APPENDIX E

ECONOMIC AND MARKET ANALYSIS

THE ECONOMIC AND MARKET SETTING
AND
FORECAST OF DEVELOPMENT POTENTIAL
FOR THE
NORTH WASHINGTON SUBAREA, THORNTON COLORADO

Introduction

Analysis and discussion of land use economics generally revolves around three interrelated elements: the market, the real estate development feasibility, and the economic impact of development.

The Market

The market determines what, when, how much, and the character of what gets built. For most uses, such as office and industrial development, the market is determined at a broad regional level, and a locality's ability to tap that market is determined by a host of factors. Some markets, such as retail, are more locally determined. But only in rare circumstances can a market be created where none exists. While the adage "build it and they will come" is sometimes true, without a market, you can't get anyone to build "it" in the first place. There are communities that have zoned land for a desired outcome, such as minimum densities or high-tech industrial, that have seen those sites lie fallow for years. There also are situations where subsequent surrounding development precludes or usurps what once was desired.

This section of the North Washington Subarea analysis deals primarily with the regional and local market factors.

The Real Estate Setting

Even where there is a market, any development must make sense from a real estate point of view. That is, the relationship between land cost, development costs, financing terms, and achievable rents must satisfy a number of players—the landowner, the developer, the lenders and the end user. It is easy for things to get out of whack. Financial terms are influenced primarily by national factors. Some landowners have unrealistic expectations or a longer term tolerance. Competition changes almost daily as new projects come on line or are announced. Multiple jurisdictions without strong distinctions will magnify the effect of the decisions and policies of one another.

While the subarea plan must recognize the optimum potential of the land in question, the site specific real estate factors are less important in a long-term plan such as this. That is, over time the values and opportunities will adjust to market realities and in response to public policies and investments. Real estate factors will affect the timing of development more than the long-term outcome.

The Economic Impact

In the public arena, economic impact most often refers to the fiscal impact on the affected jurisdictions—that is the tax revenue generated and the cost of serving the development. In Thornton, as with most cities in Colorado, this leads to the Holy Grail of sales tax from retail development, particularly larger projects that draw shoppers and dollars from outside of the jurisdiction. However, other factors that will be of interest to the citizens of the community also come into play. For example, property taxes, which are relatively greater from office and industrial development, are the primary support for local schools; and office and industrial jobs generally pay higher wages (to the ultimate benefit of the retail sector and housing markets).

There is a tendency to overweigh the fiscal impact of a given project, often with the thought that "residential doesn't pay its own way." But it is important to look at the whole system. Without the residents there would be no (or much less) retail. Without the primary office and industrial jobs, there may be less residential, or at best, those residents will leave the community for work, and likely shopping as well.

These fiscal issues will come into play in the evaluation of alternatives in subsequent phases of the development of the subarea plan.

Regarding the market issues, this report is organized in three sections generally corresponding to subtasks of Task B in the Scope of Services, although there is some overlap in the discussion that follows:

B.3: Economic and Demographic Analysis
B.4: Real Estate Conditions Review
B.5: Commercial/Industrial Market Opportunities

Economic and Demographic Background

Population and Employment

Thornton has been one of the most rapidly growing communities in the Denver metropolitan region in recent years. (In this report, the Denver region usually refers to the nine-counties that make up the membership of the Denver Regional Council of Governments also referred to as DRCOG.) Since the 2000 census, Thornton has accounted for 10.3 percent of the population growth in the region, more than twice its current share of 3.9 percent. It accounted for over 40 percent of the growth in Adams County, outpacing other rapidly growing communities such as Brighton and Commerce City. Over the same period, Thornton accounted for 8.8 percent of new housing construction and 8.2 percent of the household growth. These factors explain the fact that the households in Thornton are on average larger than those in Adams County and the region, and that current housing vacancy rates in Thornton are also above those of Adams County and the region. These measures are shown in Table 1 below.

