PORTLAND PLAN

Housing Supply

PORTLAND PLAN BACKGROUND REPORT
FALL 2009

Planning and Sustainability Commission
Recommended Draft

JULY 12, 2011

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.

City of Portland, Oregon
Sam Adams, Mayor • Susan Anderson, Director

Acknowledgments

Bureau of Planning and Sustainability (BPS)

Mayor Sam Adams, *Commissioner-in-charge*
Susan Anderson, *Director*
Joe Zehnder, *Chief Planner*
Steve Dotterrer, *Principal Planner*
Eric Engstrom, *Principal Planner*
Gil Kelley, *Former Director, Bureau of Planning*

Primary Author

Uma Krishnan, *Management Analyst, BPS*

Contributors

Michael Armstrong, *Senior Sustainability Manager, BPS*
Kyle Diesner, *Policy Analyst, BPS*
Carmen Piekarski, *GIS Analyst, BPS*

Housing Supply

PROSPERITY AND BUSINESS SUCCESS

SUSTAINABILITY AND THE NATURAL ENVIRONMENT

DESIGN, PLANNING AND PUBLIC SPACES

NEIGHBORHOODS & HOUSING

TRANSPORTATION, TECHNOLOGY AND ACCESS

EDUCATION AND SKILL DEVELOPMENT

HUMAN HEALTH, FOOD AND PUBLIC SAFETY

QUALITY OF LIFE, CIVIC ENGAGEMENT AND EQUITY

ARTS, CULTURE AND INNOVATION

PORTLAND PLAN

Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.

To help ensure equal access to City programs, services and activities, the City of Portland will reasonably modify policies/procedures and provide auxiliary aids/services to persons with disabilities. Call (503) 823-7700 with such requests.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Taking an inventory of existing housing units is important for determining future housing needs of the community. Such an assessment facilitates evaluating whether the existing supply is adequate and suitable for serving current needs and also for estimating whether and how the inventory needs to be built up to meet future housing needs of the population. This report documents relevant characteristics of the housing stock for the City of Portland and geographic clusters within it. This report divides the City into six separate clusters referred to as "Subareas". The inventory provides responses to the following set of questions:

1. How many housing units are there in the City of Portland and how are the units distributed within its subareas?

2. What is the distribution of housing types (1 unit - attached and detached, 2 units, 3 or 4 units, 5 to 9 units, 10 to 19 units, 20 or more units, mobile homes) in the City as a whole and within its six subareas?

3. What is the size of the housing units (expressed in terms of number of bedrooms) in the City as a whole and within its six subareas?

4. What is the age distribution of the housing units (built 1939 or earlier, built 1940-1949, built 1950-1959, built 1960-1969, built 1970-1979, built 1980-1989, built 1990-1999, built 2000 -2004 and built 2005 or later) in the City as a whole and within its six subareas?

5. What is the breakup of housing tenure (owners versus renters) in the City as a whole and within its six subareas?

6. What is the distribution of substandard housing units (lacking complete plumbing and/or kitchen facilities) in the City as a whole and within its six subareas?

7. How many housing units (single and multi family) have been weatherized in recent years?

FINDINGS

The following is the list of key citywide and subarea level findings based on data and analysis elaborated in the report:

Citywide Findings

- The Cities of Portland and Gresham annexed virtually all the unincorporated areas of Multnomah County between them in the late 1980s and early 1990s in order to provide sewers and other urban services to this rapidly developing area. Since the late 1990s, most annexations have been initiated by property owners and tend to be small scale. Consequently, future additions to the housing stock will have to come through a combination of new construction, infill and redevelopment.

- While the City's current housing stock consists of different unit types, a majority of the units are single family detached units. Current estimates (2007) shows that this unit type accounts for nearly 61% of the total housing stock. However, this composition of unit types has been changing since late 1990s, as evidenced by recent permit activity. For instance, the permits data for 2007 indicates that nearly 72% of the permits were for multi-family units. Based on the City's buildable land inventory, recent construction trends and small scale annexations, the ratio of unit types (single-family/multi-family) will continue to first even out to 50% each and likely then reverse in favor of multi-family units in the years to come.

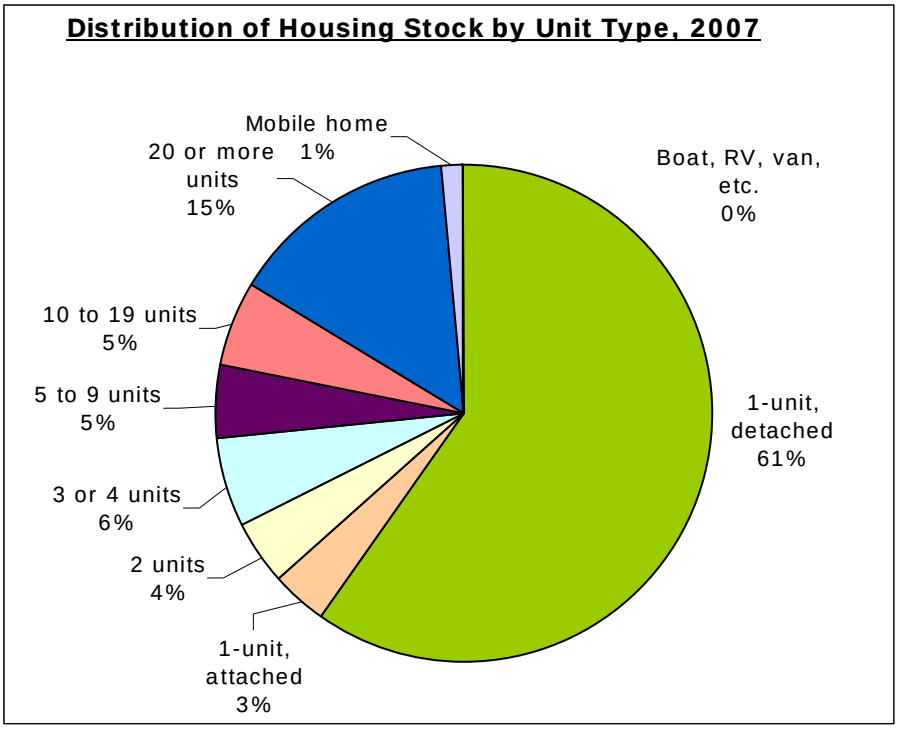


Figure 1- Source: American Community Survey: 2005-2007

- Nearly 35% of the housing units in the City were built prior to 1940. Further, about 25% of the units were built in the time period 1940-1960. As this constitutes over half of the City's housing supply, adequate and appropriate maintenance of aging units is required to upkeep the existing housing supply.

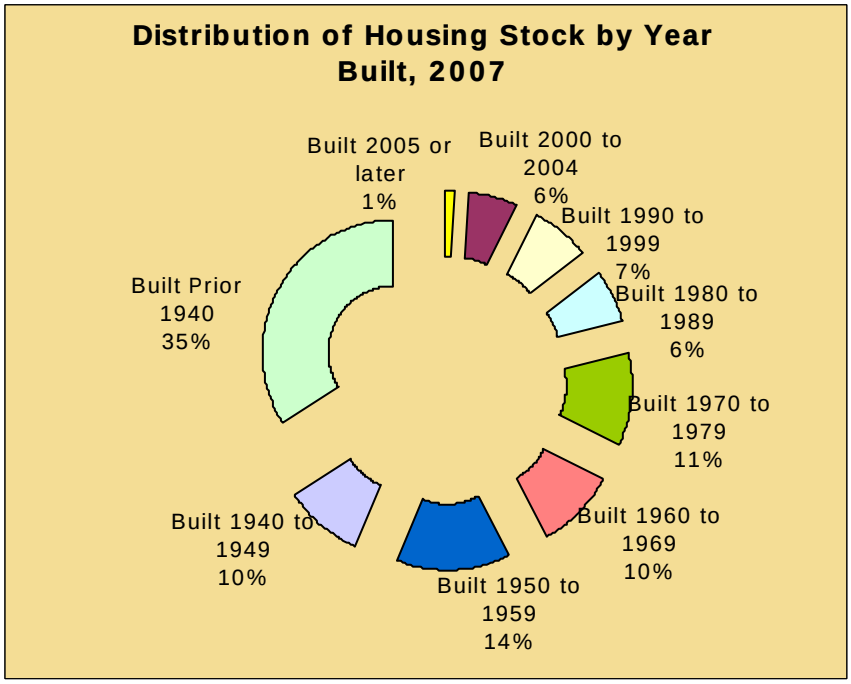


Figure 2 - Source: American Community Survey: 2005-2007

- Historically, the homeownership rates for the City have remained below the national and regional averages. However, owner occupancy has been on the rise in recent years and Portland has bridged the regional gap. A combination of steep increases in home prices and a lack of commensurate increase in household incomes will likely impede further gains in homeownership rates.

- Housing units lacking complete plumbing facilities or kitchen facilities are commonly considered "substandard". The Census Bureau's definition of complete plumbing includes presence of three distinct facilities: (1) hot and cold piped water in a housing unit; (2) flush toilet; and (3) bathtub or shower. Similarly, a housing unit has complete kitchen facilities when it has all of the following: (1) an installed kitchen sink, (2) burners, and (3) a mechanical refrigerator. The data on substandard housing units for the City indicates that just under 1% of units lack complete plumbing while just over 1% lack complete kitchen facilities. While this proportion is rather insignificant, it is noteworthy that the actual number of such units is on the rise. It is important to address the problems with such issues for the sake of the residents as well for maintaining a quality supply of housing units.

- Rising energy costs has made weatherization of housing units important. Additionally, units that are well insulated, properly ventilated, and efficiently heated can significantly improve the comfort and health of its residents while keeping energy costs down. However, the extent of weatherization of Portland's housing stock is not well established. Further, it is difficult to document the energy performance or extent of weatherization by sub-area or by type of housing. Through a process of estimation driven by the implementation of Oregon's comprehensive energy building code in the 1990s and the impact of state and local weatherization programs, the City likely has as many as 137,000 unweatherized housing units. Achieving weatherization of such a large number of single and multi family housing units in the City presents a sustainability challenge in the coming years.

Sub-area Findings

- The housing stock in the Portland, Central Business District (CBD) is distinctly different in *unit type, size, age and tenure* than the City as a whole. An estimated 87% of the units in this subarea are multi-family with 20 or more units. Over a third (34%) are relatively new units built since the 1990s. Also, nearly 75% of units are small, with either no or one bedroom. Further, 80% of the units are rentals as opposed to ownership units. Based on trends, if future housing production is concentrated in this subarea, the City's housing stock will mirror that of the Portland CBD.

- The subarea differential in the size of the units (as determined by number of bedrooms) implies a difference in distribution of household types. For instance, the East and West subareas have significant shares of three bedroom units that households with children have traditionally preferred. Conversely, these subareas have fewer smaller units. Such size-based clustering of housing units promotes a parallel clustering of household types based on size as well.

- These older housing units are not uniformly distributed in the City. The Northeast (52%) and Southeast (47%) subareas have a disproportionate share of units that were built prior to 1940. In North subarea 40% of the units were built before 1940 and another 15% built during 1940 to 1950. In the East subarea, the largest share of housing stock (21%) was built in the 1950s. Consequently, the structural maintenance needs of these subareas will be different than the rest of the City.

- The existing stock of housing units in the City and its subareas presents a mix of challenges and opportunities in meeting the needs of the resident as well as the forecasted population.

INTRODUCTION

To assess the existing supply of housing units, it is important to document both the absolute number of units as well as their physical characteristics including type, age, size and condition. Additionally, the unit mix is not uniform across an area. So, documenting supply for geographic clusters within an area is helpful to unearth patterns of housing unit distribution. Subsequent sections of this report document: *Count of Existing Housing Units, Housing Units by Type, Housing Units by Size, Age and Condition of Housing Stock, Housing Tenure and Weatherization Data* for Portland and its six subareas. The inventory is primarily based on data reported by the Census Bureau's American Community Survey (ACS) data, the Census data, and other in-house data on permits and weatherization.

