of issues raised by community members.
3. Review of last six years of permit data for multi-dwelling projects.
4. Parking and Travel Behavior Study - A consultant study of travel, parking behavior and vehicle ownership of residents of eight existing residential/mixed use buildings with little or no parking. The study includes vehicle counts, surveys with residents and

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interviews. It also includes a compilation of other research related to infill development, parking and travel behavior of residents.

5. Cost of Onsite Parking and Impacts on Affordability - BPS modeled development data to evaluate the cost of providing onsite parking for infill apartments and impacts on affordability.
6. TriMet Service Review - Review of transit service frequency in 2007 (prior to service cuts) and current service levels.

1. BACKGROUND ON CITY PARKING REQUIREMENTS

The City's policy on parking requirements for development on commercially zoned properties and in mixed-use areas dates from the 1980s. The City of Portland Comprehensive Plan Goals and Policies, adopted in 1980, include related to off-street parking state, "Regulate off-street parking to promote good urban form and the vitality of commercial and employment areas." The three objectives underlying this policy state:

> *a. Consider eliminating requirements for off-street parking in areas of the City where there is existing or planned high-quality transit service and good pedestrian and bicycle access.*

> *b. Encourage the redevelopment of surface parking lots into transit-supportive uses or development or include facilities for alternatives to the automobile.*

> *c. Limit the development of new parking spaces to achieve land use, transportation, and environmental objectives.*

The zoning code established in the 1980s had no minimum parking requirements for many of the neighborhood commercial zones. In the 1980s and 1990s, there was concern that urban main streets and business hubs were being converted to suburban style development, with retail storefront buildings being demolished for surface parking lots. There was also an expectation, based on experience, that developers, financiers and users of commercial sites would demand inclusion of on-site parking. Limiting the maximum amount of parking and removing the incentive for demolition and surface lots were more pressing issues than minimum parking requirements.

In the early 2000s this approach was expanded beyond this group of commercial zones to include any site within 500 feet of a frequent transit line. The Portland Zoning Code states, "Sites located in close proximity to transit, have good street connectivity, and good pedestrian facilities may need little or no off-street parking." Again, the experience was that market demand would limit the number of buildings without parking.

In 2009, the City adopted a new Climate Action Plan that set the goal of reducing per capita vehicle-miles traveled (VMT) by 30 % from 2008 levels. This included several actions that continued City support for compact development, supporting transit and active

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transportation, and parking management. These policies are producing results as shown by recent reductions in carbon emissions by 26 % per person in Multnomah County since 1990.

In the last several years, there has been a shift in the market and the attitude of lenders toward apartment buildings without parking. Also, the rental vacancy rate in Portland has been one of the lowest in the country, sparking an increase in development of multifamily buildings with and without parking. This change has raised questions about whether the experience and assumptions of the past regarding market demand for parking are no longer reliable.

Current Code Requirements

New development is required to provide or not provide on-site parking based on the zoning code provisions summarized below:

Minimum Required Parking Spaces by Zone from
Table 266-1 of the Portland Zoning Code

Zone	Requirement
OS, RF - RH, IR, N2, CO2, CG, EG, I	Minimum is Standard A in Table 266-2. For residential uses this standard requires a minimum of 1 space per unit. SROs are exempt. In RH, no parking is required for 1 to 3 units and 1 space per 2 units for four or more units
EX	Minimum - None, except: Household Living: • Min: None for 1 to 3 unit buildings, • Min: 1 space per 2 units for four or more unit buildings, • SROs exempt. *NOTE: Much of EX zoned land in w/in 500 feet of frequent transit.
CN1	Minimum - None.
CM, CS, RX, CX, CO1	Minimum - None.

Exceptions to these minimums are listed below:

- **Frequent transit service.** No minimum parking is required for sites located less than 500 feet from a transit street with 20-minute peak hour service. Applicants requesting this exception must provide a map identifying the site and TriMet schedules for all transit routes within 500 feet of the site.

- **Tree preservation.** Required parking may be reduced by one parking space for each tree 12 inches in diameter and larger that is preserved up to 2 parking spaces or 10 % of the total, whichever is greater. Parking may not be reduced below 4 parking spaces.

- **Bicycle parking.** Required parking may be reduced by one space for every 5 non-required bicycle parking spaces that meet standards up to 25 % of required parking.

- **Transit-supportive plazas.** Providing a "transit-supportive plaza" may reduce parking up to 10 % of the required parking spaces on the site for sites that have at least 20 parking spaces and that meet the plaza location and design requirements.

- **Motorcycle parking.** Reduce car parking by one space for every 4 motorcycle parking spaces provided up to 5 spaces or 5 % of required automobile parking, whichever is less.

Of the approximately 196,000 tax parcels in the city, about 38% have zoning that allows but does not require a minimum amount of on-site parking with new development. All tax lots are not developable, and buildings often cover more than one tax lot. These numbers are provided to illustrate the number of properties (and owners) that could be affected by changes in these requirements.

