

In order to develop a sense of the magnitude and characteristics of future development in the county, assuming that there is not a significant change in terms of county or local regulations controlling land development, a 2025 Trend Scenario was developed. It must be remembered that the 2025 Trend Scenario is by no means a recommended plan or set of policies for the county. The 2025 Trend Scenario merely makes an informed conjecture as to what the county could be like in 20 years assuming a continuation of recent land development trends, with no changes in local regulations or local growth management strategies.

Following is a description of the methodology used to develop the 2025 Trend Scenario, which made use of the following sets of data:

- 1) University of Pittsburgh population forecasts
- 2) University of Pittsburgh employment forecasts
- 3) Census data on municipal population and housing characteristics
- 4) Data derived from recent land development activity in the county
- 5) Southwest Pennsylvania Commission's Major Development Database
- 6) Information received from the City of Pittsburgh Planning Department

Through the use of these sets of data, an estimate of the acreage of residential and non-residential development the county may be expected to experience over the next 20 years has been determined. In addition, through an analysis of recent development patterns, a spatial distribution of the future development acreage has been estimated. Thus, the 2025 Trend Scenario presents a picture of the expected amount and location of future development.

Based on the University of Pittsburgh population forecasts, U.S. Census Bureau data and experience of the planning team, the total number of new housing units to be constructed in the county from 2005 to 2025 could range from 36,104 to 67,055, with approximately 50,000 new units (2,500 units per year) corresponding to a "medium" rate of population growth. Recent residential construction in the county has occurred at a density of about 2 dwelling units per acre, meaning that the 50,000 forecast units would consume 25,000 acres of land over the 20-year period.

The forecast of 2,500 new dwelling units per year closely correlates with recent building permit data collected by the University of Pittsburgh and the Southwestern Pennsylvania Commission (SPC) from the U.S. Census Bureau. SPC's building permit data show that in the ten-year period from 1994 to 2004 there were approximately 2,700 permits per year issued for new residential units in Allegheny County. For a full description of the method used to derive the residential units, see Table 1.

While portions of the County are growing and adding housing units, a number of municipalities are losing population and housing units. In order to show both occurrences, replacement units were calculated in addition to the growth mentioned above. These replacement units translated into demolition chips, which graphically show on the maps where housing units are being lost. The total number of 80

demolition chips was derived from the 3.5% replacement rate utilized in the formula from above as well as planning team experience. The methodology used to calculate this phenomenon is shown in Tables 2.

Table 3 illustrates the methodology used to distribute the demolition chips throughout the County. US Census Bureau housing unit numbers were used from 1990 to 2000 to determine which municipalities were losing housing units. The proportion of the total housing units lost was applied to determine how many demolition chips would be assigned to each municipality. The demolition chips were then randomly placed within the municipal boundaries. The one exception to this is the City of Pittsburgh. The demolition chips for Pittsburgh were placed utilizing demolition information received from the City of Pittsburgh Planning Department.

University of Pittsburgh employment forecasts form the basis of the estimate of the acreage needed to accommodate new non-residential development over the 20-year planning period. The acreage figures derived from the employment forecasts alone have then been adjusted to reflect recent and pending and proposed non-residential development trends in the county. The results from these exercises, as well as an analysis of local topography, showed that over the next 20 years the County can expect to see 10,000 acres of non-residential development, which includes retail and employment centers (i.e. office and industrial). See Table 4 for more detailed methodology.

Significant development projects constructed during the 1993 to 2004 time period were documented (for this analysis the 11-year period between 1993 and 2004 was used due to fact that aerial photographs were available for these two years), and a 1993-2005 Major Development map, including residential and non-residential, was created using aerial mapping analysis in conjunction with SPC's major development database. To ensure that the identified development was as accurate as possible, the map was then sent to the Allegheny County Department of Economic Development and all municipalities for their review as well as to identify any major development projects that may have happened between 2004 and present day.