Table 1. Population and Housing Comparison

				Thornton Share	
Population	**Thornton**	**Adams**	**Region**	**of Adams**	**of Region**
2000 Census	82,384	348,618	2,419,079	23.6%	3.4%
2004 DRCOG	102,261	398,165	2,611,466	25.7%	3.9%
Change	19,877	49,547	192,387	40.1%	10.3%
Households					
2000 Census	28,882	123,013	947,966	23.5%	3.0%
2004 DRCOG	34,858	139,338	1,020,803	25.0%	3.4%
Change	5,976	16,325	72,837	36.6%	8.2%
Housing Units					
2000 Census	29,573	127,299	986,661	23.2%	3.0%
2004 DRCOG	38,217	148,889	1,085,430	25.7%	3.5%
Change	8,644	21,590	98,769	40.0%	8.8%
Average Household Size					
2000 Census	2.85	2.83	2.55	100.7%	111.8%
2004 DRCOG	2.93	2.86	2.56	102.7%	114.7%
Vacancy Rate					
2000 Census	2.34%	3.37%	3.92%	69.4%	59.6%
2004 DRCOG	8.79%	6.41%	5.95%	137.0%	147.6%

Source: US Census, DRCOG, and Sammons/Dutton LLC

In contrast to its population share, Thornton accounted for only 1.5 percent of the region's employment in 2002 (the latest year for which the data are available). As shown in Table 2 below, the employment in Thornton is more concentrated in the retail and service sectors than the county and region, and it lags significantly in the "industrial" sectors of manufacturing and wholesale trade.

Table 2. Employment by Sector, 2002

	Employment			Percent Distribution		
	Thornton	Adams	Region	Thornton	Adams	Region
Agriculture	679	2,974	17,365	2.9%	1.7%	1.1%
Mining	4	318	6,557	0.0%	0.2%	0.4%
Construction	1,356	21,158	98,040	5.7%	12.1%	6.3%
Manufacturing	289	15,354	107,875	1.2%	8.8%	6.9%
Trans, Comm & Utilities	2,627	20,716	112,491	11.1%	11.8%	7.2%
Wholesale Trade	348	15,768	76,270	1.5%	9.0%	4.9%
Retail Trade	4,858	26,868	243,109	20.6%	15.3%	15.6%
Finance, Insurance & Real Estate	623	4,122	97,006	2.6%	2.4%	6.2%
Services	7,662	38,319	505,754	32.5%	21.9%	32.4%
Government	895	6,751	75,215	3.8%	3.9%	4.8%
Wage and Salary Total	19,341	152,348	1,339,682	81.9%	86.9%	85.7%
Other	4,265	22,883	222,638	18.1%	13.1%	14.3%
Total	23,606	175,231	1,562,320	100.0%	100.0%	100.0%

Source: DRCOG and Sammons/Dutton LLC

This imbalance between jobs and housing reinforces Thornton's (and many other suburban communities as well) reputation and fiscal structure as a bedroom community, in spite of some of the opinions expressed in interviews conducted in an earlier phase of the analysis. In fact, as shown in Table 3, only Northglenn among major Denver area cities had a lower ratio than Thornton's 0.68 jobs for each resident household, which itself is less than half the region's average of 1.53 jobs per household. Denver and Broomfield lead the list.

Table 3. Jobs/Housing Balance

City	Households 2004	Jobs 2002	Jobs per Hsld
Arvada	39,462	31,864	0.81
Aurora	113,458	109,335	0.96
Broomfield	16,245	32,712	2.01
Denver	247,494	507,396	2.05
Englewood	14,588	28,832	1.98
Lafayette	9,130	7,793	0.85
Littleton	41,360	29,914	0.72
Longmont	30,034	35,254	1.17
Northglenn	37,061	13,446	0.36
Thornton	**34,858**	**23,606**	**0.68**
Westminster	40,382	40,891	1.01
Region	1,020,803	1,562,320	1.53

Source: DRCOG

Retail Sales

For most cities in Colorado, the sales tax is the most important source of revenue, and that is determined most directly by the level of retail sales, not only to one's own residents, but also including regional sales attracted from neighboring communities or tourists. Thornton has long lagged its neighbors in attracting large retailers with a wide trade area. While that will change dramatically with the completion of Larkridge with up to 2.0 million square feet of regionally oriented retail at the intersection of I-25 and E-470, the latest state-reported sales by community shows Thornton behind other northern tier suburbs (except Northglenn) in per capita sales, as shown on Table 4 below. Not surprisingly, with American Furniture Warehouse, Thornton exceeds its neighbors in the furniture category and holds its own in general merchandise, but clothing stores were virtually nonexistent (until the recent arrival of Kohl's) and the restaurant category was far behind as well.

