Appendix K

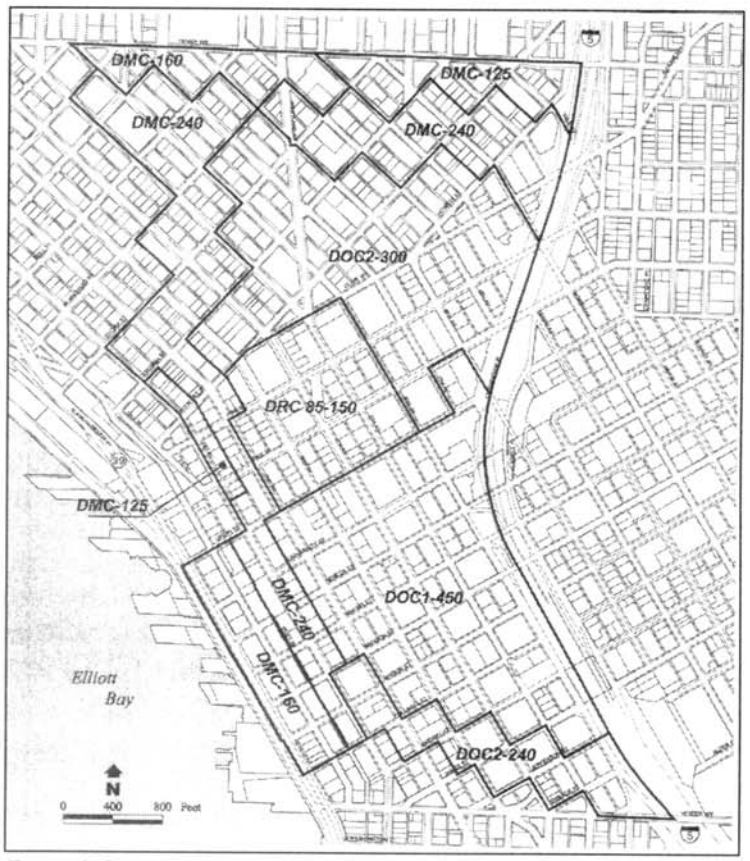
Seattle Urban Design Impact Analysis

Introduction

The purpose of this report is to describe Otak's input regarding potential urban design impacts of changes in Seattle Downtown Neighborhoods (Downtown) density and height regulations. The objectives of our work effort included:

- Reviewing and confirming policy assumptions for the alternatives included in the soon to be released Environmental Impact Statement (EIS).
- Creating graphics that provide a relative comparison of the EIS alternatives, including "birdseye view" perspectives, skyline viewpoints, and pedestrian-oriented views that depict potential urban relationships between existing and future development.
- Evaluating potential impacts of future development on the public environment, including relative impacts on: wind and shadows, pedestrian/street environment, open spaces, historic landmarks, and the overall Downtown urban form.

This report addresses the urban design impacts and potential mitigation strategies associated with changes in Downtown building height/density regulations that impact the quality and physical character of the Downtown environment. The areas being evaluated in this report are shown in Figure 1 and include portions of Downtown generally bounded by Denny Way, Interstate 5, Yesler Way, Alaskan Way, Lenora Street, and 5th Avenue. The areas most affected by potential changes to land use regulations are in the following zones: Downtown Office Core (DOC-1 and DOC-2), Downtown Mixed Commercial (DMC), and edges of the Belltown neighborhood zoned DMC 240 and DOC-2 300.



Downtown Districts

DOC-1	Office Core-1
DOC-2	Office Core-2
DRC	Retail Core
DMC	Mixed Commercial

Figure 1. Downtown Districts

EIS Alternatives

The four alternatives being evaluated as part of the environmental review process, are illustrated in Figure 2 and described below.

Alternative 1 – High End Height and Density Increase represents the higher-end of possible changes to height and density. It is intended to reflect general preference for development concepts that emerged during the development of the Denny Triangle and Commercial Core neighborhood plans and the Downtown Urban Center Planning Group (DUCPG) *Downtown Urban Center Plan*. Alternative 1 also includes recommendations made by the TDR/Bonus Program Review Advisory Committee to consider other changes (not from neighborhood plans) on the edges of the Commercial Core area and Belltown neighborhood. Alternative 1 proposes the greatest magnitude of changes in height and density studied in this EIS.

Alternative 2 – Concentrated Office Core is intended to focus height and density for office/commercial development in the central core area. Within the office core zones of the Commercial Core, the proposed changes in height and maximum density are the same as for Alternative 1. In the Denny Triangle, the maximum density floor area ratio (FAR) in the DOC-2 zone would increase by 3 FAR rather than 4 FAR as proposed in Alternative 1.

Alternative 3 – Residential Emphasis focuses on regulatory changes to encourage provision of housing in strategic areas surrounding the Downtown office core. This alternative supports increased height and densities in the office core zones, but with transitions in development intensity in the DOC-2 zones of Belltown and the Denny Triangle. In Downtown areas surrounding the office and retail core, maximum commercial densities would not increase, and would be reduced through rezoning to zone designations that promote residential development.

Alternative 4 – No Action assumes existing zoning and land use code regulations remain constant. The general development pattern of a concentrated Commercial Core surrounded by less intensive mixed-use areas promoted under existing zoning would continue. The maximum allowable densities and height limits would apply, with the existing Transfer of Development Rights (TDR) opportunities to gain additional height above these limits. These include: 10 percent additional height in DOC-1 and DOC-2 zones when design measures control the overall bulk of a project; 20 percent additional height in DOC-1 and some DOC-2 areas with bulk controls and open space provision, landmark preservation, or small-scale structures onsite; and up to 30 percent additional height for residential and mixed-use development through participation in the Transfer of Development Credit (TDC) program in the Denny Triangle.

Please refer to Appendix A, Table 1 for a comparison of existing and proposed zoning alternatives.

Work Completed

This report marks the culmination of a four-month urban design analysis by Otak and our subcontractors, Centrifugal Maps and Environmental Science Associates. Our work to date builds upon recent City of Seattle Strategic Planning Office (City) and consultant input and assumptions for the Downtown Urban Design EIS. The conceptual graphics, created by Otak, utilize the land use assumptions provided by the City for each EIS alternative. Several meetings were conductedwith City staff to provide Otak with the inputs and direction needed to complete our work.

