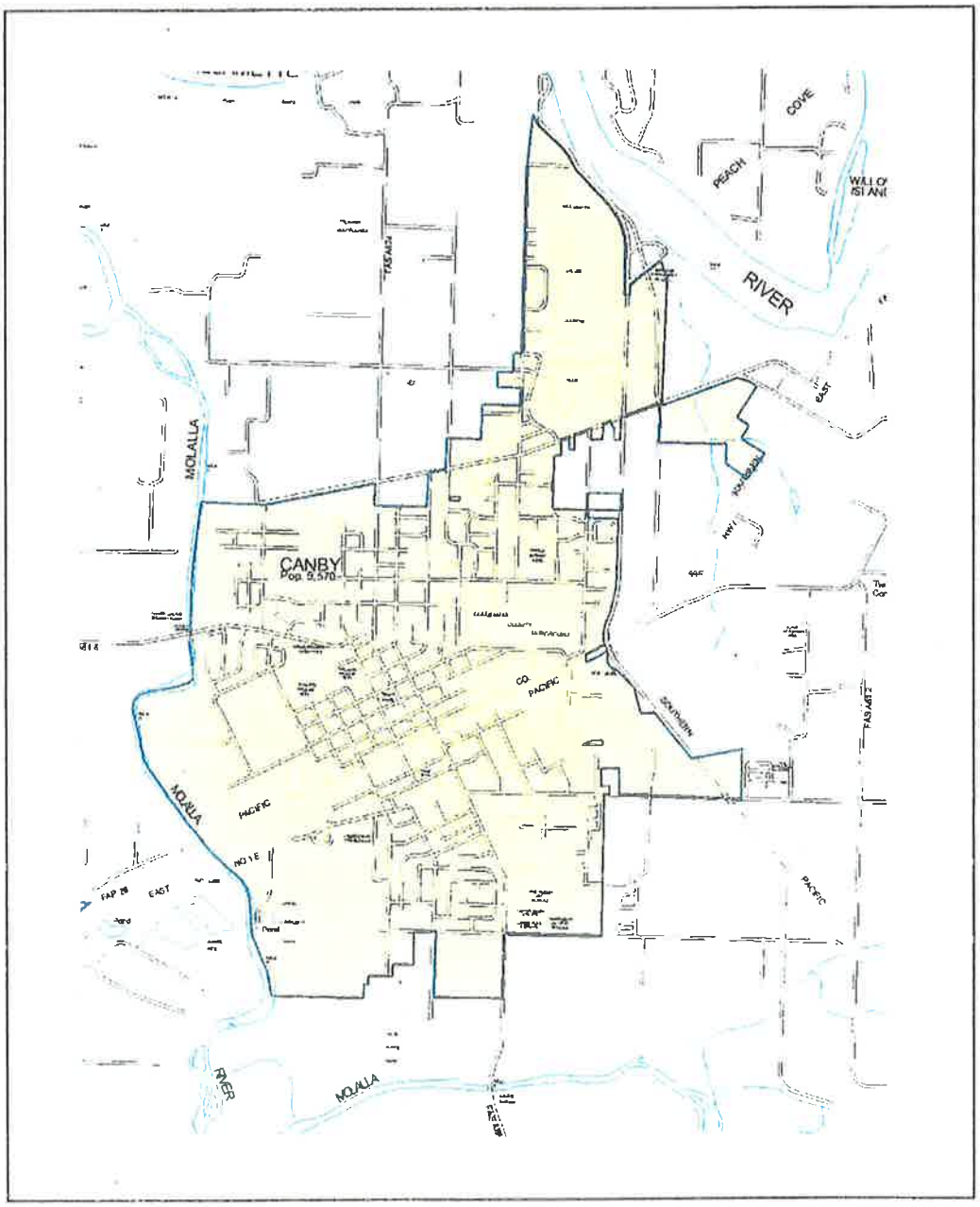
FINAL REPORT

Canby Land Needs Study



PREPARED BY

otak

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Acknowledgments

The Canby Land Needs Study was created with the assistance of the following individuals who volunteered their evenings to serve upon the Citizens Advisory Committee:

Citizens Advisory Committee

- Randy Carson
- Walt Daniels
- Teresa Engeldiner
- Delbert Hemphill
- Craig Lewelling
- Terry Prince
- Jerry Simnitt
- Terry Tolls
- Dana Tyler
- Duane Wilks

Also a special thanks to Ken Perinchief and other members of the public that regularly attended and actively participated in project meetings!

Project Sponsors

- City of Canby – Jason Kruckeberg, Planning Director.
- Oregon Department of Land Conservation and Development, Transportation Growth Management Program – Bill Adams, Project Coordinator.

Consultant Team

- Otak — Todd Chase, Project Manager and Simona LaMorticella, Planner

Executive Summary

Introduction

This Canby Buildable Lands Study is being conducted to provide a current factual basis of land use information to assist the City in determining appropriate updates to its Comprehensive Plan and its local Zoning and Development Ordinance.

The City of Canby Land Needs Study includes a very thorough assessment of land supply and demand inside the current Canby Urban Growth Boundary (UGB). The supply inventory was compiled by the City of Canby using their geographic information systems (GIS) land area data base. The land supply is sorted by comprehensive plan designation, and includes a compilation of vacant, underdeveloped, and infill parcels.

Residential Land Needs

The demand assessment for residential is based on population forecasts that have been formally acknowledged and accepted by the City of Canby and Clackamas County in the Summer/Fall of 1998. Under House Bill 2709 statutory requirements, the past five years of actual development experience has been used as an indicator of future residential land use density projections.

The conclusions of this study indicate that an adequate supply of residential land exists to meet growth requirements; however, there is a significant oversupply of low density (LDR/R-1) land and an undersupply of medium- and high-density (MDR/R-1.5 and HDR/R-2) land required to meet 20-year land needs.

Commercial Land Needs

The Canby Development Code allows retail development to occur in industrial and manufacturing zones. In fact, there is very little difference in the commercial uses that are permitted in light and heavy industrial zones, and major new commercial developments such as the Canby Market Center are now being constructed within industrial zones.

This study concludes that the current buildable commercial land area in traditional retail locations (RC, CC, DC and HC zones) can adequately serve retail land needs as long as up to ten acres of industrial land area are used for commercial development and neighborhood commercial is incorporated into Planned Unit Developments (PUDs) or Specific Plans. To the degree that PUDs and Specific Plans are pursued in low-density residential areas (as recommended), additional neighborhood commercial demand would be met in residential zones, thereby improving the balance of commercial land demand and supply.

Industrial Land Needs

The buildable industrial land supply inside the Canby UGB can adequately meet projected industrial land needs. Using employment sector growth projections and recent development density trends as a basis for our land needs forecasts, the industrial land base (403 net acres) can adequately meet demand (140 net acres) over the next 20 years. While the demand analysis does not reflect the impact of large (40+ acre) users; it is apparent that even if industrial absorption was twice that assumed (with absorption of 340 acres of industrial land), the buildable industrial land supply inside the Canby UGB is more than adequate to meet 20-year land needs.

Policy Considerations

In light of the findings contained in this report, the following general land use policies and code amendments should be considered during the periodic review process:

- Development code amendments to ensure that medium and high density housing development patterns are attained on designated (R-1.5 and R-2) plan areas.

- The City of Canby should also consider the possibility of rezoning selected low density (R-1) land to R-1.5 or R-2 zones.

- The City should designate selected undeveloped areas within the UGB for future Planned Urban Developments (PUDs) and/or Specific Development Plans. The intended result of PUDs and Specific Plans is to provide an efficient mix of housing types and densities in a manner that is consistent with public facilities (roads, utilities, schools, etc.) and market conditions.

