Urbanized Acres

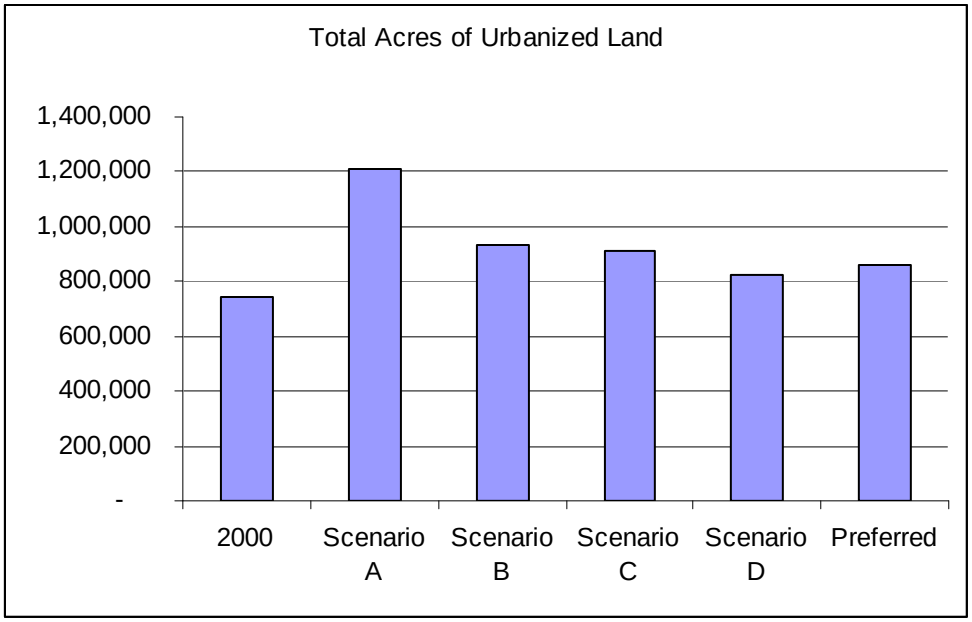
What does it mean?

Urbanized acres is an indicator of the amount of developed land in each scenario. Each scenario assumes a different mix of building types and development types, and thus different development densities. Because each scenario assumes the same number of jobs and households, the number of urbanized acres gives a sense of how much land would be developed in the Austin region under each scenario.

How was it measured?

Each scenario consists, in part, of a map of the Central Texas region showing the location of new development. This map was converted to a raster format, and the number of grid cells of new development was summarized. From that, the number of acres of new development was calculated. To get total urbanized acres for a scenario, the acres of new development were added to the number of urbanized acres for the base year, 2000.

Indicator	Total Urbanized Acres	Incremental Acres
2000	740,563	-
Scenario A	1,208,842	468,278
Scenario B	932,982	192,418
Scenario C	911,340	170,777
Scenario D	825,346	84,783
Preferred	863,611	123,048



New Development Occurring through Infill Development or Redevelopment

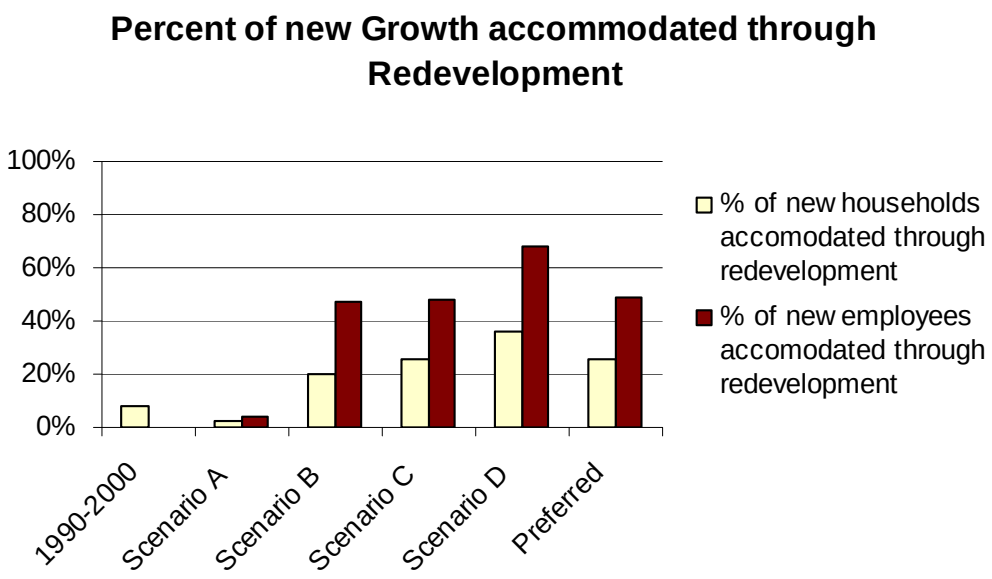
What does it mean?