Existing and future land use and development assumptions were provided by the City in an electronic Geographic Information System (GIS) format. Those assumptions, which varied for each of the four EIS alternatives, included information regarding zoning, building height and density assumptions, street locations, alley locations/vacations, existing parks/open spaces, building setbacks, view corridors, Green Streets, historic resources, and topography. Our work is intended to evaluate the urban design impacts associated with the redevelopment that is likely to occur under the specific alternatives.

Otak and City staff worked together to confirm key viewing locations for graphic representation. The viewing locations are intended to represent a variety of perspectives (e.g., birdseye view, skyline view, pedestrian/street-level view) and indicate relative impacts among the alternatives. Otak and the City agreed to a limited number of graphic images, which in some instances are intended to depict the extremes of the EIS alternatives rather than a separate depiction of each alternative.

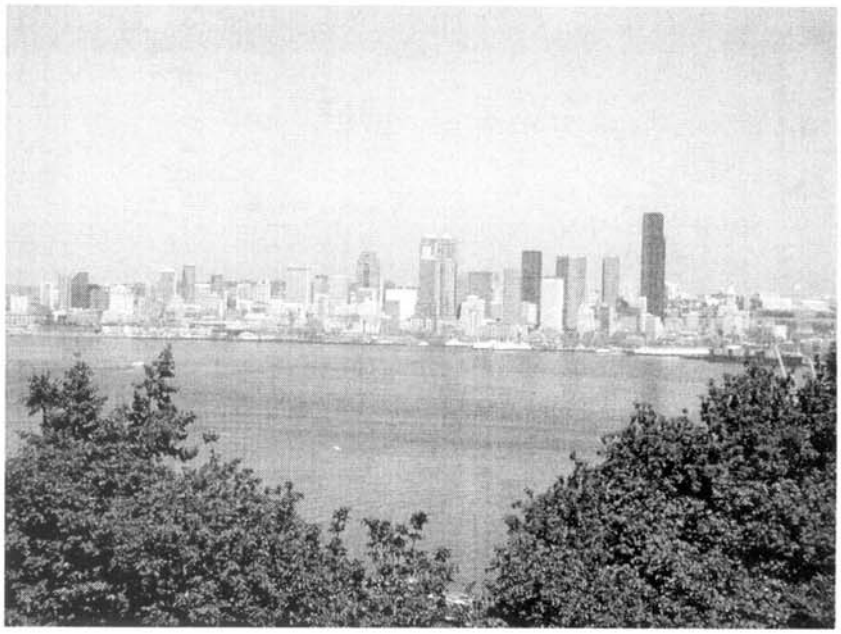
Urban Environment

Seattle's modern urban form reflects its unique, natural, environmental features as well as man-made infrastructure, land use regulations, and market forces. Located on a narrow, three-mile wide peninsula, the city is virtually surrounded by bodies of water—Elliott Bay, Lake Union, Lake Washington, and the Duwamish River. The sharp peaks of the Cascade and Olympic mountain ranges, east and west of the city, provide splendid panoramic contrasts to Seattle's urban environment.

Seattle evolved fairly rapidly over the past 150 years, since its founder Arthur Denny anchored off what is now West Seattle and dubbed their new home New York-Alki (Chinook for "New York By-and-By"). Within a century of Denny's prophetic declaration, the city's skyline had grown in size and density in a manner that triggered local height-restrictive building codes. Now home to more than 533,000 residents and 468,000 jobs, Seattle is the largest city in the Pacific Northwest. Downtown Seattle is planned to function as the urban hub of the expanding Puget Sound Region—with the *Comprehensive Plan* setting 20-year (1994-2014) growth targets of 14,700 additional households and 62,700 new jobs.

The shape of a city's skyline matters to its inhabitants. In the words of the late Spiro Kostof, the skyline "is the familiar, fond icon of the city-form, a vision to cherish and come home to; it is also their urban advertisement to the world, the front they present to visitors, and a disseminative shorthand for a broader audience still."[1]

Seattle's existing downtown urban skyline (shown in Figure 3) is bounded by civic structures, including the 600-foot-high Space Needle on the north and the newly developed Safeco Field and Seahawks football stadium on the south. Modern skyscrapers such as the 76-story Bank of America (Columbia) Center, U.S. Bank Center, Two Union Square, Washington Mutual Tower, Seafirst Fifth Avenue Plaza, Wells Fargo Building, and Key Tower rise from its well defined street grid. These buildings were constructed within the Downtown Office Core on full-block sites between 1980 and 1990, prior to the adoption of current height and density limitations.



[1] Spiro Kostof, *The City Shaped, Urban Patterns and Meanings Through History*, Bulfinch Press, 1991.

Figure 3. Existing Skyline

Defining Elements

As with the case of most large cities, the Downtown urban environment in Seattle now reflects a wide diversity of development technologies, building styles, heights, density patterns, and land use regulations. While those development factors have varied with time, one factor that has held constant over time is the urban street grid. The Downtown street grid with its rectangular block patterns continues to influence general building orientation, size, and massing. The origin of the street grid was dictated by the natural relationship of land and water. North-south avenues are generally the widest and flattest routes and run parallel to Elliot Bay. East-west streets are typically narrower and rise up steeply toward the Capitol Hill and First Hill neighborhoods. Most blocks were platted with service alleys running parallel to the avenues.

As Seattle developed and new streets were platted, the street grid shifted to follow the shoreline of Elliot Bay, creating diagonal blocks that cut across the network of streets. The uniformity of the street grid became interrupted by diagonal streets forming "folds" in the urban fabric. These folds create complex intersections, and triangular sites at the confluence of routes such as Yesler Way, Stewart Street/Olive Way, and Westlake Avenue. The pedestrian-related implications of the Downtown street grid are further discussed in the next section.

Other defining elements of the Downtown skyline include the low-density water-related uses along Elliott Bay and the freeway separations created by the Alaskan Way Viaduct and Interstate 5.

Birdseye View Perspectives

Urban areas evolve over time. What was once remote trading post later becomes a mill site, then a railroad hub, and eventually an international seaport. Seattle's industrial base expanded accordingly from basic agricultural, fishing, and forest-based industries to warehousing, imports/exports, aerospace, high-tech, healthcare, biotech, and tourism. Today, the Downtown urban fabric includes a tapestry of old and new building forms, with building heights that generally follow the topography of the land and context of the street grid system.

