Appendix F

Height and Density Study Report

APPENDIX F

LAND USE:
HEIGHT & DENSITY STUDY REPORT

THE DISTRIBUTION AND PROBABLE MIX OF EMPLOYMENT AND HOUSING GROWTH WITHIN DOWNTOWN, AS AFFECTED BY PROPOSED ZONING ALTERNATIVES

[#2]

HEIGHT & DENSITY STUDY
REPORT # 2

December 14, 2001

Report Prepared for
City of Seattle
Strategic Planning Office

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THE DISTRIBUTION AND PROBABLE MIX OF EMPLOYMENT AND HOUSING GROWTH WITHIN DOWNTOWN, AS AFFECTED BY PROPOSED ZONING ALTERNATIVES

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Executive Summary

The City of Seattle is in the process of conducting an environmental review for proposed height and density increases in Downtown Seattle. One component of the environmental review is a study that identifies the economic and real estate impacts associated with the City allowing developers to construct new projects with three to four additional maximum FAR and additional height in the Downtown Office Core 1 (DOC-1), Downtown Office Core 2 (DOC-2), and Downtown Mixed Commercial (DMC) zones .

The environmental review examines four alternatives proposed by the City of Seattle covering a range of possible actions specifically within the study area, primarily the Denny Triangle and Downtown Commercial Core Urban Center Villages. The geographic boundary of the study area is generally described as Denny Way to the north, I-5 to the east, Yesler Way to the south, and a zigzag pattern to the west starting at the corner of Alaskan Way and Yesler Way (the southwest corner of the study area) and ending at the corner of 6th Avenue and Denny Way (the northwest corner of the study area). A "No Action" alternative (Alternative 4), is included to assess what is likely to occur if no changes are made to the current Land Use Code. The other three alternatives (Alternatives 1, 2 and 3) include changes in allowable maximum height and density of buildings (measured by floor area) in the DOC-1, DOC-2 and most DMC zones. Because Alternative 4 provides the "No Action" baseline for the study, it is discussed first throughout this report.

As part of the environmental review, our team was retained to create a model that demonstrates Downtown's potential commercial development capacity, commercial development distribution, and possible housing growth under each of the four zoning alternatives. The results of the analysis, together with a brief overview of the market, and outline of the alternatives, and a discussion of impact analysis itself (methodology, assumptions, etc), are presented herein. Our analysis does not consider the types of housing that might be developed within the study area such as how many condominium units, apartment units, and affordable housing units would be built, where these types of housing might be developed or the distribution of affordable units among very low, low and moderate income households. It is our understanding that the information presented here will be referenced in the Land Use section of the environmental impact statement (EIS), and that it will provide background for key assumptions incorporated into the Urban Design, Energy, and Transportation segments of the EIS.

The assumptions utilized in the Capacity Analysis are summarized below and discussed in greater detail in the Impact Analysis section of the report. These assumptions were generated based on historical averages and may not reflect recent trends or figures.

Category	Assumption
Average Job Growth	3,550 employees per year
Average Office Square Feet/Employee	250 square feet per employee
Average Office Absorption	887,500 square feet per year

Average Square Feet/Residential Unit	850 square feet per residential unit
Average Residential Absorption	320 residential units per year
Building Site Coverage	60%
Average Office Floor Height	13-feet
Average Residential Floor Height	10-feet
Land Value - Allowable Office	$30.00 per allowable office square feet
Land Value - Allowable Residential	$2,500.00 per allowable residential unit
Maximum Capacity	Office to maximum FAR, plus residential to maximum ht limit (some exceptions apply)
Transfer of Development Credits	Not factored into model

Pertinent results of our analysis are as follows:

Key Findings

- Based on historical absorption, there appears to be enough capacity for commercial space and housing units in the DOC-1, DOC-2 and DMC zones beyond the 20-year development timeline for the environmental review, without any changes to the existing zoning regulations. In fact, depending on the alternative, there is approximately 35 years of capacity for residential and commercial development.

- Supply has historically followed demand. Changes to zoning, in and of themselves, do not change the supply and demand cycles. In other words, increasing commercial densities does not necessarily lead to more development occurring in Downtown. However, changes to zoning will influence where development occurs and the size and density of the buildings developed.

- Increasing the maximum density, and therefore the difference between the base FAR and maximum FAR, would increase the use of the Downtown bonus and TDR programs on each site that is developed to its maximum permitted FAR and consequently provide more money for affordable housing.

- Increasing the permitted FAR will increase land values and provide existing landowners of redevelopable sites with an increase in the value of their property, which in turn will result in more tax revenue for the City as all sites are built to their maximum capacity.

- Increases in land value tend to promote more intensive development of sites when demand is present. This may encourage more mixed use projects on sites large enough to accommodate commercial and residential uses in separate towers, depending on the relationship between the size of the maximum potential building envelope and the building envelope required to accommodate the permitted commercial floor area.

- Increasing density better utilizes City infrastructure, including transportation and utilities.

- Permitting higher density development will result in higher land prices, which could increase the cost of acquiring land for affordable housing development downtown. However, one of the most effective ways to increase opportunities for affordable housing development is through subsidies generated by commercial development through housing bonuses and TDRs, which would increase with higher density commercial development as noted above. Other options to promote the development of affordable housing such as expanding the receiving area and providing incentives to develop on-site affordable housing should be explored.

- Incentives, subsidies and changing zoning policy are all ways to encourage housing in Downtown Seattle.

Results of Four Alternatives

- Summary Table - Potential Future Capacity

Alt. #	Total Commercia l SF	# of Res. Units	# of Res. Units Per 1 Million Com.SF	# of Workers	Workers Per Res. Unit	Potential Tax Revenue
Alt. 4 : No Action	28,750,000	8,475	295	115,000	13.57	$9.6MM
Alt. 1: High End Height and Density Increases	38,320,000	10,481	274	153,280	14.63	$12.7MM
Alt. 2: Concentrated Office Core	33,700,000	9,252	275	134,800	14.57	$11.0MM
Alt. 3: Residential Emphasis	30,600,000	10,187	333	122,400	12.02	$10.2MM

- Alternative 4 – No Action. This alternative results in a total capacity on redevelopment properties of 28.75 million SF of commercial space and 8,475 residential units, resulting in a ratio of 295 residential units per million SF of space. Based on historical absorption, this alternative provides enough capacity for the next 30-plus years of commercial development growth and 25-plus years of residential growth. If fully developed today, total market value for the redevelopment sites would be approximately $1.16 billion. If all sites were developed to their full capacity, they would generate approximately $9.6 million in tax revenue. If built to capacity, an additional 115,000 employees could be added. [Note that the maximum capacity provides commercial space for a significantly higher number of employees than forecast to be added over the next 20 years -- PSRC forecast average growth of 2,096 employees per year, ERA forecast average growth of 3,556 employees per year, and the Comprehensive Plan's targeted average growth of 3,135 employees per year.]

- Alternative 1 - High End Height and Density Increases. This alternative results in a total capacity on redevelopable properties of 38.32 million SF of commercial space and 10,481 residential units (ratio = 274 residential units per million SF of space). Based on historical absorption, there is enough capacity under this alternative for the next 40-plus years of commercial growth and 30-plus years of residential growth. Total market value for the redevelopable sites under Alternative 1 is approximately $1.51 billion, an increase of approximately $351 million over Alternative 4. If all sites were developed to their full capacity, they would generate approximately $12.7 million in tax revenue, an increase of $3.1 million over Alternative 4. An additional 153,280 employees could be accommodated if the study area were built out to its full capacity.

- Alternative 2 - Concentrated Office Core. This alternative results in a total capacity on redevelopable properties of 33.70 million SF of commercial space and 9,252 residential units (ratio = 275 residential units per million SF of space). There is enough estimated capacity under this alternative for the next 35-plus years of commercial growth and approximately 25-plus years of residential growth. Total market value for the fully developed sites under Alternative 2 is approximately $1.34 billion, an increase of approximately $188 million over Alternative 4. If all sites were developed to their full capacity, they would generate approximately $11.0 million in tax revenue, an increase of $1.4 million over Alternative 4. An additional 134,800 employees could be accommodated if the study area were built out to its full capacity.

- Alternative 3 – Residential Emphasis. This alternative results in a total capacity on redevelopable properties of 30.60 million SF of commercial space and 10,187 residential units (ratio = 333 residential units per million SF of space). There is enough estimated capacity under this alternative for the next 30-plus years of commercial growth and 30-plus years of residential growth. Total market value for the fully developed sites under Alternative 3 is approximately $1.25 billion, an increase of approximately $98 million over Alternative 4. If all sites were developed to their full capacity, they would generate approximately $10.2 million in tax revenue, an increase of approximately $600,000 over Alternative 4. An additional 122,400 employees could be accommodated if the study area were built out to its full capacity.

Market Overview

Existing Market Conditions

Office

Downtown Seattle's office market reflects current national and regional business/economic trends, including setbacks in the technology sector and a weakened overall economy. The shake-out of technology companies, and the resulting flood of sublease space into the market, has led to increased vacancy rates and softened rental rates. The fallout is expected to continue through the remainder of 2001 and at least the first half of 2002.

Though the recent exodus of tech tenants has challenged the Downtown office market, the financial community has provided market-watchers something to cheer about. Construction lenders have shown solid discipline in this market, often requiring between 50% and break-even preleasing prior to funding proposed projects. This tight lending environment should limit the supply of new space in the near-term, allowing the market to regain its footing. Given this prudent constraint by lenders, available sublease space is not expected to create an alarming oversupply situation.