Table 4. Non-automotive Retail Sales, Thornton and Comparable Cities, 2003					
	Thornton	**Westminster**	**Broomfield**	**Northglenn**	**Arvada**
Total Sales by Category					
Furniture/Furnishings	$72,949	$42,987	$27,890	$12,003	$22,887
Electronics/Appliances	$38,664	$86,762	$43,978	$3,868	$22,322
Building Materials	$70,934	$37,540	$49,720	$49,246	$128,551
Food/Beverage	$178,593	$225,227	$108,859	$51,921	$261,747
Health and Personal Care	$16,593	$31,540	$22,523	$15,090	$29,783
Clothing and Accessories	$8,208	$101,993	$157,992	$26,292	$10,296
Sporting Goods/Books/Hobby	$33,619	$83,004	$47,448	$13,894	$34,937
General Merchandise	$273,799	$310,639	$121,467	$22,357	$235,979
Miscellaneous	$14,098	$46,057	$25,093	$33,759	$50,485
Eating and Drinking	$83,426	$137,570	$97,818	$49,209	$114,358
Total	$790,883	$1,103,319	$702,788	$277,639	$911,345
Population (2004)	102,261	107,363	44,951	37,061	102,655
Per Capita Sales					
Furniture/Furnishings	$713	$400	$620	$324	$223
Electronics/Appliances	$378	$808	$978	$104	$217
Building Materials	$694	$350	$1,106	$1,329	$1,252
Food/Beverage	$1,746	$2,098	$2,422	$1,401	$2,550
Health and Personal Care	$162	$294	$501	$407	$290
Clothing and Accessories	$80	$950	$3,515	$709	$100
Sporting Goods/Books/Hobby	$329	$773	$1,056	$375	$340
General Merchandise	$2,677	$2,893	$2,702	$603	$2,299
Miscellaneous	$138	$429	$558	$911	$492
Eating and Drinking	$816	$1,281	$2,176	$1,328	$1,114
Total	$7,734	$10,277	$15,635	$7,491	$8,878

Note: Total sales in thousands
Source: Colorado Department of Revenue and Sammons/Dutton LLC

Building Inventory

The employment levels and retail sales are reflected in the amount of building space which houses them. Because building space and land are the parameters of the development projections that will follow, the current estimates of commercial and industrial development are presented in Table 5 below. The information was obtained from Thornton, Westminster and Broomfield, and each has its own methodology and coverage. Thornton's inventory appears to be the most complete and thorough, but even so, it still has less developed space in total and per capita then its two neighbors. Again Larkridge will shift the retail balance in the short run, but the other two cities are also contemplating major retail projects west of I-25.

Table 5. Commercial Building Inventory			
	Thornton	**Broomfield**	**Westminster**
Retail Space	4,852,000	4,084,000	4,862,700
Industrial Space	1,521,500	4,866,000	2,217,600
Office Space	2,430,800	5,786,300	3,899,100
2004 Population	102,261	44,951	109,363
Per Capita			
Retail Space	47	91	44
Industrial Space	15	108	20
Office Space	24	129	36
Source: Respective Cities and Sammons/Dutton LLC			

Forecasts of Activity

Development potential in the North Washington Subarea will depend in part on the economic activity in a broader region. While past studies by the city have made forecasts of development in the subject area, for example for traffic modeling and utility planning, this effort is not constrained by such past assumptions. Nevertheless some of the broader area forecasts are relevant and are incorporated into the methodology used to forecast a range of development potential for the North Washington Subarea.

Regional Employment. The broadest of these forecasts are the regional employment forecasts developed for DRCOG by the Center for Business and Economic Forecasting as the control totals for the allocation to Traffic Analysis Zones (TAZs) and the cooperative MetroVision planning program. Table 6 below shows the forecast employment by major sector for 2004 (the forecasts were actually done in 2002), 2010 and 2025. These are region-wide framework forecasts only. In projecting the employment in any smaller geographic area such as TAZs, DRCOG expands the definition of employment and reclassifies the sectors shown in Table 6 into three categories: retail, production and services. The latter generally represents office development. The forecast methodology used here builds on the broader range of categories shown in Table 6.

Table 6. Denver Region Employment Forecasts			
	2004	2010	2025
Mining	7,500	6,000	4,400
Construction	98,500	106,600	103,100
Manufacturing	111,000	113,100	107,400
TCU	108,400	126,100	139,100
Wholesale Trade	78,600	87,500	99,500
Retail Trade	248,800	290,200	356,300
FIRE	101,700	114,300	137,800
Services	455,600	569,700	799,600
Government	194,000	208,100	236,600
Total	1,404,100	1,621,600	1,983,800

Source: DRCOG, CBEF, and Sammons/Dutton LLC

Thornton Build-out Capacity. A second set of forecasts provide a perspective on the magnitude of developable land in Thornton to accommodate future commercial growth. The table below shows the amount of employment in the three DRCOG categories that was projected for all of Thornton in an earlier planning effort, along with the "build-out" capacity of the city given the city's zoning categories, future annexations and land uses planned at the time. While these forecasts may be somewhat out of date, the city has not revised the employment projections (as they have population and housing), but they are still instructive. Table 7 also shows the developed land associated with the employment at typical densities. The principal conclusion was that between 2000 and 2020, Thornton could absorb about 1,300 acres of commercial and industrial land. Even so, that would be less than half the total zoned capacity of over 5,400 acres.

