ENVISION CENTRAL TEXAS™

YOUR IDEAS ★ OUR REGION'S FUTURE




July 2003

Envision Central Texas Briefing Packet

Envision Central Texas

Why Are We Planning for the Future of the Region?

How do we keep Central Texas one of the nation's most livable regions, considering that an estimated 1.25 million more people may live here within the next 20 to 40 years? How can we apply today's lessons to tomorrow's housing, environmental, transportation and land use challenges? The answer involves tough decisions for the people of Central Texas.

Envision Central Texas (ECT) is a project to assist in the public development and implementation of a regional vision addressing the growth of Central Texas. ECT works with state and local government, business and community leaders, developers and civic leaders, and has listened to more than a thousand people at community meetings to address these decisions, with an emphasis on land use, transportation and the environment. Using input gathered during public workshops held in late 2002, Envision Central Texas has developed a set of four possible growth Scenarios that outline how and where growth could occur throughout the region. Each Scenario illustrates a particular pattern of growth in the Central Texas region.

This document summarizes each growth Scenario and explains its impacts on housing choice, traffic congestion and transit options, the environment, the regional economy, and other indicators. The Scenarios can be used to explore the trade-offs between different growth patterns.

The Scenarios are the basis for the next round of citizen input. This input will be used by the ECT Board of Directors in developing a vision for Central Texas. That vision can be used as the communities of the region continue to develop locally-appropriate detailed plans and implementation strategies, as a guide to the future we want for ourselves and our children.

What is Envision Central Texas?

Envision Central Texas is a non-profit organization composed of concerned citizens – representing the business community, environmental organizations, neighborhoods and policy makers – who share the common goal of addressing growth with sound planning that has the interests of the region's existing and future citizens in mind. The organization has no regulatory powers and does not seek to forcibly impose a plan on the region or its local governments. Instead, Envision Central Texas's mission is to work cooperatively and in partnership with all entities and individuals to help guide the region toward a common vision for the future. Envision Central Texas has the assistance of a team of experienced professionals in its endeavors. The lead consultant is Fregonese Calthorpe Associates, a firm with regional planning experience in such diverse places as Portland Oregon, Utah, Chicago, Contra Costa California, and Los Angeles.

Our Guiding Principles

The Board of Directors of Envision Central Texas has adopted a set of guiding principles for the Central Texas Regional Visioning Project. These principles are a statement of values on policy choices concerning land use in Central Texas. They are intended to be stated and used as a set; no one principle stands alone. As a coherent whole, these principles expand the overarching principles of ECT, which are:

• The region's transportation system, environmental planning and preservation goals, social equity aspirations, and economic foundation should be coordinated to support a sustainable regional community.

• Regional policy choices should support choices of housing, transportation, and employment.

• Central Texas values diversity in all policy choices.

• All decisions should promote enhanced quality of life for the residents of Central Texas.

Our goal is to compare each of these Scenarios with the guiding principles, and develop a vision for the future that will help guide our region to accomplish these principles. Please see the Appendix for a complete listing of the principles.

Executive Summary

Document Description

For these four possible futures, this document summarizes the most significant information from all these sources. The introduction outlines who we are and a brief outline of the methodology of Scenario planning. The four Scenarios of future growth are presented in the next section of this document. Each Scenario description includes both quantitative data from the modeling efforts and qualitative descriptions of what life might be like in that future. The third section compares the Scenarios to each other, using the guiding principles and associated indicators adopted by the Envision Central Texas Board. The summary section includes the next steps in the process to develop a growth strategy for the region. Possible implementation tools are briefly reviewed in this section. Detailed implementation tools for the vision would be tailored to that vision.

Envision Central Texas is a process to engage the region in communications to foster a better understanding of our shared future. Focusing on land use and transportation alternatives, we ask the people of the region to consider: How should we shape our region's future growth? What do we want this region to become over the next several decades?

First, we asked the community what were the major issues for Central Texas. Then, last fall, we asked people in the region what they thought the future should look like by placing development patterns on land use maps. In seven workshops, people showed us how they wanted the region to grow, based on assumed population growth. We used all of this citizen input in developing four possible future patterns of land use. Each pattern is a distinct type that represents clear and consistent choices. Working with professional planners, we developed regional transportation alternatives to go with the land use alternatives. Using state of the art transportation and land use modeling, we now have a lot of information on what these four alternative futures mean.