The following birdseye view perspectives (Figures 4,5,6 and 7) of future development massing in Downtown were created using a combination of aerial photography and three dimensional GIS. Potential future buildings are indicated in dark or color tones, using development assumptions derived from the *Height and Density Study Report* by Craig Kinzer & Company, The Seneca Real Estate Group, and Cushman & Wakefield, dated December 14, 2001. For purpose of this urban design analysis, the future development conditions are intended to illustrate the potential maximum building height and massing that can be constructed under the EIS alternatives. The redevelopment projects shown represent the amount of floor area ratio required to meet 20-years growth forecasts (2000-2020).

The four birdseye view perspectives denote little relative change between the rezoning alternatives (1, 2, and 3) and the existing conditions (Alternative 4). All of the EIS alternatives generally accommodate similar overall development massing, with the tallest future buildings concentrated in the Downtown Office Core (DOC-1 and DOC-2 300 zones) and transitional buildings located in DOG2 240 and DMC zones. All of the Alternatives support the visual stair-stepped gradation of buildings—with the lowest building heights along the Elliott Baywaterfront (1 to 6 stories), stepping up to mid-rise structures east of the Alaskan Way Viaduct and transition areas to the Downtown core (4 to 20 stories), culminating with a mix of historic and modern skyscrapers in the Downtown Office Core (20 to 76 stories).

The incremental increase in building heights allowable by relatively higher height and density regulations under Alternatives 1, 2, and 3 (assuming a change in building heights as much as 135 feet in the DOC-1 zone), are virtually unnoticeable from the birdseye view perspective in comparison to Alternative 4 (Existing Zoning). Existing Downtown landmarks such as the Space Needle, Smith Tower, and Safeco Field would likely continue to provide strong reference points within the Downtown skyline in all of the EIS alternatives being evaluated.

It is important to note that for all of the alternatives, the birdseye view perspectives reveal Downtown development issues regarding:

- The potential for relatively bulky building structures to be developed under all of the alternatives, and
- Downtown development density will expand northward over time with significant redevelopment occurring north of Pine Street in the DOG2 and DMC zones within the Denny Triangle and Belltown neighborhoods.

These issues are further evaluated in the following section.

Skyline Impacts

Most of us experience the Downtown skyline daily from various street-level perspectives. As part of Otak's evaluation of the EIS alternatives, three different skyline perspectives were created from popular viewing locations—including Belvedere Viewpoint (West Seattle), Kerry Park (Queen Anne), and Capitol Hill (across I-5).

View from Belvedere Viewpoint (West Seattle)

Figure 8 indicates existing and future development massing conditions as viewed across Elliott Bay from Belvedere Viewpoint. From this perspective, it is evident from analyzing the two alternatives that depict the extreme differences in potential changes to building height/density regulations (Alternative 1– High End Height and Density Increases and Alternative 4 – No Action) that there is little noticeable difference between the alternatives. None of the alternatives are expected to significantly interrupt the view of important landmarks and features such as the Space Needle, Smith Tower, and the Cascade Range.

View from Kerry Park

One of the most picturesque views of the Downtown skyline is from Kerry Park. As shown in Figure 9, this perspective is dominated by the Space Needle in the foreground, with Elliot Bay, the Cascade Range and Mt. Rainier in the background. Once again, none of the alternatives are expected to alter the foreground nor background elements of the skyline in a significant adverse manner. The graphic depiction of the Downtown skyline under Alternatives 1 and 4 shows little relative difference between the alternatives. In all of the alternatives, it is evident however, that the concentration of redevelopment within the Denny Triangle will significantly change the skyline within that area of the city compared to today.

View from Capitol Hill

This perspective of the Downtown skyline, as viewed from Capitol Hill (near the confluence of Melrose Avenue and John Street), depicts the amount of redevelopment anticipated to occur in the Denny Triangle. As shown in Figure 10, none of the alternatives are expected to impact views of background features such as Elliott Bay or the Space Needle. However, there is a significant amount of new development in the foreground. Wide streets such as Blanchard, Lenora, and Bell provide some potential opportunities for building spacing and corridor views toward Elliott Bay. However, it is evident that the Downtown skyline perspective from Capitol Hill towards the Commercial Core would be dominated by the mass, density, and height of new development within the Denny Triangle under all of the alternatives.

It is evident from the skyline impact analysis, that all of the EIS Alternatives could result in relatively similar impacts on the downtown skyline. While the existing stair-stepped pattern of graduated building heights would continue, the vast concentration of redevelopment in the Denny Triangle could result in a uniform wall or mesa of building structures that impede views of downtown from the north and northeast. Given the potential for development of large and bulk structures with uniform building heights, there will likely be adverse urban design impacts under any of the EIS Alternatives with the Denny Triangle and Denny Regrade areas.

Potential mitigation of these adverse impacts requires land use and building design measures that support greater variation in building heights and encourage proper upper-level setbacks, tower spacing and pedestrian oriented design of groundlevel uses and open spaces. Such mitigation measures, if applied consistently, overtime could result in an improved building skyline, as envisioned by the illustration below in Figure 11.

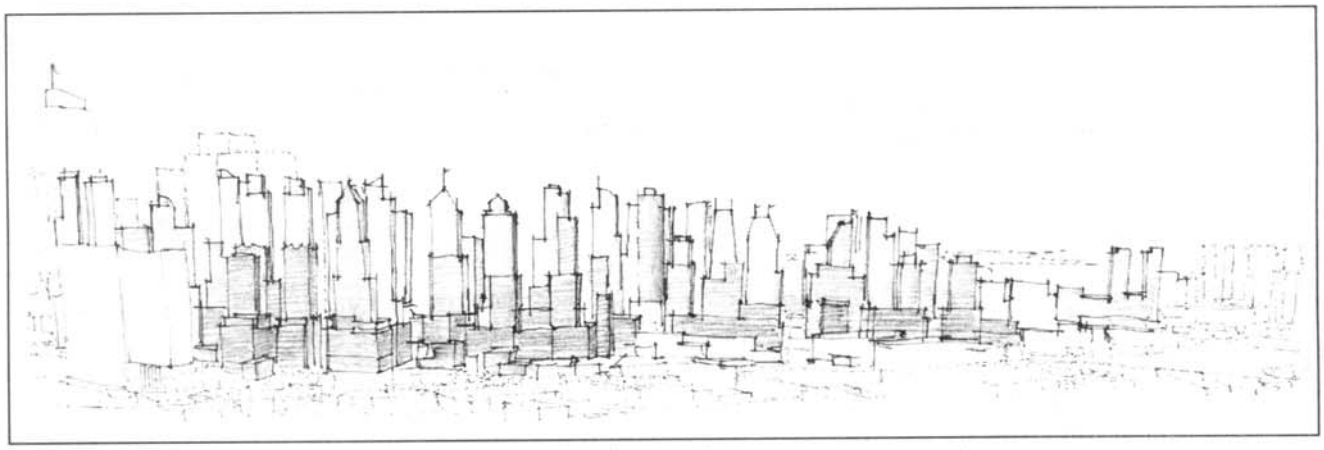


Figure 11. Potential future skyline view from Capital Hill (with proper design mitigation measures)