Infill development or redevelopment indicates the extent to which a city is renewed on an ongoing basis. It indicates that older parts of the are attracting new housing and investment High percentages of infill development indicate that a larger proportion of growth is occurring where development has already occurred before, through recycling of older buildings.

How was it measured?

For each scenario, a raster format map is made showing new development by development type. A raster map with the location of vacant land and one with developed land are also made, and the grid cells of each development type that fall on the vacant land can be summarized separately from those that fall on developed land. The number of redeveloped acres of each development type is multiplied by the number of households and employees per redeveloped acre to get new households and employees on developed land.

	% of New Households accomodated through redevelopment	% of New Employees accomodated through redevelopment
1990-2000	8%	data unavailable
Scenario A	3%	4%
Scenario B	20%	47%
Scenario C	25%	48%
Scenario D	36%	68%
Preferred	26%	49%



Cost of New Local Infrastructure

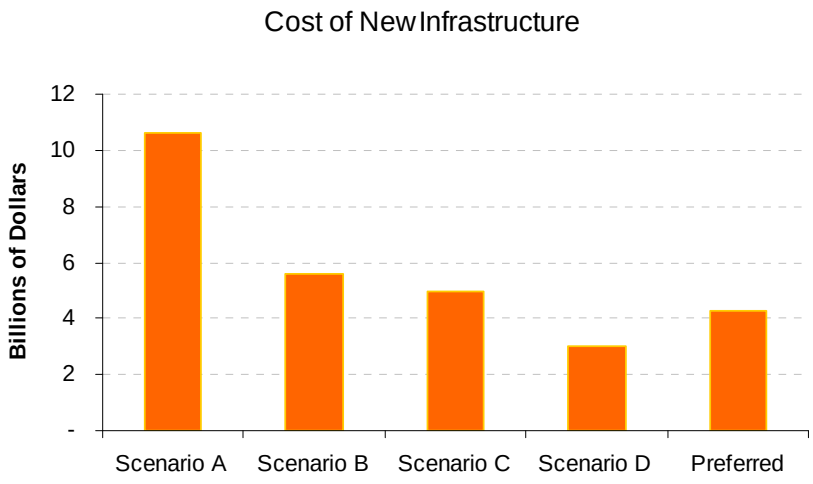
What does it mean?

Different types of development can have different impacts on cost of local infrastructure. This measure is of costs for additional local infrastructure. It is often provided by local developers when a subdivision is built. Generally, it is be more cost-effective to build streets, water and sewer lines when development is denser, as the costs per unit decrease. Infill development is less expensive if the existing infrastructure can be used, or needs replacement anyway, and more expensive if new sewer and water lines must be laid. The cost estimates in this indicator include local roads, water, sewer and storm sewer.

Cost of New Infrastructure (billions of dollars)	
Scenario A	10.61
Scenario B	5.57
Scenario C	4.94
Scenario D	3.04
Preferred	4.27

How was it measured?

Each development type was assumed to contain a certain length of sewer, water, and local streets per acre, on average. The acres of each development type were multiplied by the infrastructure length to determine the linear feet in each scenario. Only the development on vacant land was considered, due to the great variation in infrastructure costs for redevelopment. Then the vacant linear feet were multiplied by the average estimated infrastructure construction cost of $290/ft to get the total infrastructure costs. The $290/ft breaks down to $140/ft for local roads, $35/ft for water, $70/ft for sewer, and $45/ft for storm sewer. The infrastructure costs for the rural residential and conservation rural development types were estimated to be $115/ft due to lack of sewer, storm sewer, water, and sidewalk infrastructure.



