



Bureau of Planning and Sustainability

Innovation. Collaboration. Practical Solutions.

---

## MEMO

**DATE:** November 7, 2013

**TO:** West Quadrant Stakeholder Advisory Committee

**FROM:** West Quadrant Plan Project Team

**CC:** Susan Anderson, Planning and Sustainability Director  
Joe Zehnder, Chief Planner

**SUBJECT:** Building Height in the West Quadrant

---

This memo summarizes the general approach to proposing maximum building height limits in the West Quadrant planning process and reviews the potential benefits and impacts of high-rise buildings. In general, the draft proposal is to retain the basic existing height pattern, while making minor adjustments in some areas, including both increases and reductions in allowed heights. In all areas where height increases are proposed, providing a (to be determined) public benefit or amenity would be required of the developers in exchange for the extra height. No changes to the allowed Floor Area Ratio (FAR - essentially development density) are currently being proposed, though some minor FAR changes may be proposed later in the process to support specific district objectives.

### I. Definitions of Low-, Medium- and High-rise Buildings

While there are no universally accepted definitions for these terms, staff proposes the following distinctions for the purposes of West Quadrant Plan discussions:

- Low-rise = 1-6 stories
- Mid-rise = 7-12 stories
- High-rise = 13 stories and above

These definitions are useful within the context of planning for the Central City, the densest part of the region, but may not be appropriate in other parts of the city. While there is some variability, floor-to-floor heights in typical Central City commercial buildings are



City of Portland, Oregon | Bureau of Planning and Sustainability | [www.portlandoregon.gov/bps](http://www.portlandoregon.gov/bps)  
1900 SW 4th Avenue, Suite 7100, Portland, OR 97201 | phone: 503-823-7700 | fax: 503-823-7800 | tty: 503-823-6868

*Printed on 100% post-consumer waste recycled paper.*

approximately 14 feet, while in residential buildings they are closer to ten feet. First floors for both building types are typically about 14 to 16 feet.

## II. General Basis for Existing Height Limits in the West Quadrant

Existing height limits in the West Quadrant of the Central City range from 35-75 feet (generally along the waterfront and in some historic districts) to 460 feet (generally in the Downtown office core) with various in-between limits set within different areas (see map on page 8).

The basic pattern of height limits dates to the late 1970s, with refinements by the 1988 *Central City Plan* and more recent planning efforts in places such as South Waterfront and the North Pearl District.

A few broad objectives have generally guided the setting of maximum heights:

- Building heights are set to accommodate the higher levels of development appropriate and desired for the Central City as the regional urban core and high-capacity transit hub.
- Heights are set to preserve light, air and visual access to parks, designated open spaces and the Willamette River.
- Heights are set to be compatible with and support the character of historic districts or other special design areas.
- Heights are set to protect identified public views in designated view corridors, e.g. of Mt. Hood from Washington Park.
- Heights are set to create appropriate transitions to adjacent non-Central City neighborhoods and districts.
- Heights are set to help shape a memorable and attractive downtown skyline and to enrich the city's urban form and image.

## III. Why are High-rise Buildings Allowed in Portland's West Quadrant?

### Regional Goals

In order to help achieve regional housing, economic development and environmental goals, Metro, the regional planning agency, has set average density targets to meet the demand for the forecasted future population. For the Central City this goal is 250 people/acre. With current typical household sizes, this translates to approximately 180 units per acre for residential development. This density goal recognizes the Central City as the most appropriate location in the region for the largest building scales and highest population density. Dense development in the Central City not only maximizes use of existing infrastructure, but by focusing this growth we can help protect other neighborhoods from inappropriately scaled development and maintain a diversity of housing types throughout the city.

Enabling dense development in the Central City is supported by the entire body of planning policy developed by the City of Portland and its regional partners. Changing allowable building heights to lower than their current limits would require a down-zoning of development potential.

These density targets could potentially be met without high-rise buildings but there would be tradeoffs in terms of building mass, open space; variety and housing choices, as discussed below.