HOUSING UNITS

HOUSING UNITS COUNT – CITY AS A WHOLE

The supply of housing units in the City has continued to grow in the past several decades:

Year	Total Housing Units	Percent Change	Units from Annexation
1970	151,891	1960-1970 18,877 12.4% Change	
1980	167,911	1970-1980 16,020 10.5% Change	3,602
1990	198,368	1980-1990 30,457 15.3% Change	11,701
2000	237,307	1990-2000 38,939 19.6% Change	16,095
2007	249,928	2000-2007 12,621 5.3% Change	10

Source: Census 1970, 1980, 1990, & 2000; ACS 2005-2007, BPS Annexation Records

Figure 3 – Housing Unit s Count – City as a Whole

Figure 1 above provides details about housing unit count for 1970, 1980, 1990, 2000 and an estimated count for 2007. According to this most recent estimate (ACS 2005-2007), Portland has nearly 250,000 units. The complete count dating back to Census 2000 documented the availability of 237,307 housing units in the City. This translates to a 5% increase in supply. The dramatic 20% growth of the 1990s can be partially attributed to large scale annexations in the eastern part of the City. Besides annexation, steady new construction accounts for rest of the growth. Smoothing out the differentials in growth rate between decades, the compounded annual average growth rate for the 37 year time period (1970-2007) is approximately 7% growth.

HOUSING UNITS COUNT – CITY SUBAREAS

Metro, Oregon's regional planning agency, has clustered the City's census tracts into the following six subareas for the purpose of housing demand analysis as shown in Figure 2:

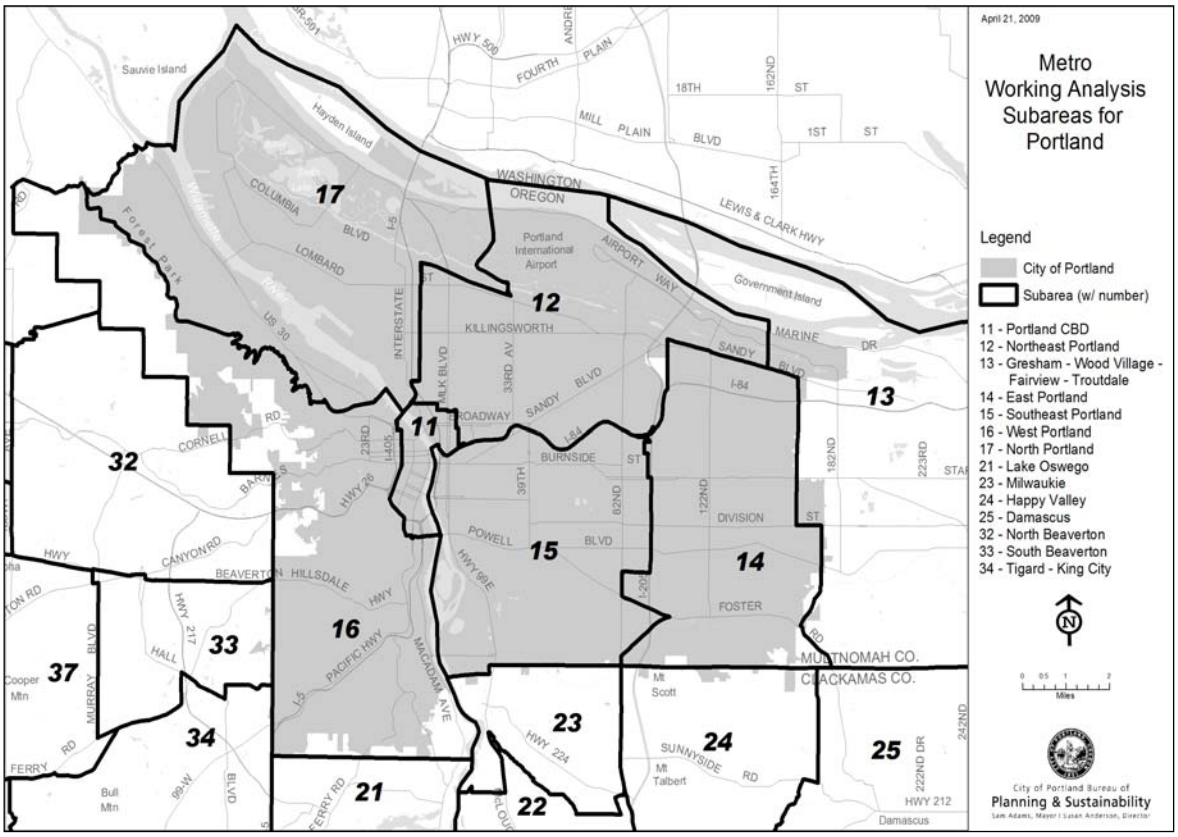


Figure 4 - Housing Demand Analysis

- Portland CBD (Subarea 11)
- Northeast Portland (Subarea 12)
- East Portland (Subarea 14)
- Southeast Portland (Subarea 15)
- West Portland (Subarea 16)
- North Portland (Subarea 17)

As citywide data fails to provide details of how available housing units are distributed within its boundaries, an examination of relatively homogenous subareas within the City reveals patterns in terms of *count* and *nature* of housing units in these clusters. Documentation reveals that the Southeast subarea that covers approximately 15% of the City's land area accounts for approximately 29% of the total units. Three other subareas, the Northeast, East and West Portland each account for roughly 18 percent of the total stock. The North subarea holds nearly 10% percent of the total units while Portland's Central Business District (CBD) accommodates just over 4% of the City's housing units. Notably, the CBD has accommodated a significant proportion of the new housing development that has occurred in the recent years largely in the form of multi-family units with 20 or more units. The North subarea holds a wide expanse of industrial sanctuary and hence,

even though it covers over 26% of the City's overall land area, its share of housing units is relatively small. The housing stock in the City's subareas are also different in terms of the type of the units, the age distribution of the units, size of units and the condition of these units. The following table provides selected housing characteristics of the dwelling units in the six subareas of Portland.

Selected Housing Characteristics, 2005

	Portland CBD (Subarea 11)	Northeast Portland (Subarea 12)	East Portland (Subarea 14)	Southeast Portland (Subarea 15)	West Portland (Subarea 16)	North Portland (Subarea 17)
TOTAL HOUSING UNITS	10,268	43,430	48,250	70,340	47,069	23,413
Occupied housing units	8,938	40,765	44,979	66,431	44,127	21,641
Vacant housing units	1,330	2,665	3,271	3,909	2,942	1,772
Vacancy rates	13.0%	6.1%	6.8%	5.6%	6.3%	7.6%
Average homeowner vacancy rate	1.7%	1.6%	1.5%	1.2%	1.6%	0.8%
Average rental vacancy rate	5.9%	5.2%	6.6%	3.7%	5.8%	5.1%
Percent share of units	4.2%	17.9%	19.9%	29.0%	19.4%	9.6%
TENURE						
Owner-occupied	1,497	26,231	27,286	35,477	24,808	13,384
Renter-occupied	7,441	14,534	17,693	30,954	19,319	8,257
Average household size of owner-occupied unit	1.6%	2.5%	2.7%	2.4%	2.3%	2.4%
Average household size of renter-occupied unit	1.3%	2.3%	2.6%	2.2%	1.8%	2.3%
LAND AREA (in acres)	1,690	17,325	15075	14881	24818	26393
Percent share of land	1.7%	17.3%	15.0%	14.9%	24.8%	26.3%

Source: ACS Multiyear Estimate, 2001-2005
Figure 5 – Selected Housing Characteristics, 2005

Note: Estimates exclude population in Group Quarters. A Group Quarter is a place where people live or stay, in a group living arrangement that is owned or managed by an entity or organization providing housing and/or services for the residents. College dormitories, jails, assisted living facilities are all examples of different types of group quarters. Nearly 3% of Portland's population lives in some form of group quarter. In comparison, about 2% of Metro area residents live in group quarters.

Key Findings from Housing Unit Count

The Cities of Portland and Gresham annexed virtually all the unincorporated areas of Multnomah County between them in the late 1980s and early 1990s in order to provide sewers and other urban services to this rapidly developing area. Since the late 1990s, most annexations have been initiated by property owners and tend to be small in scale. Consequently, future additions to the housing stock will have to come through a combination of new construction, infill and redevelopment.

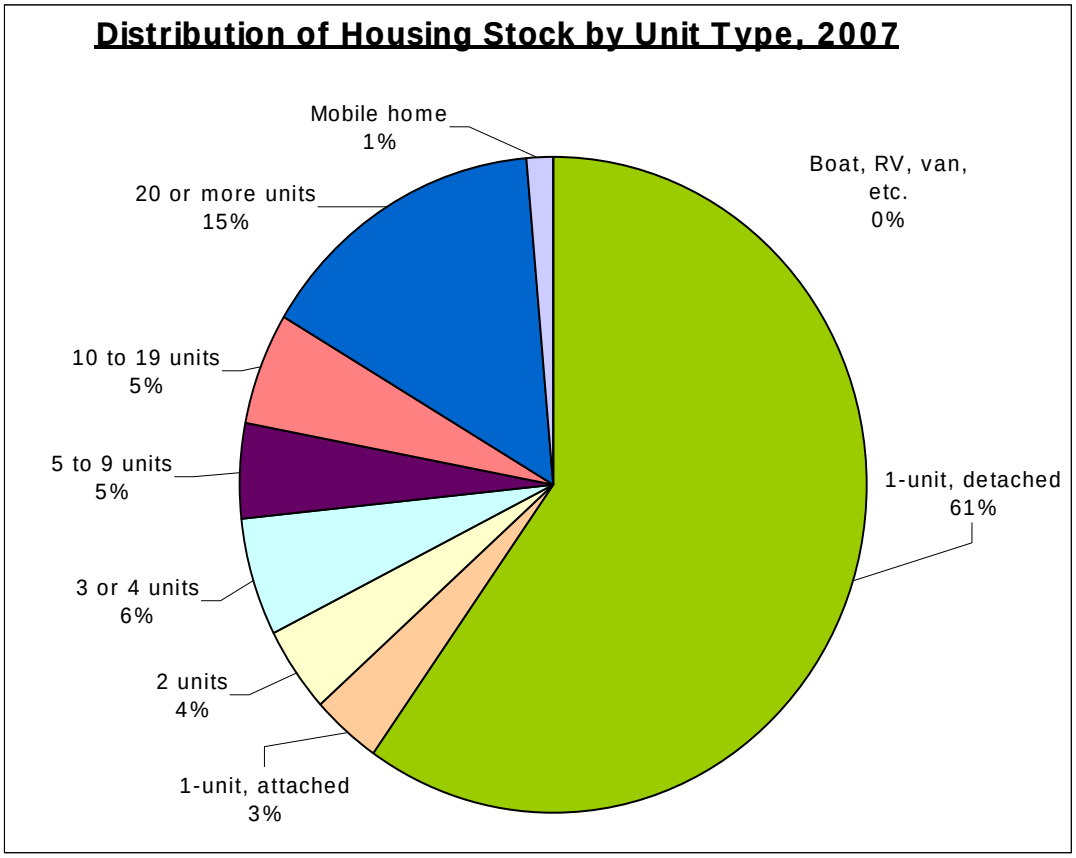
The supply of housing units in the City of Portland has continued to grow in the current decade. An estimated 12,600 new housing units have been added to the existing stock since the 2000 Census. However, the pace of increase in the present decade is considerably less than the 1990-2000 time period during which nearly 39,000 housing units were added to the existing stock through a mix of new construction and through the annexation process.

An examination of housing stock within the City's geographic subareas reveals differences in *number* and *nature* of the housing units within its geographic clusters. Interestingly, Southeast Portland, which covers approximately 15% of the City's land area contains an estimated 29% of the City's total housing stock. Three other subareas, the Northeast, East and West Portland each account for roughly 18 percent of the total stock. The North subarea holds nearly 10% of the total units while Portland's Central Business District (CBD) accommodates just over 4% of the City's housing units.

HOUSING TYPES

HOUSING TYPES – CITY AS A WHOLE

The housing stock in any geographic area offers a collection of different types of housing including single family homes (both detached and attached) and a variety of multi-family housing units (2 unit apartments, 3 to 4 units apartments, 5 to 9 units apartments, 10 to 19 units apartments and 20 or more unit apartments). Additionally, there are mobile home parks that provide space for manufactured housing units. Figure 4 below shows a break down of the present share of aforementioned housing types in Portland.



Source: ACS 2005-2007

Figure 6 - Distribution of Housing Stock by Unit Type, 2007

As shown, over two-thirds of Portland's housing stock is made up of single-family units (61%) while various types of multi-family units account for most of the remaining stock (35%). Manufactured housing units constitute about one percent of all units. Of note, permit activities for the City for the present decade reveals a consistent shift towards construction of more multi-family homes (rental and homeownership) as opposed to single-family units. Figure 5 below shows the permit activity for the years 2001-2007 for Portland.