- The potential of "filling in the holes" by amending its UGB to add selected interior parcels (rather than UGB fringe land) to partially meet residential land is viewed less favorable by DLCD in comparison to Comprehensive Plan amendments and/or zone changes that accomplish similar objectives.

Additional land use policy and code considerations are described in this report. These polices shall be further evaluated and considered during the periodic review process.

Introduction

Purpose

The Oregon Department of Land Conservation and Development recently notified the City of Canby that it must comply with state land use planning goals through a periodic review and update of its Comprehensive Plan. This Canby Buildable Lands Study is being conducted to provide a current factual basis of land use information to assist the City in determining appropriate updates to its Comprehensive Plan, Zoning, and Development Ordinance. Major objectives of this study include the following:

- Comply with ORS 197.296 (Buildable Lands for Development) and Goal 10 Housing.
- Ensure that development can occur at the densities and mix needed to meet the City's housing, commercial and industrial needs.
- Determine if there is enough buildable land supply to accommodate 20-year residential and commercial/industrial needs inside the urban growth boundary.
- Identify compact transportation efficient development and design principles to consider in housing development alternatives.
- Actively engage citizens in the analysis and decision making processes related to this project.

Study Process and Citizen Participation

The Canby Buildable Land Needs Study was initiated in May 1998 and was completed over a 13-month time period. The project engaged local citizens through the formation of an ad hoc Citizens Advisory Committee (CAC) which met on six occasions over the study process. The makeup of the CAC consisted of ten members:

- Planning Commissioner (1)
- City Council Representatives (2)
- Chamber of Commerce Rep. (1)
- Senior Citizen Representative (1)
- Local Citizens (3)
- Commercial/Industrial Representatives (2)

CAC members functioned as a local advisory group and "sounding board" throughout the Buildable Land Needs Study. All meetings were advertised locally and the general public was always welcome. A copy of the meeting minutes are included in Appendix A.

Report Organization

The Canby Buildable Lands study is organized into five sections.

Section 1, Executive Summary — Describes overall study findings and conclusions.
Section 2, Introduction — Includes an overview of the study purpose and process.
Section 3, Residential Land Needs — Includes detailed residential demand and supply findings.
Section 4, Commercial/Industrial Land Needs — Provides findings on commercial and industrial supply.
Section 5, Conclusions and Policy Considerations — Identifies overall study findings and draft land use code considerations.

This study focuses on existing buildable lands within the Canby UGB. Figure 1 illustrates current comprehensive plan designations in the Canby UGB.

Residential Land Needs

This section describes the anticipated 20-year housing needs for the Canby Urban Growth Boundary and compares housing land needs with available supply.

Methodology

The residential land needs for any jurisdiction are directly attributed to population and household growth potential. Because the City of Canby functions as part of the larger Portland-Vancouver Primary Metropolitan Statistical Area, its growth potential is directly related to the economic strength of the region. Regional and Clackamas County population growth forecasts prepared by the Oregon Office of Economic Analysis and the Portland Metropolitan Service District (Metro) were used to determine underlying population growth potential for the City of Canby.

As per ORS 197.296 (HB 2709) and ORS 195.036 (coordinated population forecasts), the City of Canby is required to assess its buildable land needs for housing in accordance with specific planning requirements. The City of Canby is held to these statutes since its rate of population growth exceeded the state's average growth rate in at least three of the last five years. The key provisions of HB 2709 and the above statutes include the following:

1. Include redevelopable land in the buildable lands inventory [ORS197.295(1)];
2. Coordinate population forecasts with the County and State [ORS 195.036];
3. Determine actual density and mix of residential development since last period review or last five years [ORS.296(3)(c)];
4. Provide sufficient buildable lands to meet projected needs [ORS 197.296(2)];
5. Amend the UGB and/or adopt measures to provide 20-year housing need [ORS 197.296(2) and ORS 197.296(4)];
6. Adopt measures to increase the likelihood that needed residential development will occur [ORS 197.296(4)(a)];
7. Monitor and record the level of development activity and density by housing type [ORS 197.296(4)(b);
8. Ensure land zoned for needed housing types is in locations appropriate for and zoned at density ranges likely to be achieved [ORS 197.296(7)]; and
9. If UGB is recommended for expansion, include land in this order urban reserves; exception, non-resource lands, marginal lands, and resource lands [ORS 197.298].

Population and Households

The City of Canby's population forecast is based on Clackamas County, Portland Region and State forecasts by the Oregon Office of Economic Analysis (OEA),

Department of Administrative Services, as published in *Long-Term Population and Employment Forecasts for Oregon*, January 1997.

As indicated in Table 1, The City of Canby's population base included 11,725 residents in 1997. Population growth rates in the City of Canby have averaged 3.8 percent annually since 1990, up significantly from 1.6 percent annual growth recorded during the 1980s.

The OEA forecast assumes that Clackamas County's population growth rate will range from 1.7 percent to 2.2 percent annually over the 1998 to 2020 time period. The City of Canby will likely exceed these growth rates given recent development and population trends and the fact that urban area growth tends to exceed rural area (outside UGB) growth under Oregon's Land Use Planning Goals, as adopted in 1973. Hence, urban area growth rates usually exceed average growth rates for the whole County.

Historic population estimates are consistent with decennial U.S. Census Bureau data and estimates by Portland State University, Center for Population Research and Census. Otak used the following methodology in preparing four population forecast alternatives for the City of Canby as summarized in Table 2. Note, more detailed population forecast methods that take into account in-migration, births, and deaths were considered but discarded in light of Canby's small size. The supporting methodology analysis for the population projections are included in Appendix B.

Canby Transportation System Plan Forecast
This forecast utilizes growth projections contained in the adopted Transportation System Plan (TSP) which was adopted by City Council as an interim plan in 1994. The average annual growth rate of 3.4 percent is extrapolated for the years 2000 - 2020 and estimates for 1997 and 2000 are interpolated from the TSP. The long term growth rate is generally consistent with the existing City of Canby Comprehensive Plan (1993 update).

Shift-Share Optimistic Forecast
This forecast is based on the City of Canby capturing an "optimistic" share of the County's population growth. It takes 27 years of historic growth rates into consideration and forecasts 2020 growth rates based on an allocation of past capture rates. The shift-share optimistic growth scenario is optimistic since it assumes future capture rates will continue to remain almost as high as that which occurred over the past few years. This results in annual growth rates ranging from 2.7

Table 1

Adopted Population Growth Forecasts
Clackamas County and City of Canby

Population Growth Forecasts

	1970	1980	1990	1995	1997	2000	2005	2010	2015	2020
State of Oregon	2,091,000	2,633,000	2,842,000	3,132,000	3,237,954	3,406,000	3,631,000	3,857,000	4,091,000	4,326,000
Portland Region 1/	920,900	1,105,699	1,249,480	1,379,700	1,427,737	1,504,046	1,606,320	1,710,228	1,819,923	1,931,281
Clackamas County	166,100	241,919	280,935	308,600	317,000	338,247	369,683	403,915	441,193	480,392
Canby (Comp. Plan)	3,813	7,659	8,990	10,855	11,725	12,381	14,536	17,066	20,040	n/a
Canby (TSP /2)	3,813	7,659	8,990	10,855	11,725	12,098	14,314	16,936	20,040	n/a

Population Growth Rates

	1970-80	1980-90	1990-95	1995-97	1997-2000	2000-05	2005-10	2010-15	2015-20
State of Oregon	2.3%	0.8%	2.0%	1.7%	1.7%	1.3%	1.2%	1.2%	1.1%
Portland Region 1/	1.8%	1.2%	2.0%	1.7%	1.8%	1.3%	1.3%	1.3%	1.2%
Clackamas County	3.8%	1.5%	1.9%	1.4%	2.2%	1.8%	1.8%	1.8%	1.7%
Canby (Comp. Plan)	7.2%	1.6%	3.8%	3.9%	1.8%	3.3%	3.3%	3.3%	n/a
Canby (TSP /2)	7.2%	1.6%	3.8%	3.9%	1.0%	3.4%	3.4%	3.4%	n/a

1/ Portland Region includes: Clackamas County, Multnomah County, Washington County, and Yamhill County.
2/ Canby Transportation System Plan, adopted as interim plan by city council in 1994.
Sources: County data from Oregon Office of Economic Analysis, Long Term Population and Employment Forecasts for Oregon (January 1997). City data from Portland State University, Center for Population Research and Statistics. Future city projections interpolated and extrapolated from Comprehensive Plan and TSP.