Number of tax parcels with no minimum parking requirements

Zone	# tax lots citywide	Comments
Neighborhood Commercial Zones w/ no min. parking requirement	5,158	1. Includes CM, CN1, CO1, and CS zones. 2. 82% of these are also within 500' of Frequent Transit Service
Central City Commercial Zone (CX) w/ no min. parking requirement	1,734	
Other Zones w/ no min. parking requirement due to being within 500' of Frequent Transit Service	67,830	
TOTAL # of tax lots	74,722	

2. COMMUNITY CONCERNS RAISED BY RECENT DEVELOPMENT

Recent proposals to construct apartment buildings with no on-site parking along many of Portland's commercial streets have sparked concerns from some neighborhood organizations relating to zoning requirements, parking exemptions, current City policy and the update to the City's Comprehensive Plan.

Of the 22 buildings with no parking either recently completed, under construction, or in the permit process:

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- Nineteen are located in commercial zones (CS or CM) that do not require parking AND are located within 500 feet of a frequently operating transit line;
- Two are in commercial zones but not within 500 feet of a frequently operating transit line (NE Fremont & NE 44th and SE Tacoma & SE 17th); and
- One is located in a residential (RH) zone (N Interstate & N Overlook) within 500 feet of a frequently operating transit line.

The public concern about apartments goes beyond parking and includes concerns regarding height, size, density, design compatibility and lack of ground floor retail uses of many of these new buildings. Their concerns about parking include current available parking and the compound effect of multiple developments without parking in an area. The issues being raised include the following:

Neighborhood notice and influence over design and development
- Lack of opportunities for public to affect permit process.
- Inadequate neighborhood notice requirements.
- Meeting community design standards is not sufficient.
- No way to challenge permit approval once it occurs.

Parking impacts
- Not enough parking provided even on streets with public transit options.
- People who use alternatives for commuting usually also have cars.
- No real incentives for people to not have cars.
- Inadequate parking for businesses.
- Loss of on-street parking for residents.
- There could be a loss of "street appeal" and home values due to lack of easy on-street parking.

Height and design impacts
- Taller new structures could shadow and intrude on privacy of existing smaller dwellings.
- Taller new structures could create canyon-like apartment corridors.
- Modern steel/glass structures don't always fit with existing neighborhood character.
- May cause loss of older traditional and historic buildings.
- New development may not provide adequate green space.

Other neighborhood change impacts
- The concentration and pace of new development warrants immediate action. Some have suggested a moratorium on this type of development.
- May create traffic safety issues when narrow streets are parked solid.
- Change in type of households: Small/studio apartments for a mostly transient population (singles, young adults) and not for affordable housing for families; stability of neighborhood threatened.

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<u>Accessibility impacts</u>
- Parking policy could directly impact the availability of housing for people with mobility-related disabilities and their ability to access the services and amenities within their neighborhood and the city.
- By not having parking available for residents, barriers are created for certain individuals, in particular people with disabilities and older adults with limited mobility.
- This policy could result in specific neighborhoods and areas of the city as essentially off limits to people with mobility impairments.

Community members also have suggested approaches to address these concerns including:

- Increased minimum parking requirements possibly linked to incentives for reducing car ownership. This includes transit subsidies, car sharing options, bike facilities, etc.
- Require design of new development to better fit with existing character through height step downs or lower heights overall and through increasing the areas of the city subject to design review.
- Consider a limited moratorium on this type of development that has not yet been permitted to study the overall effects on public services.

3. PERMIT RESEARCH: TRENDS FOR DEVELOPMENT OF NEW MULTI-FAMILY RESIDENTIAL BUILDINGS

Since 2006, 122 multifamily buildings with a total of approximately 3,900 dwelling units have been developed in Portland neighborhoods outside the Central City. Approximately 55% of these buildings and 68% of the units were built with on-site parking. Parking was provided in these buildings at ratios ranging from 0.7 to 1.1 parking spaces per dwelling unit. *The average for all projects that provided parking was 0.9 parking spaces per dwelling unit.* The average size of new development with parking was 40 dwelling units.

In this period, approximately 55 buildings and 1,270 dwelling units were built without on-site parking. North, SE, NE and NW neighborhoods saw most of this development. The average size of new development without parking was 20 dwelling units.

The amount of parking that has been produced by development of new multifamily buildings, including those with parking and without, was 0.6 spaces per unit. So even with low parking minimums in the zoning code, private development has still produced a significant amount of parking.

Table 1 examines this permit data by how parking varies with the number of units in a building. About 98% of the projects without parking (88% of the units) were in buildings with fewer than 80 units. Only about 2% of projects (11% of units) were in projects with 80 units and above.

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Due to their size, larger projects without parking clearly place greater demands on neighborhood streets. Over the past six years, over 90% of multifamily buildings in neighborhood locations have been smaller (less than 80 units), which may be why the issue of new buildings without parking has not been a major issue in the past. Also, approximately half of these smaller buildings provided parking on-site at a ratio of one space per unit.