### **Small Blocks: Benefits and Challenges**

The Central City's small blocks are an iconic part of its urban form which provides a number of benefits including a friendly pedestrian environment and frequent breaks in the street wall that help provide light and air. However, these small blocks also complicate development scenarios. Approximately forty percent of Central City land area is devoted to public rights-of-way, much higher than in most other cities (for example the figure is closer to 25 percent in San Francisco). This means that remaining land must be more densely developed to achieve a desired gross level of density. Additionally, low- and mid-rise perimeter block development common in Europe and other places work much better where there is room to get usable central courtyards—with small blocks, there is very little left after building around the edges. Dense and sometimes high-rise development helps ensure efficient use of these small blocks.

### **High-rise Buildings Provide Opportunities for Public Benefits and Amenities**

Development projects with high-rise buildings are more likely to include amenities like plazas, pocket parks, green landscaping areas, and creative, publically visible storm water treatments because they can achieve full build-out of allowed density without building over the entire site area. The development bonus and transfer system that encourages provision of public benefits and amenities in exchange for allowing bigger, taller buildings is intended to create more livable environments. These include incentives for various types of housing, environmental performance, historic preservation, public spaces, and other desired public goods. With the decline of urban renewal funding to support seismic upgrades and rehabilitation, providing historic and lower-scale properties with transferable height and floor area that can be monetized to pay for those improvements (as well as sites zoned to receive the transfers) can help to preserve those older buildings.

### **Design Flexibility**

Allowing for taller heights creates flexibility for more creative building designs. With a larger envelope to work within, buildings can be designed to provide opportunities for light, air and views between towers and ground level or podium open space. Additionally, buildings with more height can be more flexible with their overall design and are more likely to provide a variety of residential unit types for a variety of preferences. High-rise buildings give an opportunity to create diverse, well-designed communities.

### **Sustainability and Efficiency Benefits**

Encouraging greater density in the Central City helps Portland's sustainability efforts. Generally, people who reside in the Central City are more likely to walk, bicycle and use public transportation than people in other areas of the city. Fewer automotive trips results in lower congestion and reduced emissions and thus better air quality. Sewer, water, open space and other types of infrastructure also tend to be used more efficiently in dense environments.

### **Construction Types and Development Economics**

A building's height can sometimes be attributed to its construction type. For example, wood-frame construction can achieve heights of 65 - 75 feet or the "5 over 1" building type. This type includes five floors of wood frame construction over 1 floor of a concrete podium, for a

total of 6 floors. Light gauge steel stud construction allows the construction of two additional floors, or buildings with up to 8 floors and up to roughly 100 feet in height.

Above 100 feet in height, most residential buildings in the Central City have been built using a concrete-frame building type. On full blocks, this building type results in a “slab” configuration - roughly a half-block floorplate or 20,000 sf - up to roughly 175 feet in height. Above 175 feet, residential towers typically have smaller floor plates - 13,000 sf and below - and generally need to achieve at least 225 feet to cover the costs of additional structural members, better elevators, and increased fire/life safety systems.

High rise office buildings vary in terms of construction types, but most recent examples have used structural steel frames rather than concrete.

#### **IV. General Approach to Draft Height Limits in the West Quadrant Planning Process**

The West Quadrant Plan is an update of the 1988 *Central City Plan*. The general approach proposed by staff as a starting place for discussing building heights with the Stakeholder Advisory Committee and the public is to retain the basic existing pattern and make minor adjustments to allowed heights in some areas. These adjustments may be increases or reductions. In areas such as the core of the North Pearl District and South Waterfront that have been the subject of considerable recent planning work, no changes to maximum height limits are proposed. No changes to existing limits in the West End are proposed.

In all areas where increases are proposed, providing a public benefit or amenity would be required of the developers in exchange for extra height or density. This is the purpose of a revised bonus and transfer system that will be adopted as part of the final CC2035 Plan concurrently with any changes to maximum heights. The West Quadrant Plan process will identify the key priority benefits/amenities in different areas of the study area.