The 2025 Trend Scenario map is a graphic representation of the total amount of land required to accommodate future housing and non-residential development, reflecting locations for future development that have been supported by actual development activity in the recent past from the 1993-2005 Major Development map. The representation uses 100-acre "chips" of residential (yellow), retail (red) and employment centers (pink) to show the amount and location of expected future development, graphically depicted as a layer over the existing land use base map. In areas where development is concentrated, local zoning ordinances were also consulted to ensure that the development was not being placed in areas set aside for conservation. However, it is important to note that municipalities have changed zoning in the past to allow for development projects, and the 2025 Trend Scenario reflects the development patterns that have occurred in the recent past.

	<u>"Low"</u>	<u>"Medium"</u>	<u>"High"</u>
Population Projection, Year 2025	1,266,846	1,306,558	1,346,270
Population in Households (96.8%)	1,226,307	1,264,748	1,303,189
Persons per Household	2.16	2.16	2.16
Occupied Housing Units	567,735	585,532	603,328
Vacant Units (8%)	49,368	50,916	52,463
Total Housing Units Required	617,103	636,447	655,792
Existing Stock of Housing Units, 2000	583,646	583,646	583,646
Net Additions to Housing Stock	33,457	52,801	72,146
Replacement of Existing Stock (3.5%)	17,509	20,428	17,509
Conversions (1%)	(5,836)	(5,836)	(5,836)
Total Housing Units to be Constructed, 2000-2025 (25 years)	45,130	67,393	83,819
Average Number of Housing Units to be Constructed per Year (2000-2025)	1,805	2,696	3,353
Total Housing Units to be Constructed, 2005-2025 (20 years)	36,104	53,914 (rounded to 50,000)	67,055

Note: SPC building permit data show that in the 10-yr. period between 1994 & 2004 there were approximately 2,700 residential building permits per year (which closely correlates to the medium number above)

Table 1 illustrates the number of housing units needed to meet residential demand through the year 2025. Listed below are detailed descriptions of the criteria used to develop the estimate of future housing units needed in the County for the Trend Scenario.

Criteria	Description
Population Projection	The medium number was obtained from the University of Pittsburgh's REMI Model (June 2005) for the year 2025. The high number was obtained from an earlier version of the same study (January 1999). The low number was calculated by the difference between the medium and high values
Population in households	Occupied Housing Rate from the 2000 Census multiplied by the projected population.
Persons per household	This number was estimated based on the percent change in household size from the US Census during previous years.*
Occupied Housing Units	The population in households divided by persons per household.
Vacancy Rate	8% was obtained from the 2000 U.S. Census. Subtract the Total Housing Units Required (once obtained) by the occupied housing units.
Total Housing Units Required	Divide the Occupied Housing Units by (1-Vacancy Rate).
Existing Housing Stock	Obtained from 2000 U.S. Census.

Net Additions to Housing Stock	Total Housing Units Required minus Existing Housing Stock.
Replacement of Existing Stock	Assumed a 3.5% rate of replacement housing.
Conversions	Assumed a 1% rate of existing structures converted to housing.
Total Housing Units to be Constructed	Sum of Net Additions, Replacement and Conversion.
Average Number of Housing Units Constructed per Year	Total Housing Units to be Constructed divided by the number of years (in this case, 25).

* The *average persons per household* is a very significant factor. Nationally, the trend of declining household size over the last thirty years has meant, for many communities, the creation of new households and demand for additional housing units, even while little or no population increases have occurred. This phenomenon has been apparent in the recent history of Allegheny County. Average county household size was

- 3.07 persons in 1970
- 2.63 persons in 1980
- 2.47 persons in 1990
- 2.31 persons in 2000.

For the State of Pennsylvania, average household size was

- 3.10 persons in 1970
- 2.74 persons in 1980
- 2.64 persons in 1990
- 2.48 persons in 2000

For the U.S.A., average household size was

- 3.11 persons in 1970
- 2.75 persons in 1980
- 2.63 persons in 1990
- 2.59 persons in 2000

It is reasonable to expect average household sizes in the County and State to continue to drop over the twenty-year planning horizon, although perhaps at a declining rate.