Table 7. Thornton Economic Forecasts			
	2000	2020	Buildout
Employment (Jobs)			
Retail		17,645	41,808
Production		6,931	10,158
Service		16,960	81,412
Total	17,900	41,536	133,378
Employment (Acres)			
Retail		823	1,949
Production		795	1,166
Service		485	2,328
Total	814	2,103	5,443
Source: City of Thornton Thoroughfare Plan, 2000			

A preliminary analysis if the land characteristics as a part of this planning effort indicated that there are about 2,032 acres of developable land in the North Washington Subarea, after accounting for Big Dry Creek and other drainageways and the rights of way for future streets.

Retail Trade Area Demographics. The retail potential of the North Washington Subarea will depend on the characteristics of a trade area that extends well beyond Thornton. For purposes of this analysis a trade area has been defined extending approximately six miles north and south and five miles east and west of the intersection of I-25 and E-470. The boundaries include all of Thornton lying north of 120th, areas of Westminster and Broomfield north of 120th and west to the Boulder and Jefferson County lines, and the portion of Weld County lying south of Highway 52. The critical measure in retail analysis is the amount of income the residents of the trade area have to spend. In that regard the figures shown in Table 8 below are used to derive the Total Personal Income (TPI) in the trade area. The households are shown for 2010 and 2025 for three subareas.

The households for 2010 and 2025 were summed from DRCOG projections done last year for the TAZs that make up the trade area, except that for the Thornton portion the figures were modified to reflect the city's recent input to DRCOG's current update (not yet released) and adjusted to the city's overall forecast households for 2025.

The average household income for the trade area was derived from the market demographic statistics provided by the City of Thornton Business Development Office, adjusted to constant 2004 dollar values and increased by "real" growth of 1.0 percent per year throughout the forecast period. The result is a TPI in the trade area of over $5.71 billion by 2025.

Table 8. North Washington Trade Area Demographics

	2010	2025
Households		
Thornton North of 120th	19,700	28,300
Southwest Weld County	12,800	32,700
Westminster/Broomfield	12,100	20,300
Total	44,600	81,300
Average Household Income	$60,500	$69,500
Total Personal Income (TPI)	$2.72 Billion	$5.71 Billion

Source: Sammons/Dutton LLC

Real Estate Conditions

Construction and Absorption

As noted, the projection of the retail market and space demand will be tied to the trade area demographics, competitive patterns and the North Washington Subarea's locational advantages. The office and industrial potential will be determined in large part by regional growth and historical development patterns. In that regard, Table 9 below summarizes the total inventory of space and vacancy rates over time. Note that the vacancy rate and the pace of new construction in both office and industrial space have been cyclical over time; from the over-building in the early 1980s, to rapid growth in the late 1990s, to again a soft office market, although the industrial market should rebound with vacancy rates at minimal levels.

Table 9. Regional Office and Industrial Space Trends, 1980-2004

	Office Space			Industrial Space		
Inventory	Total	Vacancy Rate	Occupied	Total	Vacancy Rate	Occupied
1980	29,093,000	9.0%	26,475,000	105,691,000	2.8%	102,782,200
1990	69,585,300	23.1%	53,497,200	159,260,500	6.8%	148,510,400
2000	83,400,000	7.6%	77,061,600	173,870,000	4.6%	165,872,000
2004	95,395,000	17.9%	78,319,300	180,238,200	4.1%	172,848,400
Annual Average	**Built**		**Absorbed**	**Built**		**Absorbed**
1980-1990	4,049,230		2,702,220	5,356,950		4,572,820
1990-2000	1,381,470		2,356,440	1,460,950		1,736,160
2000-2004	2,998,750		314,425	1,592,049		1,744,100

Source: Sammons/Dutton LLC

Location of Office and Industrial Space

The distribution of this space around the region has been well established over time, with only a few significant changes. Among these are the emergence of the Boulder Turnpike as a major concentration of activity and the shift of industrial activity from the central railroad corridors to I-70 east in Denver and Aurora and near DIA.

Table 10 below summarizes the inventories reported by three major real estate companies grouped into major geographic areas. While their coverage varies and their subarea boundaries are not entirely consistent, some clear patterns emerge. In the office sector, Downtown Denver and the Southeast corridor account for 55 percent of the space. The Northeast sector, which includes Thornton, has only 3.4 percent. Thornton's 2.43 million square feet of office space accounts for about 2.5 percent of the region's total.