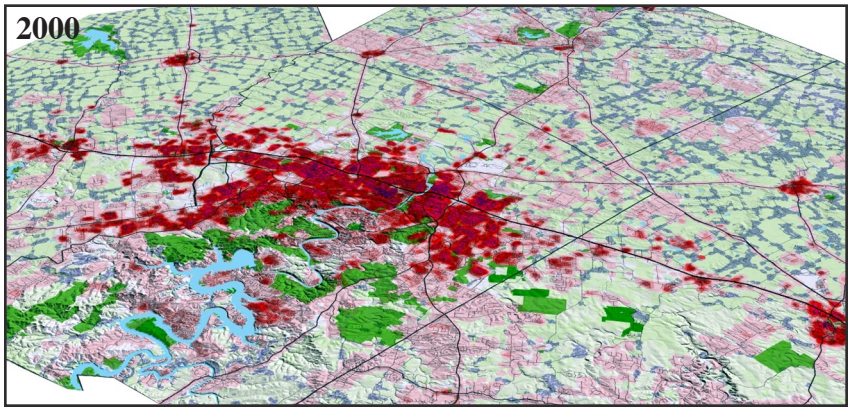
All Scenarios have the same population growth to accommodate: 1.25 million new people either born here or who have moved here. All Scenarios have the same number of new jobs to accommodate as well. All Scenarios show a system of toll roads that are already in progress. All Scenarios have major regional transit investments including various commuter rail alignments.

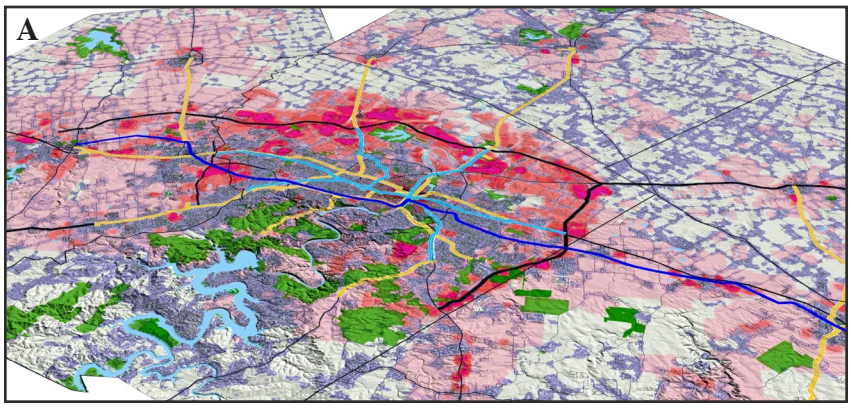
FOUR ALTERNATIVE FUTURES

Where We Are Today

It might help to have a picture of where we are today. Based on the latest available information, the following indicators on the current state of Central Texas may be useful in considering the four Scenarios of possible futures.

- Central Texas has a total developed area of 740,563 acres, which is 593 acres of land for every 1000 people. (Total land area for the five county region is 2,739,161 acres. There are .46 people per acre in the entire region and 1.69 people per acre in the developed area.)
- Daily time spent getting around (all modes) per capita—56 minutes
- Aquifer recharge zones developed 47,447 acres out of the total acreage (Total recharge zone acreage—145,000)
- Job distribution: Bastrop--2.16%, Caldwell--1.34%, Hays--5.68%, Travis--78.49%, Williamson--12.34%
- Housing mix: 64% single-family, 2% town home and 32% multifamily, primarily rental.



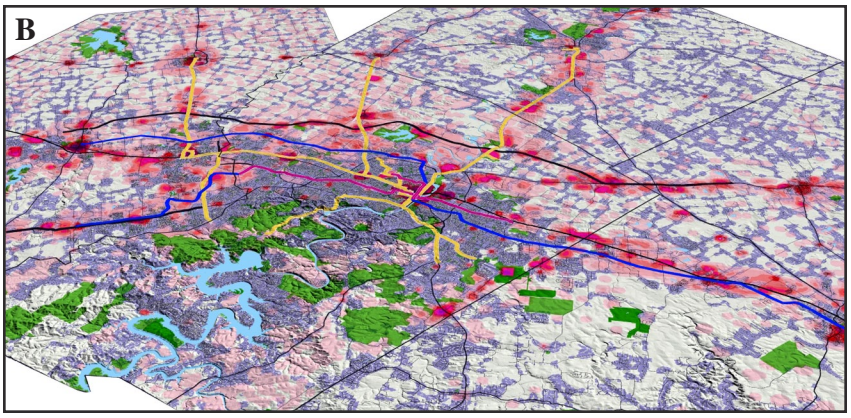


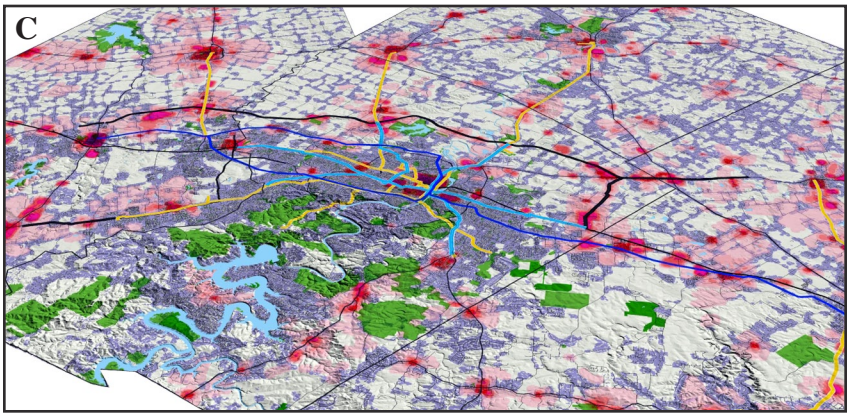
Scenario A is based on an extrapolation of recent land development trends, and some economic models. Most residential growth occurs as single-family homes on separate lots in new developments. There is very little redevelopment or infill in Scenario A. Most of the job growth occurs in Travis County. As the region's development spreads out, the trips get longer and so more time is spent in getting around; to jobs, shopping, schools, etc. In Scenario A, the regional transit system includes a commuter rail system and a bus rapid transit system designed for the concentration of jobs in the urban core.