The draft conceptual building height map included in the West Quadrant Plan Concept Development Workbook (<http://www.portlandoregon.gov/bps/article/463059>) illustrates potential future maximum heights (inclusive of any bonuses) that vary from current policy in a few ways. It suggests slight reductions in maximum building heights in the NW 13<sup>th</sup> Avenue Historic District and in some areas north of Burnside originally envisioned to become an extension of the office core. It also suggests increases to maximum heights in a few key areas including the North Pearl waterfront, Hawthorne and Morrison bridgeheads and south part of the transit mall. None of these potential changes has been endorsed or recommended yet and they will be the subject of additional refinement and continued public discussions in the coming months.

#### **V. What About the Impacts of High-rise Buildings?**

Recently there has been some discussion at the Stakeholder Advisory Committee meetings and in the broader community regarding building height and form and how they impact livability. Some stakeholders have suggested that maximum heights in certain parts of the quadrant should be reduced and that, generally, high-rise residential buildings should not be allowed. They have cited research suggesting high-rise living is not optimum for certain populations, including children and seniors, and that there are also implications for overall livability, health and safety.

## Impacts May Not Apply to Portland

Various international research studies have raised concerns regarding high-rise buildings and their potential impacts on crime, safety, and livability. However, these impacts are highly dependent on the internal and surrounding conditions of each development. Cities and neighborhoods of different sizes, incomes, ages, and other demographics and neighborhood-scale differences are impacted differently by the presence of high-rise housing.

The actual height of different high rise buildings also changes the potential impacts. One widely accepted definition of a high rise building is anything greater than 10 stories tall. This definition is problematic because the impact of buildings that are 10 stories versus ones that are much larger, such as 100 story buildings, could vary greatly (Mitchell, 1971). Many of the cities mentioned in studies which raise concerns about high rises cite examples like Dubai, Hong Kong, and New York, which all have much taller buildings in their urban cores than Portland does. To give some perspective, the tallest building in Portland (Wells Fargo Center at 546 ft) would not even be amongst the 100 tallest buildings in New York City. It is therefore difficult to apply the potential hazards presented in studies regarding very dense cities to a mid-density city like Portland. The maximum allowed building heights in parts of the Central City would allow for a maximum of 30 to 45 stories, and in most areas, somewhat lower height limits allow buildings of 20 to 30 stories.

## Mitigating Potential Impacts

Assuming some of the potential impacts of very large high rises are also present in smaller high rises such as 20- to 30-story buildings, these impacts can still be mitigated. A recent study conducted by the Urban Land Institute that examines high-density development in Singapore, lays out a list of 10 principles that research shows help mitigate potential negative impacts of high density housing. These principles are:

- Plan for long-term growth and renewal
- Embrace diversity, foster inclusiveness
- Draw nature closer to people
- Develop affordable mixed-use neighborhoods
- Make public spaces work harder
- Prioritize green transport and building options
- Relieve density with variety and add green boundaries
- Activate spaces for greater safety
- Promote innovative and nonconventional solutions
- Forge private, public, people partnerships

All of these principles are actively pursued by the City of Portland.

## Successful High-Rise Neighborhood Examples

Evidence shows that when integrating many of the principles and guidelines mentioned above, high rise development can be a successful and positive addition to a vibrant city center. In fact, Portland has been a leader in developing such vibrant communities through exercising planning principles that preserve and enhance the livability of any type of building, including high rises. A book by local urban planning experts called *The Portland Edge* illustrates the method by which Portland has done this in the past, citing examples of successful mid- to high-rise living situations in Portland, the most notable of which is the Pearl District (Ozawa, 2004).

There are many examples of successful livable, safe and desirable high-rise complexes outside of Portland as well. Vancouver, BC is an interesting example where such development has highly increased the livability within the city. Examples such as the False Creek area in Vancouver provide supportive amenities for families, green spaces and open space, stunning views of the city, all while retaining lower density street level activity between the high-rise towers, many of which rest on 3-4 story podiums (Boddy, 2004). Variations on the Vancouver “model” are now being pursued in cities around the world, including West Coast U.S. cities such as Seattle, Bellevue, San Diego, San Francisco and within the South Waterfront district in Portland.