In the industrial sector, the Northeast is the largest sector and while that does include Thornton, most of that space is in the Montbello/Aurora/DIA areas. As noted earlier, Thornton has 1.52 million square feet of industrial space, less than 1.0 percent of the region's total.

Table 10. Office and Industrial Real Estate Inventory 2004				
Office	**Cushman & Wakefield**	**CB Richard Ellis**	**Fuller & Co**	**Average Distribution**
Denver CBD	23,861,499	23,856,978	28,638,523	23.9%
Other Central	10,219,803	9,359,093	19,806,971	12.3%
Aurora	4,374,609	5,616,176	8,317,604	5.7%
Northeast	1,959,919	3,214,285	5,582,321	3.4%
Northwest	5,972,074	7,845,189	12,065,351	8.1%
Southeast	28,284,128	32,189,458	39,933,113	31.4%
Southwest	9,623,521	6,785,245	8,959,343	7.9%
West	4,572,876	6,528,554	11,822,960	7.2%
Total Space	88,868,429	95,394,978	135,126,186	100.0%
Vacancy Rate	20.9%	17.9%	17.1%	
Occupied Space	70,294,927	78,319,277	112,046,633	
Industrial				
Central	19,609,438	18,979,644	36,622,545	13.3%
Northeast	77,020,170	87,521,094	80,121,185	43.4%
Northwest	33,279,376	17,615,992	27,122,873	13.8%
Southeast	15,754,637	15,224,103	18,694,687	8.8%
Southwest	20,768,470	23,665,554	24,330,882	12.2%
West	7,810,993	17,231,808	22,400,469	8.4%
Total Space	174,243,084	180,238,195	209,292,641	100.0%
Vacancy Rate	10.7%	4.5%	7.2%	
Occupied Space	155,599,074	172,127,476	194,223,571	

Source: Cited Companies and Sammons/Dutton LLC

Make-up of Industrial Space

While manufacturing and "high-tech" industries are generally considered desirable objectives of economic development efforts, warehousing and distribution activity make up about 60 percent of the industrial floor space in the region. Table 11 below shows the distribution of industrial space by type as reported by Cushman & Wakefield. Manufacturing and office-showroom are the next largest sectors.

Table 11. Industrial Space by Property Type					
	Square Feet			Percent	
	2000	2004	Change	2000	2004
High Technology	4,653,648	5,507,498	853,850	2.9%	3.2%
Manufacturing	29,923,160	30,534,124	610,964	18.7%	17.6%
Warehouse/Distribution	97,452,130	105,875,889	8,423,759	60.8%	61.1%
Other	5,240,480	5,405,868	165,388	3.3%	3.1%
Office Showroom	22,967,292	26,068,880	3,101,588	14.3%	15.0%
Total	160,236,710	173,392,259	13,155,549	100.0%	100.0%
Source: Cushman & Wakefield and Sammons/Dutton LLC					

Current Market Conditions

The recent economic slump has impacted the commercial real estate market. Office vacancies are the highest in years and rents are insufficient to support new construction. Indeed, much of the development activity has been in repositioning older buildings. As noted in Table 12 below, average rents are highest and vacancies lowest in the Denver CBD. In the industrial sector, vacancies are respectably low, but there has been little new construction over the past two years due to the lack of employment growth.

Table 12. Current Market Characteristics in Selected Submarkets		
Office Space	**Vacancy**	**Average Rent**
Central Business District	15.7%	$18.79
Southeast	17.7%	$14.69
Northwest	29.8%	$17.90
North	16.8%	$15.00
Overall	17.9%	$15.77
Industrial Space		
Airport/Montbello	5.5%	$4.17
North Central	3.3%	$4.64
Northwest	6.2%	$7.23
West	2.8%	$7.64
Overall	4.1%	$4.85
Source: CB Richard Ellis		

Commercial/Industrial Market Opportunities

The methodology for forecasting office and industrial demand is to:

1) Factor the regional employment forecasts (Table 6) into jobs in the office- and industrial-using sectors,

2) Convert that into building floor space demand using density ratios established by past trends,

3) Add a factor for the replacement of obsolete space,

4) Convert the building space demand to land demand using typical floor area ratios (FARs), and

5) Establish a range of potential capture for Thornton and the North Washington Subarea.