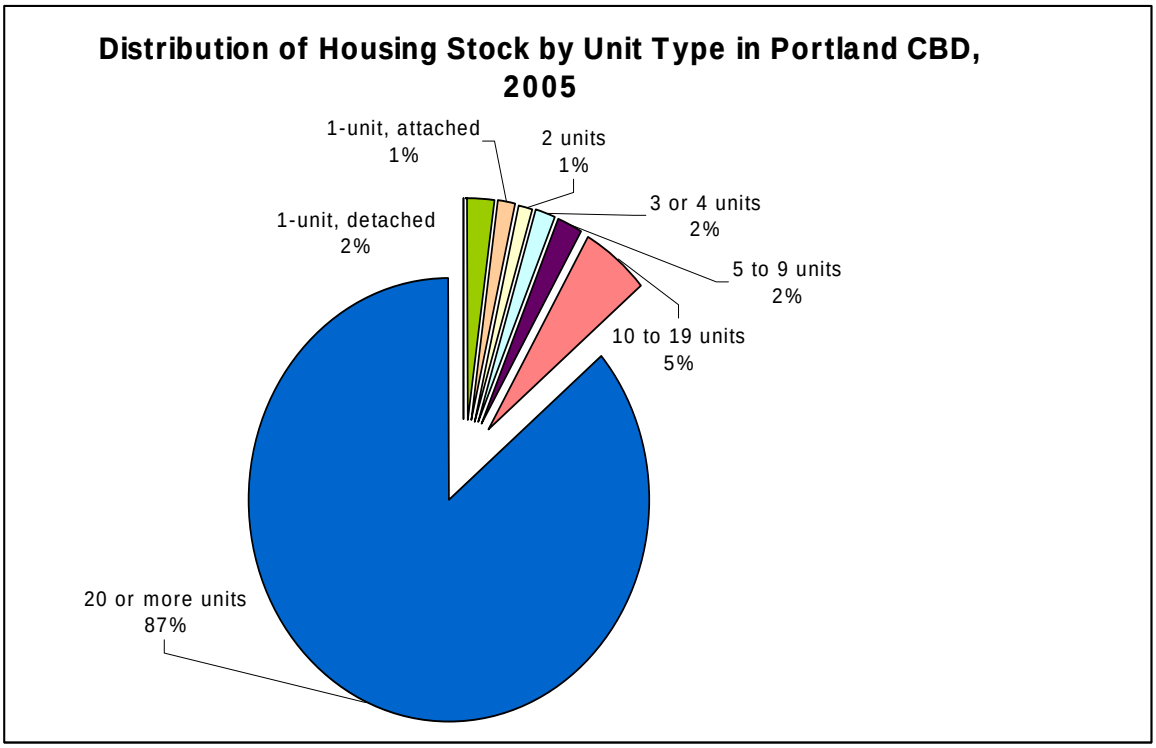
New Construction based on Permits in City of Portland

Years	Single-Family Units	Multi-Family Units
2001	1,040	632
2002	1,088	1,246
2003	1,093	2,473
2004	956	1,926
2005	981	2,755
2006	1,256	2,295
2007	1,205	3,088

Source: City's Building Permits Data

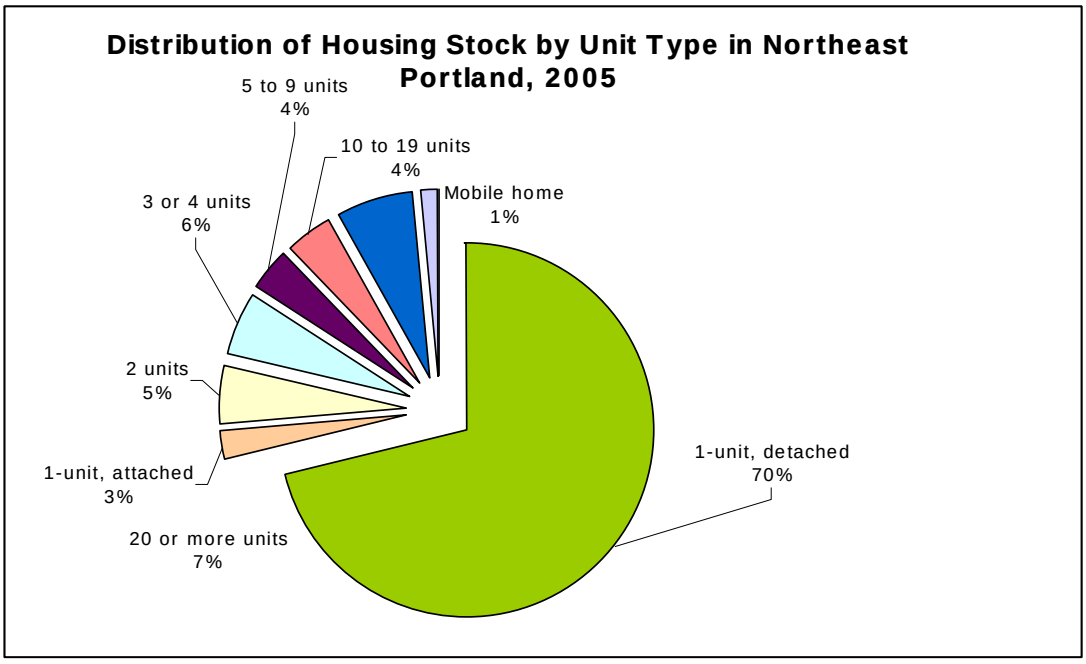
Figure 7 - New Construction based on Permits in City of Portland

HOUSING TYPES – CITY SUBAREAS



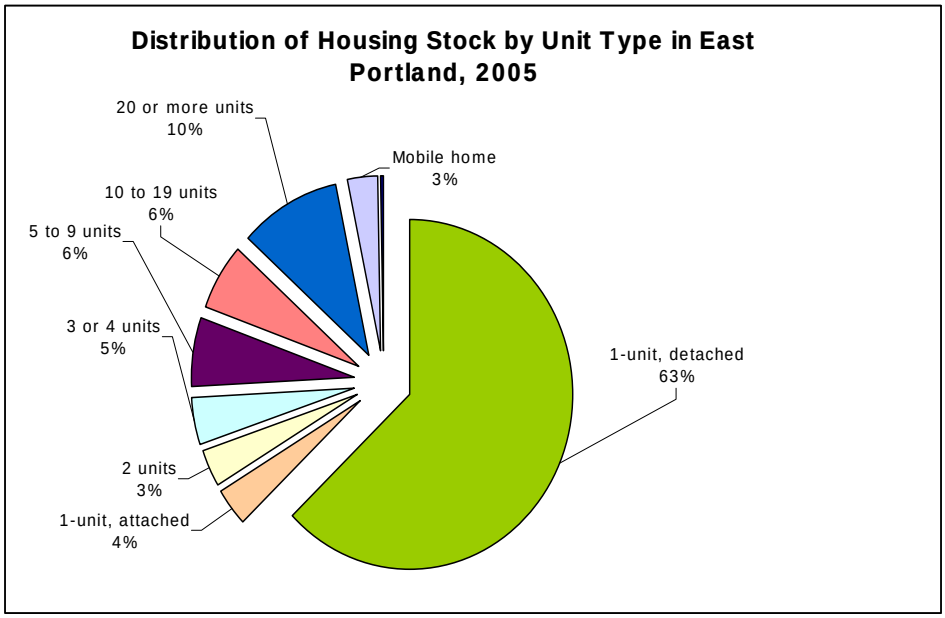
Source: ACS Multiyear Estimate, 2001-2005

Figure 8 - Distribution of Housing Stock by Unit type in Portland CBD, 2005



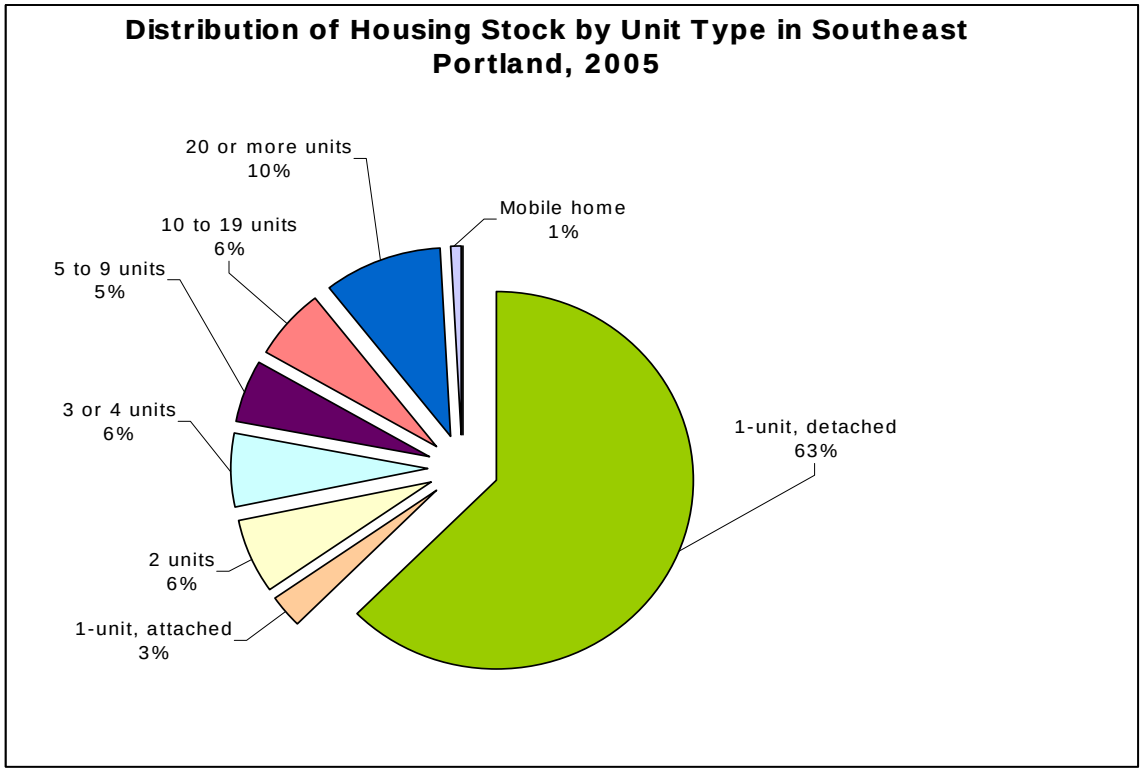
Source: ACS Multiyear Estimate, 2001-2005

Figure 9 - Distribution of Housing Stock by Unit type in NE Portland, 2005



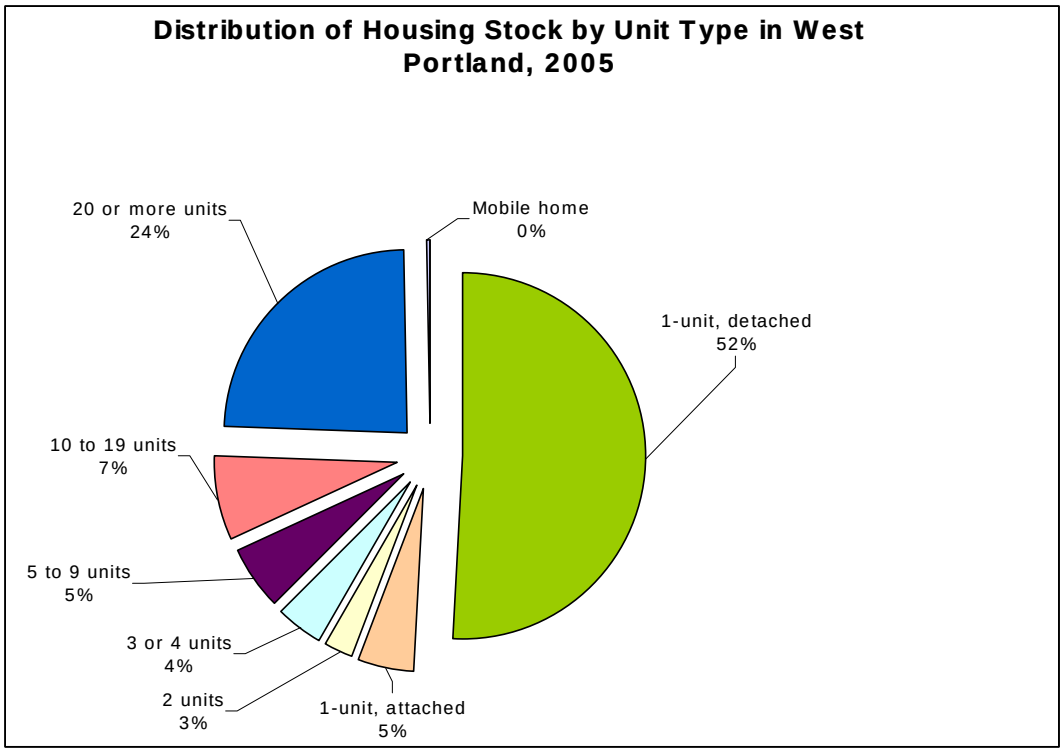
Source: ACS Multiyear Estimate, 2001-2005