Aesthetic Impacts on Landmarks

Seattle's historic landmarks provide a sense of history and tradition that should be honored and preserved. This section addresses potential urban design impacts of new development on the context of selected historic landmarks.

None of the alternatives are anticipated to have a significant variation in their relative urban design impacts on landmark buildings. The use of TDRs for preservation of landmark buildings should help to equalize the impacts among the alternatives. The addition of new buildings in the context of historic structures creates potential urban design impacts, especially when new development contrasts drastically with the scale, height, facade, materials, and orientation of historic buildings.

To illustrate the relative impacts of new development in context with historic structures, Otak and the City selected three historic landmark buildings in locations that are expected to redevelop overtime. The selected locations include development nearby or adjacent to the Pacific Hotel and RainierClub in the Commercial Core area (DOC-1), the Terminal Sales Building in the Belltown area (DMC), and the historic Camlin Hotel and Paramount Theatre in the Denny Triangle (DOG2).

The photos and conceptual renderings of each of these areas are intendedto illustrate existing conditions and future development massing, in context with the historic landmark. In all renderings, future development is shown in white building facades to provide a visual contrast with existing development, and to focus the intepretation on relative changes in building heights, not building/site design.

Pacific Hotel Visual Impacts (DOC-1 Zone)

Looking south down 4th Avenue at Marion Street, the existing urban environment in the Commercial Core is already comprised of interesting contrasts between old and new. The low density Pacific Hotel and the Rainier Club (a view-protected landmark) provide an enclave of pedestrian-oriented building scale among the surrounding skyscrapers, such as the Bank of America Center. The historic low-density structures with the generous setback of the Rainier Club provide a feeling of airiness and welcome sunlight into the Commercial Core.

The future condition renderings, shown in Figure 12, depict new development on the half-block site fronting 4th Avenue between Columbia and Cherry streets. The assumptions for future development are intended to reflect the extreme variations in potential building heights and massing. The Alternative 1 computer rendering illustrates the high-end height and density increases and assumes development of a 22-floor office/commercial building with approximately 485,530 square feet on the 28,560 square-foot site. Alternatives 2 and 3 would also result in similar commercial development density and height for this site. The Alternative 4 rendering assumes a slightly smaller commercial structure with 399,840 square feet building in an 18-story structure.

The one-quarter block separation between the Pacific Hotel and the future commercial building shown in the background (between Columbia and Cherry streets) provides

spacing to help mitigate the urban design impact of the new structure on surrounding historic landmarks. The building height and density massing for the 22story structure supported by Alternatives 1, 2, and 3 (compared to the 18-story structure supported by Alternative 4) has similar urban design impacts on the surrounding landmarks. Hence, we do not expect the higher allowable building density/height supported in Alternatives 1, 2, and 3 to have a negative urban design impact with regards to bulk and massing in the DOC-1 zone district.

Camlin Hotel Visual Impacts (DOC-2 Zone)

The Camlin Hotel and nearby Paramont Theatre building are two historic landmark structures located in the DOC-2 zone of the Denny Triangle (view-protected landmark). The existing conditions photo and future conditions renderings are provided in the following illustrations. The future conditions renderings, shown in Figure 13, are intended to reflect the extreme urban design variations between Alternatives 1 and4. The visual impact of Alternatives 2 and 3 are likely to be in between these extreme variations.

As previously mentioned, the Denny Triangle area is expected to receive the majority of new development in Downtown over the next 20 years. Redevelopment opportunities were identified for several sites surrounding the Camlin Hotel. The assumptions for this area include office/hotel, commercial, housing, and mixed-use development on parcels surrounding the Camlin, as well as the one-quarter block parcel on the corner of Olive Way and 8th Avenue. At least six new building structures are anticipated in this area. Both renderings for Alternative 1 and 2 assume construction of a residential tower located to the north of the Camlin along OliveWay, and construction of a commercial structure adjacent to the Camlin along Pine Street. Other commercial and mixed-use structures surrounding the Camlin are assumed to vary in height by approximately 10 to 15 stories.

Given the close proximity of these new building structures to the Camlin, there is the potential for all of the alternatives to have similar urban design impacts. The urban design impacts that could occur in this area relate less to building height and density than to the relationship of building facades, orientation, and setbacks relative to the Camlin. In other words, all of the alternatives are likely to result in similar urban design impact, which are best mitigated through adequate and responsible site/building design treatments. Figure 14 depicts an example of future development that attempts to relate the new structure with the historic building lines of the Camlin Hotel.

Figure 14. Camlin Hotel and potential adjacent development

Terminal Sales Building Visual Impacts (DMC Zone)

Figure 15 depicts future development in the DMC zone district of Belltown with the Terminal Sales building in the right foreground of photo/rendering. The existing conditions photograph depicts the view up Virginia Street from 1st Avenue. The north Westin Hotel tower is shown in the background.

The future conditions renderings are intended to illustrate the relative extreme variations in building height/densities allowed by the EIS alternatives. As indicated in the renderings labeled as Alternative 1 and 2, future development conditions depict new development on the present site of the Terminal Sales Annex building (located behind the Terminal Sales building). Also shown is a future residential tower with ground-floor retail in the DOC-2 zone on a four-lot site at Virginia and 4th Avenue. The second phase of Pacific Plaza is illustrated on the north side of Virginia Avenue.