Hotel

As of the end of the second quarter 2001, the Downtown hotel market figures had rebounded from the year prior (2000 experienced a drop off due to the cancellation of three large citywide events in the first quarter). Year-end 2001 occupancy may dip due to the introduction of several new hotels to the market and the events of September 11th, but this should be partially offset by the opening of the Washington State Convention and Trade Center expansion and the additional room nights this expansion will pull into the market.

Actual construction of several proposed hotels has become uncertain in the near-term due to restrictive lending requirements. However, as demand in the hotel market increases in future years, the overall market should absorb new hotel projects without dramatic changes in occupancy and room rates.

Residential

Downtown has experienced significant residential development over the past several years, particularly in the Belltown neighborhood (a submarket adjacent to the study area). The surge in multi-family construction, both market-rate rental units and condominium units, has been fueled by the growing demand for housing options near employment centers. Many believe the appeal of in-city living is based upon a desire to avoid traffic congestion and long commutes, but may also be a result of changing demographics (i.e. the boom of empty-nesters and young professionals).

Market Projections

Demand, together with land use codes, will continue to dictate Downtown's mix of future uses. However, based upon what we know from yesterday and today, we can make some projections regarding what Downtown may look like tomorrow.

Moving forward, though the continued influx of apartments and condominium projects will lead to a greater balance between office and residential development downtown, it is expected that office buildings will continue to be the primary type of development Downtown. Due to its available existing transportation and utility infrastructure, Downtown's financial core will continue to be the most densely built-out area of the region. Within the Existing Office Core (DOC-1 and DOC-2) of Downtown, future development will be primarily office infill projects on the few remaining underdeveloped sites.

Downtown's natural (Elliott Bay to the west) and physical (Interstate 5 to the east) barriers limit expansion to the east and west; so development over the next 20 years will occur north and, to a lesser extent, south of the Downtown core. Based upon the availability of land, real estate experts consistently identify the Denny Triangle and South Lake Union neighborhoods as Seattle's prime growth areas for the next twenty years. Both of these areas will compete with the Downtown commercial core for tenants, yet each area will also have the opportunity to develop a distinct identity to service specific types of tenant (i.e. South Lake Union is becoming a biotechnology center due to its proximity to Fred Hutchinson Cancer Research Center and the University of Washington).

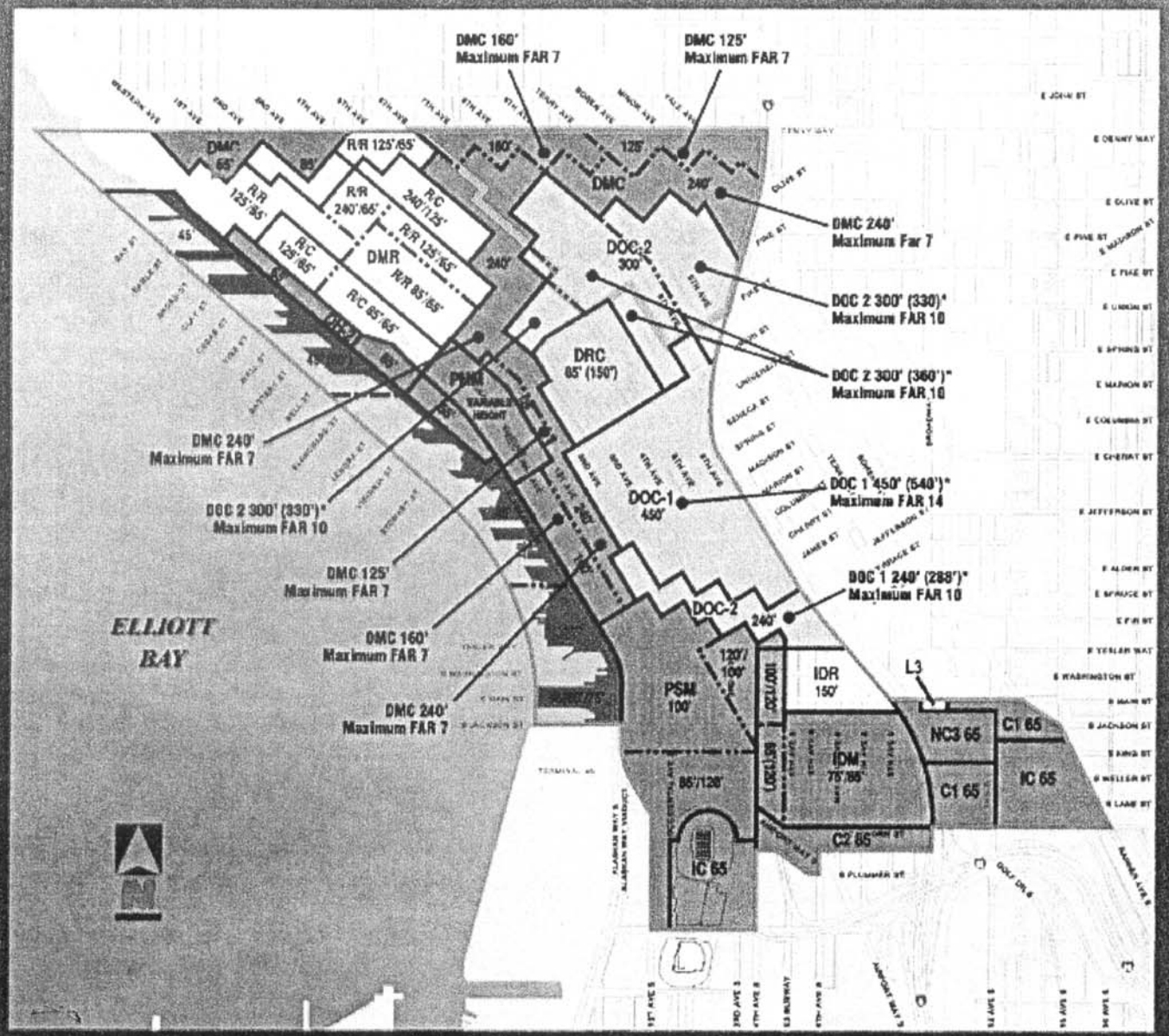
The Alternatives

The EIS examines four proposed alternatives covering a range of possible actions. A "No Action" alternative (Alternative 4) is included to assess what is likely to occur if no changes are made to the current Land Use Code beyond recently adopted amendments allowing additional height in the DOC-1 and DOC-2 zones, increased base FARs in these zones and revised bonus and TDR provisions. The other three alternatives (Alternatives 1, 2 and 3) include changes in allowable maximum height and density of buildings (measured by floor area) in the DOC-1, DOC-2 and most DMC zones. Because Alternative 4 provides the "No Action" baseline for the study, it is discussed first throughout this report.

Following is a brief description of each alternative, a table of the proposed changes and a map of the areas impacted by the proposed changes.

Alternative 4: No Action

* height increase allowed



Alternative 4 – No Action

Assumes exiting zoning with recent changes to bonus/TDR provisions and limited height increases in DOC-1 and DOC-2.

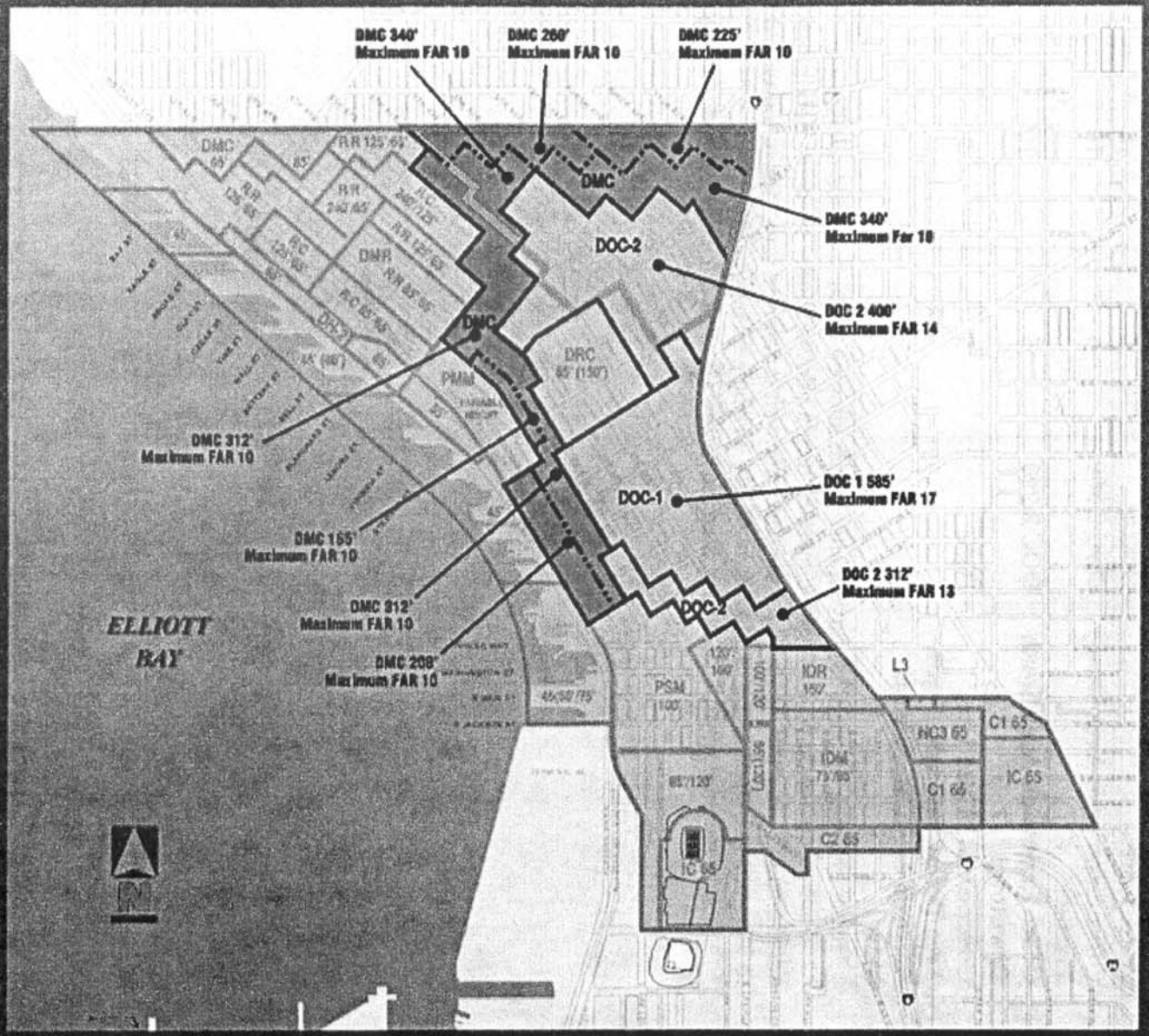
Under the "No Action" alternative, the existing zoning and Land Use Code regulations would remain intact. This alternative assumes no major changes would be implemented to increase development capacity in the Denny Triangle or in the Commercial Core. The following table summarizes the Alternative 4, including bonus/TDR revisions:

AREA	ZONE	BASE FAR	MAXIMUM FAR	HEIGHT
Office Core	DOC 1	6	14	450*
Office Expansion Area/Denny Triangle	DOC 2 300	5	10	300**
Office Expansion Area/South Downtown	DOC 2 240	5	10	240*
Commercial Mixed Use Area/Denny Triangle, South Belltown and Commercial Core	DMC	5	7	125'*** 160'*** 240'***

* Height increase up to 20% above mapped limit allowed under specified conditions.
** Height increase up to 10% above mapped height allowed under specified conditions; additional 10% increase (total 20% increase) allowed in mapped area; height increase up to 30% above mapped height allowed in Denny Triangle through TDC.
*** Height increase up to 30% above mapped height allowed in Denny Triangle through TDC.

Alternative 1: High End Height and Density Increases

(Downtown Neighborhood Plan and Advisory Committee proposals)



DOWNTOWN URBAN CENTER

Areas where no changes are proposed

Downtown Classifications

HARBORFRONT SHORELINE
- DH-1 Downtown Harborfront-1
- DH-2 Downtown Harborfront-2

RETAIL
- DRC Downtown Retail Core

MIXED USE
- DMC Downtown Mixed Commercial
- PSM Pioneer Square Mixed
- IDM International District Mixed
- IDR International District Residential
- PMM Pike Market Mixed
- NC 3 Neighborhood Commercial
- C1 Commercial
- C2 Commercial

RESIDENTIAL
- DMR Downtown Mixed Residential
- L3 Lowrise 3 Multifamily Residential

OFFICE
- DOC-1 Downtown Office Core-1
- DOC-2 Downtown Office Core-2

INDUSTRIAL
- IC Industrial Commercial

DENNY TRIANGLE
30 % height increase allowed through TDC program

SCALE IN FEET

0 400 800 1200 1600 2000

Alternative 1: High End Height and Density Increases (Downtown Neighborhood Plan and Advisory Committee proposals)

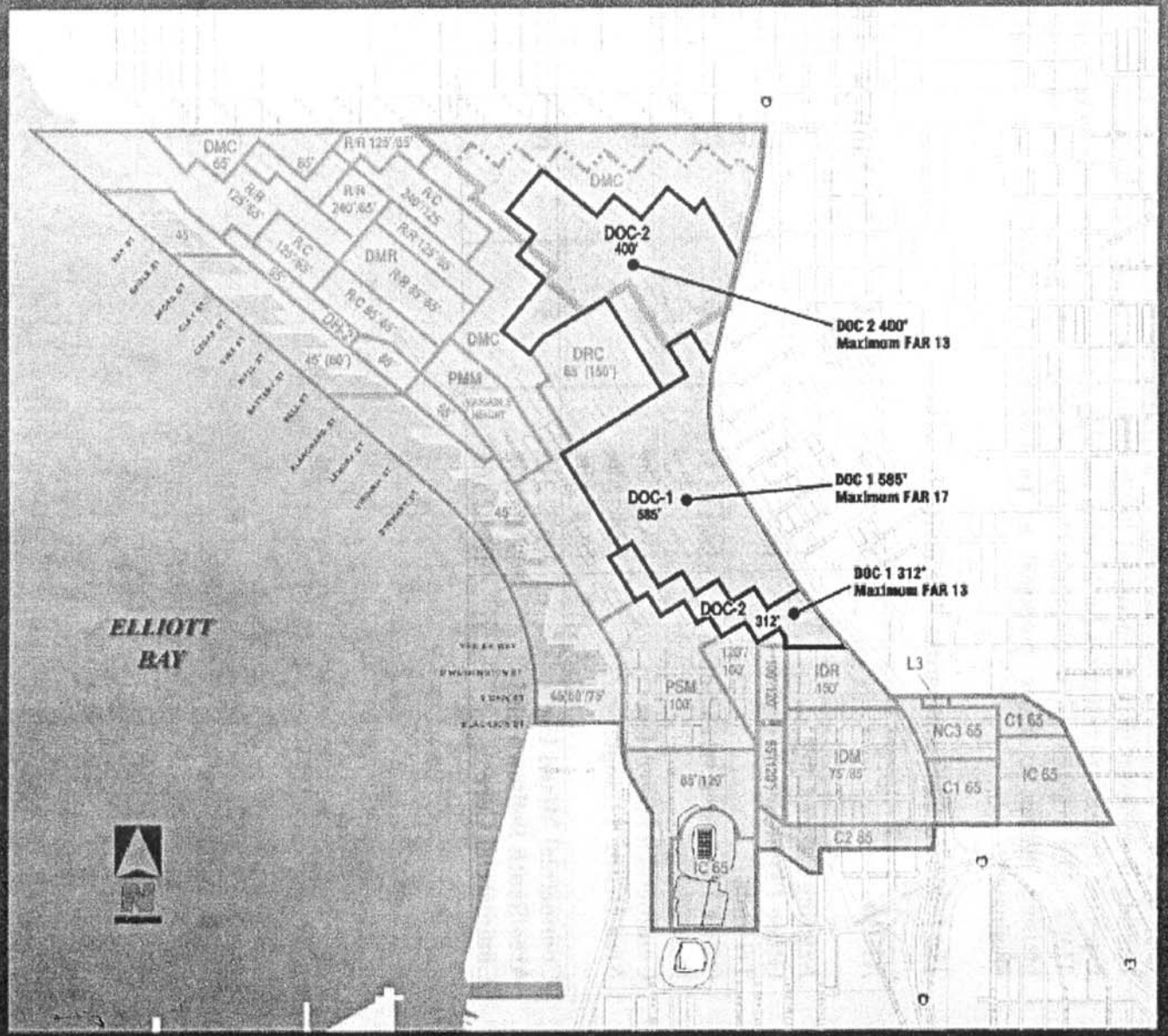
Increase capacity for all uses in Office Core and Mixed Commercial Zones.

Alternative 1 emphasizes regulatory changes suggested by Denny Triangle and Commercial Core neighborhood plans, as well as recommendations by a Citizens Advisory Committee review of the bonus/TDR provisions. Alternative 1 proposes the greatest magnitude of changes in height and density from the current land use code. This alternative aims to promote employment and housing growth by adding capacity for commercial development through height and density increases. Additional capacity for housing is achieved through increased height limits. Increased commercial densities are expected to increase resources for housing through additional use of housing bonuses and TDRs. The Transfer of Development Credits program, which allows height increases for housing similar to those proposed as an incentive for residential use, would be eliminated.

The following table summarizes Alternative 1:

AREA	ZONE	BASE FAR	MAXIMUM FAR	HEIGHT
Existing Office Core	DOC 1	7	17	585'
Office Expansion Area/Denny Triangle	DOC 2 400	7	14	400'
Office Expansion Area/South Downtown	DOC 2 312	6	13	312'
Commercial Mixed Use Area/Denny Triangle	DMC 340 DMC 260 DMC 225	5	10	340' 260' 225'
Commercial Mixed Use Area/South Belltown and Commercial Core	DMC 312 DMC 208 DMC 165	5	10	312' 208' 165'

Alternative 2: Concentrated Office Core



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- DOC-1 Downtown Office Core-1
- DOC-2 Downtown Office Core-2

INDUSTRIAL
- IC Industrial Commercial

DENNY TRIANGLE

30 % height increase allowed through TDC program

SCALE IN FEET

0 400 800 1300 1600 2000

Alternative 2 – Concentrated Office Core

Increase capacity for all uses through height and density increases in Office Core Zones only.