Figure 10 - Distribution of Housing Stock by Unit Type, East Portland, 2005



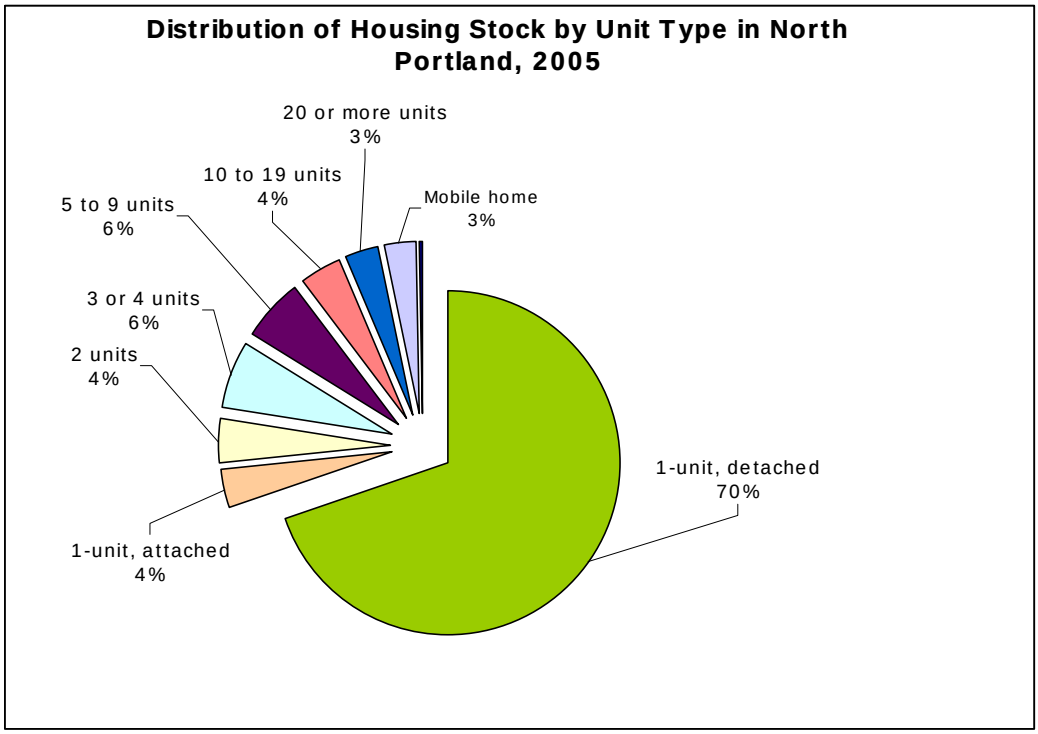
Source: ACS Multiyear Estimate, 2001-2005

Figure 11 - Distribution of Housing Stock by Unit Type in SE Portland, 2005



Source: ACS Multiyear Estimate, 2001-2005

Figure 12 - Distribution of Housing Stock in West Portland, 2005



Source: ACS Multiyear Estimate, 2001-2005

Figure 13 - Distribution of Housing Stock by Unit Type in North Portland, 2005

Key Findings from Distribution of Housing Type

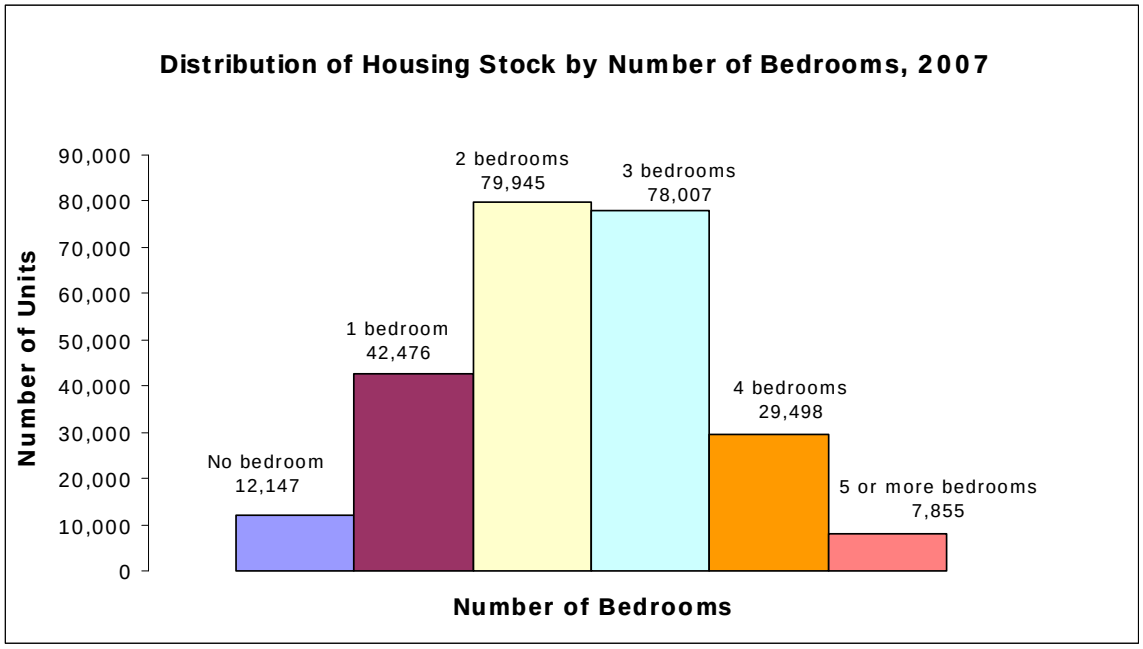
Current estimates (2007) show that single-family units account for nearly 61% of the total housing stock; Multi-family units with 20 or more units make up only 15% of the stock. However, this composition of unit types has been changing since late 1990s, as evidenced by recent permit activity. For instance, the permits data for 2007 indicates that nearly 72% of the permits were for multi-family units. Based on the City's buildable land inventory, recent construction trends and small scale annexations, the ratio of unit types (single-family/multi-family) will continue to first even out to 50% and likely then reverse in favor of multi-family units in the years to come.

In terms of unit types, Portland's CBD is distinct from the remaining subareas. Multi-family units with 20 or more units make up an estimated 87% of available housing supply in this area.

HOUSING SIZE

SIZE OF HOUSING UNITS: NUMBER OF BEDROOMS – CITY AS A WHOLE

The following graph provides the distribution of housing units by number of bedrooms for the City:

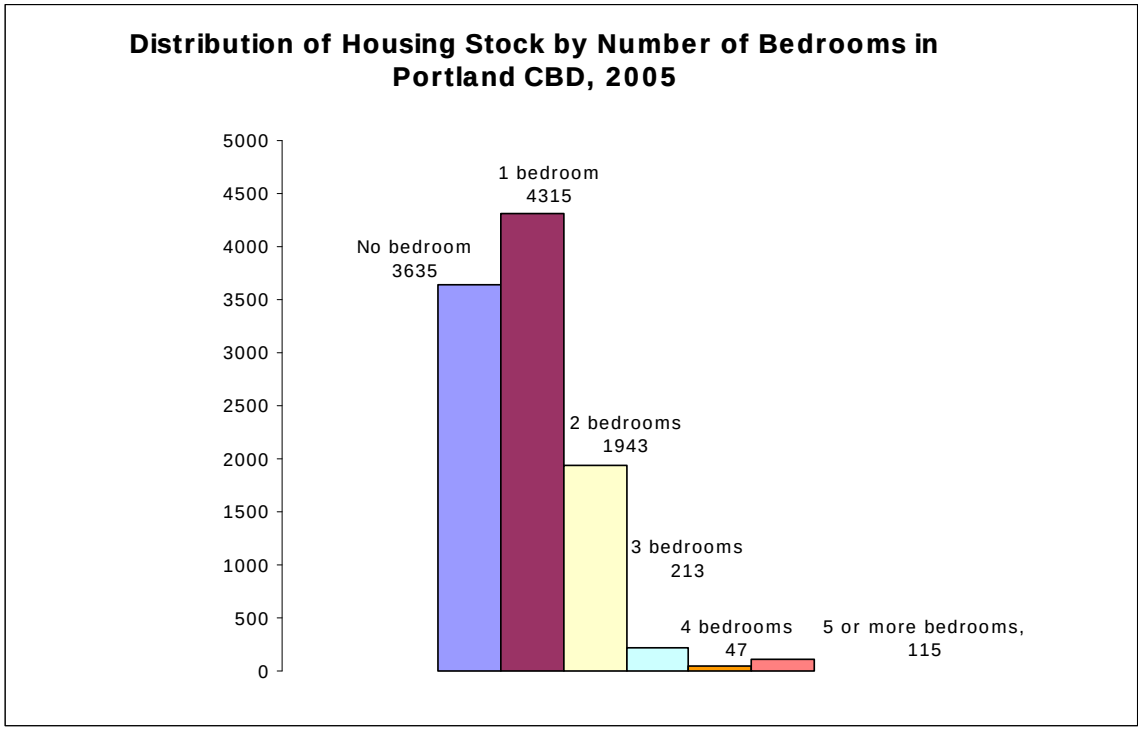


Source: ACS 2005-2007

Figure 14 - Distribution of Housing Stock by Number of Bedrooms, 2007

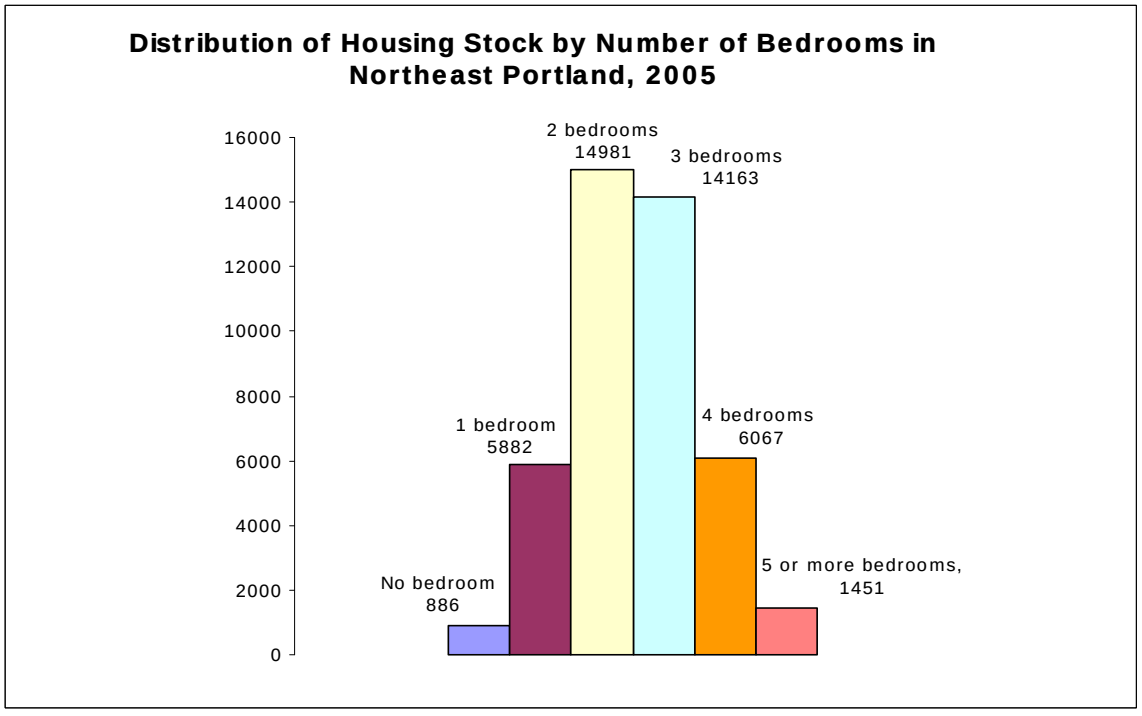
As portrayed, a large number of units are either two-or three- bedroom units. Each category makes up about 32% of available units. About 17% of the units have one bedroom while 5% have no bedrooms (studio apartments). A rather small proportion (3%) of the housing units has five or more bedrooms.

