



Downtown Denver Buildout Scenarios

A Student Project by:

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Planning Methods I - Fall 2005, Ken Schroepel - Instructor**

Prepared for:

**The Downtown Denver Partnership, the City & County of Denver, and
the Downtown Area Plan project team**

Introduction

The City and County of Denver and the Downtown Denver Partnership are preparing to update the Downtown Denver Plan. This plan was last completed in 1986 and Downtown Denver has changed and grown in various ways since then due to the implementation of many of the plan's components as well as other factors that were unanticipated at the time of the plan's adoption. In an effort to provide assistance to the City and the Partnership in its endeavor to update the Downtown Plan, the students of the Fall 2005 Planning Methods I class at the University of Colorado at Denver, a graduate level class within the Masters of Urban and Regional Planning program, have prepared 12 different "buildout scenarios" to determine the maximum development potential for vacant parcels within a defined downtown study area. The 12 student teams each had the same goal:

For each vacant parcel or parcels that create a development site, first determine the desired mix of uses (residential, office, hotel, etc.) for that site based on their vision or concept for Downtown, and then determine the maximum development of that site (square footage, number of units, etc.) allowable under the B-5 zoning.

The scenarios are intended to provide the City and the Partnership with a valuable set of alternatives to consider regarding the future development capacity of Downtown Denver.

Standards and Assumptions

The study area consists of the B-5 zoned area within Downtown Denver bounded by Colfax Avenue to the south, the alley between Lincoln and Sherman streets to the east, 20th Street to the northeast, the alley between Larimer and Market streets to the northwest, and Speer Boulevard to the west. Within this defined study area, 77 parcels were identified as being either vacant or surface parking lots, and suitable for potential development (see Exhibit A). A few parking lots were excluded if they were part of the same parcel on which an existing building is located (such as the Federal Reserve Branch Bank) or if the lot was soon to become a construction site for a new building. The parcels range in size from 67 square feet to 106,400 square feet with the median size being 12,500 sq. ft. The 77 parcels total an area of 1,352,727 square feet. Since some parcels are too small in size for actual development, the 12 student teams were directed to combine parcels, where applicable, in order to create a minimum developable site size of 10,000 square feet. For this reason, the number of developable parcels

within each of the 12 student teams' plans varies and is less than the total number of vacant parcels.

The base floor area ratio (FAR) for the B-5 zoning district is 10:1. However, the B-5 zone also provides floor area premiums (density bonuses) that can increase the allowable FAR to a maximum determined by whether the parcel is located within the Downtown "core area" or "non-core area." The core area consists of those parcels bounded by 14th Street to the southwest, Colfax to the south, Broadway to the east, 18th Street to the northeast, and the alley between Larimer and Market to the northwest (see Exhibit B). Of the 77 vacant parcels, 45 are located within this core area. For parcels within the core area, the maximum FAR is 17:1, but which may be increased to a maximum of 20:1 subject to 50% of the gross floor area being used as residential. For the remaining parcels in the non-core area, the maximum FAR is 12:1, but which may be increased to a maximum of 17:1 subject to 50% of the gross floor area being used as residential.

Also within the B-5 study area are three zoning overlay districts, OD-2, OD-3, and OD-4, which add varying building height limitations in addition to the other restrictions of the B-5 zone. The OD-3 restricts buildings to a height of 400 feet, the OD-4 restricts buildings to a height of 200 feet, and the OD-2 restricts buildings to a height based on the amount of shadow cast by the building upon the 16th Street Mall. Of these, only the OD-3 and OD-4 were applied as part of this exercise, as it was not practical to attempt to quantify the area on the Mall covered in shadows cast by buildings that are only conceptual in nature.

The full zoning code for the Downtown B-5 zone includes a number of bulk and area regulations, along with the three overlay zone districts, floor area bonuses, parking requirements, building height, setback, and "build to" requirements, and other restrictions or limitations. While most of these development regulations found in the B-5 code were adhered to by the student teams as part of their buildout calculations, some of the more complex, optional, or conditional requirements were waived or simplified in order for this buildout scenario project to be completed within a reasonable timeframe and within a level of effort suitable for an academic exercise. Additionally, various development assumptions and standards had to be made in order for the 12 student teams' buildout scenarios to be comparable to each other. The section below provides a list of the various zoning regulations, assumptions, modifications, and standards used in developing the buildout capacity of the study area.

Project Assumptions and Standards

Floor Area Ratio for B-5 Zone District

- Base FAR = 10:1

Floor Area Premiums (Density Bonuses)

- Residential:
 - 2 SF for each SF of housing if not fronting 17th Street
 - 1 SF for each SF of housing if fronting 17th Street
- Underground Parking:
 - 1.5 SF for each SF of underground parking, excluding the first underground parking level

Any 1 of the following 3:

- Child Care Facility:
 - 4 SF for each SF of child-care facility
- Residential Support:
 - 4 SF for each SF of residential support (grocery store, hardware store, drug store, variety store, elementary school)
- Pedestrian-Active Facility:
 - 4 SF for each SF of ground-floor area with pedestrian-active facilities (restaurant, retail, etc.)