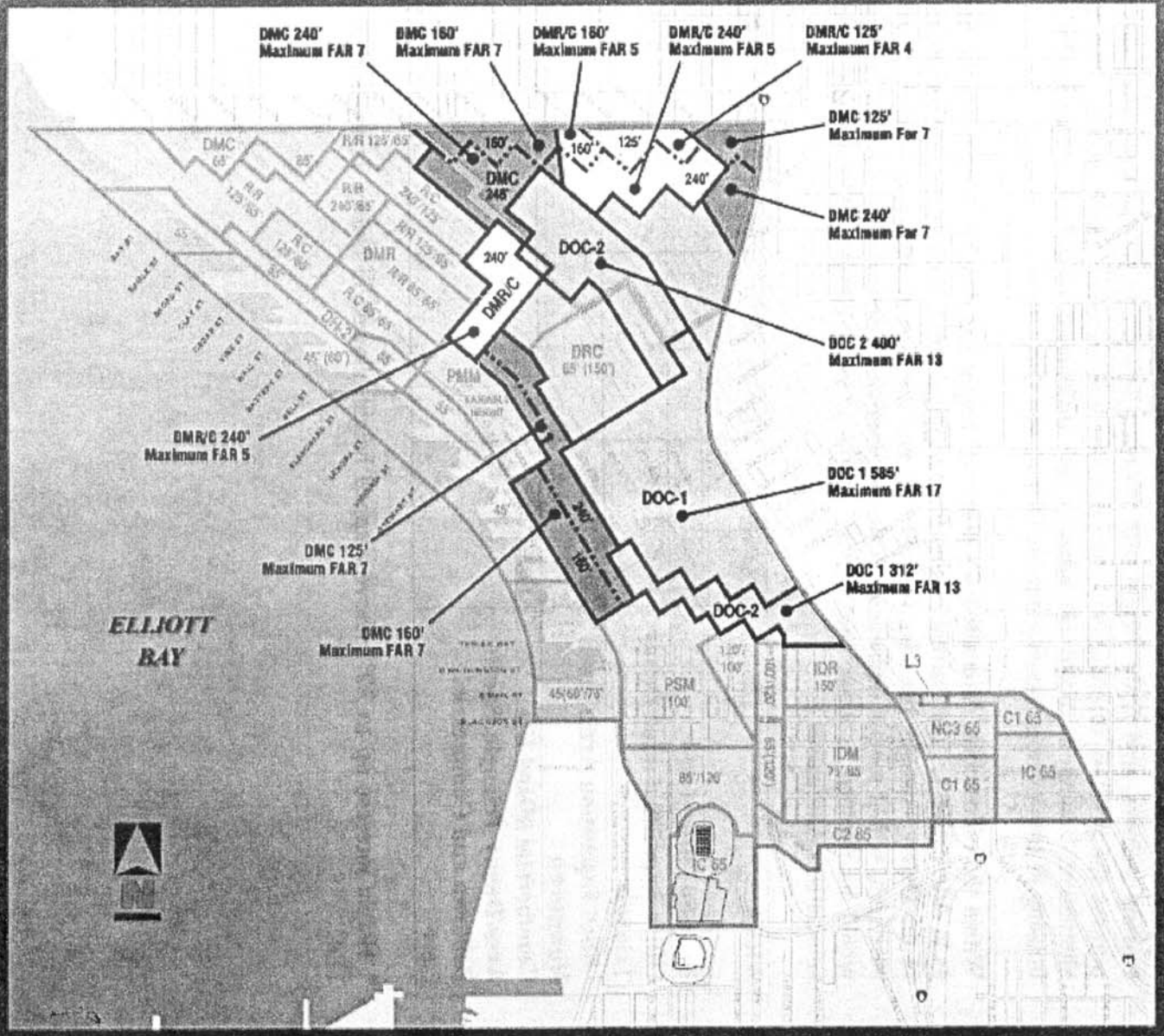
Alternative 2 concentrates proposed height and density changes within the existing DOC-1 and DOC-2 office core zones, and would not change land use regulations in areas peripheral to the office core (i.e. no changes in the DMC area of the Denny Triangle, Belltown and Commercial Core neighborhoods). Alternative 2's theme is that greater height and density is preferable within areas already favored by current zoning for the highest concentration of uses. This alternative reflects the zoning pattern established by existing policies, and limits height and density increases to those areas that already possess the greatest employment concentrations and superior transit access. For this alternative, zoning in mixed-use areas is left unchanged (does not create additional housing or employment capacity outside DOC-1 and DOC-2).

Within the office core, Alternative 2's proposed height and density changes are the same as in Alternative 1. The current zoning for peripheral areas, such as the northern portion of the Denny Triangle, the edge of Belltown, and the First Avenue and Western Avenue corridors, would remain unchanged in this alternative. Consequently, the TDC program would be retained in areas zoned DMC in the Denny Triangle. The following table summarizes Alternative 2:

AREA	ZONE	BASE FAR	MAXIMUM FAR	HEIGHT
Existing Office Core	DOC 1	6	17	585'
Office Expansion Area/Denny Triangle	DOC 2 400	5	13	400'
Office Expansion Area/South Downtown	DOC 2 312	5	13	312'
Commercial Mixed Use Area/Denny Triangle, South Belltown and Commercial Core	DMC	5	7	125'* 160'* 240'*

* Height increase up to 30% above mapped height allowed in Denny Triangle through TDC.

Alternative 3: Residential Emphasis



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- DMR Downtown Mixed Residential
- L3 Lowrise 3 Multifamily Residential

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- DOC-1 Downtown Office Core-1
- DOC-2 Downtown Office Core-2

INDUSTRIAL
- IC Industrial Commercial

DENNY TRIANGLE

30 % height increase allowed through TDC program

SCALE IN FEET

0 400 800 1200 1600 2000

Alternative 3 – Residential Emphasis

Increase capacity for all uses through height and density increases in DOC-1 and DOC-2 zones only; targeted increases in capacity for residential use in DMC zones.

Alternative 3 places a greater emphasis on regulatory changes tailored to encourage housing in specific locations. This alternative supports increased height and densities in the office core, but with mapped height limit transitions and continued use of the transfer of development credits (TDC) program that is currently available in Denny Triangle zones.

Alternative 3 aims to increased residential capacity by rezoning some DMC areas to DMR/C and by adjusting density limits in DMC zones to promote housing and mixed-use development. The TDC program is also retained in most of the Denny Triangle, with the exception of the DOC-2 zone where the height limit is raised to 400 feet. The following table summarizes Alternative 3:

AREA	ZONE	BASE FAR	MAXIMUM FAR	HEIGHT
Existing Office Core	DOC 1	6	17	585'
Office Expansion Area/Denny Triangle	DOC 2 400	5	13	400'
Office Expansion Area/Denny Triangle	DOC 2 300	5	10	300' *
Office Expansion Area/South Downtown	DOC 2 312	5	13	312'
Residential Mixed Use Area	DMR/C 240 DMR/C 160 DMR/C 125	2 2 1	5 5 4	240'* 160'* 125'*
Commercial Mixed Use Area with housing incentive	DMC	5	7***	125* 160* 240*

* Height increase up to 30% above mapped height allowed in Denny Triangle through TDC; 10% height increase allowed under specified conditions.

** Increases in non-residential density above base FAR contingent on including housing on site; additional bulk constraints on tower structures.

Impact Analysis

The team performed two types of analysis to arrive at its conclusion. The first analysis, a capacity analysis, tested the potential impacts the four alternatives have on maximum capacities of commercial and residential uses within the study area. The model built for this analysis uses a number of assumptions, which are based on generally accepted real estate standards or information provided by the City of Seattle. The model produces the potential maximum capacity for commercial square footage, number of residential units and number of employees within the study area. However, the supply of new buildings is not typically driven by zoning (i.e. capacity), but rather by market demand for additional space. Therefore, on a parallel track to the above-described capacity analysis, the projected year-by-year ebb and flow of Downtown development over the next 20 years was also modeled in a supply and demand analysis.

I. Capacity Analysis

Capacity Analysis Overview

Based on a number of assumptions and a consistent methodology, an analysis was performed to test the potential impacts the four alternatives would have on maximum capacities of commercial and residential uses within the study area. The spreadsheet utilized in the capacity analysis is located in Appendix C.

The results of the analysis, as well as an outline of the assumptions and a description of the methodology utilized, are discussed below.

Capacity Analysis Assumptions

Assumptions Summary

The assumptions utilized in the Capacity Analysis are summarized below and discussed in greater detail through this section. Some of these assumptions were generated based on historical averages and may not reflect recent trends or figures.

Category	Assumption
Average Job Growth	3,550 employees per year
Average Office Square Feet/Employee	250 square feet per employee
Average Office Absorption	887,500 square feet per year
Average Square Feet/Residential Unit	850 square feet per residential unit
Average Residential Absorption	320 residential units per year
Building Site Coverage	60%
Average Office Floor Height	13-feet
Average Residential Floor Height	10-feet
Land Value - Allowable Office	$30.00 per allowable office square feet
Land Value - Allowable Residential	$2,500.00 per allowable residential unit

Maximum Capacity	Office to maximum FAR, plus residential to maximum ht limit (some exceptions apply)
Transfer of Development Credits	Not factored into model

Building Mix

To determine how much capacity, or total building square footage, could be built within the study area under each alternative, specific assumptions were made regarding developers' likely behavior. For the purpose of the model, it was generally assumed that developers will maximize the office floor area ratio allowed under the land use code with commercial space, and will then add residential uses beyond the office square footage up to the maximum building envelope.

This assumption suggests most development sites within the study area would be improved with mostly office and some residential component. On smaller sites, this would occur within a single building. On larger sites, separate residential and office towers could be accommodated. It is more likely that some sites Downtown will be improved with all office or all residential, or at least single uses in separate buildings (rather than mixed use within a single building). However, rather than attempt to "crystal ball" which sites might be 100% of one use or another, for modeling purposes it was assumed that most sites, outside of DOC-1, will be mixed-use sites, thus minimizing the margin of error with the model results. Residential capacity is therefore assumed to equal the additional amount of building area permitted on a site after all of the permitted commercial FAR is utilized.

There are some exceptions to this assumption, however. These exceptions are as follows:

- First of all, it was assumed no housing would be constructed in DOC-1 (neither on top of office space nor as a stand-alone building). This assumption was based on historical development trends, as the only residential buildings in DOC-1 were built over 70 years ago. So although the land use code permits residential development, the market has not produced this use in this zone for several decades, and it is therefore highly unlikely any housing will be built in this area over the next twenty years.