The amount of development on the one-quarter block (19,440 square feet) behind the Terminal Sales building is assumed to vary from 24 stories in Alternatives 2, 3, and 4 to 31 stories in Alternative 1. On the north side of Virginia, given the relatively small site size (12,960 square feet), the amount of development assumed to occur ranges from: approximately 220 dwellings in 31 stories in Alternative 1, 169 dwellings in 24 stories in Alternative 2 and 4, and 84 units in 12 stories in Alternative 3.

With the exception of future development blocking views of the Weston Hotel, there is relatively little difference between the EIS Alternatives in regards to their impacts upon the Terminal Sales building. Figure 16 illustrates possible urban design treatments that attempt to relate new development with the Terminal Sales building by providing ground-level commercial and upper-level setbacks that are consistent with ground-level uses of the Terminal Sales building.

Figure 16. Terminal Sales Building and adjacent development (view up Virginia Avenue)

Impact on the Pedestrian Environment

Over the next 20 years, the greatest change in Downtown development will be concentrated in the transition areas of the Denny Triangle and Belltown. As former/existing surface parking lots, low-rise structures, and functionally obsolete buildings are replaced with high-rise commercial, housing, and mixed-use projects, the urban environment will change, and population density will increase. This section discusses potential impacts of the EIS alternatives on the pedestrian environment, with specific focus on wind and shadows, open space, and pedestrian access.

Wind and Shadows

Tall buildings and structures can strongly influence the wind and shadow patterns. In urban areas, groups of tall structures can slow down winds near ground level, because of the friction and drag of the structures themselves. Buildings that are much taller than surrounding structures intercept and redirect winds that might otherwise flow overhead. The redirected wind, traveling down the face of tall structures, is called "downwash." Downwash wind conditions can generate ground-level turbulence, which is incompatible with a safe and secure pedestrian environment.

Generally, the taller the buildings are relative to surrounding structures, the stronger the downwash conditions. These intercepted winds can be especially strong if the upwind buildings are much shorter than the taller buildings, and can be diminished when the height of upwind buildings is similar to the height of the subject building. If the building provides a wide face to the wind, more air will flow down the face of the building toward the ground level. In summary, both height and bulk can affect wind conditions at the street level.

Potential wind impacts on the pedestrian environment can be controlled by building design features that redirect wind away from pedestrian areas. Typically, it is sufficient to provide substantial horizontal structures near the base of tall buildings and upper level setbacks to help intercept and redirect the downwash. This design strategy is usually effective at mitigating wind impacts for both taller towers as well as lower, bulkier buildings.

All of the alternatives are expected to result in relatively similar cumulative wind impacts on the pedestrian environment, which can be mitigated fairly equally using appropriate architectural design features such as upper level setbacks. Within the DOC-1 office core area, Alternative 4 (with its lower building heights/densities) would likely generate somewhat lower wind impacts than Alternatives 1, 2, and 3. Due to somewhat less height and bulk of future buildings in the Denny Triangle and peripheral areas, potential wind effects created by Alternatives 3 and 4 would be less than Alternatives 1 and 2. Appendix B includes a more detailed discussion of potential wind and shadow impacts of the EIS alternatives.

Sunlight is a rare yet highly appreciated weather feature of Seattle. Sun exposure and shading affects pedestrian comfort in Downtown. On a clear day, pedestrians expect to encounter both shade and sunshine on sidewalks and open spaces, and may or may not adjust their routes to favor one or another, according to temperature. Shade usually does not result in safety issues, except for rare icy conditions in the winter.

The City's existing Statewide Environmental Policy Act (SEPA) regulations already protect against shadowing effects of new development on specific public open spaces and parks in Downtown, including Freeway Park, Westlake Park, Steinbrueck Park, Convention Center Park, and Kobe Terrace/I.D. Community Garden. Only two of these open spaces (Freeway Park and Convention Center Park) are within the study area, located on the far eastern edge of the office core. No significant shadow impact on these parks is expected to result from any of the EIS alternatives since there are limited development opportunities identified near them, and the impact of existing tall buildings will likely be greater than the impact from new development.

Shadows cast by new development not only impact public open space and street environments, but also affect overall livability and the work environment. Studies have shown that work spaces with access to natural light can contribute to increased productivity of employees, increased retail sales, and reduced use of overhead lighting, which conserves energy. Bulky buildings, which cast shadows on adjacent areas, tend to have a greater impact on the production of shading then taller more slender high-rise structures.

The EIS alternatives are expected to result in similar wind and shadow impacts in the Downtown office core, but potentially different shade impacts in the Denny Triangle. In Alternative 3, residential emphasis may produce more favorable wind and shadow impacts in the Denny Triangle, relative to the other alternatives. However, Alternative 3, like the other alternatives, could also result in construction of bulky buildings that have some negative impacts. The City's existing development ordinances, design guidelines, and design review process can result in architectural design that mitigates or avoids wind and shadow impacts for all alternatives.

Open Space, Alleys and Streetscapes

The ability for the City to designate and improve future public open spaces and Green Streets, particularly within the Denny Triangle, can establish a foundation on which the urban fabric can be recreated. Opportunities to link existing parks such as Denny Park with new public open spaces and plazas should coincide with the Downtown street grid and "folds" in the urban fabric. Strategic small, triangular or irregular sites, such as the area at the confluence of Olive Way and Howell Street and the area bounded by Olive Way, Stewart Street, and 8th Avenue can become important "pocket parks" with gateway design features that help serve and define the emerging Denny Triangle area.

The slightly larger block grid patterns within the Denny Triangle are important considerations when defining pedestrian-oriented linkage connections. New Green Street design treatments can enhance designated Green Streets such as Terry and 9th avenues. Extension of Green Streets to strategic park, transit, and commercial center locations can define and enhance critical pedestrian linkages as the area redevelops.

Alleys also play an important role in the urban environment. Alleys help remove service traffic and parking accesses away from major vehicular and pedestrian routes, which enhances the streetscape and pedestrian environment. Alleys, such as Post Alley

shown in Figure 17, can function as alternative routes for pedestrians or emergency routes in the event of public emergencies. The block separations created by alleys help mitigate the potential effects of large "superblock" developments and reduce the potential for very large bulky structures. The taller, more slender structures constructed around alleys may help mitigate wind and shadow impacts on the pedestrian environment. Alley vacations should only be considered if new development can compensate for the loss of the advantages afforded by alleys—with provision of pedestrian promenades, service entrances, taller slender structures, public open spaces, and wind/shadow mitigation.