### **Crime and Safety**

There is often a perception that crime rates are higher in high-rise buildings. The perception of crime in high-rise buildings often has to do with a lack of connection between outdoor spaces surrounding high rise buildings and the residents of the building. Some studies show that the higher the building, the less of a connection individuals may have with the surrounding area, and therefore they feel less safe due to this disconnect (Gifford, 2007). According to a study by Newman and Franck, the perception however, does not directly translate into actual increase in crime solely based on density while controlling for other factors (Newman, 1982). In addition, using the principles previously mentioned, high-rise buildings can be better integrated to allow for a greater connection with the surrounding environment regardless of building height.

### **Social Implications, Health and Livability**

Other concerns include the potential for negative health and social outcomes (e.g. social isolation) and decreased livability associated with high-rise buildings. A study examining high-rise housing in Hong Kong and its relation to social, personal, and health consequences while controlling for poor housing conditions found that high-rise housing created no significant stresses for families or individuals in such developments, (Mitchell, 1971). A recent Swiss study found that mortality rates decreased with increasing floors in high-rise buildings (Panczak, et al, 2013). These findings suggest that health and social outcomes may vary depending on factors other than height in isolation, such as income level and access to healthcare.

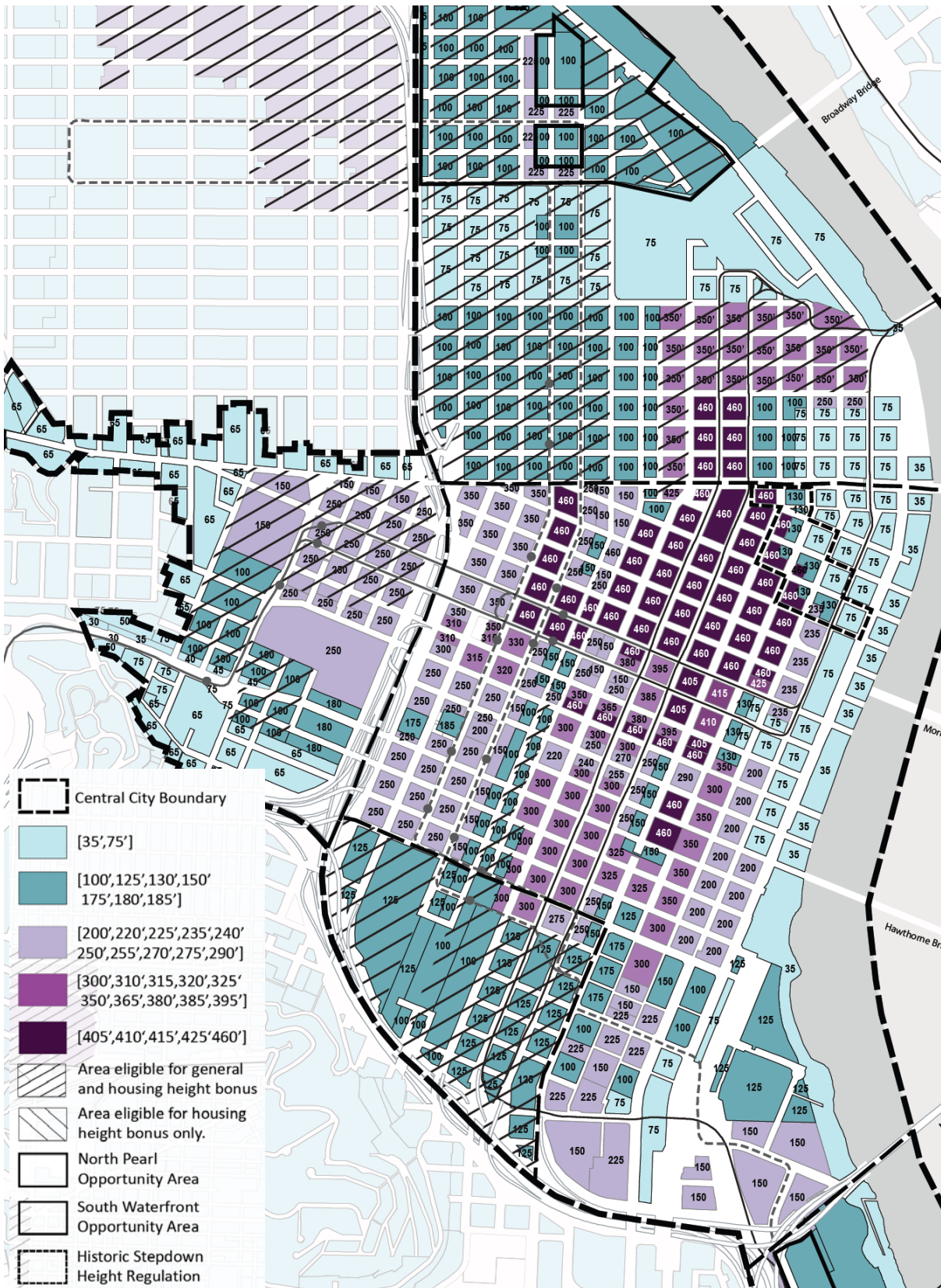
An Australian study identified which factors contributed to neighborhood satisfaction among residents in higher density areas. The factors that seemed to impact residential satisfaction the most included design, facilities, noise, walkability, neighborhood safety, and social aspects of the neighborhood beyond the building itself (Buys, 2012). This study further supports the idea that high-rise buildings alone may not be the difference in how livable a building is, but instead the surrounding attributes and planning considerations of a neighborhood may have a greater impact. In addition, internal factors such as a building’s design, amenities (for example provision of common areas), and activity programming can play an important role in resident satisfaction and livability.