SIZE OF HOUSING UNITS: NUMBER OF BEDROOMS – CITY SUBAREAS



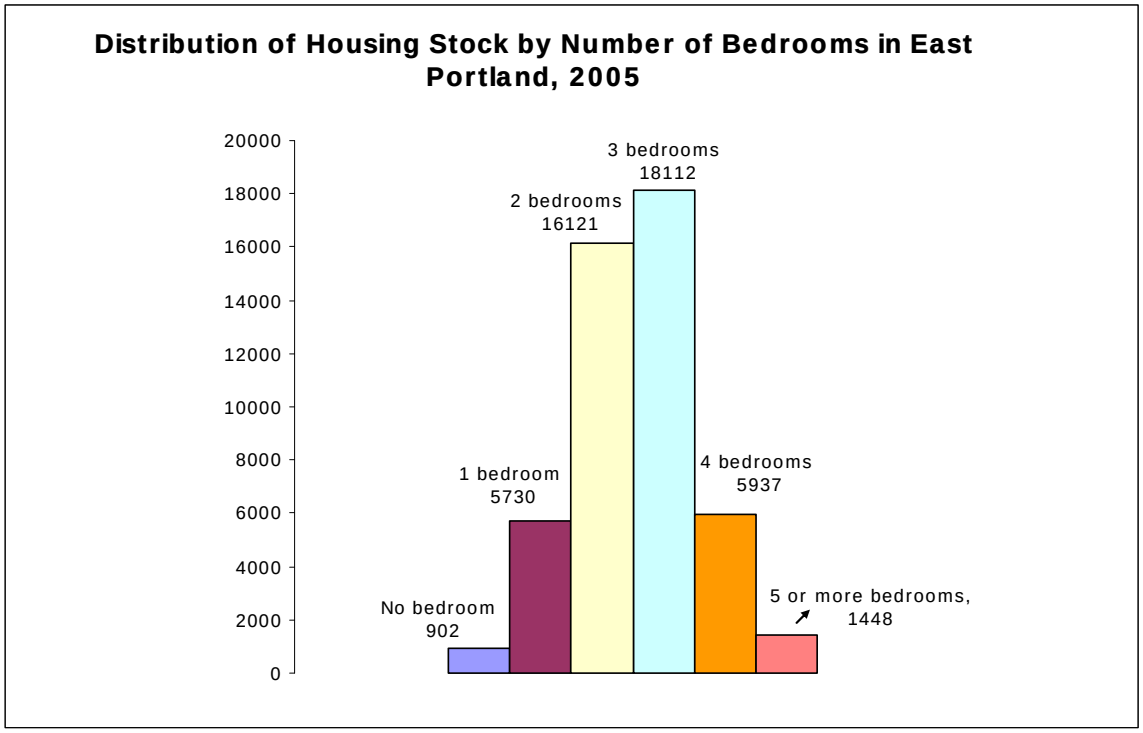
Source: ACS Multiyear Estimate, 2001-2005

Figure 15 - Distribution of Housing Stock CBD, 2005

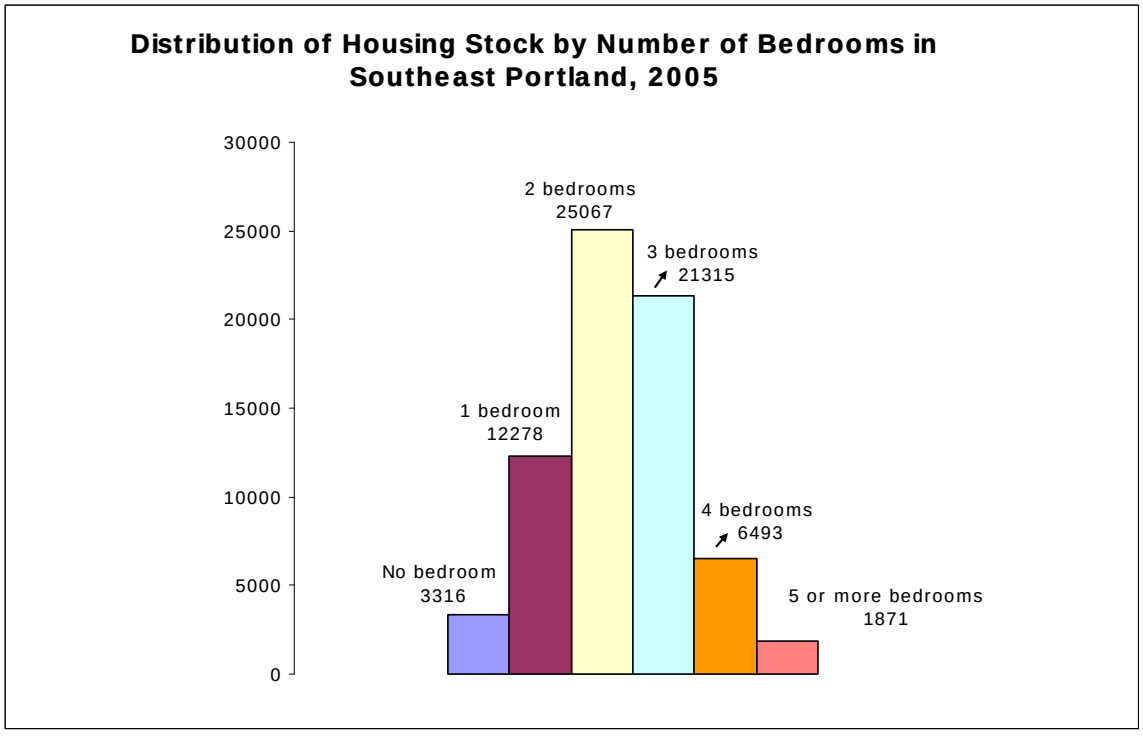


Source: ACS Multiyear Estimate, 2001-2005

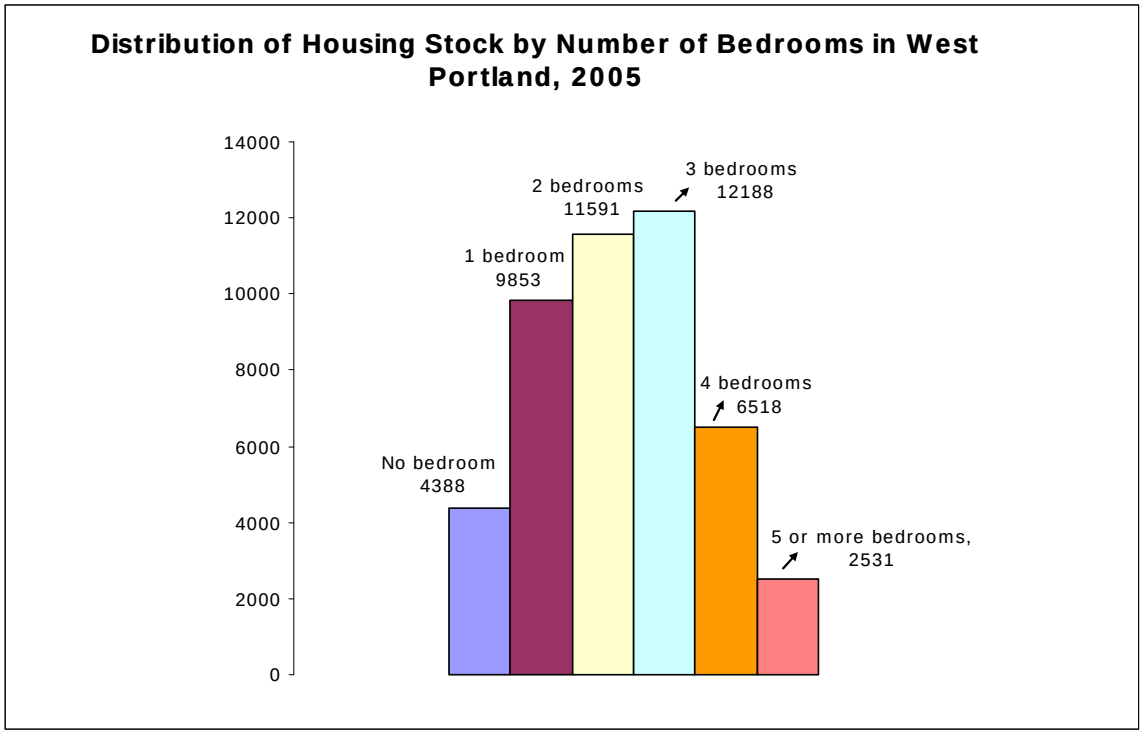
Figure 16 - Distribution of Housing Stock NE Portland, 2005



Source: ACS Multiyear Estimate, 2001-2005
Figure 17 - Distribution of Housing Stock East Portland, 2005

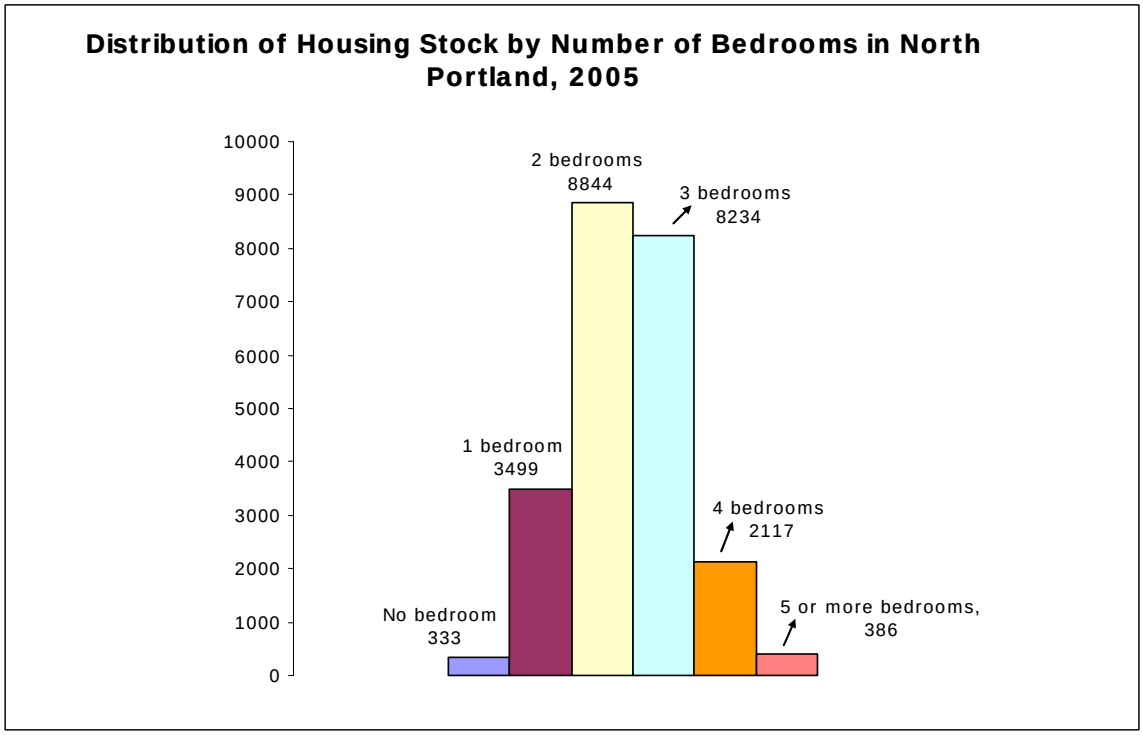


Source: ACS Multiyear Estimate, 2001-2005
Figure 18 - Distribution of Housing Stock in SE Portland, 2005