- For every 1000 new people, 373 acres of undeveloped land would be developed; a total of 468,000 new acres would be developed
- 3,559 acres of land would be redeveloped in Scenario A
- Daily time spent getting around (all modes) per capita—68 minutes
- Aquifer recharge zones developed—36,258 acres out of the total acreage (Total recharge zone acreage—145,000)
- Distribution of new jobs by County: Bastrop--2.37%, Caldwell--1.42%, Hays--7.36%, Travis--74.76%, Williamson--14.09%
- New jobs in concentrated low-income areas—753

Scenario B illustrates a future where most of the growth in Central Texas would occur along major transportation corridors – both existing and new ones. A significant amount of this growth occurs in mixed-use developments. All counties get significant job growth as well as housing growth. Across the region, average daily travel time is lower than in Scenario A, but congestion in the urban core is significantly higher. Regional transit includes commuter rail and a core light rail system.

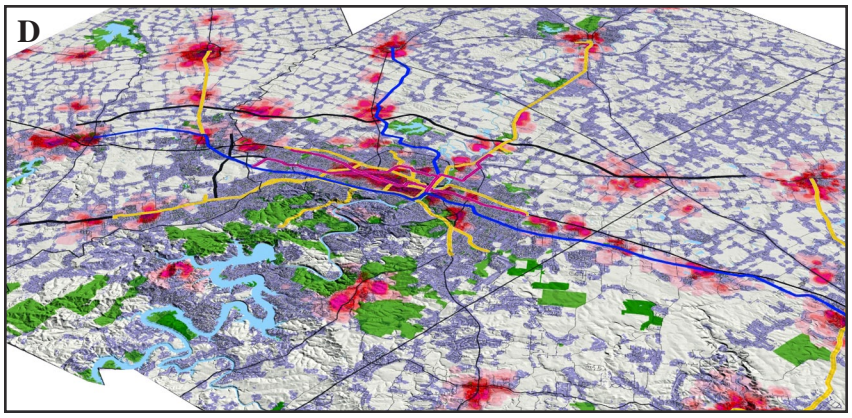
- For every 1000 new people, 152 acres of land would be developed; a total of 192,000 new acres would be developed
- 5,472 acres of land would be redeveloped in Scenario B
- Daily time spent getting around (all modes) per capita—64 minutes
- Aquifer recharge zones developed—18,300 acres (Total recharge zone acreage—145,000)
- Distribution of new jobs by County: Bastrop--7.00%, Caldwell--5.08%,Hays--9.58%,Travis--52.85%,Williamson--25.49%.
- New jobs in concentrated low-income areas—73





Scenario C shares new growth between both existing and new communities in Central Texas. Each existing city and town would add jobs and people, primarily in mixed-use developments. In addition, new towns would be built along major transportation corridors, with open space between each community. Regional transit includes commuter rail and a bus rapid transit system.

- For every 1000 new people, 136 acres of land would be developed; 170,000 new acres would be developed
- 7,973 acres of land would be redeveloped in Scenario C
- Daily time spent getting around (all modes) per capita—60 minutes
- Aquifer recharge zones developed—53 acres (Total recharge zone acreage—145,000)
- Distribution of new jobs by County: Bastrop--12.20%, Caldwell--9.19%,Hays--10.59%,Travis--34.79%,Williamson--33.23%
- New jobs in concentrated low-income areas—2295



Scenario D concentrates growth in existing communities. More than one-third of the households and two-thirds of the jobs would be accommodated on existing developed land. Regional transit includes extensive commuter rail and a full light rail transit system.

- For every 1000 new people, 73 acres of land would be developed; 85,000 acres of land would be developed
- 10,192 acres of land would be redeveloped in Scenario D
- Daily time spent getting around (all modes) per capita—57 minutes
- Aquifer recharge zones developed—397 acres (Total recharge zone acreage—145,000)
- Distribution of new jobs by County: Bastrop--7.04%, Caldwell--5.41%,Hays--8.71%,Travis--54.33%,Williamson--24.51%
- New jobs in concentrated low-income areas—16,042

Exploring the Scenarios in Detail

In the following sections, all four Scenarios are explored in detail, using a wide variety of indicators. All Scenarios have advantages and disadvantages for different groups within the region. Over the next few months, we will ask the people of the region to share with us what they like and don't like about each of these Scenarios, and how they want to shape our future. From that feedback, and using all of the previous community input, we will construct a vision for the future of Central Texas, and the best set of strategies we should strive to develop.

Your help is needed in getting the largest possible community participation in responding to these scenarios and helping shape ECT's final community vision.