Connectivity

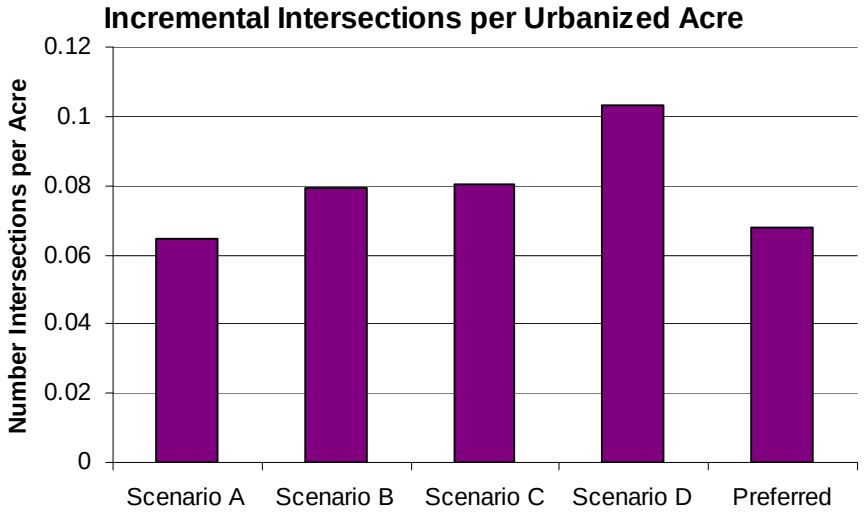
What does it mean?

Connectivity is an indicator of how connected the street system is. A well-connected street system is more robust, meaning that in case of accidents, congestion, or disaster there are multiple routes to the same destination. In addition, a well-connected street system allows more direct routes from origin to destination, which encourages walking, biking and shorter auto trips.

How was it measured?

For each scenario, a raster format map is made showing new development by development type. Each development type was assumed to contain a certain number of intersections per acre, developed by measuring the average block size of representative areas in the Central Texas region. The acres of each development type is multiplied by the intersections per acre for each development type.

	Number Intersections	Intersections per Acre
2000	47,614	0.064
Scenario A	77,761	0.064
Scenario B	62,849	0.067
Scenario C	61,368	0.067
Scenario D	56,383	0.068
Preferred	59,317	0.068
Scenario A Increment	30,147	0.064
Scenario B Increment	15,235	0.079
Scenario C Increment	13,754	0.081
Scenario D Increment	8,769	0.103
Preferred Increment	1,703	0.095



Development in Low Income and Very Low Income Areas

What does it mean?

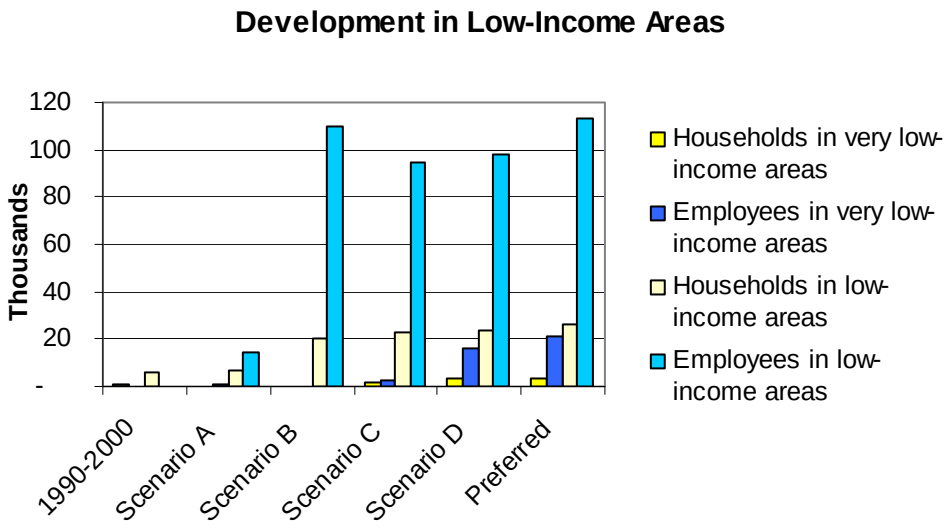
A low-income area is defined as a block group in which the median household income is less than 25% of the county median household income. A very low-income area is defined as a block group in which the median household income is less than 50% of the county median household income in 2000. The addition of households and employees to this same geographic area is measured to indicate the amount of investment and development in areas that now have very low incomes.

How was it measured?

For each scenario, a raster format map showing households and one showing employment is created. Census 2000 data was used to determine the low income and very low income block groups based on the ratio of the block group's median household income to county median household income. The indicator is calculated by summarizing the households and employees in block groups whose ratios are less than 0.50 and 0.25.