Source: ACS Multiyear Estimate, 2001-2005

Figure 19 - Distribution of Housing Stock West Portland, 2005



Source: ACS Multiyear Estimate, 2001-2005

Figure 20 - Distribution of Housing Stock in North Portland, 2005

Key Finding from Distribution of Housing Size

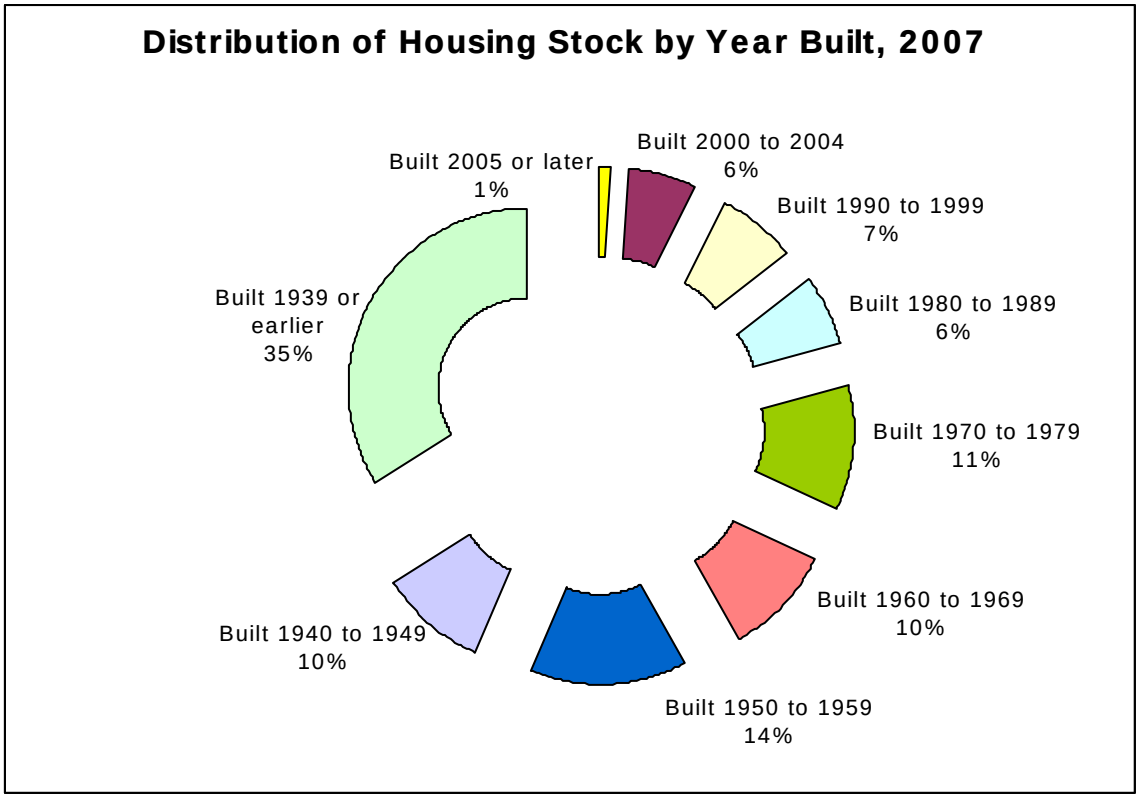
The subarea differential in the size of the units (as determined by number of bedrooms) implies a differential in distribution of household types. For instance, the East and West subareas have significant shares of three bedroom units that households with children have traditionally preferred. Conversely, these subareas have fewer smaller units. Such size based clustering of housing units promotes a parallel clustering of household types based on size as well.

A majority of housing units in the City either have three or two bedrooms. Together, such units account for about 63% of the total units. About 17% of the units have one bedroom while 11% of the units are four bedroom units. The only City subarea that has very different distribution in terms of number of bedrooms is the CBD where about 42% of the units have one bedroom while 35% of the units have no bedrooms.

HOUSING AGE

AGE OF THE HOUSING STOCK – CITY AS A WHOLE

Portland's housing stock is a mix of units built at varying periods of time. The following graph provides the distribution of units by year built:



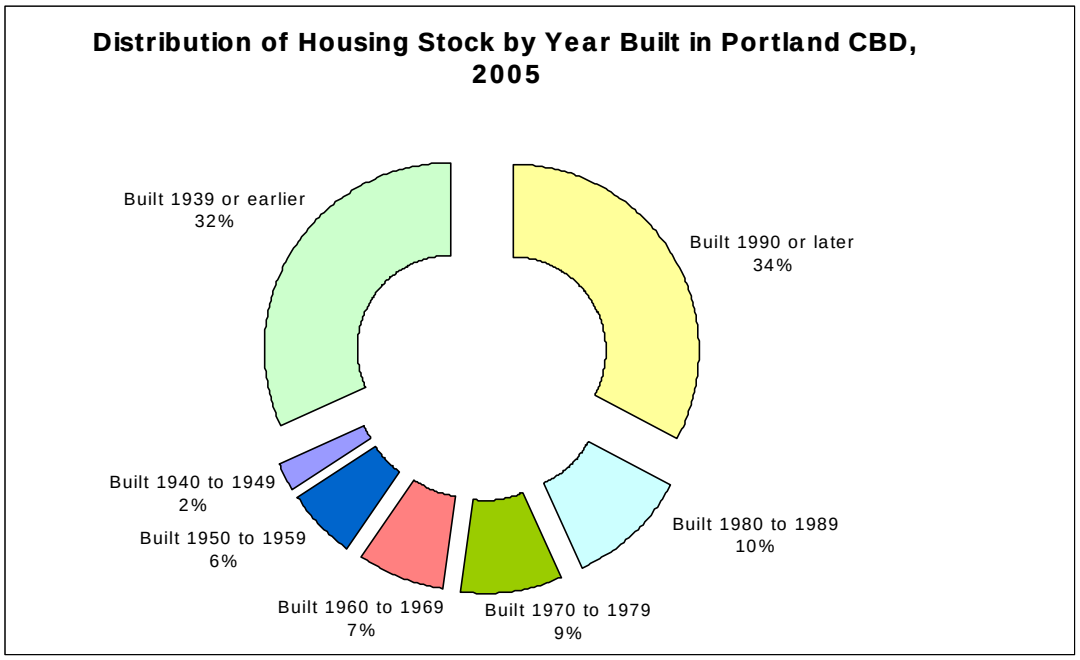
Source: ACS 2005-2007

Figure 21 - Distribution of Housing Stock by Year Built, 2007

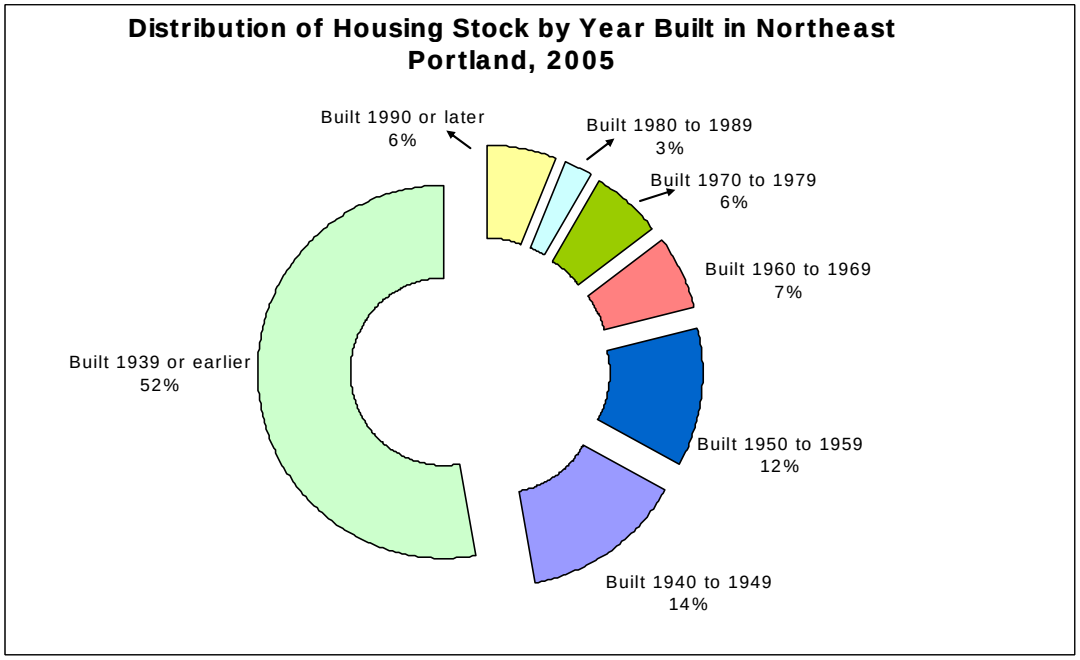
Nearly 35% of the housing units were built prior to 1940. The 1940-50 periods added another 10% to the housing stock and this trend appears to have continued for the subsequent four decades. The housing units

constructed in the 1980s and 1990s constitute 6% and 7% of the total units, respectively. About 6% of the total housing units have been constructed in the new millennium.

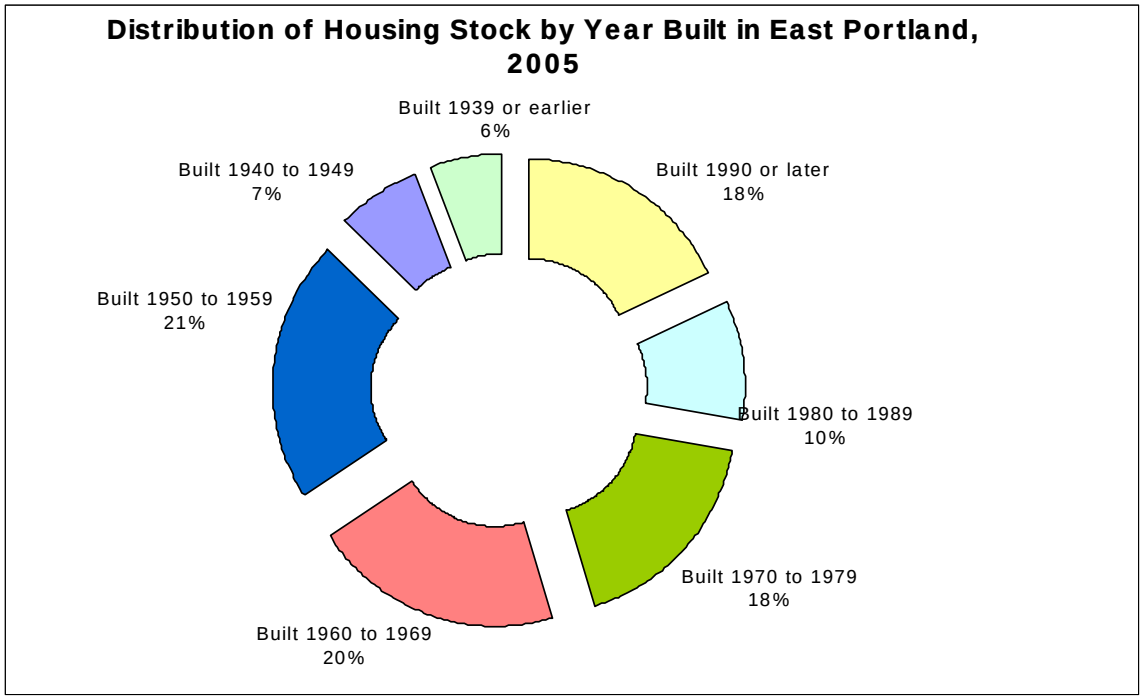
AGE OF THE HOUSING STOCK – CITY SUBAREAS



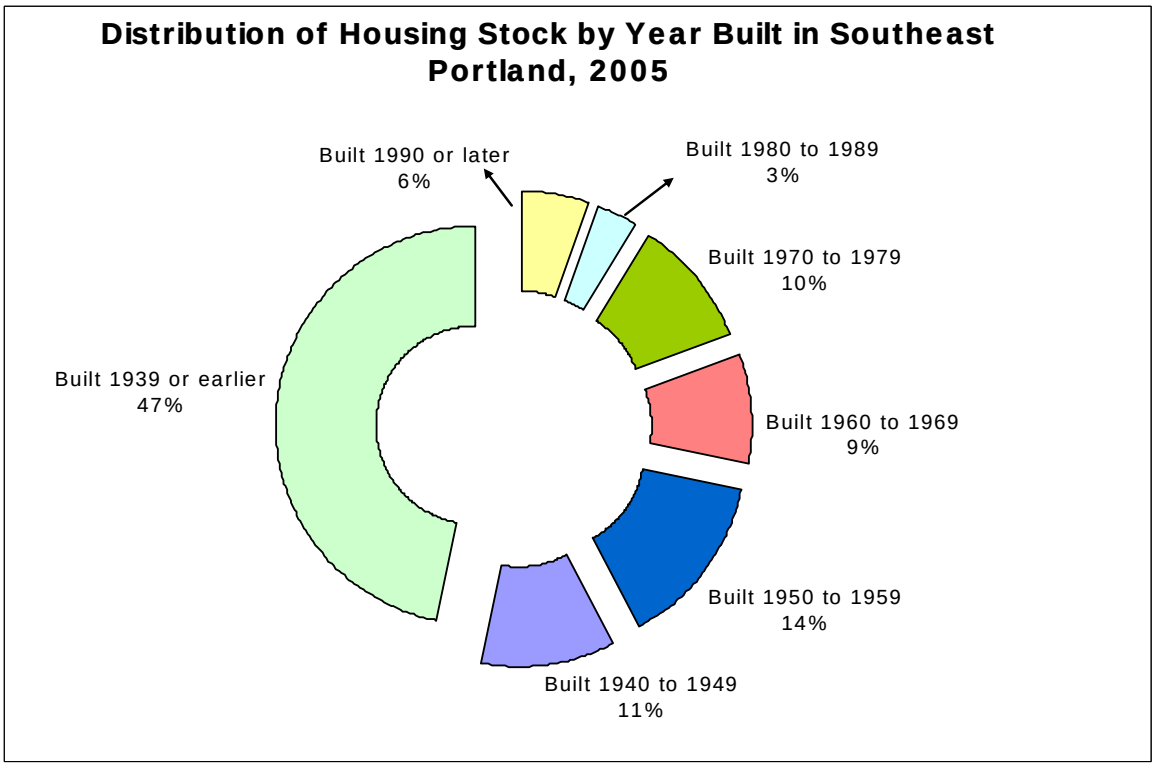
Source: ACS Multiyear Estimate, 2001-2005
Figure 22 - Distribution of Housing Stock by Year Build in Portland, CBD, 2005