Figure 17. Alleys, such as Post Alley (above), provide important pedestrian and service access.

Downtown Office Core and Transition Areas

Within the DOC-1 and DOC-2 zones (Downtown Office Core and office expansion areas in Denny Triangle and South Commercial Core), the additional allowable building height and density proposed with Alternatives 1, 2, and 3 appear to have no adverse aesthetic urban design impacts, relative to the No Action alternative (Alternative 4). While the net change in building height and density is relatively limited, the additional building height and density supported by Alternatives 1, 2, and 3, may result in greater variation in building heights and massing than would occur with Alternative 4. This could be interpreted as a potential improvement over Alternative 4 in the Downtown core area and Denny Triangle transition area.

In light of the City's existing development regulations, Alternatives 1, 2, and 3 could provide for the greatest visual diversity in building height for the skyline in the Downtown core area and transition areas (DOC-1 and DOC-2 zones).[2] However, it is important to note that under all of the alternatives, there would likely be significant changes in building bulk and density levels, particularly in the DOC2 and DMC zones that can impact the street/pedestrian level urban environment. These issues and potential mitigation measures are further discussed below.

Denny Triangle and Belltown

It is apparent that the most significant change in urban design conditions over the next 20 years will occur in the Denny Triangle and Belltown areas. In these areas, the street blocks are typically longer (360 feet) than in the Commercial Core area (240 feet) and the street width in some areas is slightly narrower. The larger blocks, narrower streets, and lack of major physical or man made separation between lower density development patterns in the South Lake Union area, could lead to a dense urban environment that forms a "wall" between Downtown and adjacent areas such as South Lake Union and Pike Place. The potential to maximize building density and height would exacerbate this urban condition, and lead to taller and bulkier, uniform buildings that would allow less sunlight and building variation than exists today.

Alternative 3, Residential Emphasis, is similar to Alternatives 1 and 2 in the DOC1 zone, but could result in relative improvements in urban design conditions within the DOC-2 and DMR/C zones of the Denny Triangle. Relative to the other alternatives, Alternative 3 would likely result in greater variation in building height within the Denny Triangle and portions of Belltown because the height limits would step down from 400 feet to 300 feet along the eastern and western edges of the zone. Given lower allowable commercial densities, new projects in areas designated as DMR/C would likely result in either bulkier mid-rise commercial buildings (such as the Touchstone project under construction at 2301 5th Avenue in Belltown) or taller more slender buildings with greater amounts of potential daylight between structures.

[2] The maximum height in the DOC-1 zone is 585 feet for Alternatives 1,2 and 3, compared to 540 feet in Alternative 4. In DOC-2, the maximum allowable height is 390 to 520 feet under Alternatives 1,2 and 3, compared to 360 feet under Alternative 4.

One of the main urban design advantages of Alternative 3 is that it is assumed to include standards to address building bulk in the DMR/C zone that are not included in the other EIS alternatives. This is expected to result in more slender highrise towers and more tower separations which would provide a better transition of development scale on the edges of abutting neighborhoods. Structures in the DMR/C zone are allowed to cover 100 percent of the site area below the height of 65 feet. Above 65 feet, the total building coverage is limited to 65 percent of the site until a height of 85 feet. From 86 feet to 125 feet, site coverage drops to 55 feet; and from 126 to 240 feet, site coverage drops again to 45 percent. Also, there is a minimum site size of 8,000 square feet for structures that exceed 125 feet in building height.

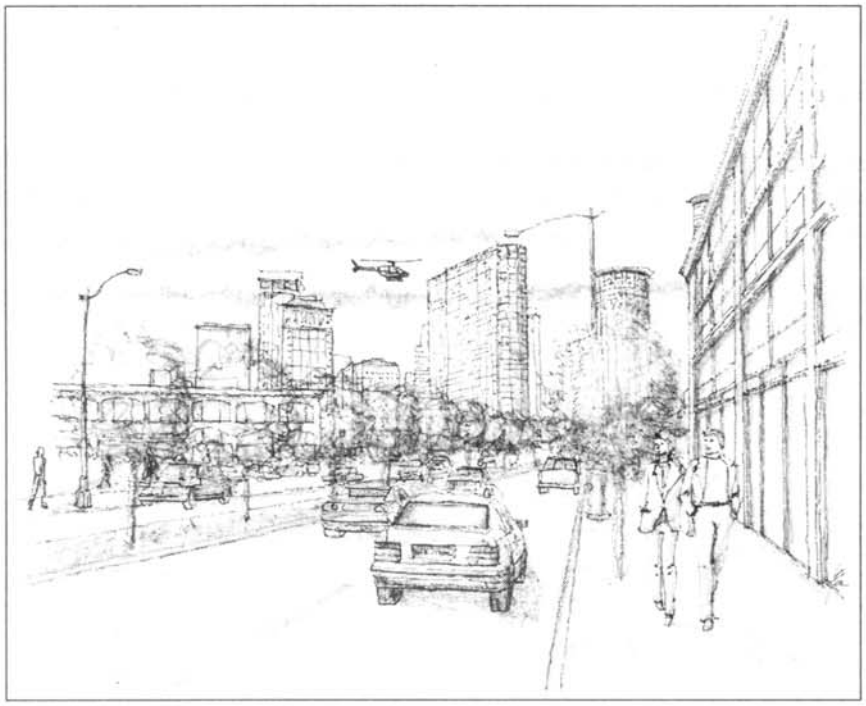


Figure 18. Denny Triangle Subarea – Future view down Westlake

As the Denny Triangle redevelops, thousands of new Downtown residents and employees will be added to an area that encompasses 39 city blocks or approximately 145 acres (including streets). Residential population density in this area would likely increase to nearly 80 people per acre by year 2020. Daytime employment livability within the emerging live/work environment in the Denny Triangle area can be optimized if the following factors are integrated into the pedestrian environment:

- Encourage uses at ground floor levels that provide services to residents and visitors during the day and night.
- Provide adequate lighting and landscaping that makes residents, employees and visitors feel safe and secure.