Table 1. Multi-Family building permits 2006 - June, 2012
Buildings by Number of Dwelling Units - Buildings outside Central City

Building size # of units	# of Buildings		Total Dus		Parking spaces provided	Average Spaces / DU		% of Buildings Providing Parking
	No Pkg	Pkg	No Pkg	Pkg		Buildings w/ pkg	All Projects	
1-19	28	30	167	282	312	1.1	0.7	51.7%
20-39	16	14	422	370	340	0.9	0.4	46.6%
40-59	8	8	385	389	279	0.7	0.4	50.0%
60-79	2	7	152	489	343	0.7	0.5	77.8%
80 or more	1	8	150	1131	1078	1.0	0.8	88.8%
Total	**55**	**67**	**1276**	**2661**	**2352**	**0.9**	**0.6**	**54.5%**

Table 2 examines this permit data by the year the permit was issued. From 2008 to today, the changes in development finance due to the crisis in the mortgage market can be seen in the drop in the total amount of new projects. In 2011 and 2012, development returned with more activity in new buildings without parking. The new buildings in those years that do provide parking typically provided less than in the past.

The data do not allow prediction of whether this is a lasting trend. However in the last two years, Portland also has experienced significantly low vacancy rates for apartments, which may be the reason buildings without parking have apparently become easier to finance than in the past. If the increase in the supply of multifamily housing is eventually reflected in higher vacancy rates as it has in the past, we would expect the ratio of buildings with and without parking to return to more typical levels.

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Table 2. Multi-Family building permits 2006 - June, 2012
Buildings by Year of Permit - Buildings outside Central City

Permit Year	# of Buildings		Total Dus		Avg # Dus Per Building		Parking spaces provided	Average Spaces / DU		% blgs w/ parking	% Units w/ parking
	No Pkg	Pkg	No Pkg	Pkg	No Pkg	Pkg		Buildings w/ pkg	All Projects		
2006	11	21	103	572	9	27	623	1.1	0.9	65.6%	84.7%
2007	15	16	303	601	20	38	559	0.9	0.6	51.6%	66.5%
2008	0	15	0	648	0	43	624	1.0	1.0	100.0%	100.0%
2009	1	2	5	71	5	36	53	0.7	0.7	66.7%	93.4%
2010	8	3	207	124	26	41	63	0.5	0.2	27.3%	37.5%
2011	10	3	306	99	31	33	58	0.6	0.1	23.1%	24.4%
2012	11	7	552	546	35	78	372	0.7	0.4	41.2%	60.8%
Total	**55**	**67**	**1276**	**2661**	23	40	**2352**	0.9	0.6	54.9%	67.6%

4. RESULTS OF THE PARKING AND TRAVEL BEHAVIOR STUDY

The Parking and Travel Behavior Study had three main components:

- A survey of residents of eight existing multifamily buildings, some with parking and some without, all located on commercial corridors next to lower density neighborhoods. 116 surveys were returned out of 333 mailed for a 35% response rate.

- A survey of on-street parking utilization around the survey (car counts of vehicles) around the eight existing multifamily buildings. Congestion was measured at five times during a weekday and Saturday.

- A literature review of studies related to vehicle ownership and use in multifamily buildings.

The Parking and Travel Behavior Study found that, while the sampled residents of new multifamily buildings are largely multi-modal, they also own cars for occasional use. About 72 % of surveyed households have cars and two-thirds of them park on the street. About 28 % of all the households surveyed do not own a car.

Most surveyed residents (64 %) do not use their car for commuting; 20 % bike to work, 9 % walk, 23 % ride transit, 3 % carpool and only 36 % drive. About 44 % depend on their cars for non-work travel. So this means that there is still a demand for on-street parking and that most of the cars are stored there for occasional weekend and evening use.

The survey of on-street parking use found that there typically is adequate on-street parking within a one or two block walking distance of each building studied. All of the sites had some

block faces with high parking demand during peak periods. However, the household survey found that most of the vehicle owners (67 %) can find on-street parking in less than a two-minute walk from their apartment. Some time periods are more congested (4 p.m. to 7 p.m., for example), but residents rarely have to park more than a couple blocks from their apartment.

Even though almost one-third of those surveyed belong to car-free households, the survey showed that many residents are reluctant to get rid of their vehicles. Many could not identify amenities that would reduce their need for vehicle ownership. Some amenities that were identified as possibly making a difference were:

- Transit that travels to my place of work/school
- More car-sharing options
- Affordable, high quality daycare in the area
- Secure indoor bike parking

Both residents and developers noted that demand for secure indoor bike parking exceeded their expectations and the amount provided. Most residents will store their bike in their apartment rather than in the less secure parking provided by their building.

Occasional car use, as identified in the survey, is a good target for car-sharing and other alternatives that reduce the need for owning a car. For instance, research shows that car-sharing can dramatically decrease the need to own a private vehicle. However, while Cars2Go is available for all or the eight buildings surveyed and zipcar is available for most, the majority of residents surveyed do not use car-sharing.