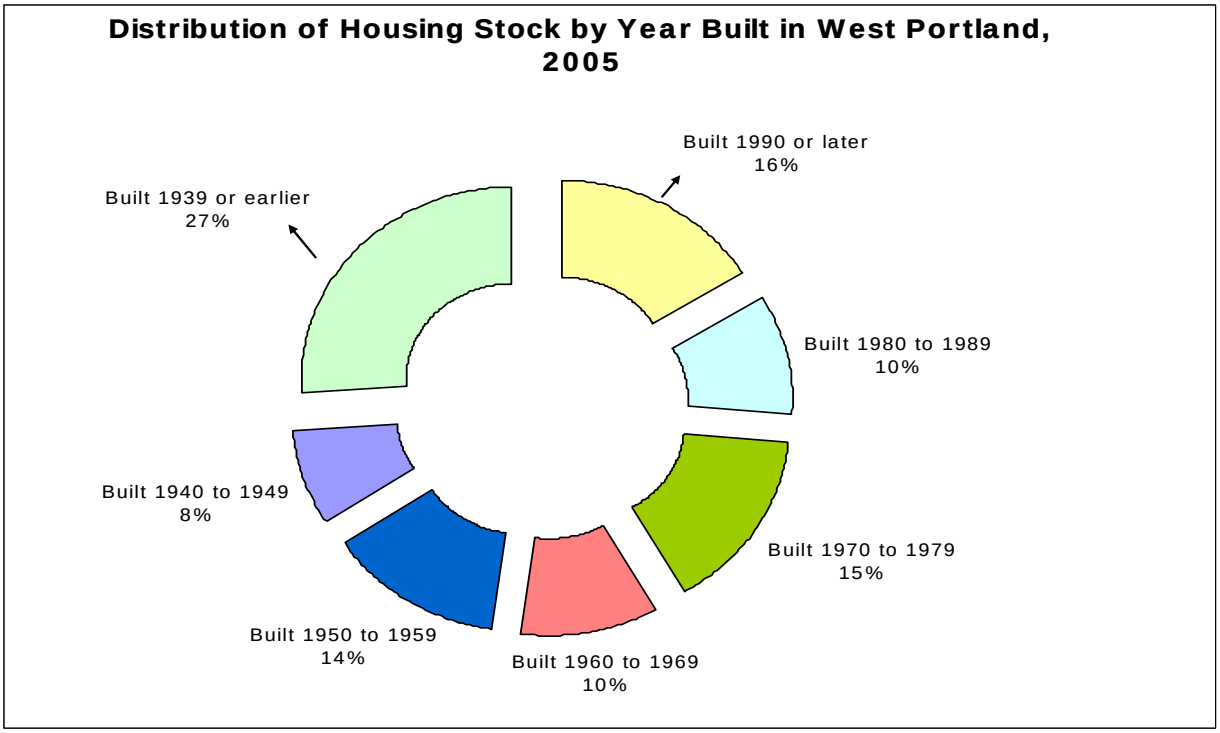
Source: ACS Multiyear Estimate, 2001-2005
Figure 23 - Distribution of Housing Stock by Year Built in NE Portland, 2005



Source: ACS Multiyear Estimate, 2001-2005
Figure 24 - Distribution of Housing Stock by Year Built in East Portland, 2005

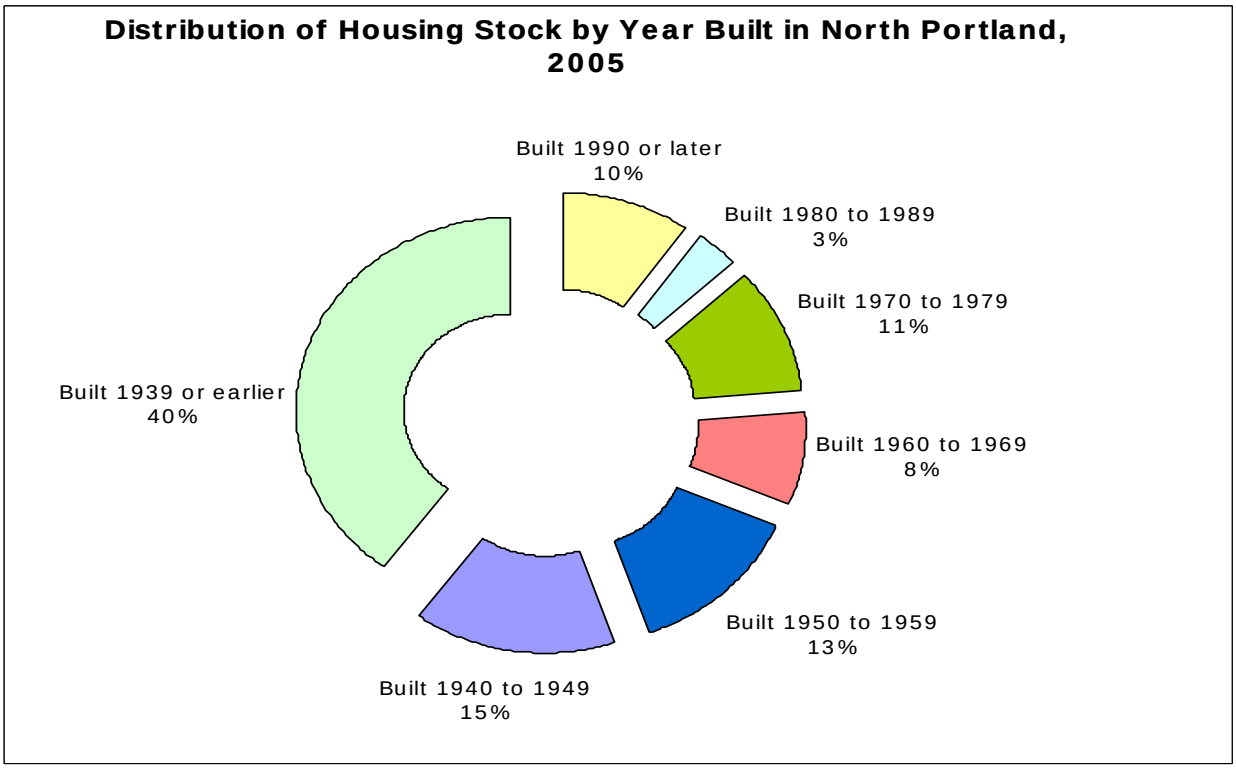


Source: ACS Multiyear Estimate, 2001-2005
Figure 25 - Distribution of Housing Stock by Year Built in SE Portland, 2005



Source: ACS Multiyear Estimate, 2001-2005

Figure 26 - Distribution of Housing Stock by Year Built in West Portland, 2005



Source: ACS Multiyear Estimate, 2001-2005

Figure 27 - Distribution of Housing Stock by Year Built in North Portland, 2005

Key Finding from Age of the Housing Stock

Nearly 35% of the housing units in the City were built prior to 1940. Further, about 25% of the units were built in the time period 1940-1960. As this constitutes over half of the City's housing supply, adequate and appropriate maintenance of aging units is required to upkeep the existing housing supply.

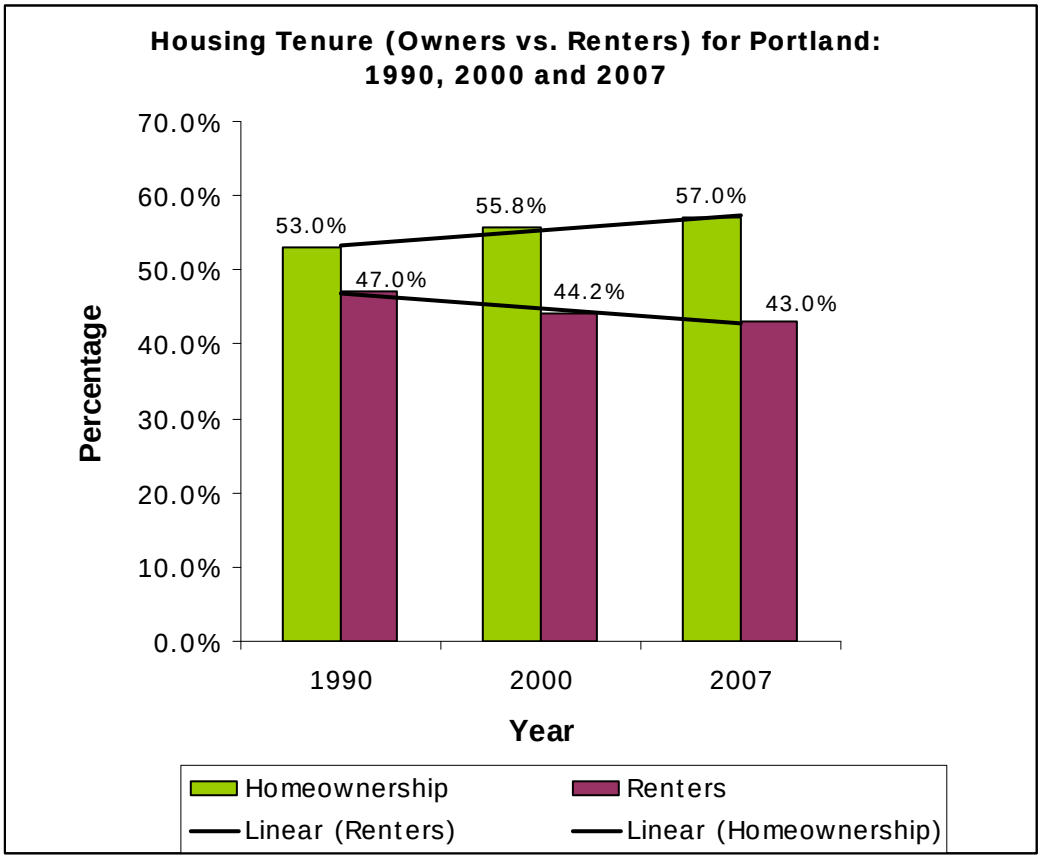
These older housing units are not uniformly distributed in the City. The Northeast (52%) and Southeast (47%) subareas have a disproportionate share of units that were built prior to 1940. In North subarea 40% of the units were built before 1940 and another 15% built during 1940 to 1950. In the East subarea, the largest share of housing stock (21%) was built in the 1950s. Consequently, the structural maintenance needs of these subareas will be different than the rest of the City.

The subsequent section details the spread of housing tenure (owners vs. renters) for the City and its subareas.