Table 2

City of Canby
Population Growth Forecasts
Transportation System Plan 1/ and Shift-Share Growth Scenarios 2/
1990 to 2020

Population Growth Forecasts

	1990	1997	2000	2005	2010	2015	2020
TSP Forecast	8,990	11,725	12,098	14,314	16,936	20,040	23,690
Shift-Share Optimistic	8,990	11,725	13,340	15,720	18,320	21,150	24,120
Shift-Share Most Likely	8,990	11,725	13,190 12790	14,920	16,800	18,850	21,000
Shift-Share Low Growth	8,990	11,725	12,831	14,362	16,029	17,844	19,753

Annual Population Growth Rates

City of Canby	1980-90	1990-97	997-2000	2000-05	2005-10	2010-15	2015-20
TSP Forecast	1.6%	3.9%	1.0%	3.4%	3.4%	3.4%	3.4%
Shift-Share Optimistic	1.6%	3.9%	4.4%	3.3%	3.1%	2.9%	2.7%
Shift-Share Most Likely	1.6%	3.9%	4.0%	2.5%	2.4%	2.3%	2.2%
Shift-Share Low Growth	1.6%	3.9%	3.0%	2.3%	2.2%	2.2%	2.1%
Clackamas County	1.5%	1.7%	2.2%	1.8%	1.8%	1.8%	1.7%

1/ Canby Transportation System Plan, adopted as interim plan by city council in 1994. Growth rate from TSP extrapolated from year 2015 to year 2020.
2/ Derived from Appendix Table A-1.

Sources: County data from Oregon Office of Economic Analysis, Long Term Population and Employment Forecasts for Oregon (January 1997). City data from Portland State University, Center for Population Research and Statistics.

percent to 4.4 percent over the projection period. While this is considered to be the "optimistic growth forecast" its growth rates are comparable to forecasts used for the Cities of North Plains and Sandy (Metro Neighbor City Studies, 1995-1997).

Shift-Share Most Likely Forecast

This is based on the City of Canby capturing a "realistic" share of the County's population growth. Like the other shift-share forecasts, it takes 27 years of historic growth rates into consideration and forecasts 2020 growth based on an allocation of past capture rates. The shift-share "most likely" scenario was considered the most realistic by the local CAC and assumes future capture rates will be slightly less than the robust growth that occurred over the past few years. This results in annual growth rates ranging from 2.2 percent to 4.0 percent over the projection period. This rate of growth is considered achievable in light of recent experience (local population grew at a 3.9 percent rate between 1990 and 1997). This forecast was recently adopted by the Canby City Council as their preferred forecast — in light of historic experience and given new policies requiring voter approval for annexation.

Shift-Share Low Growth Forecast

This is based on the City of Canby capturing a relatively low share of the County's population growth. Like the other shift-share forecasts, it takes 27 years of historic growth rates into consideration and forecasts 2020 growth based on an allocation of past capture rates. This shift-share scenario forecasts future growth at a rate that more or less reflects the past 25 years of local growth history and ranges from 2.1 percent to 3.0 percent. While this growth forecast is consistent with long-term historic rates of growth, it would result in less capture of County growth than in the most likely and optimistic scenarios.

Coordination Requirements

The preliminary population forecast scenarios were reviewed by the CAC and DLCD staff then sent to the Clackamas County Planning Department for their review. The CAC recommended that the City of Canby and Clackamas County acknowledge and accept the "shift-share most likely" population-forecast scenario. The written correspondence with Clackamas County on the "shift-share most likely" population growth scenario is included in Appendix A.

Housing Trends and Forecasts

The U.S. Census of Population and Housing provides a snapshot of housing characteristics during 1990. As indicated in Table 3, there were 3,245 housing units recorded in the City of Canby and 109,003 in Clackamas County during 1990. The 1990 housing stock in the City of Canby reflected a greater multifamily share of housing and more renter households than Clackamas County.

Table 3
Profile of Housing Characteristics
1990 Census of Population and Housing

	City of Canby		Clackamas County	
Total Housing Units by Type	**Number**	**Percent**	**Number**	**Percent**
1-unit, detached	2,179	67%	76,191	70%
1-unit, attached (duplex)	108	3%	2,498	20%
2-4 units, (townhomes)	335	10%	5,535	5%
5-9 units, (multifamily)	217	7%	3,624	3%
10 or more units	170	5%	9,687	9%
Mobile home, trailer, other	236	7%	11,468	11%
Total	3,245	100%	109,003	100%
Housing Tenure and Vacancy				
Owner-occupied units	2,102	66%	74,207	72%
Renter-occupied units	1,096	34%	29,323	28%
Total Occupied Units	3,198	100%	103,530	100%
Vacant units (and % of total)	47	1%	5,476	5%
Total	3,245	100%	109,006	

Source — U.S. Census of Population and Housing, 1990.

Otak evaluated recent trends in housing permit activity, development approvals, and housing stock characteristics. Table 4 reflects annual absorption of approved residential building permits within the City of Canby between 1990 and 1996. These data indicate that during this high growth period an average of 101 single

family and manufactured housing building permits were approved each year. Comparatively, there were 42 multifamily and duplex units approved annually between 1990 and 1996.

Table 5 denotes forecasted housing growth trends in light of the population projections described above and local assumptions for group quarters population, household size, and vacancy rates. Group quarters generally refers to population that is within non-household dwellings such as convalescent homes, hospitals, and correctional institutions. An increasing average population age characterized by a high number of "baby boomers" (people born between 1945 and 1965) reflects a slight expected growth in group quarters population. Another important trend to note is the decline in average household size, which reflects the aging baby boom generation and the emerging life style preferences of young couples.

Given the assumptions regarding population growth forecasts, group quarters population, average household size, and vacancy rates it is expected that the overall housing demand will increase in the City of Canby from 4,249 dwellings in 1997 to 8,057 dwellings by year 2020.

Population age is an important characteristic for determining tenancy patterns of owner versus renter preferences. Table 6 reflects changing household distributions by age group. The City of Canby is expected to mirror state trends in declining numbers of households younger than age 24 and increasing the number of households over age 65. Given recent immigration patterns of middle income households, the 25-66 age set is also expected to display growth in the City of Canby over the forecast time period. The resulting tenancy forecast shown in Table 6 anticipates that 79 percent of the housing units will be owner-occupied and 21 percent renter-occupied by year 2020.

Household income levels effects housing affordability and construction type. Appendix B includes a detailed analysis of current and projected households by income level. Recent immigration has enabled the City of Canby to catch up with Clackamas County in terms of household income levels. The estimated median family income level in the City of Canby was $40,914 in 1997 and is projected to increase to $44,849 by year 2020 in constant 1998 dollar amounts.