Cumulative SF premiums earned from the Underground Parking, Child Care, Residential Support, or Pedestrian-Active uses cannot exceed two times (2x) the development site land area.

Ignore the geographic restrictions for Pedestrian-Active Facilities as stated in subsection “b-2-e” of the B-5 zoning code.

Ignore the “Floor Area Excluded from Calculations” option (subsection “b-4-b”) of the B-5 zoning code.

Maximum FAR

- Core Area (bounded by 14th, Colfax, Broadway, 18th, alley between Larimer & Market):
 - If less than 50% of gross floor area is residential = 17:1
 - If over 50% of gross floor area is residential = 20:1
- Non-Core Area:
 - If less than 50% of gross floor area is residential = 12:1
 - If over 50% of gross floor area is residential = 17:1

Ground Floor Uses

- For a Development Site of 30,000 SF or less:
 - 12.5% - Child Care, Residential Support, or Pedestrian Active Retail Use
 - 50.0% - Building Common Area (lobby, etc.)
 - 37.5% - Any Permitted Use (including potentially more Building Common Area, but excluding residential units, hotel rooms, or office space).

- For a Development Site over 30,000 SF:
 - 12.5% - Child Care, Residential Support, or Pedestrian Active Retail Use
 - 15,000 SF - Building Common Area (lobby, etc.)
 - Remaining SF - Any Permitted Use (including potentially more Building Common Area, but excluding residential units, hotel rooms, or office space).

The Building Common Area (lobby, etc.) requirement is mandatory for all buildings.

The 12.5% Child Care, Residential Support, or Pedestrian Active Retail use is recommended as a starting point to maximize applicable density bonuses. Reduce or eliminate only if bonus square footage is not needed *and* an alternative use is preferred.

Setbacks

- Building Base (Ground Floor, any special Second-Floor Uses, and all Aboveground Parking):
None. B-5 zoning requires you to build to the property line. The floor plate should be coincidental with the Development Site. This applies to all sites of any square footage.
- Building Tower (everything above Building Base)
For Development Sites of *any* shape 30,000 SF or less *or*
For Development Sites *highly rectangular* in shape and greater than 30,000 SF:
None. The floor plate should be coincidental with the Development Site/Building Base.
- Building Tower (everything above Building Base)
For Development Sites *not highly rectangular* in shape and greater than 30,000 SF:
The floor plate should be set at 30,000 SF in size.

Parking Requirements

- Residential: 1 space per unit
- Office: 1 space per 500 gross square feet
- Retail and All Other Uses: 1 space per 200 gross square feet
- Hotel: 1 space per 600 gross square feet
- Ground-Floor Common Area: None

Parking Spaces

- 300 gross square feet per space (includes drive lanes, ramps, etc.).

Parking should first be accommodated underground, with a maximum of two levels of below surface parking allowed.

Any remaining required parking should be provided as aboveground structured parking. No surface parking allowed.

Each structured parking level should span the entire floor plate and be located above ground-floor uses (retail, common area, etc.).

Parking (underground or aboveground) does not count against the FAR.

Internal Common Area (as percent of designated gross floor area for the use)

- Residential: 15%
- Office: 15%
- Retail: 15%
- Hotel: 30%

For office or retail uses, the net leasable (after subtracting common area) square footage must be expressed.

For residential or hotel uses, the net leasable (after subtracting common area) square footage must be expressed, as well as the number of 1-bedroom/2-bedroom units (residential) or rooms (hotel).

Unit Sizing

- Residential:
 - 1 bedroom = 850 square feet
 - 2 bedroom = 1,200 square feet

This is a blended average taking into account luxury and affordable units.

In buildings with a residential component, a 50-50 split of the net residential square footage will be used between 1-bedroom units and 2-bedroom units.

- Hotel:
 - Rooms = 250 square feet each

Floor Heights

- Residential = 12'
- Office = 14'
- Retail and All Other Uses (*not* on Ground Floor) = 20'
- Hotel = 12'
- Ground Floor (if tower above contains *any* Office or Hotel) = 25'
- Ground Floor (if tower above contains *only* Residential) = 20'
- Parking (aboveground structured levels) = 9'

Height Limits

- Straight B-5 = None
- OD-2 = None (treat as if straight B-5)
- OD-3 = 400 feet
- OD-4 = 200 feet

Minimum Development Site Size

- 10,000 square feet

If a parcel is less than 10,000 square feet in size it will need to be combined with an adjacent/contiguous lot or left vacant. Combine wherever possible.

Miscellaneous

- Mechanical:
 - Assume mechanical is in the common area calculations and does not affect square footage or height.
- Transferable Development Rights:
 - Not applicable for this exercise although they do exist in the study area.
- Streets/Alleys:
 - Streets or alleys cannot be vacated to create larger development sites or superblocks.