HOUSING TENURE

HOUSING TENURE - CITY AS A WHOLE

Historically Portland has had higher rates of homeownership than renters. Over 50% of the housing units are occupied by owners, while the share of renters over several decades has been less than 50%. The following graph provides the respective shares of owners versus renters for the time periods 1990, 2000 and 2007:



Source: Census 1990, & 2000; ACS 2005-2007

Figure 28 - Housing Tenure (Owners vs. Renters) for Portland

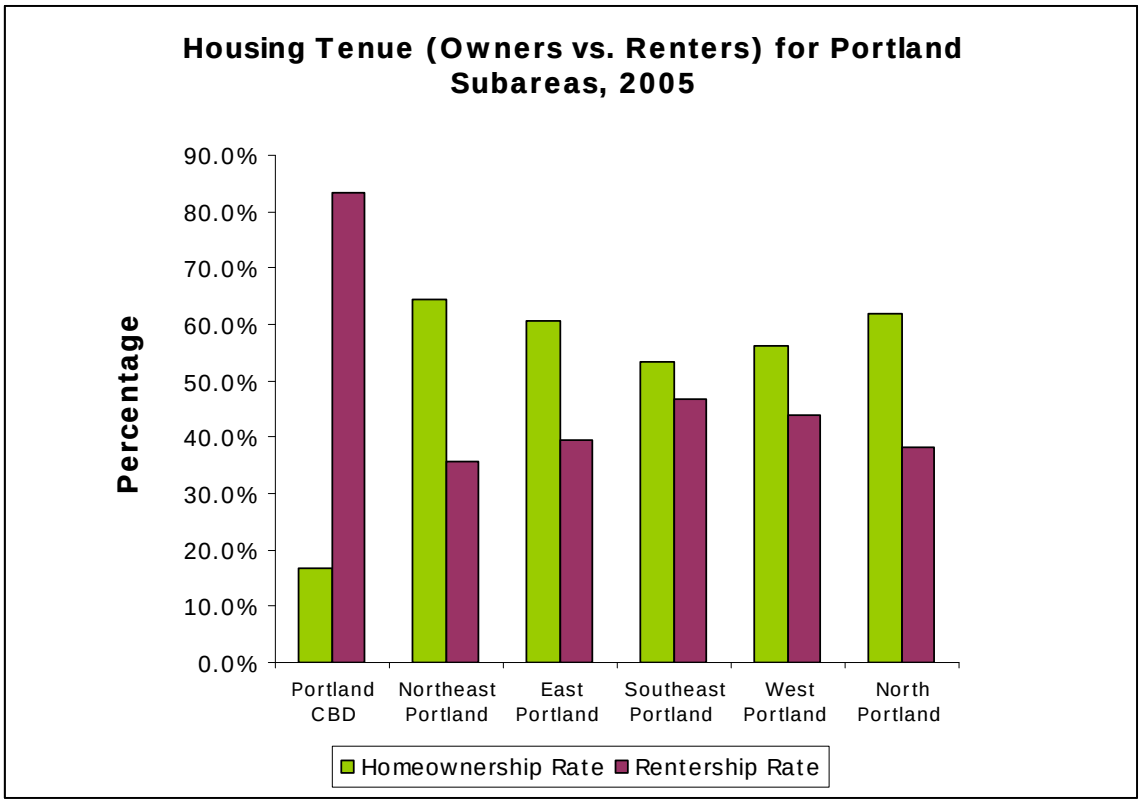
Overall homeownership rates have increased since the 1990s while rentership has declined correspondingly. Also, as shown in Figure 27 compared to the nation, Portland has had lower homeownership.

Portland's Homeownership Rates Compared to the Nation		
Year	Portland	USA
2000	55.8%	66.2%
2007	57%	67.3%

Source: Census 2000; ACS 2005-2007

Figure 29 - Portland's Homeownership Rates Compared to the Nation

HOUSING TENURE - CITY SUBAREAS



Source: ACS Multiyear Estimate, 2001-2005

Figure 30 - Housing Tenure (Owners vs. Renters for Portland Subareas, 2005

Key Finding from Distribution of Housing Tenure

Historically, homeownership rates for the City have remained below national and regional averages. However, owner occupancy has been on the rise in recent years and Portland has bridged the regional gap. A combination of steep increases in home prices and a lack of commensurate increase in household incomes will likely impede further gains in homeownership rates.

An examination of housing tenure indicates that about 57% of units are owner-occupied units while renters occupy 43% of the units. Just like the rest of the nation, homeownership rates have been steadily climbing

since the 1990s. However, Portland's homeownership rates continue to remain at least 10 percentage points below the national rate. An analysis of the tenureship in the City subareas reveals differences between them. An estimated 83% of the units in Portland CBD are renter-occupied, while the City's overall rentership is 43%. The 64% homeownership rate in the Northeast is the highest in the City, well above the City as a whole. East and North subareas also have rates that are above 60%. The Southeast and West Subareas closely mirror the City's tenure split.

HOUSING CONDITION

Housing units lacking complete plumbing facilities or kitchen facilities are commonly considered "substandard". The Census Bureau's definition of complete plumbing includes presence of three distinct facilities: (1) hot and cold piped water in a housing unit; (2) flush toilet; and (3) bathtub or shower. Similarly, a housing unit has complete kitchen facilities when it has all of the following: (1) an installed kitchen sink, (2) burners, and (3) a mechanical refrigerator. The following table provides details on number and proportion of substandard housing units in the City for the years 1990, 2000 and 2007 as documented by the Census:

Distribution of Substandard Housing Units in Portland

	1990	% Total Units	2000	% Total Units	2007	% Total Units
Lacking Complete Plumbing Facilities	1266	0.6%	1992	0.8%	2304	0.9%
Lacking Complete Kitchen Facilities	1682	0.8%	2694	1.1%	3069	1.2%

Source: Census 1970, 1980, 1990, & 2000; ACS 2005-2007

Figure 31 - Distribution of Substandard Housing Units in Portland

The substandard housing units are not distributed proportionately among the various subareas of the City. The following table documents the spread of housing units that either lack complete plumbing facilities or complete kitchen facilities in the six geographic clusters within the City:

Distribution of Substandard Housing Units in Portland's Subareas: 2005

Substandard Conditions	Portland CBD	Northeast Portland	East Portland	Southeast Portland	West Portland	North Portland	Total
Lacking complete plumbing facilities	730 7.1% of CBD Units	148 0.3% of Northeast Units	123 0.3% of East Units	304 0.4% of Southeast Units	369 0.8% of West Units	119 0.5% of North Units	1793 0.7% of Total Units
Lacking complete kitchen facilities	793 7.7% of CBD Units	143 0.3% of Northeast Units	294 0.6% of East Units	389 0.6% of Southeast Units	639 1.4% of West Units	125 0.5% of North Units	2383 1.0% of Total Units

Source: ACS Multiyear Estimate, 2001-2005

Figure 32 - Distribution of Substandard Housing Units in Portland's Subareas, 2005Key Finding from Distribution of Substandard Housing Units

The data on substandard housing units for the City indicates that just under 1% of units lack complete plumbing while just over 1% lack complete kitchen facilities. While this proportion is rather insignificant, it is noteworthy that the actual number of such units is on the rise. It is important to address the problems with such issues for the sake of the residents as well for maintaining a quality supply of housing units.

The substandard units are disproportionately spread among the City's subareas. Portland CBD contains about 41% all units without plumbing and just over 33% of all units that lack kitchen facilities. As this subarea continues to grow, it will be important to fix such units to keep them as part of the supply of housing stock.

WEATHERIZATION OF HOUSING UNITS

Housing units that are well insulated, properly ventilated, and efficiently heated can significantly improve the comfort and health of its residents while keeping energy costs down. However, the extent of weatherization of Portland's housing stock is not well established. Aggregate data on energy use in Portland residences and commercial buildings, including multifamily structures, are available, but it is difficult to establish the energy performance or extent of weatherization by sub-area or by type of housing. At the same time, regulatory measures like the statewide energy code implemented during specific time periods, offer assistance in estimating number of housing units citywide that have weatherization potential.

As the Oregon building code only began requiring weatherization measures in the 1970s, general estimates of the unweatherized building stock are possible. Oregon first required minimum energy conservation measures in its building codes for single-family homes in 1975 but greatly strengthened it only in 1990. For commercial structures, including multifamily buildings, energy code requirements were added in 1978 but a comprehensive energy code for commercial buildings was not implemented until 1996.

Driven by above the timelines of weatherization related regulatory measures, we can assume that units constructed prior to 1990 have significant opportunities to improve weatherization. Applying this framework to

the ACS (2007) data on age of the housing stock, the following table shows that citywide 213,496 housing units have weatherization potential:

Estimated Weatherization Status of Housing Units in Portland

Year Built	Number of Units	Cumulative units constructed in this time period or earlier	Weatherization status
Total housing units	**249,928**		**Weatherized units as constructed after implementation of comprehensive energy code** ↓ **36,432**
Built 2005 or later	2,753	249,928	
Built 2000 to 2004	15,254	247,175	
Built 1990 to 1999	18,425	231,921	
Built 1980 to 1989	15,695	213,496	**Units with weatherization potential** ↓ **213,496**
Built 1970 to 1979	28,660	197,801	
Built 1960 to 1969	24,615	169,141	
Built 1950 to 1959	35,272	144,526	
Built 1940 to 1949	24,545	109,254	
Built 1939 or earlier	84,709	84,709	

Source: ACS 2005-2007

Figure 33 - Estimated Weatherization Status of Housing Units in Portland

Ameliorating the above estimation of housing units in need of weatherization (231,496) are programs run by energy utilities for the state and local governments. Such programs have in fact weatherized significant numbers of units, particularly over the past two decades. A good example is weatherization programs run by the Energy Trust of Oregon. This data (illustrated in *Figure 32*) shows that more than 21,000 units have been weatherized over the past five years through its programs. Assuming that previous programs reached approximately 4,000 units per year, since 1990 a rough estimate of 76,000 housing units in Portland have been weatherized. This leaves about 137,000 unweatherized housing units.

The Energy Trust of Oregon runs and maintains data on weatherization of single and multi-family housing units. The available data from the Energy Trust for Portland covers the time period 2003-2009 and tracks weatherization of both single and multi-family units. According to this program, “weatherization” projects are any projects that involved window, insulation or air sealing work. Within this program, there are three separate projects: HES, HPF, and MHS:

HES (Home Energy Savings – Single Family Residential Program): These projects include diagnostic testing as weatherization even if no air sealing is subsequently done.

HPF (Home Performance – Single & Multi Family Energy Star Assessment): These include weatherization projects that are comprehensive in scope.

MHS (Multifamily Home Energy Savings): These include weatherization projects involving multi-family units (more than four units).

The following table provides weatherization data grouped by programs for Portland:

Weatherization Data by Projects for Portland: 2003-2009		
PROGRAMCODE	**Year**	**Total**
HES	2005	390
	2006	1,033
	2007	1,115
	2008	1,483
	2009	849
HES Total		4,870
HPF	2006	7
	2007	77
	2008	76
	2009	39
HPF Total		199
MHS	2003	228
	2004	4,992
	2005	3,167
	2006	1,777
	2007	2,986
	2008	2,780
	2009	451
MHS Total		16,381
Grand Total		**21,450**

Source: Energy Trust of Oregon

Figure 34 - Weatherization Data by Projects for Portland: 2003-2009

Key Findings from the Housing Weatherization Data

Rising energy costs has made weatherization of housing units important. Additionally, units that are well insulated, properly ventilated, and efficiently heated can significantly improve the comfort and health of its residents while keeping energy costs down. However, the extent of weatherization of Portland's housing stock is not well established. Further, due to the aggregated nature of energy use data, it is difficult to document the energy performance or extent of weatherization by sub-area or by type of housing.

Through a process of estimation driven by the implementation of Oregon's comprehensive energy building code in the 1990s and the impact of state and local weatherization programs, the City likely has as many as 137,000 unweatherized housing units. Achieving weatherization of such a large number of single and multi family housing units in the City presents a sustainability challenge in the coming years.

CHALLENGES AND OPPORTUNITIES

The existing stock of housing units in the City and its subareas presents a mix of challenges and opportunities in meeting the needs of the resident as well as the forecasted population. Following is a list of likely challenges and opportunities presented by the supply at hand:

Challenges

- The existing supply of housing stock is adequate for the present demand. However, significant and sustained addition to the inventory will be required as the areas population continues to grow.
- Housing supply and stock will need to match the demographic shifts in age and race/ethnicity.
- While age of the dwelling unit in itself does not imply loss of units due to natural depletion, it does imply maintenance. Unless older stock is kept up, existing stock may see declines in inventory.
- The changing nature of the new housing units (smaller multi-family units) that is being built in the City needs to appeal to a wide cross section of households as opposed to just specific household types.
- Addressing issues of lack of plumbing or lack of complete kitchen facilities in about 5,400 units citywide is bound to be costly.
- Achieving weatherization of as many as 137,000 housing units citywide presents a sustainability challenge in the coming years.

Opportunities

- An analysis of demolition activity in the past several years indicates that many car ports or similar structures were demolished to construct new dwelling units. This trend is an opportunity to replenish the housing stock while encouraging sustainability.
- If development continues in the Portland CBD, the trend presents a great opportunity for sustainable living – primarily in the form of smaller, multi-family units in locations with good transportation access.
- Rising energy costs is making weatherization an attractive cost-effective option and this climate presents a great opportunity to achieve weatherization of a majority of the City's housing stock.