Development in Low-Income Areas

	Very Low-Income		Low-Income	
	Households	Employees	Households	Employees
1990-2000	665	data unavailable	6,801	data unavailable
Scenario A	305	753	6,858	14,436
Scenario B	88	73	20,123	109,748
Scenario C	1,605	2,295	22,581	94,554
Scenario D	2,970	16,042	23,765	98,407
Preferred	3,413	20,904	25,811	113,445



Acres of Impervious Surface

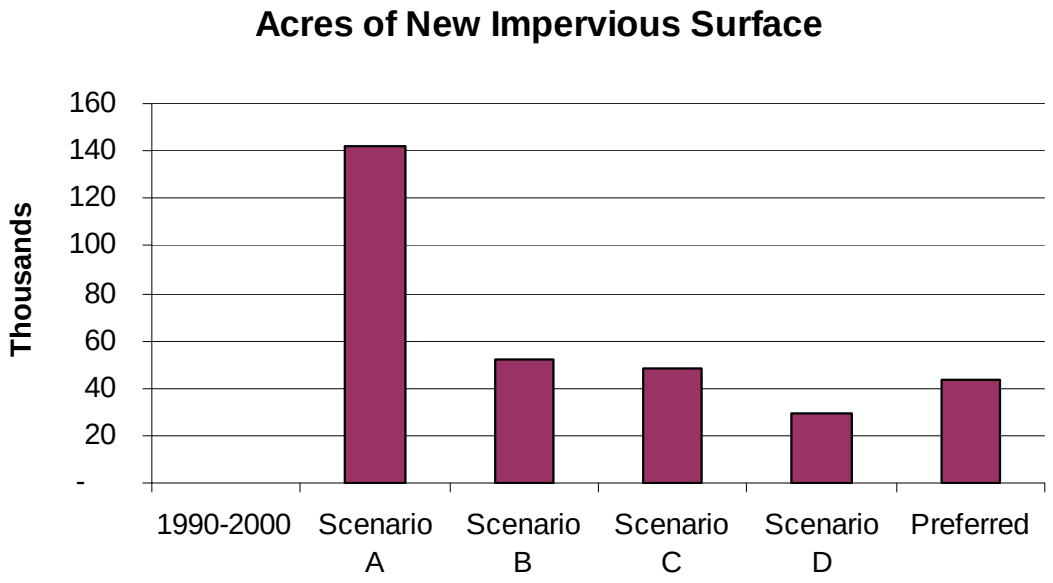
What does it mean?

The number of acres of impervious surface in a region provides a good indication of the health of the region's streams. Instead of soaking in and filtering through the soil, rainwater runs off impervious surfaces, washing many polluting substances such as pesticides and oils into streams and other aqueous habitats. Impervious surface also increases storm water runoff and flooding that, unless mitigated, can cause damage to property and resources. This can be mitigated by better development practices.

How was it measured?

For each scenario, a map in raster format is made showing new development by development type. Each development type is assumed to contain a certain percentage of impervious surfaces. New acres of impervious surface is calculated by summarizing the vacant grid cells of each development type and multiplying them by the impervious surface percentage for that development type.

Acres of new impervious surface	
1990-2000	47,328
Scenario A	141,986
Scenario B	51,733
Scenario C	48,549
Scenario D	29,591
Preferred	43,443



Loss of Agricultural and Rangeland

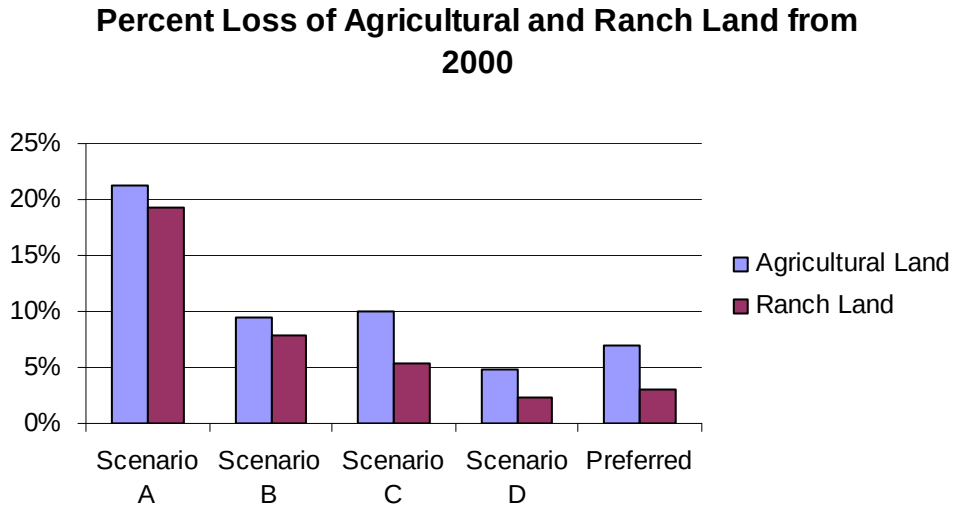
What does it mean?