> Survey results:
> 1. Car ownership
>   a. 72% of respondents own cars and 28% do not. In comparison, citywide 12% of households do not have a vehicle.
>   b. Respondents 45 and older are more likely to live without a car.
>
> 2. Commute trips
>   a. 64% of commute trips for **ALL** respondents are by bus, bike, walk and carpool or car share, while 36% are by car. In comparison citywide 59% of Portlanders commute with a car.
>   b. 60% of commute trips for **car-owners** are by bus, bike, walk, and carpool or car share, while 40% are by car.
>
> 3. Other trips
>   a. 54% of non-commute trips for **ALL** respondents are by bus, bike, walk, and carpool or car share and 46% are by car.
>   b. 66% of non-commute trips for **car owners** are by car and 34% are by bus, bike, walk, and carpool or car share.
>
> 4. Parking
>   a. 71% find parking within a 2 minute walk from their residence.
>   b. 80% find a parking space in less than 5 minutes.

The research literature reviewed as part of this study shows increased density and car-sharing reduce personal vehicle ownership rates, and dense neighborhoods with strong transit and active transportation options reduce driving. In addition, research shows that charging for parking separately from rent lowers overall rental costs. It also can create an incentive for less car ownership, but not if on-street parking is easy. Residents who responded to the
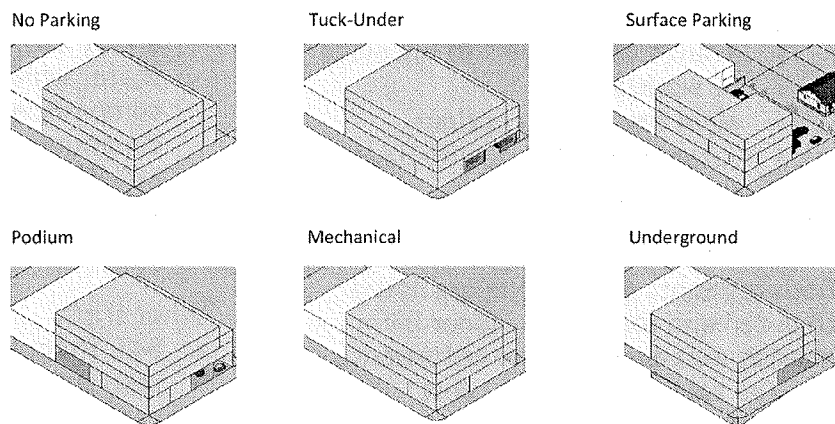
survey noted that, for the income-restricted buildings, the cost for on-site parking is too high for many families that live there and own a vehicle.

In general, the survey of residents does not show a relationship between the availability of on-site parking and car ownership among residents. Residents at buildings with on-site parking and those without had similar levels of vehicle ownership.

5. DEVELOPMENT AND AFFORDABILITY IMPACTS RELATED TO PROVIDING PARKING

BPS prepared an analysis of how different approaches to providing on-site parking could affect development costs, feasibility and rents for apartment dwellers. The analysis assumed that a new mixed use building was being developed on a 10,000 square foot lot with 100 foot depth in a CS (Storefront Commercial) or Mixed Commercial/Residential (CM) zone. The buildings were assumed to have businesses on the ground floor with housing on upper stories.

The analysis assumed development of four story buildings with an eleven foot set back from the rear of the building and a step down in height from at the rear of the building consistent with design standards adopted with the Division Green Street/Main Street Plan. The six different approaches to providing on-site parking that were analyzed.

No Parking   Tuck-Under   Surface Parking

Podium   Mechanical   Underground

1. <u>No Parking</u>: Building developed with no on-site parking.

2. <u>Tuck-Under Parking</u>: Open (not enclosed) parking located on the rear part of the ground floor with living or commercial space above and on the ground floor main street frontage.

3. <u>Surface Parking</u>: Parking on an open parking lot at rear or non-street side of property.

4. <u>Podium Parking</u>: Similar to tuck-under parking but with a more of the ground floor dedicated to parking. This is likely to have two curb cuts (in and out) and may preclude ground floor uses on the main street frontage.

5. <u>Mechanical Parking</u>: Parking on automated or manual lift systems that stack one or more vehicles vertically.

6. <u>Underground Parking</u>: Parking that is a below grade under the building.

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Estimated cost per space by type of construction	
Parking Development Costs	**2009/2010**
Surface	$ 3,000
Structured	$ 20,000
Underground	$ 55,000
Internal (Tuck Under or Sandwich)	$ 20,000
Mechanical	$ 45,000
Data from Envision model used for pro-forma analysis	

The analysis found the following:

- A building with tuck-under parking is able to utilize nearly all development capacity of the studied site and can produce .2 parking spaces per unit. There is a moderate rental rate increase associated with the additional cost and loss of units (approximately 5 units).