Table 4

Building Permits Issued
City of Canby, 1990 - 1996

Single Family and Manufactured Housing

Year	1990	1991	1992	1993	1994	1995	1996	Annual Avg.
Permits	85	184	64	114	147	45	71	101

Multifamily and Duplexes

Year	1990	1991	1992	1993	1994	1995	1996	Annual Avg.
Permits	42	18	9	59	34	30	100	42

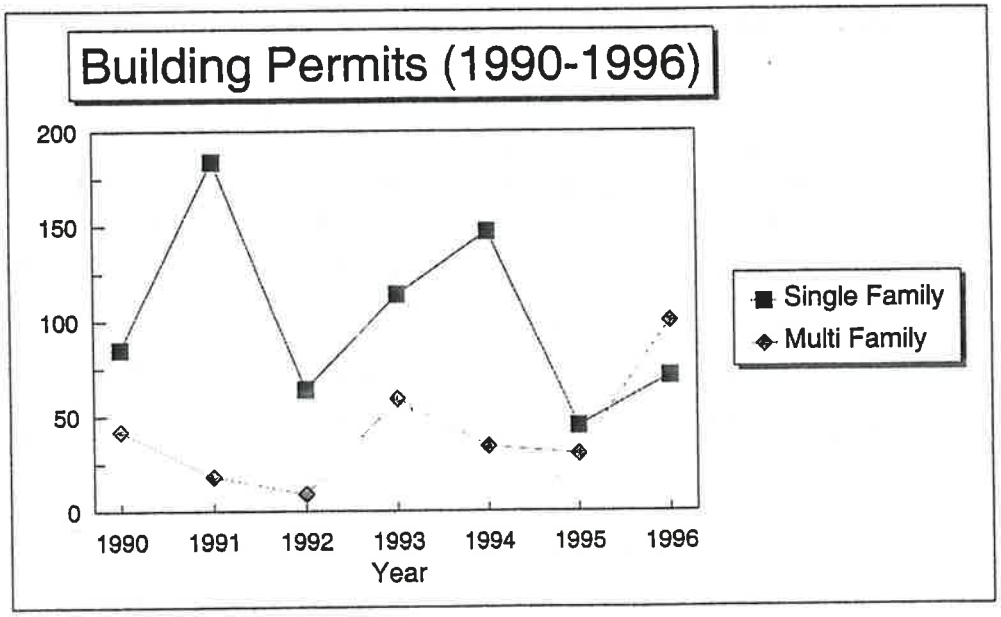

Table 5
Population and Housing Trends and Projections
Canby Urban Area

	1970	1980	1990	1997 Est.	2000 Proj.	2010 Proj.	2020 Proj.
Population	3,813	7,659	8,990	11,725	~~13,190~~	16,800	21,000
Less Group Quarters	70	140	164	214	~~241~~	336	462
Population in Households	3,743	7,519	8,826	11,511	~~12,949~~	16,464	20,538
% in Group Quarters	1.8%	1.8%	1.8%	1.8%	2.0%	2.0%	2.2%
Average Household Size	2.80	2.71	2.76	2.75	~~2.70~~	2.65	2.60
Households	1,337	2,773	3,198	4,186	~~4,796~~	6,213	7,899
Dwelling Units	1,364	2,828	3,245	4,249	~~4,892~~	6,337	8,057
Vacancy Rate	2.0%	2.0%	1.5%	2.0%	2.0%	2.0%	2.0

Table 6
Project 1998 to 2020 Housing Demand by Age of Householder
City of Canby
1998 to 2020 Projections

Age	1998 to 2020 Pop. Change[1]	Less Group Quarters Need[2]	Pop. in Households	Avg. Household Size[3]	1998 to 2020 Household Change
Less than 24	2,160	11	2,149	2.40	896
25-64	4,440	44	4,396	2.90	1,516
65 and above	2,280	68	2,212	2.10	1,053
Total:	8,880	123	8,757	7.40	3,465

	Tenancy Forecasts[4]		2020 Net Housing Demand[5]		
Age	**Owner**	**Renter**	**Owner**	**Renter**	**Total**
Less than 24	17%	83%	154	773	927
25-64	69%	31%	1,056	489	1,545
65 and above	79%	21%	840	230	1,070
		Total:	2,050	1,492	3,542

Source — Derived from Appendix Table B-2; compiled by Otak.

These household income projections and their effect on affordable home sales price levels is shown in Table 7. Actual 1993 to 1998 trends in Canby home sales prices indicated in Table 7 tend to support the market targets reflected by the demand projections without the need for public housing subsidies. For example, the for-sale market requirement by households earning less than $49,000 is 93 housing units priced below $160,000 between 1998 and 2020, or five percent of the total for-sale housing market demand. Actual home sales data since 1993 is shown in Table 8 and indicates that over 50 percent of the homes sold in the City of Canby were priced below $160,000.

Table 7
Net New Owner Demand by Price Level
Canby Urban Area
2020 Projection

Income Level	Less than $49,999	$50,000 to $74,000	$75,000 to $99,999	$100,000 to $149,999	$150,000 or more	Total/ Average	% Dist.
Net New Households[1]	93	1,126	497	110	37	1,863	
Supportable Home Value[2]							
Less than $160,000	93					93	5%
$160,000 to $241,000		1,126				1,126	60%
$241,000 to $321,000			497			497	27%
$321,000 to $482,000				110		110	6%
$482,000 or more					37	37	2%
Total:						1,863	100%

1. *Derived from Appendix Table B-6.*
2. *Assumes 25% of income allotted to housing cost, 7.0% interest, 30 year mortgage. Adjusted to 1998 dollar amounts.*

Table 8
Trends in Housing Sales Prices
Canby Market Area
1993 to 1998 (1st Quarter)

	Year							
Median Price	**1993**	**1994**	**1995**	**1996**	**1997**	**1997 (1st Q)**	**1993 to 1998 Total**	**%Dist. 1997 to 1998**
Less than $50,000	36	27	19	16	21	5	124	7%
$50,000 to $99,999	69	56	25	19	21	12	202	8%
$100,000 to $149,999	90	128	102	126	98	37	581	35%
$150,000 to $199,999	13	40	42	59	89	53	296	36%
$200,000 to $249,999	6	9	4	16	21	13	69	9%
$250,000 to $299,000	0	1	2	4	4	5	16	2%
$300,000 and above	5	0	0	1	10	1	17	3%
Total Units Sold	219	261	194	241	264	126	1,305	100%
Median Home Price	**$106,621**	**$118,199**	**$125,644**	**$138,174**	**$148,769**	**$155,952**		

Source — Pacific Northwest Title

A summary of existing and targeted housing characteristics in the City of Canby is summarized in Table 9. These data reflect actual 1980 and 1990 U.S. Census counts combined with recorded local subdivisions and developments based on City records. The housing unit demand mix in the City of Canby has shifted significantly over the past eight years towards medium and high density development, away from low density development patterns. The estimated 1998 dwelling unit mix consists of 61 percent low density (1 unit detached and manufactured housing), 17 percent medium density (2-4 unit attached dwellings), and 22 percent high density (5 or more units per structure).

Despite the high level of medium and high density development, the actual housing unit densities recorded between 1994 and 1998 indicate lower density levels than identified in the Canby Comprehensive Plan. The actual housing density averages range from 5.3 units per acre for R-1 (low density) to 10.6 units per acre for R-2 (high density). Comprehensive Plan goals are currently 5.5 units per acre for R-1, 6.8 for

manufactured homes, 8.0 for R-1.5 and RC, and 14.0 for R-2. Under the provisions for HB 2709, the past five years of development densities should be used as a guide for determining future land needs. Hence, the status quo density patterns shown in Table 10 were used as a guideline for establishing target densities within the Canby UGB.

Projected Residential Land Needs

The future housing demand in the City of Canby will be a function of individual household tastes and preferences and the availability of appropriately zoned developable land area. If the later factor is excluded as a constraint, it is possible to determine the overall supply/demand surplus/deficiency under a status quo density-forecast scenario.