These two indicators measure the loss of agricultural and rangeland to development. Some people say that maintaining these land uses nearby is important for several reasons. Others say that there is plenty of agricultural and range land, and we shouldn't be concerned with its loss. Regardless, once it is subdivided and developed, it is lost as a crop producing resource. These lands also perform some functions of open space, providing habitat for certain species and relief from the sense of enclosure found in urban areas.

How was it measured?

For each scenario, a raster format map is made showing the location of new development on previously vacant land. A raster map showing land cover interpreted from satellite imagery was provided by CAPCOG. The loss of agricultural land and rangeland was calculated by summarizing the acres of new development on vacant lands that fall within the agricultural and rangeland classifications of the land cover grid.

	Acres Agricultural Land Lost	% Lost from 2000 Total	Acres Rangeland Lost	% Lost from 2000 Total
Scenario A	251,004	21%	98,440	19%
Scenario B	112,402	10%	40,563	8%
Scenario C	107,572	10%	27,815	5%
Scenario D	57,404	5%	12,228	2%
Preferred	83,645	7%	17,426	3%



Housing Mix

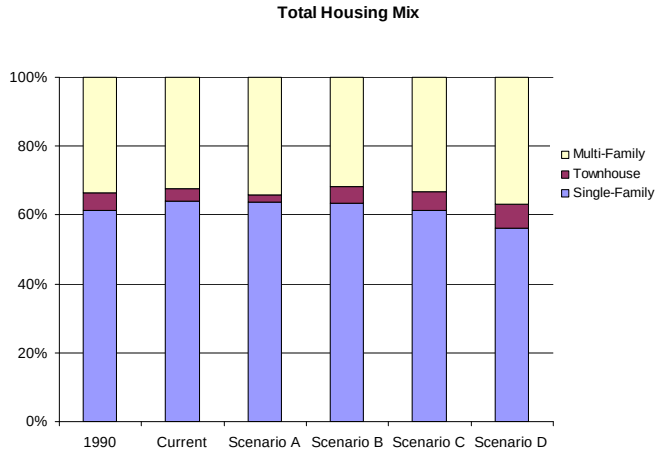
What does it mean?

Housing mix indicates whether the housing in an area is single-family, townhouse, or multi-family. This measures the variety of housing types provided, as well as the density typical of new housing types. The 1990 and 2000 data allow a comparison of today and the recent past.

How was it measured?

Each scenario contains a different mix of development types. Each development type is defined as a certain mix of building types. Therefore, each development type contains a certain mix of single-family homes, townhomes, and multi-family homes. The number of acres of each development type in each scenario were multiplied by the single-family, townhome, and multi-family percentages in each development type to come up with the number of single-family, townhome, and multi-family households in each scenario.

Scenario	Single-Family		Townhouse		Multi-Family	
1990	170,054	61%	13,428	5%	93,150	34%
Current	317,714	64%	18,391	4%	159,899	32%
Scenario A	635,156	64%	20,938	2%	341,623	34%
Scenario B	635,524	63%	46,997	5%	318,583	32%
Scenario C	611,917	61%	54,222	5%	331,693	33%
Scenario D	541,862	56%	66,816	7%	353,684	37%
Preferred	609,988	61%	56,981	6%	330,784	33%
1990-2000	147,660	67%	4,963	2%	66,749	30%
Scenario A - Increment	317,442	63%	2,547	1%	181,724	36%
Scenario B - Increment	317,810	63%	28,606	6%	158,684	31%
Scenario C - Increment	294,203	59%	35,831	7%	171,794	34%
Scenario D - Increment	224,148	48%	48,425	10%	193,785	42%
Preferred - Increment	292,274	58%	38,590	8%	170,885	34%