- A building with surface parking is able to utilize 50 % of development capacity and can produce .6 parking spaces per unit. There would be higher rents due to fewer units. This scenario reduces active ground floor potential and impacts the pedestrian experience.

- A building with podium parking utilizes 75% of the ground floor to provide parking and can produce .5 spaces per unit. This scenario eliminates active ground floor uses and would create a dead spot in a commercial district.

- A building with mechanical parking utilizes 40% of the ground floor to provide parking and can produce .5 spaces per unit. Mechanical parking is a space-efficient parking alternative as it stacks parking spaces with the aid of mechanical systems. As a result, more parking spaces can be constructed in a smaller space; however, it adds significant cost, at $45,000 a space.

- A building with underground parking is challenged given the limitations of the 10,000 sq foot lot. Underground parking may not be practical on these 10,000 square foot lots due to the space needed for circulation on and between levels. It could produce .75 spaces per unit however development feasibility and rents would clearly be impacted by the cost of construction of $55,000 a space.

6. TRIMET SERVICE REVIEW

BPS reviewed transit service frequency in 2007 (prior to service cuts) and current service levels to evaluate whether sites where upcoming apartments are proposed are vulnerable to service cuts. The results show minimal peak hour service reductions along routes with upcoming buildings, with the exception of bus #24 serving Fremont. Non-peak headways

generally increased from 15 minutes to 20 minutes, with the exception of bus #77 serving Broadway/Halsey and the #24 serving Fremont, which saw greater than 13-minute increases in non-peak headways.

A change that could be made to the zoning code would be to make the areas eligible to the frequent transit service exemption for minimum parking requirements correspond to the current TriMet service levels or to redefine frequent service to correspond to TriMet's current definition.

CONCLUSIONS

The City's policies and regulations related to parking minimums are based on long-standing support for compact development and economically viable neighborhood centers, reducing vehicle miles traveled (VMT) and related air quality impacts, encouraging use of transit and active transportation, and addressing climate change. Neighborhood livability has also been a longstanding goal. Recent development in neighborhood commercial areas has raised concerns of residents about the scale and pace of change in their neighborhoods. The central issue raised by recent development is how to balance these goals.

Specifically, concerns have been expressed about the adequacy of neighborhood notice of and influence over design and development, parking impacts on existing residents and businesses, height and design impacts on neighborhood character and livability, and inadequate accessibility for persons with disabilities. There are also concerns about the cumulative impact of concentration of buildings without parking and with the pace of new development.

Review of development permits since 2006 showed that the majority of new multifamily buildings and units included on-site parking. Overall the supply of parking created with this development is almost one space per unit. While there has been steady development of new buildings without parking, most of the new buildings have provided parking. The City's policies and private market decisions have provided options for households to live with or without private parking.

The review of permit data also shows that larger buildings (80 units and above) are more likely to provide parking than smaller buildings. Also, most of the new multifamily buildings in neighborhoods are smaller buildings (less than 80 units). One issue to explore is whether development of buildings without parking that are above a certain size unduly stresses the balance among the range of users depending on on-street parking.

The Parking and Vehicle Use Study found that, while the sampled residents of new multifamily buildings are largely multi-modal (using cars, transit, bike and walking for regular trips), they also own cars for occasional use. This suggests use of on-street parking for storing for occasional weekend and evening use is a significant part of on-street parking demand.

The survey of on-street parking use found that there is adequate on-street parking within a two-block walking distance of each building studied. Most of the vehicle owners can find on-street parking in less than a two-minute walk from their apartment.

In general, the survey of residents does not show a relationship between the availability of on-site parking and car ownership among residents. Residents at buildings with on-site parking and those without had similar levels of vehicle ownership.

The review of research literature shows that charging for parking separately from rent lowers rental costs. It also can create an incentive for reduced car ownership, but not if on-street parking is easy. Residents who responded to the survey noted that, for the income-restricted buildings, the cost for parking is too high for many families that live there and own a vehicle.

The review of research on the topic identified some factors that can make a difference in car ownership rates including greater neighborhood density and the availability of car-sharing. Also research shows that neighborhoods with greater density and strong transit and active transportation options reduce driving. Some amenities that were identified as possibly making a difference were:

- Transit that travels to my place of work/school
- More car-sharing options
- Affordable, high quality daycare in the area
- Secure indoor bike parking

These findings suggest that there are improvements, programs and education that must complement parking policies to be able to achieve the objectives of the City's neighborhood development goals.

Following public testimony at the November 13th public forum, the PSC requested that BPS staff identify near-term regulatory or process improvements related to parking and community involvement. Commissioners' suggestions included:

- Thresholds – Identifying certain thresholds for when parking is required (likely based on building dwelling unit counts).
- Accessibility – Updating requirements with a focus on improving accessibility for those with disabilities
- Location of areas where parking is allowed but not required – Reviewing locations and zones with parking exceptions to ensure frequent, stable transit exists.
- Neighborhood contact – Seeking ways to increase neighbor and neighborhood notification and interaction with developers of upcoming multi-dwelling projects with little or no parking.
- Transportation Demand Management (TDM) – Exploring techniques to allow residents of building with little or no parking more opportunity to live car-free or low-car lifestyles. Examples of TDM measures include enhanced and secure bike parking, requiring transit passes and promoting use of car share programs.