SCENARIO PLANNING

EXPLORING ALTERNATIVES

SCENARIO PLANNING IS:

- A way of dealing with an unpredictable future
- Used widely in Business and the Military
- Stories, not predictions
- Contrast choices and consequences
- Depend on through and consistent analysis
- Lead to effective and pragmatic plans and strategies
- Works well with visions

The process used in Envision Central Texas is called Scenario planning. Scenario planning is widely used in managing complex problems. Given the complexity of the issues we face in today's environment, the number of variables that have to be considered, and the 20 to 40-year time frame, it is apparent that getting the right prediction really isn't possible or even necessary. What is needed is a way to put forth possible future Scenarios.

Scenarios are really stories about what might be. They are not forecasts and they are not predictions. They are possible futures that are based on what already exists, on trends that are evident, and on the values and preferences of our region. The essential requirement of any Scenario is that it be plausible, within the realm of what exists and what is now known. Usually three or four Scenarios are built as a way to compare outcomes and learn about the forces that are shaping the future. If a particular outcome is preferred, strategies can be developed to achieve those outcomes.

Envision Central Texas has created four principal growth Scenarios for the Central Texas region. Each one is a different snapshot of the future with its own attendant consequences. The Scenarios will allow us to compare how different growth patterns are likely to shape or affect the future. A Scenario can serve as a vision of the future, or elements of multiple Scenarios can be combined to create a regional vision. Of course, the future path of Central Texas cannot be known. It may be more like one Scenario in some ways and more like another Scenario in others, and unlike all Scenarios in yet a third aspect. Technical change, cultural shifts, economic factors, and many other driving forces can and will make the future different from any one Scenario or forecast. Policy choices will affect the future; Scenario planning is one tool for making better policy choices possible.

The Public Process

Gathering Input From Public Workshops

As part of the public process, we conducted a survey of the region in July of 2002. The results are available on our website at www.envisioncentraltexas.org. In general, we found that people thought we should be planning for the future – over 86 percent agreed that "Planning for growth is necessary if we are to keep our livability." In the survey, the number one issue on people's minds was transportation. When it came to solutions, people had many ideas – about land use, about the role of transit in the solutions, and about development in blighted areas.

In the fall of 2002, a regional workshop and a series of subregional workshops were conducted by ECT, during which the public told us how and where they would like to accommodate the region's possible next 1.25 million people and 800,000 jobs. The result consisted of nearly one hundred maps to examine, each showing a potential future for Central Texas. Three of the four growth Scenarios were derived from this collection of workshop maps.

In each of the public workshops, people from around the region accommodated the region's projected household and job growth through a variety of different development types. Each workshop table (consisting of 8-12 people) was given a regional or subregional base map which included existing

land uses, existing and planned highways, environmental constraints (steep slopes, floodplains and wetlands), and aquifer recharge and contributing zones. The subregional workshops allowed participants to explore development options and their consequences in greater detail than the regional workshop – in the North, Southwest, Central or East subregion. The workshop groups were also given different combinations of development types, each represented by a different game piece or "chip." Participants at each workshop table then chose where to place their own unique combination of development types. The development types are representative of existing places around the region and range in land use, walkability, mix of use, and density. By examining the various ways in which the Central

Texas region could grow, workshop participants had the opportunity to understand some of the trade-offs between mixed-use and separate-use development or between reinvestment and new development. The development types are explained more thoroughly in the technical Appendix.

The public workshop maps were grouped into major land use patterns based on development attributes they held in common. The consultant planners did not attempt to locate development on certain lots or blocks. Using these patterns, ECT created four Scenarios, A through D. While Scenario A is based on an extrapolation of development trends and national economic models, Scenarios B, C and D are derived directly from the region's workshop maps. It may be that the most recent growth trends would indicate the development of less land than in Scenario A but substantially more than Scenario B.

ECT Scenario Summaries

ASSUMPTIONS

The following development Scenarios represent a range of ways in which Central Texas can grow to accommodate the next 1.25 million people and 800,000 jobs. They are tools to explore alternative development patterns and their consequences. The Scenarios are built using the same development types that were used in the public workshops.

All of the mixed-use development types such as Town, Village, and Main Street include local networks of walkable, connected streets. Thus the more mixed-use development a Scenario has, the more local networks of streets it will have as well. This supports more efficient use of major roadways by making it unnecessary for short auto trips to consume valuable capacity at major signalized intersections and interchanges. Connected local streets also facilitate walking, bicycling and access to transit.

In all of the Scenarios, transit is most compatible with the mixed-use development types. In the mixed-use cores, where jobs and housing are close and streets are walkable, transit and walking are most effective and utilized. The transit option included most often in the workshop maps is commuter rail. All future Scenarios include commuter rail from Georgetown to San Marcos within the 5-county area (commuter rail could eventually continue to San Antonio). Each Scenario adds local bus routes in a manner which is unique and compatible with its land use and development pattern.