Office Development Potential

Table 13 below shows the derivation of the office demand for the Denver region. The first column shows the percentage of each sector's employment that is deemed to occupy office-type space. The next three columns show the resulting office-using employees, currently and in 2010 and 2025. The ratio of building space to employees comes from long–term trends tracked since the early 1980s. The total increase in demand for each time period reflects normal vacancy rates plus the replacement factor. In the office analysis there is an additional step. Office densities (FARs) vary considerably between urban and suburban locations. Only when land values reach the point that it is less expensive to build a parking garage than to acquire land for surface parking will FARs exceed the practical limit of 0.20-0.30 dictated by parking and open space requirements. Therefore only the suburban share, estimated at 60 percent of the future growth in demand, has been converted to land demand.

The suburban office land absorption for the Denver region is projected to be 846 acres by 2010 and an additional 2,066 acres between then and 2025.

Table 13. Office Space Demand Forecast, Denver Region

	Percent Office Using	Office Employment 2004	2010	2025
Mining	75%	5,625	4,500	3,300
Construction	5%	4,925	5,330	5,155
Manufacturing	15%	16,650	16,965	16,110
TCU	35%	37,940	44,135	48,685
FIRE	100%	101,700	114,300	137,800
Services	45%	205,020	256,365	359,820
Government	20%	38,800	41,620	47,320
Total Office Employment		410,660	483,215	618,190
Occupied sq ft per emp.		201	200	200
			2004-2010	2010-2025
Demand for New Space			11,986,100	29,994,500
Replacement	500,000 sf per year		3,000,000	7,500,000
Total Construction			14,986,100	37,494,500
Suburban Density Share	60.0%		8,991,660	22,496,700
Suburban FAR	0.25			
Acres Absorbed			826	2,066

Source: Sammons/Dutton LLC

Thornton and North Washington Subarea Office Potential. Most of the office space in Thornton is located either in Washington Square, the business park north of 120th between I-25 and Washington, or around the hospital and civic center in the City Center redevelopment area. The only recent construction has been medically-oriented space near the hospital and several smaller buildings in Washington Square. Existing office space in Thornton represents about 2.5 percent of the metropolitan total. Regarding the future, the market dynamic will change. As residential growth extends north, the demand for consumer-oriented office space will increase. E-470 and the Northwest Parkway give the North Washington Subarea a regional focus, which with the stimulus of Larkridge will attract larger single-tenant employers. Nevertheless, the momentum of office development is well established to the southeast along I-25 and, more recently, the Boulder Turnpike. And the Gateway area near DIA will over time become a major employment concentration. With the overall pattern in mind, Thornton could over time attract 10-15 percent of the suburban office market in the future. That would be 290-430 acres developed by 2025. What share of that could be accommodated in the North Washington Subarea will depend on many factors, including the outcome of this planning

process. Its prime location, easy access and high visibility along I-25 and E-470 put it in a position to attract a large share of this potential, but there are other areas within Thornton, such as the City Center and Washington Square, and other interchanges along E-470 that will compete for a share of this market. As a planning target, the North Washington Subarea could expect to attract 60 percent of the city's potential, or up to 260 acres by 2025

Industrial Development Potential

Table 14 shows a similar calculation of the projected industrial space and land demand for the Denver region. Using density and FAR factors appropriate for industrial uses results in a projection of industrial land absorption of 3,013 acres by 2010 and an additional 3,614 acres by 2025. As noted earlier, most of this will be in warehouse and distribution activity.

Table 14. Industrial Space Demand Forecast, Denver Region

	Percent	Industrial Employment		
	Ind. Using	2004	2010	2025
Mining	25%	1,875	1,500	1,100
Construction	25%	24,625	26,650	25,775
Manufacturing	85%	94,350	96,135	91,290
TCU	45%	48,780	56,745	62,595
Wholesale Trade	100%	78,600	87,500	99,500
Services	20%	91,120	113,940	159,920
Total Industrial Employment		339,350	382,470	440,180
Occupied sq ft per emp.		509	525	525
			2004-2010	2010-2025
Demand for New Space			33,375,405	32,231,600
Replacement	1,000,000 sf per year		6,000,000	15,000,000
Total Construction			39,375,405	47,231,600
Average FAR	0.30			
Acres Absorbed			3,013	3,614