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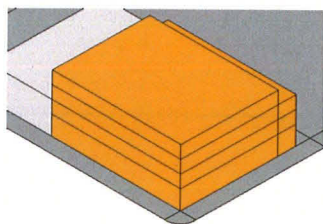# *Cost of Onsite Parking + Impacts on Affordability*

The Bureau of Planning and Sustainability modeled development data to evaluate the cost of providing onsite parking for infill apartments and impacts on affordability. Six different development prototypes were evaluated. A description of methodology used for this evaluation follows.
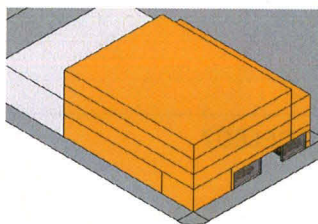
Methodology

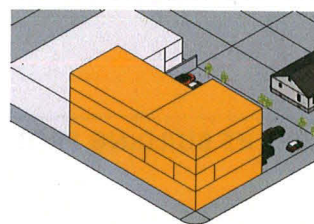### WHAT ARE THE PARKING ALTERNATIVES THAT WERE EVALUATED?
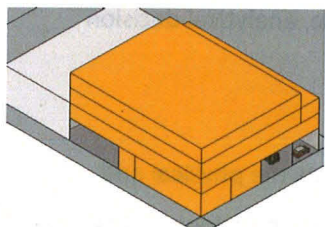
Diagram A. Building Prototype Form

No Parking   Tuck-Under   Surface Parking

Podium   Mechanical   Underground

Tuck-

Under Parking

Tuck-under parking is distinguished by its open configuration. One wall of the parking area is open with no garage door. Most tuck-under areas have living space or commercial space abutting the rear wall of the parking area.

Surface Parking

Surface parking is a parking lot located on street level.

Podium Parking

Podium Parking is similar in design to tuck-under parking though will occupy a larger percentage of the ground floor. Podium parking would likely require two curb cuts (in and out) to allow for circulation of vehicles and may have a negative impact to continuous frontage (street-level activity).

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Mechanical Parking

Parking lifts are automated or manual lift systems designed to stack one or more vehicles vertically. Parking lifts may be located indoors or outdoors. Where space to provide parking is limited, parking lifts may be an appropriate method for meeting parking requirements. Parking lifts located outdoors must meet applicable height and screening requirements.

Underground Parking

Underground parking is a below ground parking lot that is accessed by a ramped entry. Due to the limited site size for this building prototype, multi-story parking is not considered as the space required for circulation between floors adds significant cost and limits the number of practical spaces per floor. As a result, one level of underground parking is considered.

HOW WERE THE BUILDING PROTOTYPES MODELED?

Envision Tomorrow

Envision Tomorrow puts powerful tools in planners' hands to design and test land use, site development, and transportation decisions. Envision Tomorrow provides planners with an easy-to-use, analytical decision making tool.

The Envision Tomorrow Prototype Builder & Return on Investment (ROI) Model tests the physical and financial feasibility of development. The tool allows for the examination of land use regulations in relation to the current development market and considers the impact of parking, height requirements, construction costs, rents and subsidies. This tool can be used to evaluate what development assumptions will generate a project profit (reported as 7 to 10 profit on investment in this study). In this study, the model was used to assess how alternative parking scenarios and forms of development, such as tuck-under and podium, might become more financially feasible. Similarly, by keeping a standard return on investment rate, a range of monthly rental rates can be modeled to more accurately depict the impact on affordability.

WHAT DEVELOPMENT ASSUMPTIONS WERE USED FOR MODELING?

Site Development Assumptions

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All development prototypes assume a 10,000 square feet lot size with 100 foot depth, or 0.23 acres. CS (Storefront Commercial) or Mixed Commercial/Residential (CM) zone is assumed. Both zones intend to promote development that combines commercial and housing uses on a single site. This zone allows increased development potential on busier streets without fostering a strip commercial appearance. Development is intended to consist primarily of businesses on the ground floor with housing on upper stories. Development is intended to be pedestrian-oriented with buildings close to and oriented to the sidewalk, especially at corners.

Diagram B. CS/CM Building Envelope Guidelines

Each development prototype assumes 4 stories of development with an 86% utilization rate. This utilization rate accounts for an eleven foot rear building set back and a maximum height reduction to 35 feet for a 25 foot depth, also at the rear of the building (*see Diagram B*). These reductions amount to an approximate loss of 6,000 square feet buildable area.

As part of the modeling, circulation, lobby, and egress spaces internal to the building are discounted from the gross building square footage. The no parking development prototype assumes 50 units, which translates to an average unit size of 550 square feet after circulation spaces. This unit size remains constant throughout each of the alternative building prototypes.