Urban Parks per Capita

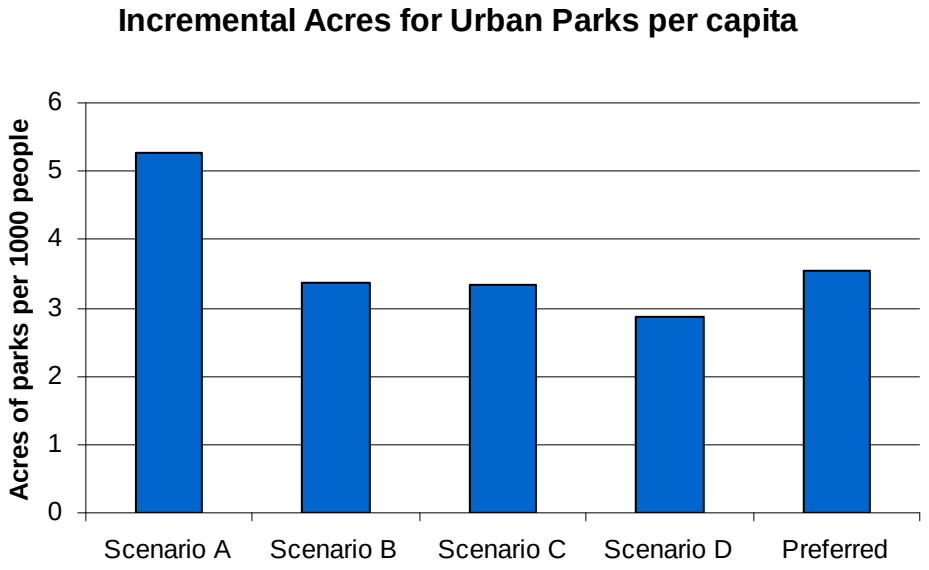
What does it mean?

The existence of urban parks can greatly contribute to the quality of life of a region's residents. Urban parks are more accessible to more people than rural nature preserves, and can be accessed without a car. Therefore, urban parks impact people's day-to-day lives by providing a refuge from the city within an urban area. A good way to compare the amount of parkland of several areas is to measure the park acreage per 1000 residents.

How was it measured?

Each scenario contains a different mix of development types. Each development type is defined to include a certain amount of parkland, a percentage by acre. The number of acres of each development type of each scenario were multiplied by the percentage of parkland in each development type to determine the number of new acres of urban parks.

Scenerio	Incremental Acres of Urban Parks	Incremental Acres of parks per 1000 people
Scenario A	6,626	5.28
Scenario B	4,262	3.38
Scenario C	4,173	3.33
Scenario D	3,336	2.86
Preferred	4,447	3.55



Development in the Aquifer Recharge Zone and Contributing Zones

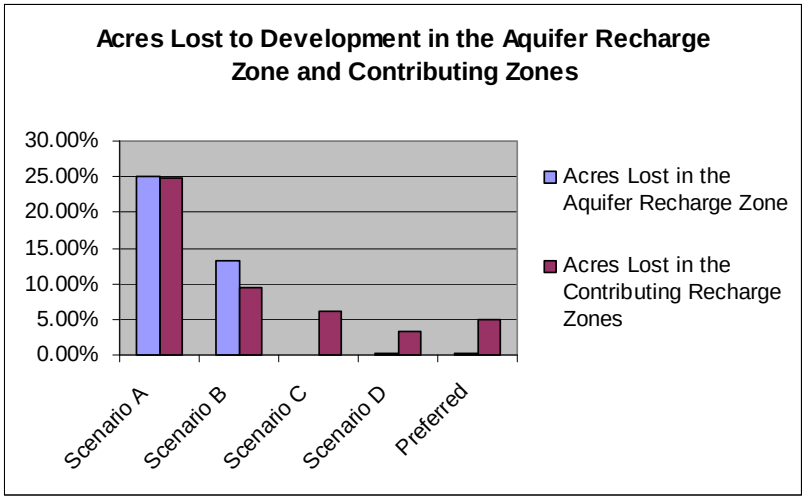
What does it mean?