Source: Sammons/Dutton LLC

Thornton and North Washington Subarea Industrial Potential. Thornton does not have a well established base of industrial activity. The largest users are the warehouse components of American Furniture Warehouse and Soundtrack. In fact the largest "manufacturing" building in the city's inventory is the old Gerry Baby Products building, which

is now occupied by the Adams 12 School District. These three buildings account for two-thirds of the industrial space in the city, which is, in turn, less than 1.0 percent of the region's industrial space. The most recent addition to the city's industrial base is the Hunter-Douglas facility at 128th and Washington. This 116,000 square foot building is the first in a 71-acre business park that could accommodate up to one million square feet of space. As with office space, the competitive position of the I-25 and E-470 corridors will change and Thornton can expect to see its share of industrial development increase, should it wish to do so. Any significant increase would require accommodating the warehouse and distribution sector, which makes up the majority of the industrial market. Given the regional development patterns, the maximum market capture Thornton could expect to achieve would be 5.0 percent of the region's growth, which would amount to 330 acres by 2025. How much could be accommodated in or attracted to the North Washington Subarea again depends in part on the outcome of this planning effort. Large-scale warehouse and distribution facilities are not likely to be able to afford the land prices that the I-25 corridor will command, so the industrial demand may be limited to high-tech and light manufacturing sectors. Washington Square and the Hunter-Douglas project also have capacity to absorb additional space. As a planning target, the North Washington Subarea could expect to attract 33 percent of the city potential, or 110 acres by 2025

Retail Development Potential

As noted, the retail potential for the North Washington Subarea will be derived not from a step-down of regional demand, but from the specific demographics and needs of a specific trade area (Table 8). The amount of retail sales in a trade area is determined largely by the population of the area, the income level of the population and the amount of that income that is spent on retail goods. In analyzing the retail market, it is useful to look at various categories of retail goods. In this analysis, three broad categories have been used:

- "Shoppers goods," which include department stores, apparel, furniture, and single-line specialty stores such as sporting goods or books, tend to locate in major shopping centers or in clusters at high-access locations. Shoppers are willing to travel further from home to do comparison shopping to increase their selection and find the best price. Most expenditures for such goods are made at regional shopping centers or increasingly at "big box" specialty stores. Within the trade area currently the only significant shoppers goods space is at Thorncreek

Crossing (392,100 square feet) at 120th Avenue and Washington Street at the southern edge of the defined trade area. Larkridge (up to 2.0 million square feet), now under construction, will be the first true regional-oriented center in the trade area

- For "convenience goods," expenditures are made closer to home and generally at a neighborhood center or retail strip anchored by a supermarket. This category includes grocery stores, pharmacies and liquor stores. Such uses tend to be concentrated in supermarket-anchored neighborhood shopping centers. Mission Trace (218,300 square feet) and Thornton Plaza at 120th Avenue and Colorado Boulevard (123,900 square feet), and the new Homestead Hills center (130,000) at 136th Avenue and Colorado Boulevard now serve the Thornton portion of the trade area. Broomfield Plaza (180,800 square feet) is located at the far southwestern edge of the trade area.

- A third category encompasses "eating and drinking" establishments, which can exhibit the characteristics of either shoppers or convenience goods, depending on their market orientation and coverage pattern.

Some categories of retail sales that have extensive outdoor sales area, such as automobile dealers and nurseries, are not included in the analysis. Non-retail uses such as services, entertainment and community-serving office space that are often interspersed with retail activity in a shopping center commercial strip are addressed as an add-on to the retail space demand calculation.

The first step in the retail analysis is to estimate and project the expenditures of local residents in these categories. Table 8 earlier showed the households, average household income, and total personal income (TPI) of the trade area residents. Their retail expenditures are based on the typical percentage of TPI spent in each category. The expenditure in each category as a share of income is calculated from U.S. Census data for the State of Colorado. Note that this is the amount spent by residents of the trade area, without regard to where the purchases are made. Also this is based on the type of store in which the purchase is made, not the type of merchandise bought. Thus there may be a wide variation in the pattern in a small area, depending on the types of stores available—for example, clothing could be bought at a clothing store or a department store. Therefore the analysis is more valid regarding the totals in each of the three major categories, than in the individual subcategories. Table 15 below indicates the total expenditure potential of trade area residents for 2010 and 2025.