Given the recent surge in medium to high density multifamily development in the City of Canby over the past five years, Otak analyzed three housing mix scenarios ranging from a "recent market scenario" which emphasizes medium and high density development to a "lower density scenario", which is more consistent with existing built conditions. The "most likely scenario" reflects the direction of the CAC and the local housing market in light of the demographics described above.

As shown in Table 11, the projected population increase is expected to induce housing demand by 3,643 units through year 2020. After deducting the existing units approved but not yet completed at the time of this analysis, the net housing demand is forecasted to be 3,369 units. Under the "most likely scenario" the distribution of housing demand is expected to be as follows:

Projected Dwelling Unit Demand and Land Needs 1999 to 2020

Housing Type	*Dwelling Demand*	*Land Needs (Before Infill)*	*Land Needs (After Infill)*
Low Density (R-1) Single Family Detached Manufactured Homes	 1,348 units 320 units	373 acres	368 acres
Medium Density (R-1.5 and RC) Townhomes (2-4 Attached Units)	724 units	147 acres	146 acres
High Density (R-2) Apartments/Condominiums (5+ Units)	977 units	106 acres	100 acres
Total	**3,369 units**	**626 acres**	**614 acres**

The next step in forecasting housing land needs entails converting these housing forecasts into land needs by applying recent density patterns evidenced by the past five years of approved development projects. Appendix B includes a detailed compilation of approved developments in the City of Canby since 1993.

Under the most likely scenario, Table 12 indicates the total amount of gross residential land needs required for the forecasted housing development to be on the order of 626 acres. The distribution of gross land needs by housing type is summarized above. It should be noted that these gross acre requirements also reflect land required for streets and utilities, as indicated on the footnote of Table 12. Additional adjustments have been made to the residential land needs in subsequent tables by accounting for known public facilities requirements for parks, schools, wetlands, and planned sewer and water facilities.

In-fill Development Potential

The ability to accommodate some potential housing developments through the use of in-fill or redevelopment helps to lower gross land need requirements. The methodology used to estimate in-fill potential is based on the inventory of under built residential home sites in the Canby UGB, which is depicted in Appendix C. The City's residential land inventory determined that there are 268 potential in-fill sites (on underdeveloped properties) throughout the UGB that could be partitioned at the owners discretion. This analysis assumes a 37 percent owner participation rate which is based on actual in-fill absorption experience in the City over the past five years.

As indicated in Table 1, in-fill development is expected to lower gross land needs by 12 acres over the 20-year time period.

Existing Residential Land Inventory

The City of Canby utilized their Geographic Information System (GIS) to inventory and map all known available buildable residential lands within the Canby UGB (please refer to Issue 2). The following map illustrates where existing buildable lands are located along with current comprehensive plan designations. A detailed tabular summary of buildable lands is provided in Appendix C.

A summary of existing buildable residential lands in the Canby UGB is shown in Table 13. There is currently a total of 214.8 gross acres of residential land that is considered buildable within the Canby UGB. This includes over 193 acres of low

density R-1 land, 2.3 acres of medium density R-1.5 and 1.2 acres of residential-commercial (RC) land, and 17.7 acres of high density (HDR/R-2) land.

The City of Canby planning staff also tabulated underdeveloped supply on existing unpartitioned built home sites greater than one-half acre. Given the rural agriculture-oriented nature of the City of Canby, there are several large home sites that were (or are) used for farming and agriculture production. The underdeveloped properties account for an additional 622.6 acres of gross residential land area, of which the majority (588 acres) are in R-1 low density plan designations.

Table 14 indicates that after deducting 101.6 acres for known public facilities (schools, utilities, parks, wetlands) from the R-1 inventory, the remaining gross developable acres for residential land use amounts to 735.8 acres of gross buildable land area.

Comparison of Residential Land Supply and Demand

Building upon our prior work, Table 15 describes the forecasted residential land surplus or deficit by plan designation. The most likely demand scenario reflects recent density patterns over the past five years.

Summary of Projected 20-Year Land Needs (Acres)

Land Supply Overage (Deficiency)	
Low Density (R-1)	312.8
Medium Density (R-1.5 and RC)	(134.8)
High Density (R-2)	(56.2)
Total	**121.7**

It is evident that Canby has an adequate overall residential land supply, but a potential surplus of low-density land, and shortage of medium- and high-density land areas.

Commercial and Industrial Land Needs

This section includes an evaluation of the 20-year commercial and industrial land needs within the Canby UGB.

Methodology

A three step approach was used to evaluate commercial and industrial land needs in the City of Canby Urban Growth Boundary (UGB):

Step 1 — Update Land Inventory

Using a Geographic Information Systems (GIS) mapping database, the City has identified existing vacant, underdeveloped, and redevelopable land within the UGB with commercial and industrial comprehensive plan designations. These land use designations include the following:

- Residential/Commercial (RC)*
- Convenience Commercial (CC)
- Downtown Commercial (DC)
- Highway Commercial (HC)
- Manufacturing/Commercial (MC)
- Light Industrial/Manufacturing (M1)
- Heavy Industrial/Manufacturing (M2).

Partially developed land is classified as "underdeveloped" if over a ½ acre of developable land exits on a single parcel, after accounting for any existing structures, parking, and off-street access/circulation. In most instances, underdeveloped land areas will be used for internal business expansion.

Redevelopable properties include parcels with non-conforming land uses (e.g., a farm house on a large industrial designated parcel) and partially developed parcels that have relatively low land/improvements valuation (e.g., a shed or dilapidated structure on a parcel).

Step 2 — Evaluate Commercial and Industrial Land Needs

Recent trends and regional demographic and employment forecasts were evaluated to understand the economic forces that are underpinning commercial and industrial job growth in the City of Canby. This step builds upon related population and the housing needs analysis that was conducted as part of the Canby Land Needs Study. Trends and forecasts for employment, retail sales, and commercial/industrial land absorption were formulated as a basis for determining 20 year land needs.

Step 3 — Comparison of Land Supply and Demand

This important last step compares the results of Steps 1 and 2 to draw conclusions regarding the adequacy of the City of Canby's commercial and industrial lands.

Socio-economic Conditions

Commercial and industrial land needs are fueled by the strength of the regional economy. As the Greater Portland Metropolitan Area adds jobs and households, effects on neighboring cities are evidenced in terms of changing property values, consumer income/buying patterns, travel patterns, and land use conditions. This regional growth coupled with the success of UGBs, results in fundamental changes to neighboring cities including Canby.

Any assessment of local commercial and industrial land needs should be consistent with larger County and regional job growth forecasts. The Metro prepares annual updates of long-range job growth forecasts in line with its regional planning directives. Metro's job growth forecasts are consistent with national, state, super-regional economic trends, and forecasts prepared by the Federal Bureau of Economic Analysis. A county-wide suballocation of regional job growth is generated by Metro in conjunction with its member jurisdictions.

While agricultural employment continues to serve as a critical basis for the City of Canby and Oregon state economy, this land needs analysis focuses on non-farm land needs within the UGB. It should be noted that agricultural production, particularly outside UGBs, will support much of the primary non-farm commercial and industrial land needs inside UGBs.

Non-farm employment trends and projections for Clackamas County are provided in Table 16. Employment in Clackamas County more than doubled between 1980 and 1998, increasing from 72,900 to 151,400 jobs. Clackamas County's job forecasts are expected to increase at the rate of 4.5 percent annually through year 2020, which is slightly higher than the growth rate experienced over the past decade (4.2 percent). The job forecast for Clackamas County expects over 105,000 new jobs by year 2020. The City of Canby is positioned to participate in this "impending boom" in County job growth.

Available employment census data already demonstrates rapid recent job growth in the City of Canby. As indicated in Table 17, employment in the City of Canby more than doubled from 877 jobs in 1982 to 1,943 jobs by year 1992.