- Again, based on the historically limited demand for residential units in the DOC-2, it was assumed that only 50% of the residential capacity within DOC-2 would be available.

- It was assumed 100% of the total potential residential capacity on development sites in DMC would be available. The success of residential development in the DMR zone (a zone that prohibits large commercial buildings adjacent to DMC) and the fact that recent permit applications submitted to the City of Seattle in this zone incorporate residential units into their designs suggest the DMC zone is the next likely location for significant in-city residential development.

- The analysis includes seven sites that (1) contain less than 20,000 SF in land area, and (2) are not likely to become part of larger assemblages. The limited footprint size of these sites would make it logistically unfeasible for a developer to accommodate an office lobby/elevator core as well as a residential lobby/elevator core. Depending on their location, then, each of these seven sites will most likely become 100% hotel, 100% office or 100% residential, but are not likely to become office plus residential in line with the broad assumptions discussed above. For these sites, then, it was assumed they would be developed 100% office. Though these properties may ultimately be improved with a residential use, the "loss" of the on-top residential units in the model is offset by the likelihood that other sites modeled as office/residential may be ultimately be developed as purely office

An important note: based upon feedback received from developers, it appears that most individual projects may not be improved in the manner modeled here (i.e. a mix of office and residential within the same building). In reality, developers are more likely to improve a site exclusively with an office tower, a residential tower, or a tower mixed with hotel and residential units. Although a number of projects have recently considered the relatively untried combination of residential use on top of office space. On sites large enough for two towers, developers may construct one tower with all office and the other tower with all residential units, creating a mixed-use site although the towers themselves are not mixed-use. An example of this type of mixed-use site is the proposed project at the current Quinton Instruments site.

Building Specifications

Several other assumptions made in the model relate to general building specifications. For instance, it was assumed that on average a building's floorplate would equal 60% of the site area and that the building floors would average 13-feet in height from floor to floor for commercial development.

As for the residential component, an average residential unit size of 850 SF was assumed, reflecting the approximate 675 SF average unit size indicated in the most recent study by Dupre+Scott, plus some accommodation for common areas such as hallways and lobbies. Typical residential building floors range from 9-feet to 11-feet per floor in height so an average of 10-feet per floor in height was assumed. This assumes that all of the parking would be built underground.

Office Absorption

To arrive at an estimate of average annual office absorption over the 20-year projection period, projected employment growth over that same period was identified.

The analysis assumed average Downtown job growth of 3,550 people per year over the next twenty years. This growth rate was provided by the City of Seattle Strategic

Planning Office, and is derived from a compilation of Puget Sound Regional Council (PSRC) information, projections by ERA and Comprehensive Plan projections.

It was assumed that, on average, the total office space (including common area) required is 250 SF per employee. The 250 SF per employee ratio is generally accepted and widely used within the real estate industry.

Multiplying 3,350 new Downtown employees per year by 250 SF per employee suggests that the market could absorb an average of 887,500 SF of additional office space per year.

Testing the estimated annual absorption rate of 887,500 SF against historical absorption rates provides support for this assumption. Over the past twelve years (1989 to 2001) Downtown office space absorption averaged approximately 820,000 SF per year, while low vacancy rates and a strong economy between 1996 and 2001 provided a considerably higher average annual absorption rate of 940,000 SF over that five-year period.

Because an increase in overall office inventory should cause a corresponding increase in average annual absorption, it is logical that the estimated absorption rate be slightly higher than the historical 12-year average. At the same time, it also makes sense that the assumed absorption rate, which will be utilized over an assumed 20-year projection period, be lower than the gangbusters absorption demonstrated over the past 5 years. The assumed annual rate of 887,500 SF, then, is reasonable.

Residential Absorption

According to Dupre+Scott, net absorption for residential units in the study area from 1996 to 2001 averaged 319 units per year. The last five years provide the best indicator of future absorption in the Downtown market, so an average absorption of 320 residential units per year was utilized for analysis purposes.

Land Value

For valuation purposes, land value was assumed to equal $30.00 per allowable FAR of office and $2,500.00 per allowable dwelling unit. Both values are generally accepted within the real estate industry for proforma and modeling purposes.

Tax Revenue

To calculate tax revenue, the existing blended levy rate for each zone was applied to the potential market value. For example, the existing blended levy rate in DOC-1 is $7.125465 per $1,000 of value. The blended rate includes the land and improvement value for all parcels, whether they are improved to the full capacity, under improved or vacant.

Transfer of Development Credits Impact

The analysis model did not apply King County's Transfer of Development Credits (TDC) program to all qualified potential development sites within the Denny Triangle portion of the study area. The TDC program was adopted in 1999. Although a half-dozen projects have explored using the program, none of those projects have yet been built. Therefore, no project has actually used the program. Consequently, it is too early to assess the impact of the program.

Excluded Impacts

Finally, the impact of development activity in the South Lake Union and Lower Queen Anne neighborhoods was not taken into consideration in the analysis. As these neighborhoods are improved, there is no doubt there will be an impact on at least some types of development within the study area. However, the potential impacts, both positive and negative, are too numerous to consider here and are outside the scope of this analysis.

MAP A

The City of Seattle

Downtown Seattle

Cushman and Wakefield Highest and Best Use Analysis

Highest and Best Use
- Office
- Hotel
- Office and/or Residential
- Mixed Use or Residential-only
- Residential-only
- Government/Open Space

500 0 500 Feet

Produced by the City of Seattle

August 29, 2001

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Capacity Analysis Methodology

A brief summary of the methodology behind the capacity analysis is described below.

Step 1 - Inventory Organization

For a first step, the city blocks within each zone (DOC-1, DOC-2 and DMC) were identified by number in a logical order (1, 2, 3, etc.) on a map. The numbered blocks were then further divided by the legal parcels or, in the case of assembled blocks, by ownership interest, and identified by letter (A, B, C, etc.). These identified blocks/parcels were then put into the database, thus organizing a thorough inventory of all properties within the study area.

Step 2 - Identify Redevelopable Properties

Each property in the study area was then critically reviewed to identify its future development potential, or lack thereof, over the next 20 years. This evaluation involved both a review of the county tax records as well as a physical/visual inspection of all properties in the study area.

Properties were identified as "potential development sites" based on several factors:

- Highest and best use analysis. A 60-year-old, two-story office on a site that could support a 20-story hotel is one theoretical example of a property that is not being utilized to its highest and best use, and which therefore would be identified as developable in our analysis. Map A illustrates the determined highest and best use for the potential developable sites within the study area.

- High likelihood of increased financial return for a developer. Because it can be difficult for small sites to "pencil out" profitably (no economy of scale), it is more likely that larger sites will be improved to maximum capacity than a single 7,200 square foot parcel. Some small sites, then, were not identified as developable, while larger sites were typically identified as such.

- Neighborhoods in transition. If one developer starts the momentum by constructing a new project in a transitional area, it is anticipated that the remainder of that same block will also be improved. Properties located adjacent to new and/or proposed projects, then, were generally identified as developable.

- Assemblage potential. Because several contiguous small parcels owned by different parties could be assembled for future development, these were identified as potential development sites in the analysis. Numerous parcels owned by one entity are clearly expected to be developed in the near-term, and are so identified here.

MAP B

The City of Seattle

Legend

Likelihood to Redevelop

- More Likely
- Less Likely
- Not Likely

Downtown Seattle
Potentially Developable Sites

500 0 500 Feet

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- Landmark status. Properties identified as "landmarks" within the City could cause an otherwise developable property to be excluded from our list. [Note: other properties' proximity to a landmark building may encourage development.]

- Nearby development or amenities encouraging redevelopment. Properties with water views are considered good targets for residential development. Residential properties also tend be constructed near retail, entertainment uses, parks and other such amenities. Both of these trends are taken into account in the analysis.

Step 3 - Categorize Redevelopable Properties - Primary or Secondary Sites

Eighteen potential development sites were identified in DOC-1; 88 in DOC-2, and 137 in DMC. The combined 243 sites are further categorized based upon the likely timing of their future development. Those likely to be developed in the next round of development were described as "Primary Sites", while those likely to be developed farther out were described as "Secondary Sites."

The Marion Court block in DOC-1 is an example of the differentiation between a Primary Site and a Secondary Site. This property, 75% controlled by one owner and with just one parcel remaining for full site assemblage, is identified as a Primary Site in the analysis. Compare this to an unassembled block in DMC with 8 to 12 different owners (some of whom may be owner-users, some investors willing to sell, and some competing developers). The longer-term potential of the potential DMC assemblage caused that property to be identified as a Secondary Site in the study.

The most likely potential developable sites, of which there are 167, fall in the Primary Site category. In the event of an extreme regional and/or national economic slowdown, development might take considerably longer, but these properties are considered to be the most likely to be developed, and likely to be developed relatively soon. The remaining 76 potential development sites are categorized as Secondary Sites. Map B illustrates the study area's potentially developable sites, categorized as either Primary Sites or Secondary Sites.

Step 4 - Maximum Capacity Under Each Alternative

Once the potential development sites were identified, their current building square footage was totaled. The next step was to calculate these sites' total building area if built to the maximum allowable parameters under each of the four proposed alternatives. A table summarizing the results is available on the following page.

Note that the total maximum number of residential units on the potential developable sites was determined as follows: 1) the site area was multiplied by the site coverage percentage; 2) the resulting number was then multiplied by the maximum number of residential floors allowed by the height limit after maximizing the office FAR; 3) once the total residential area was calculated, the maximum residential square footage was divided by 850 SF per unit to identify the maximum number of residential units.