Scenario A Summary

Scenario A asks the question: what would happen if future development continued with recent land development trends? It uses some of the development patterns of the 1990's and a national economic model called REMI to forecast where the growth would go. It is a representation of where growth may occur in the region to accommodate the region's next 1.25 million people and 800,000 jobs – it is not a forecast of what will happen. Of all four Scenarios, Scenario A uses the most separate-use development and redevelops the least in existing towns and cities. It therefore consumes the greatest amount of previously undeveloped land, including the most land in aquifer recharge and contributing zones. Housing choices are primarily single-family homes or apartments. 65 percent of the transportation investment is in new roads, mostly in new toll roads and freeways, but more local arterials are widened to 6 or 8 lanes than in the other Scenarios. Scenario A includes a core Bus Rapid Transit (BRT) system and new express bus routes.

Economic:

• Significant expansion of development "footprint" of the region, due mainly to residential development on rural fringes
• Distribution of new jobs by County: Bastrop--2.37%, Caldwell--1.42%, Hays--7.36%, Travis--74.76%, Williamson--14.09%
• Distribution of new households by County: Bastrop-6.56%, Caldwell-2.70%, Hays-10.52%, Travis-50.76%, Williamson-29.46%,
• Providing infrastructure to support new development would cost about $10.6 billion

Environmental:

• Would develop 36,000 of the 144,878 acres of land found within aquifer recharge zones and 126,000 of the 508,737 acres within contributing zones
• Amount of impervious cover created by development would be 142,000 acres

Land use:

• Most development would continue to occur on vacant land, with little growth in existing developed areas
• There would be a 63% increase in urbanized land, which means that 468,000 acres would be developed
• Land developed would be 373 acres per 1,000 people, which is an average of 2.68 people per acre of developed land
• Would add 6,626 acres of new urban parks (about 5.28 park acres per 1,000 people)
• About 250,000 acres of the current 1,181,602 acres of agricultural land and 98,400 acres of the current 511,577 acres of ranchland would be converted to urban development

Social Equity:

• Would add about 305 households and 800 employees to existing very low-income areas
• Would add 6,900 households and 14,400 employees to existing low-income areas
• Of the approximately 500,000 new households, 3% would live in redeveloped areas (may or may not be low-income areas)
• Of the approximately 800,000 new jobs, 4% would be in redeveloped areas (may or may not be low-income areas)

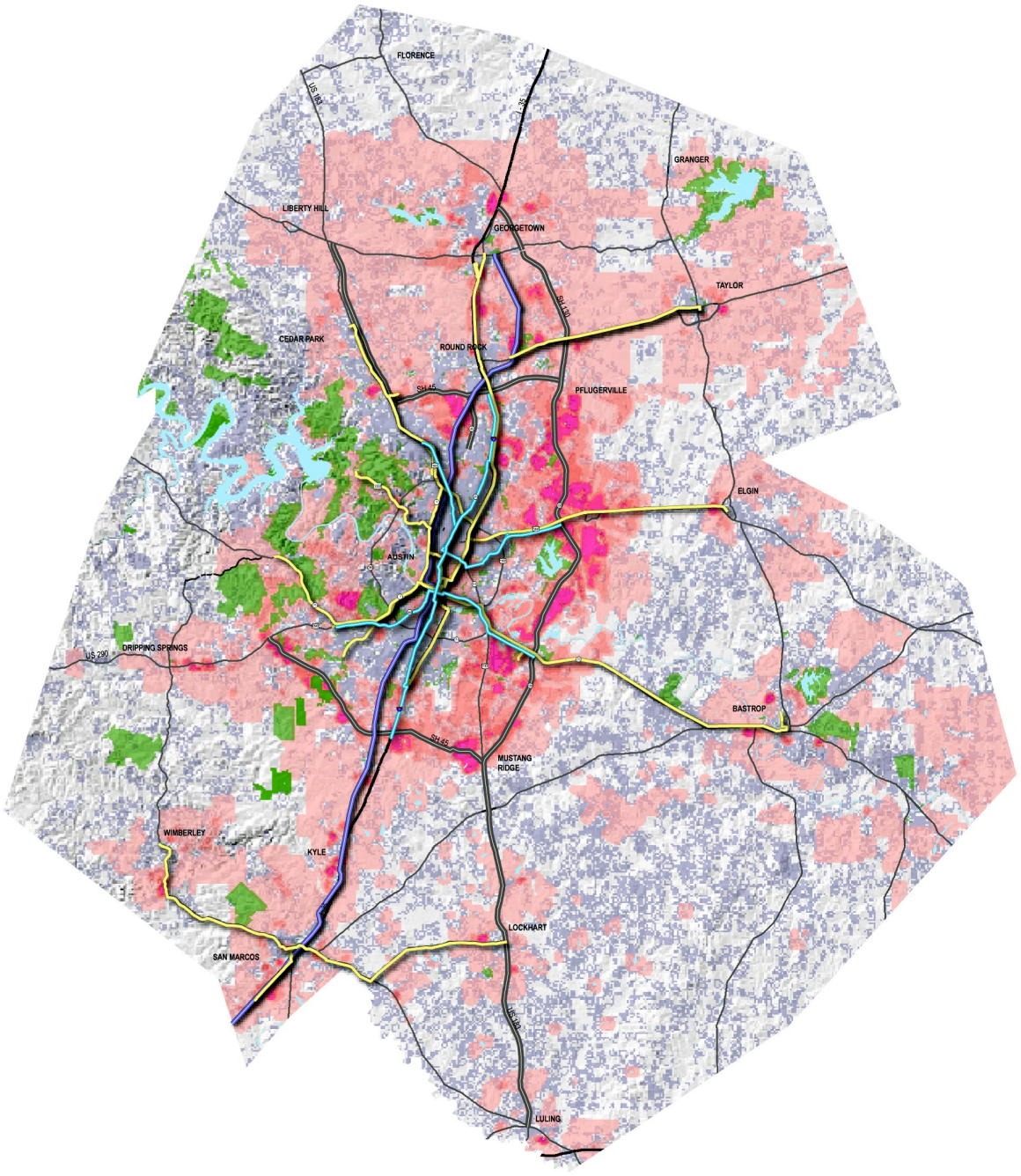
Housing:

• Would be similar to housing types built in past 10 years, mostly single-family, multi-family, and a small number of townhouse units (1 to 3 percent of total)
• New housing would be 63% single-family, 1% townhouse, and 36% multi-family. About 30% of housing would be built outside of city limits.

Transportation:

• Vehicle miles traveled per capita per day—34.3
• Average morning rush hour trip time—22 minutes
• Travel Time Index (Region)—1.26
• Travel Time Index (Austin Urbanized Area)—1.22
• Daily Vehicle Hours of Delay–412,760
• Trips taken by automobile—92%, by transit and school bus—4%, by bike/walking—4%
• Transportation funds would be primarily targeted towards new toll roads, extensive upgrades and expansions of existing highways and major street and transit upgrades including commuter rail, a bus rapid transit system, and express buses.

Scenario A


FLORENCE
US 183
I-35
GRANGER
LIBERTY HILL
GEORGETOWN
TAYLOR
SH 130
CEDAR PARK
ROUND ROCK
SH 45
PFLUGERVILLE
ELGIN
AUSTIN
DRIPPING SPRINGS
US 290
BASTROP
SH 45
MUSTANG RIDGE
WIMBERLEY
KYLE
LOCKHART
SAN MARCOS
US 183
LULING
Scenario Transportation Corridors
Existing Land Use
Urbanized Land
Park & Open Space Land
Open Water
Light Rail Transit
Commuter Rail Transit
Express Bus Transit
Toll Road
Bus Rapid Transit
Scenario Development
Persons per Square Mile
250,000
125,000
0

SCENARIO A DETAILED DESCRIPTION

Land Use in Scenario A continues most of the development patterns Central Texas has experienced over the last ten years: mainly low-density, separate-use development on previously undeveloped land. Most of the new growth occurs on the fringe of existing cities and towns. As with recent trends in the region, this development pattern is built around widely available automobile usage patterns. Because most of the development occurs at the edge of what's developed today, many separate towns and cities grow together, and the region becomes a continuous city from Round Rock in the north to San Marcos in the south.

Housing is primarily low-density. This results in the largest percentage of single-family homes of the Scenarios. Williamson and northern Travis counties receive most of the residential development, as they have since 1990. Cities such as Bastrop and San Marcos continue to grow with similar development patterns of single-family homes. Some residential growth will take place in new towns near new or existing main streets as well. Existing neighborhoods would have minimal infill and would remain similar in character.

Most additional commercial development in Scenario A occurs in new shopping centers along highways. The SH-130 corridor is heavily developed with commercial activity. While Scenario A includes some infill development and redevelopment, it is less than included in the other Scenarios. Therefore downtowns, older suburbs and existing cities do not increase employment as rapidly as other areas.

All planned roadways and roadway expansions in the region are included in Scenario A. Much of the new capacity is in toll ways and conversion of arterials to expressways and freeways. This includes the SH-130, SH-45 North and Southeast, and US183A

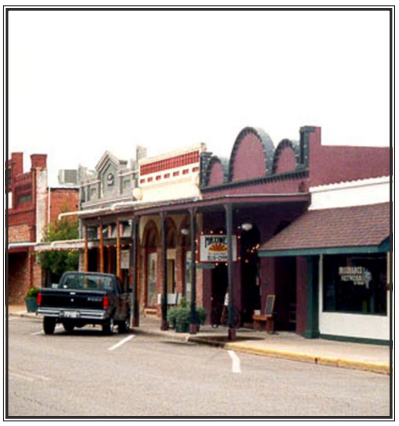
(parallel, in Cedar Park) toll ways. In addition, other roadways identified as having limited capacity in the past are widened – including in the urbanized core as well as among suburban and fringe development.