A recent inventory of major employers within the Canby area indicates that the top seven private businesses employ as many as 825 full and part-time workers. Table 18 lists these major private employers along with the Canby School District, which employs an additional 500 workers, of which 440 work within the Canby UGB. Interviews with major employers within the City of Canby concluded that all of these employers were anticipating stable or expanding operations (as of January 1999).

As a traditional agricultural rural service center, the City of Canby's labor force reflects a job distribution that leans towards slightly more agriculture and trade sectors than Clackamas County as a whole. The census data summarized in Table 19 also indicates slightly lower distribution of jobs in manufacturing, transportation, communications, utilities, and service occupations in the Canby area than in the entire County.

While the percentage of Canby workers that "worked at home" was below that reported for the County (7 percent versus 11 percent), we anticipate there to be less of a discrepancy today given increased job growth levels and telecommuting patterns.

Job growth projections that were assumed by the City of Canby's Transportation System Plan (TSP) were reviewed as part of this study. The Canby TSP was adopted as an "interim" transportation planning element of the City's Comprehensive Plan by City Council in 1994. Hence, the inherent job growth forecasts are already acknowledged as local job growth targets.

As indicated in Table 20, the TSP estimated jobs in the Canby UGB at 1,991 jobs in 1994, and projected build-out to be 10,086 jobs. Since the TSP covers a 20 year planning horizon, we can assume the buildout was expected to occur by approximately the year 2015. A review of the TSP job growth forecast indicates a fairly reasonable retail job growth forecast, a lower than actual count of school related jobs, and a very high anticipated industrial job forecast. While the TSPs assumption of an additional 6,440 industrial jobs is possible by ***buildout***, reaching that level of growth by year 2015 is unlikely.

As part of our review of local labor force characteristics, a comparison of educational attainment between the City of Canby and Clackamas County (Table 21) indicates relatively low educational attainment levels for city residents (as of 1990). We feel that the recent surge in housing development and population in Canby during the 1990s has narrowed differences between city and county educational attainment levels to a point where it has little, if any significance on job growth potential.

Commercial and Industrial Land Needs

The City of Canby, like other "bedroom communities" in the Greater Portland Metropolitan Area, experienced significant development pressure during the 1990s as new residents sought locations with "small town atmosphere" and relatively low housing costs. As population increased so too did disposable income. This added buying power continues to drive up the demand for retail sales and personal services. Next, commercial development occurs to satisfy the increases in demand for retail and support services. Eventually, municipal services need to be expanded, as new roads, schools, police, fire, and school facilities are added.

Commercial Retail Demand

The analysis of commercial retail potential takes into account local population, households, income, and retail expenditure potential. Table 22 describes estimated 1992 retail expenditures in the City of Canby. At that time, there were an estimated 9,686 people residing in 3,446 households with an aggregate gross income of $126.2 million. Using the U.S. Consumer Expenditure Survey, Western U.S. Region as a basis for estimating supportable retail expenditures, we expect that 41.9 percent or $52.9 million in retail sales were supported by local Canby households in 1992.

According to the U.S. Census of Retail Trade, the City of Canby had $68.9 million in retail sales during 1992. That sales level exceeded the locally supportable retail demand by approximately 23 percent, almost $16 million. This high level of retail inflow is typical of many rural service centers throughout Oregon that function as a centralized location for the exchange of goods and services.

The future potential for retail and commercial services in the City of Canby is also based on population, housing, and income expenditure patterns. Using population, housing, and income projections prepared during the Canby Land Needs Study, Table 23 forecasts the City of Canby's aggregate gross income to increase by $164.4 million by year 2020 (in constant dollar amounts). Once aggregate annual gross income levels are determined, Otak estimated supportable retail space using the following assumptions:

- The U.S. Consumer Expenditure Survey was used to allocate net new retail sales among major store/business groups.

- Retail sales inflow is expected to remain fairly consistent with excising levels (25 percent of total sales) given major retail additions, including the new Canby

Market Center development anchored by a 165,000 square foot Fred Meyer prototype store.

- The Urban Land Institute, *Dollars and Cents of Shopping Centers* report was relied on to estimate average annual retail sales in community shopping centers at approximately $200 gross sales per square foot.

Using these assumptions, the supportable level of retail and commercial service development is approximately 575,000 square feet of new space in the City of Canby by year 2020. Some of this development will be met by the 165,000 square foot Canby Market Center, leaving an additional retail/service demand of 410,000 square feet.

Later in this memorandum, we consider the implications of land demand by building type. For that purpose we expect that approximately 85 percent of the net retail demand will be accommodated by more traditional retail center and downtown infill development, and 15 percent will go into flexible space that is developed for either commercial or light industrial tenants. Hence, we expect the net new supportable retail space demand in the Canby UGB to be 348,000 square feet between year 2000 and 2020. The flex space demand from the retail/service sector is forecasted to be 62,000 square feet over this 20-year projection period.

Commercial and Industrial Job Growth Forecasts

Additional analysis of the City of Canby's existing and future year 2020 job allocation by commercial and industrial sector sheds light on how much future space and land area is required to accommodate expected job growth. Table 9 provides a comparison of the City of Canby and Clackamas County in terms of projected job growth by sector. As mentioned above, retail and public sector job growth are expected to be supported by population, income and expenditure patterns. Other important implicit assumptions to Table 24 include the following:

- Given the City of Canby's distance from interstate highways, we anticipate a moderate increase in the City's Wholesale Trade job base.

- Manufacturing or "General Industrial" job growth is expected to far outpace that of the County since the City's industrial inventory represents the majority of the County's available industrial land supply.

- Service/Flex jobs are also expected to increase significantly in the City, albeit at a lower proportion of total job growth than the County as a whole.

Population projections are an important planning policy target that is now required under ORS 197.296 (HB2709) and ORS197.036 Another important local planning policy target which is not yet a state planning requirement is the establishment of jobs and housing ratio targets. The current ratio of jobs to households in the City of Canby has remained fairly constant since 1990 at 0.55 jobs per household. This study assumes a Canby policy target of 1.3 new jobs per each new household. Given the allocation of employment as stated in Table 24, total jobs in the City of Canby are projected to increase from 2,904 today to 7,349 jobs by year 2020.

Table 25 identifies how the City of Canby job growth is likely to be allocated given the assumptions stated above. Retail jobs in the City are expected to increase from 984 in 1999 to 2,334 jobs by year 2020. Employment classified as general industrial and service/flexible categories will likely demonstrate the most significant job gains. General industrial jobs are projected to increase from 700 to 2,114 jobs, and service/flex is projected to increase from 480 to 1,732 jobs. Wholesale trades are expected to remain fairly flat with a moderate increase in jobs from 300 today to 421 jobs by year 2020. The amount of public school workers, is also projected to display moderate job growth from 450 jobs to 743 jobs by year 2020.

If these job growth projections are reached, the City of Canby will begin to approach jobs to housing unity. As indicated on Table 26, the City of Canby's share of County population and employment will rise overtime, as the ratio of jobs per households in the City of Canby increases from an estimated 0.55 today to 0.93 by year 2020.

As travel along Highway 99 increases, and local industrial development expands, the City of Canby will become a likely location for one or two new lodging facilities. This study assumes up to 100 lodging rooms are added to the City of Canby UGB over the 20-year planning horizon.

Commercial and Industrial Land Needs Forecasts

The amount of land required to accommodate commercial and industrial job growth takes into account projected changes in the City of Canby's job base and development density. This analysis assumes an employment density and building density assumptions. Employment density was derived from Metro's *1999 Draft Employment Density Study*. Building floor area density ratios were derived from actual local and regional industrial development patterns. A five percent vacancy allowance was assumed for all retail, manufacturing, wholesale trade, and service/flex development types.