Maximum Capacity Under Each Alternative

DOC-1 Zoned Parcels	Current	Alternative 1 Maximum Commercial SF	Alternative 1 Potential Add'l Housing Units	Alternative 2 Maximum Commercial SF	Alternative 2 Potential Add'l Housing Units	Alternative 3 Maximum Commercial SF	Alternative 3 Potential Add'l Housing Units	Alternative 4 Maximum Commercial SF	Alternative 4 Potential Add'l Housing Units
Total Number of Redevelopable Sites	18								
SF Built on these sites									
Office	702,881	5,691,600		5,691,600		5,691,600		4,687,200	
Other	1,514,984	1,011,840		1,011,840		1,011,840		833,280	
Total	2,217,865	6,703,440	0	6,703,440	0	6,703,440	0	5,520,480	0
Increase from Today (Proposed Zoning)		4,485,575		4,485,575		4,485,575		3,302,615	
DOC-2 Zoned Parcels									
Total Number of Redevelopable Sites	88								
SF Built on these sites									
Office	773,830	11,321,796		10,718,176		9,636,061		8,385,520	
Other	1,433,237	6,647,332		6,203,535		5,375,502		4,771,950	
Total	2,207,067	17,969,128	3,773	16,921,711	4,344	15,011,563	3,622	13,157,470	3,236
Increase from Today (Proposed Zoning)		15,762,061		14,714,644		12,804,496		10,950,403	
DMC-Zoned Parcels									
Total Number of Redevelopable Sites	137								
SF Built on these sites									
Office	1,048,252	8,375,070		6,123,549		5,120,853		6,123,549	
Other	210,920	5,272,040		3,950,828		3,761,828		3,950,828	
Total	1,259,172	13,647,110	6,708	10,074,377	5,223	8,882,681	6,792	10,074,377	5,238
Increase from Today (Proposed Zoning)		12,387,938		8,815,205		7,623,509		8,815,205	

Total Square Footage	Current	Alternative 1 Maximum Commercial SF	Alternative 1 Potential Add'l Housing Units	Alternative 2 Maximum Commercial SF	Alternative 2 Potential Add'l Housing Units	Alternative 3 Maximum Commercial SF	Alternative 3 Potential Add'l Housing Units	Alternative 4 Maximum Commercial SF	Alternative 4 Potential Add'l Housing Units
Total Number of Redevelopable Sites	243								
Office	2,524,963	25,388,466		22,533,325		20,448,514		19,196,269	
Other	3,159,141	12,931,212		11,166,203		10,149,170		9,556,058	
Total	5,684,104	38,319,678	10,481	33,699,528	9,568	30,597,684	10,414	28,752,327	8,475
Increase from Today (Proposed Zoning)		32,635,574		28,015,424		24,913,580		23,068,223	

Source: Cushman Wakefield, City of Seattle - Strategic Planning Office

The potential number of employees that could be added to the workforce under each alternative is calculated by dividing the redevelopable sites' maximum commercial square footage by the common ratio of 250 SF per employee.

Capacity Analysis Results

General Results

Some of the pertinent general results (i.e. not specific to any of the four alternatives) of the analysis are as follows:

- The identified developable parcels are currently improved with 5.7 million commercial SF and an aggregate assessed value of $544 million.
- Eighteen potential developable sites were identified in DOC-1; 88 sites in DOC-2, and 137 sites in DMC, for a total of 243 developable sites.
- In terms of land area, the redevelopable parcels in each zone represent about 34% of the total land area in the study area.

Capacity Results by Alternative

The analysis identified the maximum estimated office capacity and maximum estimated residential capacity, the ratio of residential units to total commercial SF, the estimated number of years to absorb that capacity (dividing total space by average annual absorption), the effect on land value, the effect on tax revenue, and the capacity for average annual employment growth (dividing total commercial space by 250 SF per employee, and dividing that by 20 years) under each of the four alternatives. The results are discussed, by alternative, below. (Again, Alternative 4 is discussed first since it is the baseline to which the other three alternatives are compared.)

Alternative 4 – No Action

Since this is essentially a status quo alternative, no significant changes were identified from what could be built on the developable sites today. The analysis estimated maximum capacity on the identified properties to be 28.75 million SF of commercial space and 8,475 residential units, resulting in a ratio of 295 residential units per million SF of space. Based on historical absorption, this alternative provides enough capacity for the next 30-plus years of commercial development growth and 25-plus years of residential growth. If fully developed today, total market value for the redevelopment sites would be approximately $1.16 billion. If all sites were developed to their full capacity, they would generate approximately $9.6 million in tax revenue. If built to capacity, an additional 115,000 employees could be added. If Seattle was to reach this capacity over the next 20 years, it would need to add an average of 5,750 employees per year. [Note that the maximum capacity provides commercial space for a significantly higher number of employees than forecast to require space over the next 20 years -- PSRC forecast average growth of 2,096 employees per year, ERA forecast average growth of 3,556 employees per year, and the Comprehensive Plan forecast average growth of 3,135 employees per year.]

Alternative 1 - High End Height and Density Increases

This alternative results in a total capacity on redevelopable properties of 38.32 million SF of commercial space and 10,481 residential units (ratio = 274 residential units per million SF of space). Based on historical absorption, there is enough capacity under this alternative for the next 40-plus years of commercial growth and 30-plus years of residential growth. Total market value for the redevelopable sites under Alternative 1 is approximately $1.51 billion, an increase of approximately $351 million over Alternative 4. If all sites were developed to their full capacity, they would generate approximately $12.7 million in tax revenue, an increase of $3.1 million over Alternative 4. An additional 153,280 employees could be accommodated if the study area were built out to its full capacity.

Alternative 2 - Concentrated Office Core

This alternative results in a total capacity on redevelopable properties of 33.70 million SF of commercial space and 9,252 residential units (ratio = 275 residential units per million SF of space). There is enough estimated capacity under this alternative for the next 35-plus years of commercial growth and approximately 25-plus years of residential growth. Total market value for the fully developed sites under Alternative 2 is approximately $1.34 billion, an increase of approximately $188 million over Alternative 4. If all sites were developed to their full capacity, they would generate approximately $11.0 million in tax revenue, an increase of $1.4 million over Alternative 4. An additional 134,800 employees could be accommodated if the study area were built out to its full capacity.

Alternative 3 – Residential Emphasis

This alternative results in a total capacity on redevelopable properties of 30.60 million SF of commercial space and 10,187 residential units (ratio = 333 residential units per million SF of space). There is enough estimated capacity under this alternative for the next 30-plus years of commercial growth and 30-plus years of residential growth. Total market value for the fully developed sites under Alternative 3 is approximately $1.25 billion, an increase of approximately $98 million over Alternative 4. If all sites were developed to their full capacity, they would generate approximately $10.2 million in tax revenue, an increase of approximately $600,000 over Alternative 4. An additional 122,400 employees could be accommodated if the study area were built out to its full capacity.

II. Supply & Demand Analysis – Year-by-Year Projection

Supply & Demand Analysis Overview

Based upon projected office absorption, the above Capacity Analysis illustrated that each of the four proposed alternatives could accommodate at least, and often more, of the next 20-years' projected commercial and residential growth Downtown. Yet the supply of new buildings is not typically driven by zoning, but rather by market demand for additional space.

Therefore, on a parallel track to the above-described "snapshot" Capacity Analysis, the projected year-by-year ebb and flow of Downtown development over the next 20 years was also modeled. The results of analysis are illustrated in the Appendix A table entitled "Downtown Office Absorption, New Construction, and Projected Vacancy."

Supply & Demand Analysis Assumptions

Office Absorption - Demand

Absorption, which quantifies the demand for space, is a key driver in this analysis. As in the Capacity Analysis described above, an average office absorption rate of 887,500 SF per year was utilized.

New Construction - Supply

New construction, or the supply of new space, is the second key driver in the analysis. For the year-to-year projection modeling, hard information was gathered on permitted and proposed new projects through 2006. A completion probability was then given to each project, depending on its stage in the development process. For instance, projects that have already broken ground were given a 100% probability of completion, while merely proposed projects were given a 10% likelihood of completion.

For projecting new construction beyond 2006, Downtown Seattle's 15-year construction average of 802,196 SF of new office construction per year was utilized.

Supply Adjustments Due to Vacancy

The analysis assumed that office vacancy, which is the relative relationship between supply and demand, is one of the strongest predictors of future development timing. In other words, if vacancy is high, tenants are scarce, lenders are less willing to finance projects, and developers are less likely to construct speculative projects. The converse, of course, is true with low vacancies. Thus few developments are constructed when vacancies are high, and many developments are constructed when vacancies are low.

The analysis generally assumed that the annual absorption rate and the projected new construction rate would remain constant over the 20-year projection period. However, this general assumption was not strictly workable since it gradually brought vacancy down to 3% over the 20-year period. Developers' likely actions were therefore introduced into the analysis.

When "natural" vacancies reached 5% for any single analysis year, 500,000 SF of new construction was automatically added in the next year, plus 1.5 million SF of space added the following year, and one million SF of space added in the third year. In the fourth year following the 5% vacancy trigger, as the market becomes overbuilt but projects are not cancelled wholesale, the analysis pulled back to using the 15-year average new

construction rate of 802,196 SF per year. This assumption is applied only once in the 20-year projection period, triggered by a 5% vacancy in year 2013.