The average number of persons per household used as part of Table 1 Housing Units to be Constructed through 2025 is derived from the 30-year trend of household size contraction as reflected in the 1970, 1980, 1990, and 2000 Censuses. While the rate in the decline in average household size has been steep:

- -14.3% from 1970 to 1980 (from 3.07 to 2.63 persons per household)
- -6.1% from 1980 to 1990 (from 2.63 to 2.47 persons per household)
- -6.5% from 1990 to 2000 (from 2.47 to 2.31 persons per household)

The table takes a conservative position, presuming that the rate of decline of average household size will flatten out, postulating a rate of:

- -4.0% from 2000 to 2010, (from 2.31 to 2.22 persons per household)
- -2.0% from 2010 to 2020, (from 2.22 persons per household to 2.17 persons per household)
- -0.5% from 2020 to 2025 (from 2.17 to 2.16 persons per household)

Thus, 2.16 represents the average household size for the planning horizon year of 2025.

Replacement of Existing Stock	20,428 units – rounded to 20,000
Divided by 25	800 units
Multiply by 20	16,000 units
Divide by 200	80 chips

Table 2 illustrates the number of housing units that are replacement units. These are units (not buildings) that are being demolished somewhere in the County (most likely in the non-growing areas). Listed below are detailed descriptions of the criteria used to develop these numbers.

Criteria	Description
Replacement of Existing Stock	This number is taken directly from Table 1, but has been rounded to 20,000
Divided by 25	Units per year
Multiply by 20	Number of units over our planning time frame
Divide by 200	Number of chips (due to the fact that each chip represents 200 units)

	Housing Units 1990 - US Census	Housing Units 2000 - US Census	Number Change	% Change	# of Demolition Chips
Pittsburgh city	170159	163,366	-6793	0.48	39
McKeesport city	12535	11,124	-1411	0.10	8
Braddock	2641	1,624	-1017	0.07	6
Wilkinsburg	11354	10,696	-658	0.05	4
Duquesne city	4106	3,768	-338	0.02	2
Clairton city	4676	4,350	-326	0.02	2
Homestead	2370	2,071	-299	0.02	2
McKees Rocks	3676	3,402	-274	0.02	2
Carnegie	4478	4,249	-229	0.02	1
Swissvale	5284	5,097	-187	0.01	1
Coraopolis	3263	3,119	-144	0.01	1
Stowe	3674	3,556	-118	0.01	1
Penn Hills	20467	20,355	-112	0.01	1
West Homestead	1218	1,106	-112	0.01	1
Glassport	2508	2,405	-103	0.01	1



**2025 Trend Scenario
Supporting Documents**

East McKeesport	1256	1,154	-102	0.01	1
North Versailles	5328	5,227	-101	0.01	1
Turtle Creek	3067	2,969	-98	0.01	1
North Braddock	3347	3,250	-97	0.01	1
Dravosburg	1114	1,021	-93	0.01	1
Tarentum	2649	2,556	-93	0.01	1
Sewickley	2116	2,037	-79	0.01	1
Mount Lebanon	14159	14089	-70	0.00	1
					80 (Number of chips that represent demolition)

Table 4 - Non-Residential Acres Projected from REMI* Employment Forecast & Workers/Acre Adjusted

				15%	15%	
	Forecasted Employment	Workers/ Acre	Additional Acres Needed by Job Growth	Contingency for topography	Relocated Acres	Total
Retail	29462	10	2,946	442	442	3,800
Office**	154981	40	3,875	581	NA	4,500
Industrial**	11716	10	1,172	176	NA	1,300
Total			7,992	1,199	442	9,600
* REMI forecasts were prepared by the University Center for Social and Urban Research at the University of Pittsburgh						
** The 2025 Trend Scenario map depicts the office and industrial development as one type: Employment Center						