As indicated in Table 27, the gross acres of required land area required to meet the 20-year job growth includes 4.6 acres for lodging, 15.4 acres for wholesale trades, 26.6 acres for retail, 64.9 acres for service/flex, and 89.4 acres for general industrial.

Commercial and Industrial Land Inventory

The City of Canby updated its commercial and industrial land inventory using a GIS mapping database. On-site visits, "field surveys," and interviews with major employers were also conducted to ground check existing conditions and internal business expansion plans/potential. The results of this work are summarized in Table 28.

According to the City of Canby's recent land inventory, there are 533.2 gross developable acres of commercial and industrial land area within the UGB. The majority of this land inventory (471.25 acres) is designated as Industrial (M1 and M2) and another 35.65 acres are designated as Manufacturing/Commercial (MC). The remaining 26.3 acres are designated with the other commercial land use classifications (RC, CC, DC and HC).

It is important to note that when the City of Canby adopted an Industrial Area Master Plan in the Fall of 1998, 400 acres of land area in the southeast portion of the City became designated as M1 and M2. Hence, there is currently an unprecedented amount of underdeveloped and vacant industrial land within the City of Canby's UGB. As indicated in Table 29, almost two-thirds of the MC and M1/M2 industrial land inventory is classified as underdeveloped or redevelopable, and one-third is vacant.

The Metro Regional Land Information System database indicates that the City of Canby now accounts for over one-third of the existing buildable industrial lands in Clackamas County. Hence, there is a good chance that a few very large employers may be attracted to the City of Canby in the near term. As such, land absorption that is attributed to corporate purchases and prospective investors could result in greater land absorption than that required to support potential job growth.

Commercial and Industrial Land Needs Conclusions

The City of Canby is on the verge of substantial commercial and industrial job growth following a decade of housing expansion. The recently adopted Canby Industrial Master Plan, and soon to be completed Canby Market Center has set the stage for retail and industrial business and employment growth.

In a direct comparison between net commercial developable land supply and land demand, it is evident that no surplus commercial land exists in the City of Canby to meet 20-year land needs. Even if all of the lodging development occurs in MC, M1, M2 land areas, the 24.7 acres of net developable RC, CC, DC, and HC land area will be less than the 26.3 acres of projected retail demand. If the City of Canby encourages neighborhood commercial development in Planned Urban Developments or Specific Development Plans in low-density residential areas, there would be some "cushion" in the balance of commercial retail land area within the UGB.

The 403.3 ***net buildable*** industrial land area appears more than adequate for meeting the projected 170 acres in 20-year demand. It should be noted that for industrial development, actual land absorption will be at least 20 percent higher than that shown in Table 14 if corporate land banking, speculative investment, and major new business move-ins occur. Therefore, total gross industrial land absorption is projected to be between 17 and 20 acres per year over the 20-year planning horizon.

In summary, even under the high absorption scenario of 20-acres per year, there would be ample industrial land supply to meet 20-year demand requirements.

Conclusions and Policy Considerations

This section summarizes findings from the City of Canby land needs study. This study has included an updated analysis of residential and commercial/industrial land demand and available supply within the Canby Urban Growth Boundary (UGB).

Draft Findings on the Adequacy of the Canby UGB

The City of Canby land needs analysis has included a very thorough assessment of land supply and demand inside the current UGB boundary. The supply inventory was compiled by the City of Canby using their geographic information systems (GIS) land area data base. The analysis of supply was sorted by comprehensive plan designation, and included a compilation of vacant, underdeveloped, redevelopable and infill parcels.

Residential Land Needs

The housing demand assessment for residential is based on population forecasts that have been formally acknowledged and accepted by the City of Canby and Clackamas County in the Summer/Fall of 1998. Under House Bill 2709 statutory requirements, the past five years of actual development experience has been used as an indicator of future residential land use density projections.

The results of this study indicate there is an adequate supply of residential land within the UGB however, there is a significant oversupply of low density (R-1) land and an undersupply of medium to high density (R-1.5 and R-2) land to meet 20-year land needs. Hence, during the periodic review process, the City should consider development code amendments to ensure that medium and high density development patterns are attained on designated plan areas.

The City of Canby should also consider the possibility of rezoning some low-density residential land to medium- and high-density zones (R-1.5 and R-2). The need to adequately designate and plan future Planned Urban Developments (PUDs) or Specific Development Plan Areas within the UGB can also help address the need for medium- and high-density housing. The potential of "filling in the holes" by amending its UGB to add selected interior parcels (rather than UGB fringe land) to partially meet residential land needs should be considered in addition to selected Comprehensive Plan amendments and zone changes to make way for additional R-1.5 and R-2 development.

Commercial and Industrial Land Needs

After completing the commercial and industrial demand analysis we have concluded that if all of the lodging demand (4 acres) can be met through MC, M1 or M2 areas, and if PUDs or Specific Plan areas are pursued in R-1 land areas the traditional retail zones (RC, CC, DC and HC) can adequately serve retail land needs without too much intrusion on industrial land areas.

The industrial supply inside the UGB can adequately meet projected industrial land needs. Using employment sector growth projections and recent development density trends as a basis for our draft land needs forecasts, the industrial land base (403 net acres) can adequately meet demand (169.7 net acres) over the planning horizon. While this analysis does not reflect the impact of large (40+ acre) users; it is apparent that even if industrial absorption was twice that assumed, there would be more than adequate supply inside the existing UGB.

Land Use Plan and Development Code Policy Considerations

During the course of the Canby Land Needs study Otak worked closely with the City of Canby planning staff, DLCD staff along with the CAC to identify potential land use policies for further evaluation and refinement during the periodic review process. These new land use potential policies should be intended to increase the supply of medium- and high-density housing, while preserving buildable lands and agricultural resources, and improving the efficiency of public facilities such as roads and utilities. Potential policy measures and housing prototypes are included in Appendix D.

Our review of buildable residential and commercial/industrial land needs and supply inside the Canby UGB reveals the need to reallocate selected land areas to accommodate medium and high density housing demand forecasts. The potential for UGB refinement and Zoning and Development Code Amendments still need to be considered. This may include "filling in some holes" in interior locations, transferring development densities to designated areas inside the UGB, and Comprehensive Plan amendments and zone changes that designate specific development plan locations, or new R-1.5 and R-2 zone districts.

Next Steps

The City of Canby will continue to work closely with local citizens and other interested stakeholders during the periodic review process. The findings and

recommendations contained in this study should help guide the City during this process. With a better understanding of the fundamental market trends and forecasts, and an accurate portrayal of buildable lands, the City of Canby will continue to make good future land use decisions.

Table 10

Profile of Existing and Potential Housing Characteristics
City of Canby

Total Housing Units by Type	1980 1/ count	1990 2/ count	Units Approved 1990 to 1998 3/	Est. 1998
Low Density (1-unit, detached)	1,999	2,179	380	2,559
Low Density (manuf. homes)	118	236	215	451
Medium Density (2-4 units in structure)	278	443	415	858
High Density (5 or more units in structure)	466	387	703	1,090
Total	2,861	3,245	1,713	4,958

Notes: 1/ Canby Comprehensive Plan, 1986.
2/ derived from US Census Bureau, 1990 census of population and housing.
3/ based on approved subdivisions and developments in city, 1990-1998.

Housing Unit Demand Mix	1990 2/ Dwelling Mix	Units Approved 1990 to 1998 3/	Est. 1998 Dwelling Mix
Low Density (1-unit, detached)	67%	22%	52%
Low Density (manuf. homes)	7%	13%	9%
Medium Density (2-4 units)	14%	24%	17%
High Density (5 or more units)	12%	41%	22%
Total	100%	100%	100%

Notes: 1/ derived from US Census Bureau, 1990 census of population and housing.
2/ based on approved subdivisions and developments in city, 1990-1998.