The Edwards Aquifer is a reservoir of groundwater that supplies the water that flows in many streams and creeks around the region, including Barton Springs. The aquifer is continually replenished, or "recharged," by rainwater or surface water that filters down into the soil or flows into cracks and openings in the bedrock. In the Edwards Aquifer, recharge enters the ground quickly through openings in a porous layer of limestone. Any pollutants in the surface water within the "recharge zone"—the area recharging the aquifer—can quickly move through the aquifer, and may contaminate water wells or springs. This can be mitigated by proper development practices. The contributing zones are areas directly upstream from the recharge zone.

How was it measured?

For each scenario, a raster format map is made showing the location of new development on previously vacant land. New development within the aquifer recharge zone and contributing zones was calculated by summarizing the number of grid cells of new development on vacant lands that fall within the polygons of the recharge zone shapefile and the contributing zones shapefile. The number of grid cells was converted to number of acres.

	Acres Lost to Development in the Aquifer Recharge Zone	% Loss from 2000 Totals	Acres Lost to development in the Contributing Zones	% Loss from 2000 Totals
Scenario A	36,258	25.03%	126,261	24.82%
Scenario B	19,300	13.32%	48,412	9.52%
Scenario C	53	0.04%	30,951	6.08%
Scenario D	397	0.27%	17,326	3.41%
Preferred	370	0.22%	24,997	4.91%



Distribution of Employment Space

What does it mean?

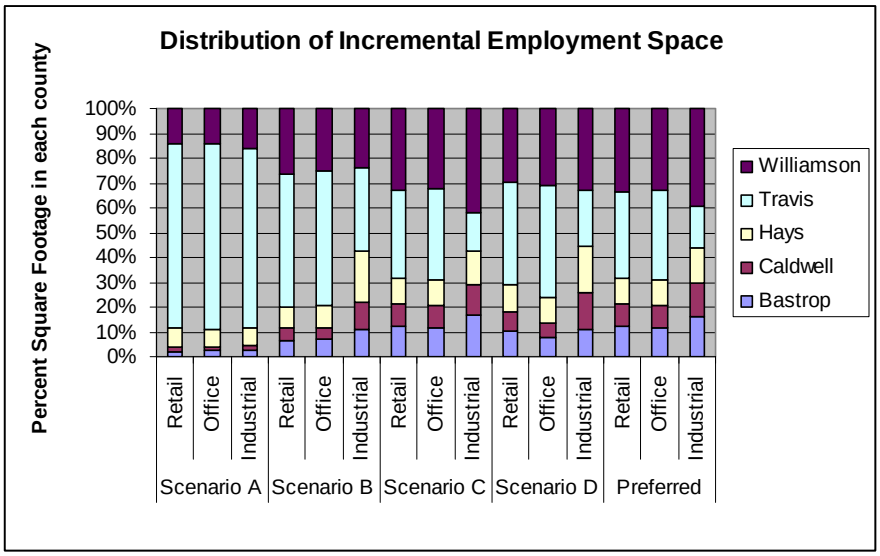
The distribution of employment space is another indicator of the widely varying land use patterns in the different scenarios. The type of employment in a certain area, as well as the distribution of the types of employment across the region depends heavily on the land use pattern. Employment information also is useful for estimating relative tax burden.

How was it measured?

The total square footage of each employment type for the entire region was estimated by TIP Strategies, Inc. This was distributed around the region by development type and summarized by county.

Incremental Employment Space - Thousands of Square Feet

		Region	Bastrop	%	Caldwell	%	Hays	%	Travis	%	Williamson	%
Scenario A	Retail	67,939	1,514	2%	928	1%	5,231	8%	50,714	8%	9,552	14%
	Office	52,327	1,245	2%	745	1%	3,800	7%	39,260	7%	7,277	14%
	Industrial	18,725	520	3%	317	2%	1,388	7%	13,448	7%	3,052	16%
Scenario B	Retail	67,832	4,526	7%	3,140	5%	6,077	9%	36,007	9%	18,083	27%
	Office	52,221	3,560	7%	2,470	5%	4,617	9%	28,468	9%	13,106	25%
	Industrial	18,725	2,052	11%	2,113	11%	3,841	21%	6,276	21%	4,444	24%
Scenario C	Retail	67,942	8,229	12%	6,109	9%	7,230	11%	23,928	11%	22,446	33%
	Office	52,327	6,221	12%	4,681	9%	5,386	10%	19,030	10%	17,010	33%
	Industrial	18,725	3,087	16%	2,393	13%	2,498	13%	2,835	13%	7,911	42%
Scenario D	Retail	67,939	6,204	9%	4,423	7%	6,433	9%	23,928	9%	17,435	26%
	Office	52,327	3,252	6%	2,555	5%	4,354	8%	19,030	8%	13,148	25%
	Industrial	18,725	1,396	7%	1,804	10%	2,304	12%	2,835	12%	4,071	22%
Preferred	Retail	73,826	8,940	12%	6,628	9%	7,912	11%	25,783	35%	24,563	33%
	Office	52,327	6,354	12%	4,753	9%	5,498	10%	19,340	36%	17,498	33%
	Industrial	18,725	3,081	16%	2,536	13%	2,625	14%	3,156	17%	7,451	40%