Residential Unit Ratio

In the Capacity Analysis, the ratio of residential units per million SF of commercial space within the study area was calculated for each proposed alternative. These results are summarized below:

Alternative #	# Residential Units per 1 Million SF of Commercial Space
Alternative 4	295
Alternative 1	274
Alternative 2	275
Alternative 3	333

By comparison, below is a five-year history of the ratio of residential units constructed per 1 million SF of commercial space constructed in Downtown (including Belltown):

Residential Units per 1 Million SF of Commercial Space				
Past 5 Years	Past 4 Years	Past 3 Years	Past 2 Years	2001 (proj)
468	552	680	870	685

The disparity between the Capacity Analysis' average residential ratio and the historical average is due, in large part, to the specific geographic areas that the numbers reflect. While the 5-year historical numbers include projects constructed in the Belltown district of Downtown (a very popular residential area with tremendous view amenities and exclusive residential zoning), the study area does not include Belltown.

Yet even excluding the "Belltown Factor," it appears that the residential unit ratios generated in the Capacity Analysis represent the low-end estimate of housing capacity in the study area. The Capacity Analysis' conservative residential results reflect the fact that the Capacity Analysis assumed maximum office build-out of every property identified as a potential development site, and did not include any residential-only buildings.

Looking at the year-to-year projection, Downtown's development trend towards increased residential density was taken into account. Per the information above, the past few years' ratios in all of Downtown are in the range of 680 to 870 residential units per million SF of commercial space. Therefore, a ratio of 750 residential units per million would appear reasonable. However, the fact that much of the new development in the next 5 to 10 years will occur in historically non-residential areas (i.e. DOC-1, DOC-2 zones) had to be considered.

For early years in the projection, when planned residential projects were known, the actual number of planned residential units was utilized in the analysis. For years when

the number of units was not known, a ratio of 477 residential units per million SF was utilized in the first ten years of the projection. This ratio was established using the base assumption of 750 residential units per million (in line with recent history), but then reducing that ratio by the weighted average of development specifically within DOC-1 and DOC-2 zones (per the Capacity Analysis, it was assumed that no residential would be built in the DOC-1 zone, and only 50% of the maximum residential capacity would be built in the DOC-2 zone).

For the second ten years of the 20-year projection, the residential ratio would increase to 548 units per million SF of commercial space. This higher ratio reflects the belief that a higher concentration of residential units will be added to the marketplace later in the analysis period, after the potential development sites in DOC-1 and DOC-2 have been improved. The last area to be developed within the study area, the DMC zone, is much more likely to have a higher concentration of residential units, so a higher residential ratio is warranted later in the analysis when this zone is built out.

Supply & Demand Analysis Results

Office Results

Per the "Downtown Office Absorption, New Construction, and Projected Vacancy" table located in Appendix A, a total of almost 18 million SF of commercial space will be added to the study area over the next 20 years.

Residential Results

Utilizing the residential ratios described above, the year-to-year add-on for housing over the next twenty years was projected to total an addition of 8,577 residential units by 2021 in the study area. This is equivalent to an average of 429 units per year.

Supply & Demand Sensitivity Analysis

To understand the sensitivity of the baseline 20-year projection, the two driving assumptions of absorption (demand) and new construction (supply) were each inflated, and then reduced, by ten and twenty percent annually.

While this mirror image of variance (above and below the base projection) yields figures that are equal to the initial projections, the range of possibilities enhances our understanding of what is most likely to occur. This sensitivity analysis, with its ranges of inventory and vacancy scenarios, is illustrated in the Appendix B graph.

Conclusion

Some pertinent points derived from the analyses presented herein include the following:

- Based on historical absorption, there appears to be enough capacity for commercial space and housing units in the DOC-1, DOC-2 and DMC zones beyond the 20-year development timeline for the environmental review, without any changes to the existing zoning regulations. In fact, depending on the alternative, there is approximately 35 years of capacity for residential and commercial development.

- Supply has historically followed demand. Changes to zoning, in and of themselves, do not change the supply and demand cycles. In other words, increasing commercial densities does not necessarily lead to more development occurring in Downtown. However, changes to zoning will influence where development occurs and the size and density of the buildings developed.

- Increasing the maximum density, and therefore the difference between the base FAR and maximum FAR, would increase the use of the Downtown bonus and TDR programs on each site that is developed to its maximum permitted FAR and consequently provide more money for affordable housing.

- Increasing the permitted FAR will increase land values and provide existing landowners of redevelopable sites with an increase in the value of their property, which in turn will result in more tax revenue for the City as all sites are built to their maximum capacity.

- Increases in land value tend to promote more intensive development of sites when demand is present. This may encourage more mixed use projects on sites large enough to accommodate commercial and residential uses in separate towers, depending on the relationship between the size of the maximum potential building envelope and the building envelope required to accommodate the permitted commercial floor area.

- Increasing density better utilizes City infrastructure, including transportation and utilities.

- Permitting higher density development will result in higher land prices, which could increase the cost of acquiring land for affordable housing development downtown. However, one of the most effective ways to increase opportunities for affordable housing development is through subsidies generated by commercial development through housing bonuses and TDRs, which would increase with higher density commercial development as noted above. Other options to promote the development

of affordable housing such as expanding the receiving area and providing incentives to develop on-site affordable housing should be explored.

- Incentives, subsidies and changing zoning policy are all ways to encourage housing in Downtown Seattle.

Appendix A - Table: "Downtown Office Absorption, New Construction, and Projected Vacancy

DOWNTOWN OFFICE ABSORPTION, NEW CONSTRUCTION AND PROJECTED VACANCY

Historic Average Net Absorption - Past Five Years:	940,000	square feet
Historic Average New Construction - Past 15 Years:	802,196	square feet
Office Space Added Past Five Years:	4,875,729	square feet
Projected Average Annual Net Absorption - Next 20 Years:	887,500	square feet
Project Annual Employment Growth - Next 20 Years:	3,550	people
Projected Office Space Per Person Per Year:	250	square feet
Total Inventory, Second Quarter of 2001:	33,521,770	
Overall Availabilities:	3,452,742	
Overall Vacancy, Second Quarter of 2001:	10.30%	

For new supply after 2006 (up to which we have hard projections), we used the CSD 15-year average
Obviously this is not strictly workable since it takes us gradually down to 3% vacancy "naturally" in 20 years.
Therefore we had to introduce developers' likely actions into the mix.
When "natural" vacancies reach 5.0% for one year, the following year we add in 500,000 SF
then 1.5 million SF the next year and 1 million SF the following year, then stay with the 15 year average for a 4th growth year as things get overbuilt but projects are not cancelled wholesale
To counteract this escalating construction, we then decrease the 15 year average by 500,000 SF in the next two years as developers start to cancel projects due to
high vacancies and more projects are pulled.
This gives us a stable range in terms of vacancy with reasonable cyclical movement as well.

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	20 Year Total Ofc. SF Added
Current Inventory	33,521,770	33,521,770	33,752,530	35,800,530	36,203,030	36,783,530	37,477,505	38,279,701	39,081,897	39,884,093	40,686,289	41,488,485	42,290,681	43,092,877	44,395,073	46,697,269	48,499,465	49,301,661	49,603,857	49,906,053	50,708,249	
Current Availabilities	3,452,742	3,252,742	2,596,002	3,756,502	3,271,502	2,964,502	2,770,977	2,685,673	2,600,369	2,515,065	2,429,761	2,344,457	2,259,153	2,173,849	2,588,545	4,003,241	4,917,937	4,832,633	4,247,329	3,662,025	3,576,721	
Vacancy in Second Quarter	10.30%	9.70%	7.69%	10.49%	9.04%	8.06%	7.39%	7.02%	6.65%	6.31%	5.97%	5.65%	5.34%	5.04%	5.83%	8.57%	10.14%	9.80%	8.56%	7.34%	7.05%	
New Construction to be added:	-	230,760	2,048,000	402,500	580,500	693,975	802,196	802,196	802,196	802,196	802,196	802,196	802,196	1,302,196	2,302,196	1,902,196	802,196	302,196	302,196	802,196	802,196	17,988,675
Projected Net Absorption	200,000	887,500	887,500	887,500	887,500	887,500	887,500	887,500	887,500	887,500	887,500	887,500	887,500	887,500	887,500	887,500	887,500	887,500	887,500	887,500	887,500	
New Inventory	33,521,770	33,752,530	35,800,530	36,203,030	36,783,530	37,477,505	38,279,701	39,081,897	39,884,093	40,686,289	41,488,485	42,290,681	43,092,877	44,395,073	46,697,269	48,499,465	49,301,661	49,603,857	49,906,053	50,708,249	51,510,445	
New Projected Availabilities	3,252,742	2,596,002	3,756,502	3,271,502	2,964,502	2,770,977	2,685,673	2,600,369	2,515,065	2,429,761	2,344,457	2,259,153	2,173,849	2,588,545	4,003,241	4,917,937	4,832,633	4,247,329	3,662,025	3,576,721	3,491,417	
Projected Vacancy at Year End	9.70%	7.69%	10.49%	9.04%	8.06%	7.39%	7.02%	6.65%	6.31%	5.97%	5.65%	5.34%	5.04%	5.83%	8.57%	10.14%	9.80%	8.56%	7.34%	7.05%	6.78%	
Add-on Housing Units	-	110	205	192	277	331	383	383	383	383	440	440	440	714	1,262	988	440	166	166	440	440	20 Year Total housing units added
																					Annual Average	8,577 429

ERRATA

After the "Height & Density Study Report #2" by Craig Kinzer & Co., The Seneca Real Estate Group and Cushman & Wakefield of Washington was published, typos were found in the Model that formed the basis of the report's findings. These typos resulted in errors in the findings. The following changes should be made to the report's findings.