Scenario A includes a Bus Rapid Transit (BRT) system in addition to the Commuter Rail line from Georgetown to San Marcos. BRT is a flexible technology. Unlike electric trains of a light-rail system, however, BRT vehicles are hybrid diesel-electric or natural gas vehicles. The system modeled includes three design types, each appropriate to their context. In the center of Austin, the system operates in a separate right-of-way similar to a light rail system. In intermediate areas along arterials (including bridges), the buses use general-purpose travel lanes with the advantage of "queue-jumper" lanes and signal priority to help them get ahead of traffic queues. At the farther reaches of the BRT system, the buses would travel in freeway corridors – using the fastest of HOV lanes, general lanes or frontage roads. With lower per-mile costs, BRT allows for a larger system than the light rail systems modeled in Scenarios B and D for the same amount of money spent. The BRT system would extend out to park-and-ride lots at the new toll roads (SH-45 and SH-130).

WHAT WOULD LIFE BE LIKE IN SCENARIO A?

Many people would live in a single-family house in a new subdivision in Travis or Williamson County. Most of the houses in these neighborhoods would be new and built at the same time. Over 90 percent of trips would be by car, including taking the kids to school, going to work, to lunch, to entertainment and to church. Most teenagers would also drive to high school. Most of the shopping would be done on the way home from work, or else people would have to leave the neighborhood to get to stores. Most cars would be driven about an hour or more a day, there would be fewer places than in other scenarios where you could live without needing a car for most trips. Some people who worked in downtown Austin would use the bus rapid transit system to get there. There would be lots of parks close by, but people might have to drive several miles to be in the country.

Scenario B Summary



Scenario B concentrates most regional growth within 1 mile of major transportation corridors. Despite development along corridors, employment growth in Austin is still considerable in Scenario B. This Scenario uses mixed-use development and redevelopment to a greater degree than Scenario A. Scenario B consequently develops less agricultural, ranch land and other open space than Scenario A. It also has significantly less development on the aquifer recharge and contributing zones. In addition to express buses, Scenario B includes commuter rail and a core Light Rail Transit (LRT) system.

Economic:

• Would have additional employment opportunities in areas outside of Travis County
• Distribution of new jobs by County: Bastrop--7.00%, Caldwell--5.08%,Hays--9.58%,Travis--52.85%,Williamson--25.49%.
• Distribution of new households by County:
• Bastrop-7.00%, Caldwell-5.08%, Hays-9.58%, Travis-52.85%, Williamson-25.49%,
• Providing infrastructure to support new development would cost about $5.5 billion

Environmental:

• Would develop 19,000 of the 144,878 acres of land within aquifer recharge zones and 48,000 of the 508,737 acres within contributing zones
• Amount of impervious cover created by development would be 51,700 acres

Land Use:

• This was the most common land-use pattern emerging from the workshop maps
• There would be a 26% increase in urbanized land, which means that 192,000 acres would be developed
• Land developed would be 152 acres per 1,000 people, which is an average of 6.56 people per acre of developed land
• Would add 4,262 acres of new urban parks, or about 3.38 park acres per 1,000 people
• About 112,000 acres of the current 1,181,602 acres of agricultural land and 40,500 acres of ranch land would be used for development

Social Equity:

• Would add 48,783 households and 173,840 employees to current very low-income areas, providing housing and jobs that are close to each other
• Would add 5,471 households and 5,560 employees to current low-income areas
• Of the approximately 500,000 new households, 20% would live in redeveloped areas (may or may not be low-income areas)
• Of the approximately 800,000 new jobs, 47% would be in redeveloped areas (may or may not be low-income areas)