Team Composition and Acknowledgments

The 12 project teams consisted of three students each, while two other students served as project assistants to the course instructor, Ken Schroepel, and helped prepare the report Introduction and Summary. The Fall 2005 Planning Methods I project teams were as follows:

Plan Concept	Students
A Critical Mass	Jennifer Bartlett
	Libby Kaiser
	Tal Hadary
A Framework of Subdistricts	Jennifer Kovarik
	Naomi Forster
	Nirupa Kelkar
Achieving Pedestrian Activity	Christopher Kulick
	Julia Skurski
	Justin Hammerling
An Urban Neighborhood	Brian Potts
	Melissa Stolhammer
	Rachel Cleaves
Business Horizons	Gavin McMillan
	Kacy Chetelat
	Sarah Brown
Denver's Urban Village	Daniel Bush
	Noah Bernstein
	Thomas Jeffries
Four Corners	Cate Townley
	Jeffrey Mitchell
	Raymond Winn
Linking Denver	Heidi Farrell
	Lan Nguyen
	Stephen Hoover
Live Work and Play	Jillian Brown
	Sean White
	Shelby Scharen
Living It Up in Downtown	Genevieve Hutchison
	Owen McCabe
	Tonya Bennett
Residential Retail and Commercial Vibrancy	Brad Hahn
	Joseph Shoffner
	Paul Workman
Sell Your Car	Rick Muriby
	Stacey Soukup
	Susan Miller
Project Assistants / Introduction & Summary	Christopher Fellows
	Phillip Patterson

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Buildout Summary

The buildout scenarios developed by the 12 student teams included typical Downtown land uses such as residential, office, retail commercial, and hotels, and had a range of gross square footage from a low of 18.6 million square feet to a high of almost 25.2 million square feet. Each group had residential as the primary component of their buildout plan, although some teams stressed it more than others. The median number of residential units for all 12-study groups was 9,683. The buildout of the study area also included a median net retail square footage of 760,693 square feet. This retail area included not only retail uses but also residential support and pedestrian active uses such as child care facilities, schools, restaurants, etc. Each study group also included an office component, with the median net square footage for office uses of 4,950,354. Hotel use was also a major component for every project team. The median number of proposed hotel rooms was 4,955. For a summary of the totals for the 12-study groups, please see the table below.

Downtown Denver Buildout Scenarios – Development Quantities Summary

Team Concept Name	Gross Floor Area (SF)	Final Floor Area Ratio	# Residential Units			Net Residential (SF)	Net Retail (SF)	Net Office (SF)	# Hotel Rooms	# Parking Spaces
			1 Bed	2 Bed	Total					
A Critical Mass	21,901,322	16.0:1	6,305	4,361	10,666	10,331,559	777,678	4,874,371	4,011	29,725
A Framework of Subdistricts	21,288,042	15.4:1	6,320	4,311	10,631	11,035,848	1,149,704	5,026,337	5,423	30,870
Achieving Pedestrian Activity	25,196,070	18.0:1	5,586	4,894	10,480	10,620,900	687,427	3,034,286	6,215	28,847
An Urban Neighborhood	19,598,796	14.5:1	7,092	5,136	12,228	12,128,346	1,417,841	2,663,741	4,863	22,011
Business Horizons	18,570,531	13.7:1	3,399	2,380	5,779	6,007,017	741,042	7,127,806	4,811	29,213
Denver's Urban Village	22,314,407	16.4:1	5,694	4,071	9,765	10,374,770	387,926	5,746,450	5,378	26,392
Four Corners	19,054,603	14.1:1	4,220	2,986	7,206	6,876,853	521,667	5,582,453	7,291	28,362
Linking Denver	21,297,548	15.5:1	4,476	3,160	7,636	7,597,850	837,076	2,520,949	6,627	31,146
Live, Work, and Play	20,794,228	15.5:1	5,088	3,601	8,689	8,646,000	886,768	6,903,475	2,592	30,258
Living It Up in Downtown	19,872,618	14.7:1	4,242	3,629	7,871	7,046,100	743,709	6,725,389	4,883	33,446
Residential and Retail Vibrancy	18,751,889	14.0:1	5,682	4,026	9,708	9,660,229	962,432	3,964,137	4,675	26,905
Sell Your Car	20,636,698	15.7:1	7,056	4,989	12,045	12,016,958	624,947	3,174,304	5,027	25,585

Average	20,773,063	15.3:1	5,430	3,962	9,392	9,361,869	811,518	4,778,642	5,150	28,563
Median	20,715,463	15.3:1	5,634	4,049	9,737	9,995,894	760,693	4,950,354	4,955	29,030
High	25,196,070	18.0:1	7,092	5,136	12,228	12,128,346	1,417,841	7,127,806	7,291	33,446
Low	18,570,531	13.7:1	3,399	2,380	5,779	6,007,017	387,926	2,520,949	2,592	22,011