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WHAT DEVELOPMENT COST ASSUMPTIONS WERE USED FOR MODELING?

A site acquisition cost of $27.00/sq ft was assumed based on a sampling of land values in CS zones in Inner Portland neighborhoods. For a 10,000 sq foot site this translates to $270,000. Construction costs for residential units were set at $109.00 a square foot. Given an average unit size of 550 sq feet, this translates to approximately $60,000 to produce a residential unit. Standard parking spaces are generally assumed to occupy 260 sq feet (including circulation area). Mechanical parking utilizes half this space on account for stacking spaces. In general two standard parking spaces will replace a residential unit. This is important as the main drivers for unit cost are number of units and overall construction cost. As the cost to produce additional parking spaces becomes greater than the cost of the units not produced, rental rates rise. Similarly, as the number of units decreases within a project, project costs are distributed in greater proportion to renters. For example, in the tuck-under development prototype there is an overall cost savings as the 5 units that are not produced (at a cost of $300,000) come at a greater savings than the cost associated with producing 9 parking spaces (at a cost of $20,000 a space or total cost of $180,000). There is a small decrease in the overall project cost; however, as there are 5 fewer units to generate monthly revenue, a slim rental rate increase is observed. In other development scenarios, as the cost to produce parking increases, there is an increase in project cost and a decrease in the total number of units resulting in larger rental rate increases.

Table A. Cost of Parking

Parking Type	Parking Costs Per Space
Surface	$3,000
Podium/Structured (above ground)	$20,000
Underground	$55,000
Internal (Tuck Under or Sandwich)	$20,000
Mechanical	$45,000

HOW DO THE BUILDING PROTOTYPE ALTERNATIVES PERFORM?

- A building with no parking is able to utilize the full capacity of the development on the site (factoring in assumptions above). In this scenario fifty units and zero parking spaces are constructed. This is the most affordable unit produced amongst the alternatives.
- A building with tuck-under parking is able to utilize nearly all development capacity, with a loss of 5 residential units. In this scenario 45 units and 9 parking spaces are constructed. There is a moderate rental

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rate increase associated with this scenario to accommodate the cost associated with providing tuck-under spaces and loss of potential residential units.
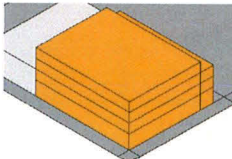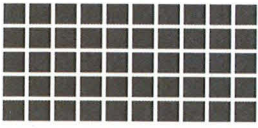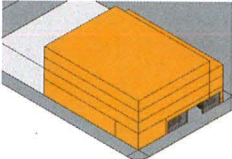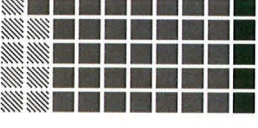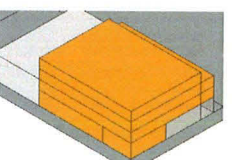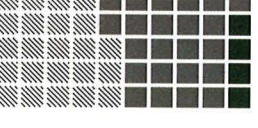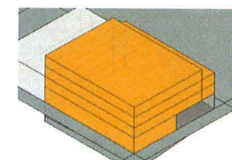
- A building with surface parking is able to utilize 50 percent of development capacity. In this scenario 30 units and 19 parking spaces are constructed. There is a rental rate increase associated with this scenario to accommodate for the opportunity cost associated with not producing 20 units.

- A building with podium parking utilizes 75% of the ground floor to provide parking. In this scenario 42 units and 22 parking spaces are constructed. There are negative impacts to ground floor activity and street frontage which may have a direct impact on surrounding businesses, pedestrians, and street character due to additional curb cuts and loss of continuous storefront/first floor character.

- A building with mechanical parking utilizes 40% of the ground floor to provide parking. In this scenario 46 units and 23 parking spaces are constructed. Mechanical parking is a space-efficient parking alternative as it stacks parking spaces with the aid of mechanical systems. As a result, more parking spaces can be constructed in a smaller space; however, it adds significant cost, at $45,000 a space.

- A building with underground parking is challenged given the limitations of the 10,000 sq foot lot. The practicality of producing underground parking is challenged given the short bay width (less than 100') and limitations to circulation between levels. In this scenario 44 units and 33 parking spaces are constructed. The rental increase can be attributed directly to the cost of providing underground parking at a cost of $55,000 a space.