## **VI. Conclusion**

It is important to note that the Central City is the one place in the region where high-rise buildings are allowed and that they will continue to make up only a very small proportion of the city and region’s development in the future. Mid- and low-rise building heights and densities are essentially what is already allowed and encouraged today in Portland’s town

centers and major corridors outside the Central City. Additionally, mid- and low-rise development in the future will also continue to be developed in the Central City, as it plays a vital role in creating a vibrant and diverse urban landscape. High-rise development in the West Quadrant of the Central City helps to: achieve several public policy goals; allow our small Portland blocks to utilize their full potential; increase the use of flexible designs; increase accessibility to amenities; increase housing stock; relieve congestion in the city center and region; and provide a wider range of housing options for our increasingly diverse community. With thoughtful planning, all this can be achieved while enhancing the livability in the Central City. As the West Quadrant Plan process continues we look forward to continued dialogue with the community and Stakeholder Advisory Committee on this topic.

# Existing Height Limits





## Sources:

Boddy, Trevor. "'New Urbanism:' The Vancouver Model." *Places* 16.2 (2004).

Buys, Laurie, and Evonne Miller. "Residential satisfaction in inner urban higher-density Brisbane, Australia: role of dwelling design, neighbourhood and neighbours." *Journal of Environmental Planning and Management* 55.3 (2012): 319-338.

Chant, Tim De. "The Counterintuitive Case of Suicide and Population Density." Weblog post. Per Square Mile., 19 Apr. 2011.

Cox, Ted. "San Jose Ponders Relaxing Building Height Requirements." SanJose.Com. 7 Mar. 2012.

Mitchell, Robert Edward. "Some social implications of high density housing." *American Sociological Review* (1971): 18-29.

Newman, Oscar, and Karen A. Franck. "The effects of building size on personal crime and fear of crime." *Population and Environment* 5.4 (1982): 203-220.

Ozawa, Connie. *The Portland Edge: Challenges And Successes In Growing Communities*. Island, 2004.

Panczak, Radoslaw, et al. "High Life in the Sky? Mortality by Floor of Residence in Switzerland." *European Journal of Epidemiology*, Vol. 28 (2013): 453-462.

Wang, Lei, et al. "How are mortality rates affected by population density?." *arXiv:1306.5179* (2013).

Urban Land Institute. *10 Principles for Livable High Density Cities: Lessons from Singapore*. Singapore:, 2013.