Housing Unit Densities (Dwellings per developable acre)	Canby Comprehensive Plan Goal 1/	Avg. Density in Units Approved 1994 to 1998 2/	Acheivable Density Forecast 1998 to 2020 2/
Low Density (R-1)	5.5	5.3	5.4
Low Density (manufactured homes)	6.8	5.7	5.7
Medium Density (R-1.5 and RC)	8.0	5.9	6.0
High Density (R-2)	14.0	10.6	11.2

Notes: 1/ based on Canby Comprehensive Plan, 1986.
2/ based on approved subdivisions and developments in city, 1990-1998.
3/ based on preliminary housing density targets established by Citizens Advisory Committee.

Table 11

Projected Net New Housing Demand
Canby Urban Growth Area
1998 to 2020
Most Likely Shift-Share Population Forecast

Demographic and Housing Factors 1/	Est.1998	Proj. Change 1998-2020
Population	12,178	8,822
Households	4,347	3,552
Est.Dwelling Units	4,414	3,643
Less Units Approved not Built		274
Projected Net New Plats/Dwellings 1998-2020		**3,369**

Sensitivity Analysis of Demand	*Recent Market Scenario 2/*	*Most Likely Scenario 3/*	*Lower Density Scenario 4/*
% Low Density (1 unit, detached)	28%	40%	52%
Number of Plats/Dwellings	943	1,348	1,752
Annual Average Demand	43	61	80
% Low Density (manuf. homes)	12%	10%	7%
Number of Plats/Dwellings	404	320	236
Annual Average Demand	18	15	11
% Medium Density (2-4 units in structure)	24%	22%	19%
Number of Plats/Dwellings	809	724	640
Annual Average Demand	37	33	29
% High Density (5+ units in structure)	36%	29%	22%
Number of Plats/Dwellings	1,213	977	741
Annual Average Demand	55	44	34
All Plats/Dwellings	100%	100%	100%
Number of Plats/Dwellings	3,369	3,369	3,369
Annual Average Demand 1998 to 2020	153	153	153

Notes:
1/ derived from Table 10.
2/ based on actual approved dwelling types between 1990 and 1998.
3/ represents a mid-point between low and high density forecasts.
4/ low denisty distribution is most consistant with existing dwelling mix.

Table 12

Projected Land Needs
Canby Urban Growth Area
1998 to 2020
Most Likely Shift-Share Population Forecast with Target Densities

	Recent Market Scenario	*Most Likely Scenario*	*Lower Density Scenario*
Net New Plats/Dwellings 1/			
Low Density (1-unit, detached)	943	1,348	1,752
Low Density (manuf.homes)	404	320	236
Medium Density (2-4 units in structure)	809	724	640
High Density (5 or more units in structure)	1,213	977	741
Total	3,369	3,369	3,369
Acheivalble Density Scenario			
Developable Land Needs (Gross Acres) 2/			
Low Density (1-unit, detached)	213	304	396
Low Density (manuf.homes)	78	69	50
Medium Density (2-4 units in structure)	148	147	130
High Density (5 or more units in structure)	119	106	81
	558	627	657

Notes:

1/ derived from Table 11.

2/ based on the following target average densities (dwellings/acre):

Low Density (1-unit, detached)	5.4
Low Density (mobile homes)	5.7
Medium Density (2-4 units in structure)	6.0
High Density (5 or more units in structure)	11.2

3/ Gross:Net Adustment factor for streets and utilities:

Low Density (1-unit, detached)	1.22
Low Density (mobile homes)	1.10
Medium Density (2-4 units in structure)	1.10
High Density (5 or more units in structure)	1.06

Table 13

Comparison of Land Needs to Available Supply
Canby Urban Growth Area
Most Likely Shift-Share Population Forecast with Actual Densities
1998 to 2020

Acheivable Density Scenario Infill Development Potential	Plats/DUs 1/	Density Equivalent (DUs/acre)	Land Area Equivalent (acres)	Land Area Participation Rate @ 37% (acres) 2/
Low Density (R-1)	65	5.4	12.1	4
Medium Density (R-1.5 and RC	12	~~6.0~~ 7.5	1.2	0
High Density (R-2)	191	~~11.2~~ 16	18.1	7
Total	**268**		**31**	**12**

Developable Land Needs After Infill (Acres) -- Target Density Scenario 3/	*Most Likely Scenario*
Low Density (R-1)	368
Medium Density (R-1.5 and RC)	146
High Density (R-2)	100
Total	614

Notes:
1/ Derived from Appendix C. Based on City of Canby buildable lands inventory.
2/ Participation rate based on actual city records of minor lot partitions; 1993 to 1998.
3/ Derived from Appendix Table B-8.

Table 14

Summary of Gross Buildable Residential Lands 1/
Canby Urban Growth Boundary

	Low Density Residential (R-1)	Medium Density Residential (R-1.5)	Medium Density Residential-Commercial (RC)	High Density Residential (R-2)	Total
Vacant	193.56	2.3	1.19	17.72	214.77
Underdeveloped 2/	588.65	4.95	3.19	25.81	622.6
Total Buildable Acres	**782.21**	**7.25**	**4.38**	**43.53**	**837.37**

Notes:
1/ Derived from Appendix C. Gross buildable land area is net of steep slopes and wetland/floodplains.
2/ Reflects estimate of underdeveloped parcels with more than 1/2 acre in buildable lands.

Table 15

Summary of Residential Land Needs
Canby Urban Growth Boundary
Year 1999 through 2020

	Gross Vacant Supply (Acres) 1/	Gross Underdeveloped Supply (Acres) 1/	Less Public Facility Requirements 2/	Remaining Gross Developable Acres
Low Density (R-1)	193.56	588.65	(101.60)	680.61
Med. Density (R-1.5 & RC)	3.49	8.14		11.63
High Density (HDR)	17.72	25.81		43.53
Total	**214.77**	**622.6**	**(101.60)**	**735.77**

	Most Likely Demand 3/	Land Supply Overage (Deficiency)
Low Density (R-1)	367.8	312.8
Med. Density (R-1.5 & RC)	146.5	(134.8)
High Density (HDR)	99.7	(56.2)
Total	**614.0**	**121.7**

Notes:
1/ derived from city of Canby supply inventory dated March 13, 1999.
2/ derived from city of Canby estimated of public facilities requirements ; assumes 25 acr needed for parks, 35 acres for schools, 24 acres for wetlands, and 17.6 acres for planne water and sewer facilities.
3/ reflects net demand after accounting for 99 units of infill housing, which is 37% of all potential infill opportunities.

Table 16

Nonfarm Employment by Sector
Clackamas County
1980, 1990, 1998, and 2020
(in thousands)

					Change		
	1980	1990	1998	2020	80-90	90-98	98-2020
Manufacturing	15.9	17	20.4	28.4	0.7%	2.3%	2.8%
Construction and Mining	6.3	8.1	12.5	18.4	2.5%	5.6%	3.3%
Trans., Comm., and Utilities	2.5	4.4	6.3	11.6	5.8%	4.6%	5.2%
Wholesale Trade	4.5	10.2	15.5	24.7	8.5%	5.4%	4.0%
Retail Trade	16.1	25.9	33.8	55.6	4.9%	3.4%	4.2%
Finance, Ins., and Real Estate	8.2	8.3	12.5	18.1	0.1%	5.3%	3.1%
Services	19.4	34.8	50.4	98.9	6.0%	4.7%	5.8%
Total Nonfarm Employment	**72.9**	**108.7**	**151.4**	**255.7**	**4.1%**	**4.2%**	**4.5%**

Source: Metropolitan Service District, Portland, Oregon