- Create diverse market-rate and affordable housing opportunities.
- Provide welcoming public open spaces and streets where residents need them. New green streets, parks and open spaces should be created or enhanced with attention toward passive and active recreational settings, and preservation of sunlit areas. Streets such as Westlake (see Figure 18) must become welcoming to pedestrians as well as vehicles. Sunlit locations will increase in importance overtime as more people move into the area, and new development reduces existing levels of sunlight and open space.
- Pedestrian and bicycle pathways and routes are convenient, safe, and well maintained.
- Transit facilities and service levels are convenient for pedestrians.
- Architectural treatment of buildings, urban design of sites, public art displays, plazas, and parks are integrated—yet provide an interesting and unique urban experience.

These and other urban design mitigation recommendations are further discussed in the next section.

Mitigation Measures

This urban design analysis indicates that the future development that is supported by any of the alternatives would not significantly adversely impact the Downtown office skyline (heights) within the office core, but would have a substantial impact on urban conditions within the Denny Triangle and the Denny Regrade areas. Given the relative similarity between the EIS alternatives, and the potential for any of the EIS Alternatives to result in relatively bulky, more uniform building structures, especially in the Denny Triangle and Denny Regrade areas, new land use and buildingdesign mitigation measures should be considered regardless of the chosen EIS Alternative.

From a long-term urban design perspective, there may be an advantage associated with the alternative(s) that provides the greatest potential variation/mix of development, reinforces the "stair-stepped cone" of downtown development patterns, and enhances the pedestrian environment. This may stem from the combination of proposed regulatory changes supported by Alternative 1 for the DOG1 and DOC-2 zones, and the upper-level setback requirements included in Alternative 3 for the DMC and DMR zones. It should be noted that all of the EIS Alternatives could have more beneficial urban design impacts, in the DMC and DMR zones, if they included better guidance on upper level setbacks and tower spacing.

While all of the alternatives could result in construction of bulky buildings that impact the urban feel of Downtown from a pedestrian perspective, the massing and density of future buildings may be mitigated to some extent bythe City's existing *Design Review Guidelines for Downtown Development*, which helps control site development through considering design treatment of:

- roof height
- structure width/depth
- setback requirements
- street-level use standards
- facade articulations, materials, and scale variations
- upper-level development standards
- site coverage and floor size requirements
- wall/facade dimensions
- parking design, location, and access
- open space/plazas
- landscaping

In addition to these guidelines, the design review processtakes into account potential impacts on the surrounding physical environment, including the street grid; patterns of urban form and massing compositions; alley vacations; access to direct sunlight; views from specific structures or natural features (i.e.,the Space Needle, Smith Tower, Puget Sound, Mount Rainier, and the Olympic Mountains); views of the site from other parts of the city; and proximity to regional transportation and transit facilities.

While Seattle's existing design review guidelines provide an opportunity to improve upon building and site design as projects move from concept to reality, they are considered to be somewhat flexible and cannot always result in the construction of optimal development projects. This is due to several reasonsincluding:

- Guidelines are not as stringent as design standards;
- Design recommendations may be misinterpreted by the developer/architect;
- Cost and timing issues may lead to substantial refinements to design details after the design-review process occurs.

Application of more specific design standards, through land use code regulations that address details such as requirements for building setbacks (ground and upper-levels), ground-level uses, facade articulation, building density, height, streetscape treatment, and parking is needed to foster an urban environment that is consistent with city livability and development objectives.

Figure 19 helps illustrate the importance of design details, including building setback, pedestrian orientation, and facade treatment. The image attempts to illustrate the relative advantage of design that honors existing landmarks—within matching setbacks, wider sidewalks, enhanced streetscape/landscaping, and a more sensitive building façade treatment.

Figure 19. Camlin Hotel and potential adjacent development

In all of the alternatives (with the exception of Alternative 3 in the DMR/C zone), there is relatively little restriction on high-rise residential development when size of the building floor area is less than 15,000 square feet.[3] As mentioned previously, the typical quarter-block development in these zones ranges from approximately 14,400 to 19,440 square feet. Hence, a 15,000 square-foot floor plate above the base structure is likely for housing developments.

Figure 20 illustrates two massing alternatives of providing the same amount of building floor-area onto a one-half block site. The image on the right depicts the likely result

[3] On larger lots, coverage limits above ground are generally limited to about 78% of lot size.

from existing regulations that control height limits more that building densities. The left image depicts higher building heights with more attention towards tower separation.

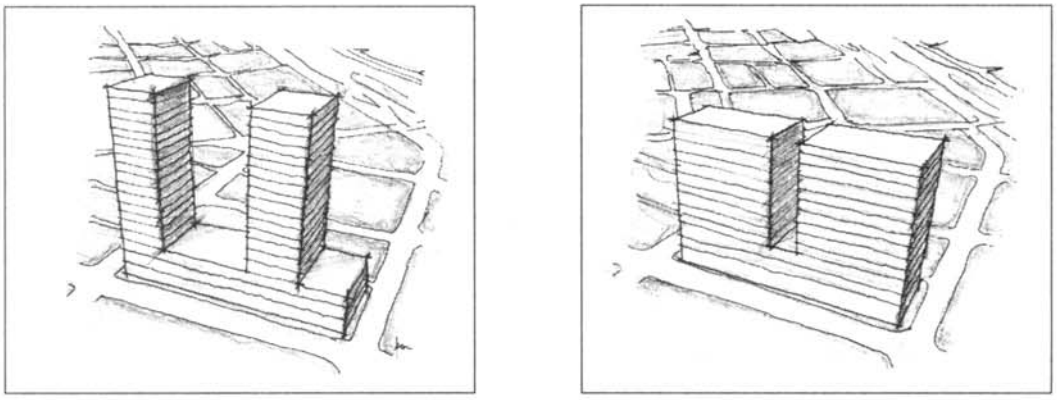


Figure 20. Density Alternatives – Two concepts for attaining equivalent amounts of development floor area.

While fairly loose development incentives couldfoster Downtown housing development, such incentives can result in relatively bulky structures with minimal spacing between building floor plates. As such, the City may consider additional design measures that result in buildings that are more consistent with local sunlight, wind mitigation, and open space objectives. Changes in design regulations should be crafted in a manner that does not result in adverse market/financial impacts on a developer's ability to provide housing and mixed-use development.

Recommendations

Seattle is a city of neighborhoods in an extraordinary urban environment that contributes to our sense of place. Future development in the Denny Regrade and Denny Triangle as illustrated in this report represent significant changes in these neighborhoods in terms of architectural scale and character.