Regional Density

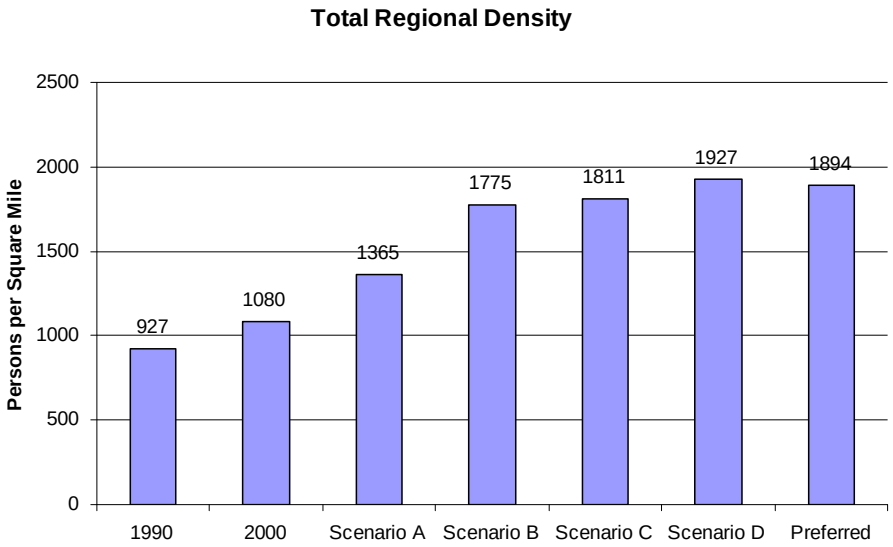
What does it mean?

Regional density is a measure of the number of people per urbanized acre or square mile in each scenario. Similar to the measurement of "urbanized acres," regional density provides an indicator of how much land would be consumed in each scenario, because the number of people remains constant throughout the three scenarios.

How was it measured?

CAPCOG provided an estimate of the number of people that will live in the Central Texas region by 2030 (2,500,000). Regional density was measured by dividing the number of people by the number of urbanized acres in each scenario.

Regional Density (persons/sq mile)	
1990	927
2000	1080
Scenario A	1365
Scenario B	1775
Scenario C	1811
Scenario D	1927
Preferred	1894
1990-2000	1655
Scenario A Increment	1714
Scenario B Increment	4199
Scenario C Increment	4703
Scenario D Increment	8801
Preferred Increment	6492



Relative Tax Burden

What does it mean?

The scenarios differ in terms of where in the region they direct households and employment. Because residential uses tend to use government services, while employment-heavy uses tend to bring in tax revenue for governments, the differences between scenarios can have an impact on the relative tax burden felt by local governments.

How was it measured?

The households in each scenario were multiplied by an average value per unit for single-family, townhouse and multi-family units. The square feet of employment in each scenario were multiplied by an average value per square foot of retail, office and industrial employment. The total household and employment values were added together to get total property values by county for each scenario. Then that number was divided by the number of households in each county by scenario to get a property tax burden ratio. Finally, the county values were divided by the regional value to normalize them, and the percentage difference from the regional value was calculated.

Percentage of Normalized Regional Ratio of Property Tax Receipts to Government Expenditures

	A	B	C	D	Preferred
Bastrop	-8.1%	-3.7%	-1.6%	-7.7%	-2.0%
Caldwell	-5.3%	-2.1%	2.1%	-3.5%	1.4%
Hays	-3.4%	0.9%	-1.4%	-1.5%	-1.7%
Travis	5.8%	5.0%	2.3%	5.3%	3.3%
Williamson	-6.6%	-4.8%	-1.3%	-2.7%	-1.6%