Page 3:

The summary table should be replaced with the following table:

- **Summary Table – Potential Future Capacity**

Alt. #	Total Commercial SF	# of Res. Units	# of Res. Units per 1 Million Comm. SF	# of Workers	Workers per Res. Unit	Potential Tax Revenue
Alt. 4: No Action	28,750,000	8,490	295	115,000	13.55	$$9.6 MM
Alt. 1: High End Height and Density Increases	38,320,000	10,504	274	153,280	14.59	$$12.7 MM
Alt. 2: Concentrated Office Core	33,700,000	9,820	291	134,800	13.73	$$11.3 MM
Alt. 3: Residential Emphasis	30,600,000	10,676	349	122,400	11.47	$$10.5 MM

A replacement **Maximum Capacity Under Each Alternative** table is attached as a replacement to the one in the report on the page-facing page 19.

The following changes should be made on both pages 3 and 4 and pages 19 and 20.

Alternative 4 – No Action
8,475 residential units should be changed to 8,490 residential units.

Alternative 1 – High End Height and Density Increases
10,481 residential units should be changed to 10,504 residential units.

Alternative 2 – Concentrated Office Core
9,252 residential units should be changed to 9,820 residential units.
The ratio of residential units per million SF of space should be 291 units/million SF of commercial space.
There is capacity for approximately 30-plus years of residential growth rather than 25-plus years.
Tax revenue from this alternative could be $11.3 million rather than $11.0 million.

Alternative 3 – Residential Emphasis
10,187 residential units should be changed to 10,676 residential units.
The ratio of residential units per million SF of space should be 349 units/million SF of commercial space.
Tax revenue from this alternative could be $10.5 million rather than $10.2 million.

CRAIG KINZER & CO.

CORPORATE REAL ESTATE SERVICES

Mr. Lish Whitson
City of Seattle
Strategic Planning Office
Suite 300
600 Fourth Avenue
Seattle, Washington 98104

Dear Lish,

The attached sheets are errata sheets to our Height and Density Study Report #2 dated December 14, 2001. This should be included with our report and, hopefully, sufficiently corrects the the typos found in the model used to produce the results in our report.

We sincerely apologize for this oversight and trust that with the following corrections, you will be able to continue to use the model to test your own scenarios and other possible alternatives for the study area.

Do not hesitate contacting me regarding any other questions or comments regarding this report or the model framework we provided for the Strategic Planning Office's use as it continues to review and plan for the future of the north downtown area.

Sincerely,

Amy Bolich

Amy Bolich

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STRATEGIC PLANNING OFFICE

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On page 22 the table showing the Residential Unit Ratio should be replaced with the following table:

Alternative #	# Residential Units per 1 Million SF of Commercial Space
Alternative 4	295
Alternative 1	274
Alternative 2	291
Alternative 3	349

We apologize for any confusion these errors may have caused.

Maximum Capacity Under Each Alternative

DOC-1 Zoned Parcels	Current	Alternative 1 Maximum Commercial SF	Alternative 1 Potential Add'l Housing Units	Alternative 2 Maximum Commercial SF	Alternative 2 Potential Add'l Housing Units	Alternative 3 Maximum Commercial SF	Alternative 3 Potential Add'l Housing Units	Alternative 4 Maximum Commercial SF	Alternative 4 Potential Add'l Housing Units
Total Number of Redevelopable Sites	0								
SF Built on these sites									
Office	702,881	5,691,600		5,691,600		5,691,600		4,687,200	
Other	1,514,984	1,011,840		1,011,840		1,011,840		833,280	
Total	**2,217,865**	**6,703,440**	**0**	**6,703,440**	**0**	**6,703,440**	**0**	**5,520,480**	**0**
Increase from Today (Proposed Zoning)		4,485,575		4,485,575		4,485,575		3,302,615	

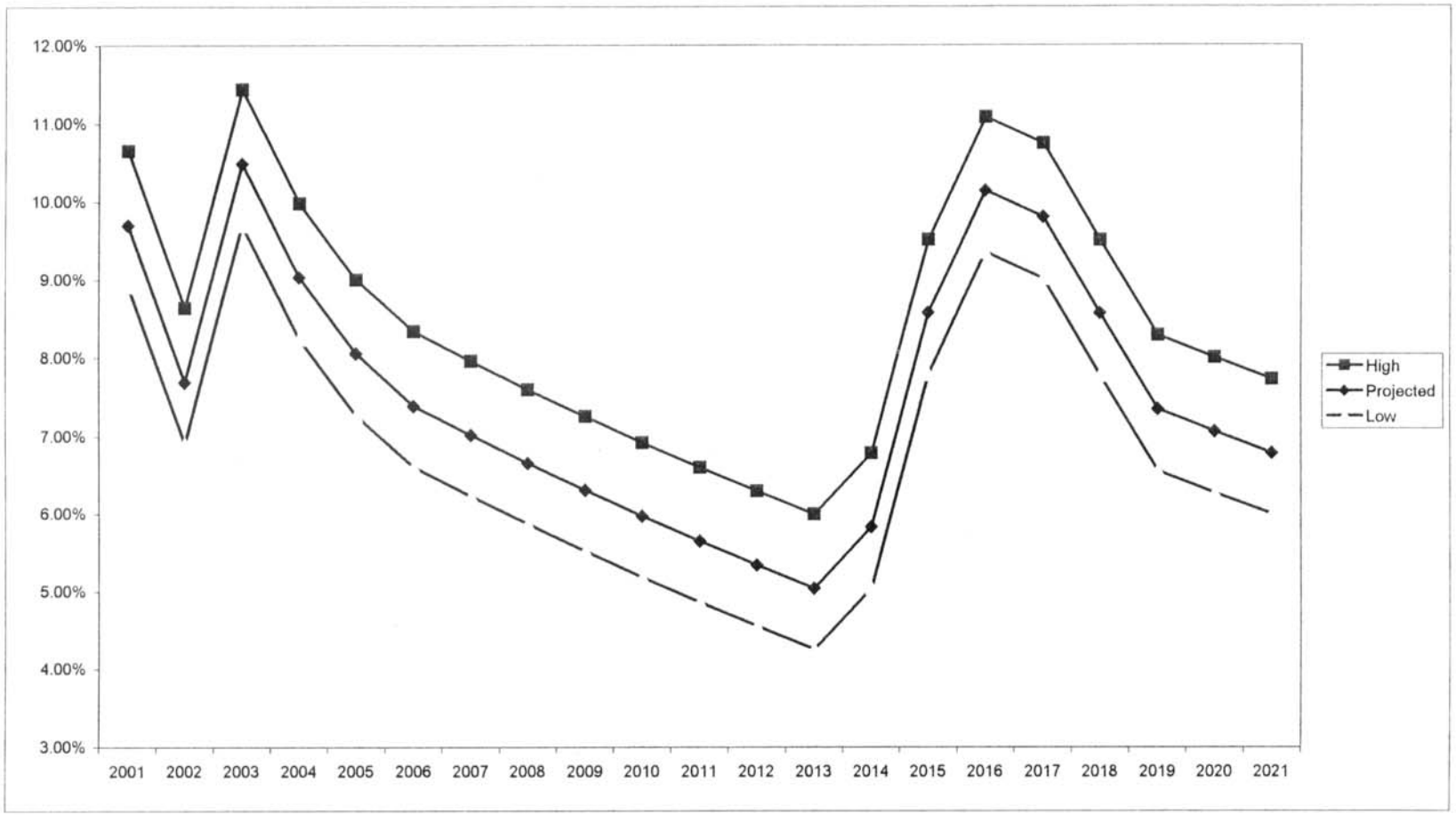
DOC-2 Zoned Parcels									
Total Number of Redevelopable Sites	64								
SF Built on these sites									
Office	773,830	11,321,796		10,718,176		9,636,061		8,385,520	
Other	1,433,237	6,647,332		6,203,535		5,375,502		4,771,950	
Total	**2,207,067**	**17,969,128**	**3,796**	**16,921,711**	**4,596**	**15,011,563**	**3,885**	**13,157,470**	**3,251**
Increase from Today (Proposed Zoning)		15,762,061		14,714,644		12,804,496		10,950,403	

DMC-Zoned Parcels									
Total Number of Redevelopable Sites	0								
SF Built on these sites									
Office	1,048,252	-4,118,590		-5,521,279		-4,944,305		-2,974,780	
Other	210,920	17,765,700		15,595,656		13,826,986		13,049,157	
Total	**1,259,172**	**13,647,110**	**6,708**	**10,074,377**	**5,223**	**8,882,681**	**6,792**	**10,074,377**	**5,238**
Increase from Today (Proposed Zoning)		12,387,938		8,815,205		7,623,509		8,815,205	

Total Square Footage	Current	Alternative 1 Maximum Commercial SF	Alternative 1 Potential Add'l Housing Units	Alternative 2 Maximum Commercial SF	Alternative 2 Potential Add'l Housing Units	Alternative 3 Maximum Commercial SF	Alternative 3 Potential Add'l Housing Units	Alternative 4 Maximum Commercial SF	Alternative 4 Potential Add'l Housing Units
Total Number of Redevelopable Sites	64								
Office	2,524,963	12,894,806		10,888,497		10,383,356		10,097,940	
Other	3,159,141	25,424,872		22,811,031		20,214,328		18,654,387	
Total	**5,684,104**	**38,319,678**	**10,504**	**33,699,528**	**9,820**	**30,597,684**	**10,676**	**28,752,327**	**8,490**
Increase from Today (Proposed Zoning)		32,635,574		28,015,424		24,913,580		23,068,223	

Source: Cushman Wakefield, City of Seattle - Strategic Planning Office

Appendix B - Sensitivity Analysis Graph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