Table B. Building Prototype Summary

Building Development Prototype	# of Units	# of Parking Spaces	Parking Spaces per Unit	7% ROI* Monthly Rent	10 % ROI* Monthly Rent
No Parking	50	0	0	$800	$1150
Tuck-Under	45	9	0.25	$850	$1200
Surface	30	19	0.6	$1200	$1800
Podium	42	22	0.5	$950	$1350
Mechanical	46	23	0.5	$1175	$1660
Underground	44	33	0.75	$1300	$1900

*Note: ROI= Return on Investment

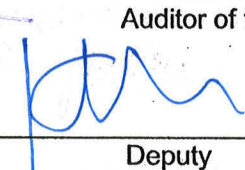## Cost of Onsite Parking + Impacts on Affordability

Development Prototype		# of Units	# of Parking Spaces	Parking Spaces per Unit	% of Ground Floor used for parking	Parking Cost as a Percentage of Total Construction Cost	Construction Cost	Potential Monthly Rental Range (550 sq ft apartment)*			Monthly Rent Increase as a percentage above No Parking Development Prototype
No Parking				0	0%	0%	4.3 M	$800	-	$1,150	-
A		50	0	A building with no parking is able to utilize the full capacity of the development on the site (factoring in assumptions outlined in Methodology). In this scenario fifty units and zero parking spaces are constructed.							
Tuck-Under				0.25	33%	4%	4.3 M	$850	-	$1,200	6%
B		45	9	A building with tuck-under parking is able to utilize nearly all development capacity, with a loss of 5 residential units. In this scenario 45 units and 9 parking spaces are constructed. There is a moderate rental rate increase associated with this scenario to accommodate the cost associated with providing tuck-under spaces and loss of potential residential units.							
Surface				0.6	47%	2%	2.8 M	$1,200	-	$1,800	50%
C		30	19	A building with surface parking is able to utilize 50 percent of development capacity. In this scenario 30 units and 19 parking spaces are constructed. There is a rental rate increase associated with this scenario to accommodate for the opportunity cost associated with not producing 20 units.							
Podium				0.5	66%	10%	4.3 M	$950	-	$1,350	19%
D		42	22	A building with podium parking utilizes 75% of the ground floor to provide parking. In this scenario 42 units and 22 parking spaces are constructed. There are negative impacts to ground floor activity and street frontage which may have a direct impact on surrounding businesses, pedestrians, and street character due to additional curb cuts and loss of continuous storefront/first floor character.							
Mechanical				0.5	40%	22%	5.4 M	$1,175	-	$1,660	47%
E		46	23	A building with mechanical parking utilizes 40% of the ground floor to provide parking. In this scenario 46 units and 23 parking spaces are constructed. Mechanical parking is a space-efficient parking alternative as it stacks parking spaces with the aid of mechanical systems. As a result, more parking spaces can be constructed in a smaller space; however, it adds significant cost, at $45,000 a space.							
Underground				0.75	20%	28%	6.5 M	$1,300	-	$1,900	63%
F		44	33	A building with underground parking is challenged given the limitations of the 10,000 sq foot lot. The practicality of producing underground parking is challenged given the short bay width (less than 100') and limitations to circulation between levels. In this scenario 44 units and 33 parking spaces are constructed. The rental increase can be attributed directly to the cost of providing underground parking at a cost of $55,000 a space.							

Housing Unit

Housing Unit w/Parking Space

Housing Unit Not Built as a result of providing parking

- *Based on Results of Envision Tomorrow Return on Investment Model & Analysis.*
- *Developments with a Return on Investment of 7 to 10% are reported.*

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Agenda No.
REPORT NO.
Title

Accept the Minimum Parking Requirements for Multifamily Buildings Memo referencing three pieces of research related to parking for multifamily buildings (Report)

INTRODUCED BY Commissioner/Auditor: **Mayor Sam Adams**	CLERK USE: DATE FILED **DEC 14 2012**

COMMISSIONER APPROVAL	LaVonne Griffin-Valade
Mayor—Finance and Administration -Adams	Auditor of the City of Portland
Position 1/Utilities - Fritz	
Position 2/Works - Fish	By: _____
Position 3/Affairs - Saltzman	Deputy
Position 4/Safety - Leonard	**ACTION TAKEN:**

BUREAU APPROVAL

Bureau: Planning and Sustainability
Bureau Head: Susan Anderson

Prepared by: Matt Wickstrom
Date Prepared: Dec. 13, 2012

Financial Impact & Public
Involvement Statement
Completed ☒   Amends Budget ☐

Council Meeting Date
December 20, 2012

City Attorney Approval:
required for contract, code. easement,
franchise, charter, Comp Plan

ACTION TAKEN:

DEC 20 2012   *Rescheduled to*   JAN 10 2013   2 P.M.
TIME CERTAIN

JAN 10 2013   **ACCEPTED**

AGENDA
TIME CERTAIN ☒ Start time: **4:00 pm** **Total amount of time needed: 2 hrs.** (for presentation, testimony and discussion) **CONSENT** ☐ **REGULAR** ☐ Total amount of time needed: _____ (for presentation, testimony and discussion)

FOUR-FIFTHS AGENDA	COMMISSIONERS VOTED AS FOLLOWS:	YEAS	NAYS
1. Fritz	1. Fritz	✓	
2. Fish	2. Fish	✓	
3. Saltzman	3. Saltzman	✓	
4. Leonard	4. Novick	✓	
Adams	Hales	✓	