Table 15. North Washington Trade Area Retail Expenditure Potential			
	Sales Percent of TPI	2010 Expenditures	2025 Expenditures
Shoppers Goods			
General Merchandise	5.97%	$161,088,500	$337,325,900
Apparel & Accessories	2.17%	$58,553,100	$122,612,600
Furniture & Furnishings	3.14%	$84,726,600	$177,421,000
Hardware & Home Centers	1.64%	$44,252,100	$92,665,700
Specialty Stores	1.66%	$44,791,800	$93,795,800
Subtotal	14.59%	$393,682,000	$824,386,100
Eating & Drinking	5.32%	$143,549,600	$300,598,600
Convenience Goods			
Grocery Stores	7.14%	$192,658,600	$403,435,000
Specialty Food	0.10%	$2,698,300	$5,650,400
Health & Personal Care	1.26%	$33,998,600	$71,194,400
Liquor	0.80%	$21,586,400	$45,202,800
Subtotal	9.30%	$250,941,900	$525,482,600
Total Retail	29.21%	$788,173,500	$1,650,467,300
Source: Sammons/Dutton LLC			

The next step is to convert the expenditure potential into supportable square feet of development and the associated land acreage needed. This calculation, shown in Table 16 involves several steps:

- First, the expenditures are converted to supportable square feet by applying industry productivity standards, expressed as "sales per square foot" derived from the Urban Land Institute's annual publication, *Dollars and Sense of Shopping Centers*.

- Next, the supportable square feet of retail space is factored up to account for other service commercial and consumer-oriented offices that are typically a part of the tenant mix in a shopping center or strip commercial area. The ULI reference suggests that this about 20 percent of the total space.

- Finally, the total supportable square feet of space is translated to land needs based on a typical FAR of 0.20.

Based on these inputs, the projected need for retail land by trade residents will be 371 acres in 2010 and 776 total (not additional) by 2025.

Table 16. North Washington Subarea Retail Space Potential

	Sales per Square Foot	2010	2025
Shoppers Goods			
General Merchandise	$250	644,400	1,349,300
Apparel & Accessories	$350	167,300	350,300
Furniture & Furnishings	$300	282,400	591,400
Hardware & Home Centers	$300	147,500	308,900
Specialty Stores	$300	149,300	312,700
Subtotal		1,390,900	2,912,600
Eating & Drinking	$300	478,500	1,002,000
Convenience Goods			
Grocery Stores	$400	481,600	1,008,600
Specialty Food	$250	10,800	22,600
Health & Personal Care	$250	136,000	284,800
Liquor	$250	86,300	180,800
Subtotal		714,700	1,496,800
Total Retail		2,584,100	5,411,400
Supporting Service Commercial at: 20%		646,025	1,352,850
Total Retail and Service Commercial		3,230,125	6,764,250
Total Acres at Floor Area Ratio (FAR) of: 0.20		371	776

Source: Sammons/Dutton LLC

Thornton and North Washington Subarea Retail Potential. The retail potential identified does not limit the development that can occur if for example, stores can attract more shoppers from outside the trade area, including the transfer of some sales from existing centers to the south. On the other hand, the trade area defined is typical in terms of the coverage for a regional-oriented center, and the Northwest Parkway provides convenient access to the Flatiron Crossing area from much of the trade area. On balance, the 776 acres projected for the trade area potential is likely a reasonable limit on the total amount of space that can be absorbed by 2025. How this potential gets distributed among Thornton, Westminster, and Broomfield will depend on many factors. Clearly Larkridge will establish momentum in Thornton, and in the process take up about 200 acres of the identified demand. The space identified as "convenience goods" will be distributed throughout the trade area roughly in proportion to the population—about 12-15 supermarket-anchored centers overall, a few of which could be located in the North

Washington Subarea. How much of the remaining demand can be accommodated or attracted there depends in part on the outcome of this plan, but a reasonable expectation is that the 776 acres would be distributed roughly as follows: Larkridge, 30 percent; scattered neighborhood centers, 30 percent; and other major concentrations, 40 percent. The North Washington Subarea would then be in a position to attract 25 percent of the convenience centers and one third of the other major concentrations. The result is a potential development of 20 percent of the total trade area demand, or about 160 acres within the North Washington Subarea by 2025.

A Concluding Thought

While the commercial and industrial development potentials identified here are a practical limit on the development that might be expected by 2025, they are not necessarily a limit on the amount of land that might be planned for any given use as a result of the current planning process for two reasons. First, while 2025 was chosen as the target year for the analysis, development will not nor need not stop there. And second, even if the projection were to be achieved by 2025, there would need to be sufficient land designated for the intended uses to provide flexibility and choice of location to the developers and ultimate tenants in order to allow for an efficient and competitive land market. In a long-term planning exercise such as this, it is common to provide sufficient land to accommodate about twice the expected development.

In total, the commercial and industrial development potential within the North Washington Subarea adds up to 530 acres by 2025. With over 2,000 acres of developable land, there is ample land to assure an efficient land market and preserve the long-term continued development of the area. If on the other hand the objective is to develop the area more quickly, additional land use types might be considered and/or public policies and investments must be instituted with that objective in mind.