This urban design analysis indicates that future development supported by any of the alternatives would not significantly alter the downtown office skyline within the office core, but would have a substantial impact on the urban conditions within the Denny Triangle and the Denny Regrade neighborhoods. All of the EIS alternatives could result in the construction of bulky massive buildings that would impact the urban feel of downtown and create a wall or mesa of buildings of similar height and scale.

Future development projects will most likely be designed by different architects, each with their own styles and approaches to design. While this is true of the existing buildings that shape downtown, the majority of buildings tend to have similar texture and color when viewed from a distance. Creativity should be encouraged to explore design ideas that will discourage similarity in the overall form of the city and enhance the variety of the character of the skyline.

Design is not just about architectural styles, it's about scale, proportion and arrangement of building components to enhance and define the character of the city. The following mitigation measures are suggestions to help define a new neighborhood character in the Denny Triangle. The ability of the City and its architects to follow these guidelines will help result in a much more livable and appealing urban environment than would occur otherwise, irregardless of the chosen EIS alternative.

Reinforce the overall shape of the skyline
Tower articulation and spacing between adjacent developments will help to articulate the skyline shape. Large bulky blocks should be discouraged in bigger block development by creating smaller towers with openspaces between the towers. Encourage slender towers with open space between buildings to provide light, air and view potential through blocks. Vary the heights of buildings to create interest along the tops of buildings.

Rooftop shapes and heights
Articulation of upper level floors and rooftop penthouses will create a variety in building shapes. Create rooftop features that are distinctive with penthouse structures with interesting shapes.

Building setbacks
Building setbacks should be encouraged to sculpt and shape the building massing based upon aesthetics and proportions. Setbacks should make sense in terms of the building's form and proportions, not zoning requirements. Upper-level setbacks help relate new development to the scale of adjacent smaller buildings and historic landmark structures.

Open spaces, alleys and streetscapes
Providing open spaces, maintaining alleys and creating pedestrian friendly streetscapes support an active street life and encourages smaller massing of the buildings above Successful public open spaces are places where people want to be in an urban outdoor setting. When integrated well into a city, successful public open spaces strengthen economic development, civic activity, social interaction and a citizen's sense of pride.

Open spaces should be encouraged at ground level to provide relief along the street front for pedestrians. Open spaces should be located in such a way as to compliment adjacent historic or landmark buildings. Open spaces give breathing room for new development at the street level and at the skyline level above.

Alleys divide blocks into smaller sizes and increase the building frontages. If alley vacations are allowed then the development should be encouraged to respect the alley on the upper levels by breaking the massing into smaller buildings providing open spaces above that encourage light and air.

Pedestrian friendly streetscapes should be considered as places not just travel routes. Streets become places through creative designs that meet basic functional and operational needs while providing a greater sense of place that can be achieved by relating the streets to developments. Providing wider sidewalks, landscaping, public art and street furniture add to the character of the development. The integration of public art with urban streetscapes, as shown along University Street in Figure 21, would help to personalize our neighborhoods. It would allow the neighborhoods to project their unique image through art that has been created specifically for the built environment.

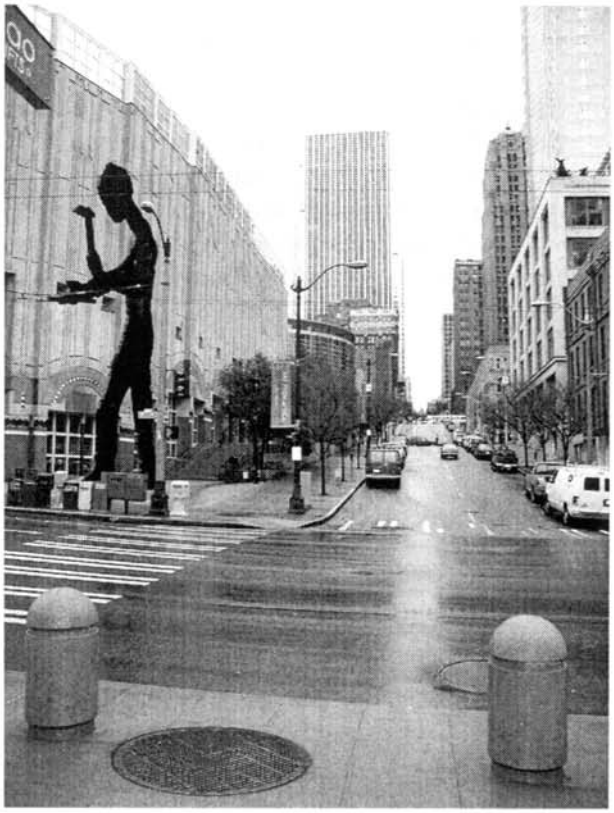


Figure 21. Green Street improvements along University St.

Residential and commercial development

Encourage uses at ground floor levels that provide services to residents and office workers day and night. Studies have also shown that urban housing with porches, entrances and windows near the street help foster a safer, more secure environment by placing "eyes on the street".

Residential high-rise towers should be more slender and varied in exterior articulation. Buildings should be designed with finer grained exterior elements such as windows and balconies to distinguish the buildings from commercial towers by creating shadow lines and texture on the facades.

Commercial buildings require larger floor plates thus increasing the overall mass and bulk of the building. In some cases, due to economic constraints, commercial buildings require less articulation of the facade materials and architectural elements. Using building materials that contrast with adjacent developments will help to minimize the overall massing of new development.

Building articulation scale and architectural character

Layering of architectural materials such as glass, steel concrete and stone on the facades of buildings can help to break up bulky massing and help to emphasize set backs and building features, making them distinctive from surrounding development.

Adjacent existing buildings and historic structures
New development should respect existing adjacent building by articulating heights and facades with setbacks, facade treatment, scale and proportions of building elements, change in materials and entrance locations. New development should relate in scale to existing building's cornice lines, street-wall heights and facades with scale elements, material textures and color to help preserve the pedestrian scale of the street.

All of the EIS zoning alternatives can result in urban conditions that either enhance or detract from the urban environment. Hence, it is of paramount importance for the City of Seattle and future developers to supplement design review procedures with appropriate design standards that result in development projects that are market supportable, aesthetically appealing and consistent with a healthy urban environment for residents, employees and visitors.