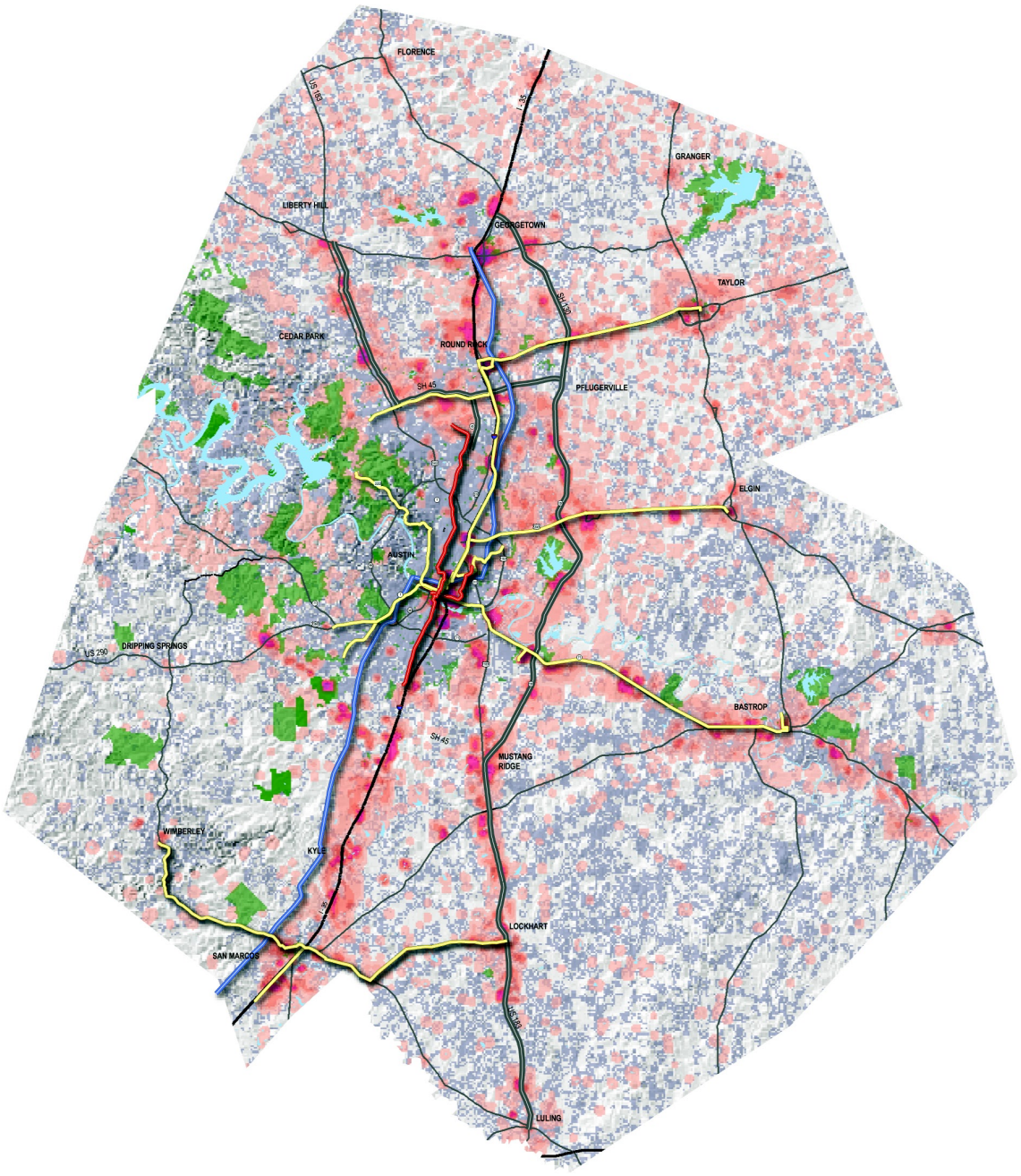
Housing:

• New housing would be 63% single-family, 6% townhouse, and 31% multi-family
• There are some more choices in choosing housing, where condos, townhouses, and housing in mixed-use developments would be more common, both in Austin and outside it as well

Transportation:

• Vehicle miles traveled per capita per day—30.1
• Average morning rush hour trip time—19 minutes
• Travel Time Index (Region)—1.23
• Travel Time Index (Austin Urbanized Area)—1.30
• Daily Vehicle Hours of Delay–321,741
• Trips taken by automobile—90%, by transit and school bus—6%, by bike/walking—4%
• Transportation funds would be primarily targeted towards new toll roads, upgrades of existing highways and major streets, and transit upgrades including commuter rail, a core light rail system, and express buses.

Scenario B



Scenario Transportation Corridors

Existing Land Use
- Urbanized Land
- Park & Open Space Land
- Open Water

- Light Rail Transit
- Commuter Rail Transit
- Express Bus Transit
- Toll Road
- Bus Rapid Transit

Scenario Development
Persons per Square Mile
250,000 125,000 0

SCENARIO B DETAILED DESCRIPTION

Scenario B illustrates a future in which most of the growth in Central Texas follows the major transportation corridors. Scenario B includes more mixed-use and infill development than Scenario A. Redevelopment is also greater in Scenario B than in Scenario A. With greater development density and proximity to transportation, land use in Scenario B is slightly more compatible with transit and other transportation options than Scenario A.

Scenario B consists of the same proportion of single-family homes as Scenario A, but more of them are in a walkable environment. It contains fewer multi-family homes than Scenario A but more townhomes. Though Scenario B still places the majority of housing units in Travis County, it distributes more to the other counties than does Scenario A – especially to Bastrop and Caldwell Counties.

Similarly, Scenario B distributes employment more evenly and in mixed-use development more often than Scenario A. Bastrop, Caldwell and especially Williamson Counties experience considerably greater job growth in Scenario B than in Scenario A. Employment in Hays County increases as well, but to a lesser degree than the other counties.

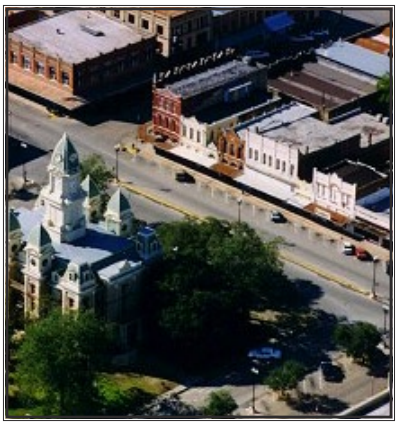
Scenario B increases roadway capacity to a lesser degree than Scenario A. Some of the roads and expansions to be built in Scenario A were eliminated from Scenario B. Some of the reduction in road spending was shifted to transit projects. Scenario B includes almost the same set of toll roads as Scenario A, with the exception that the southern alignments of SH-45 have been deleted.

Scenario B includes a core light rail system. This light rail transit (LRT) system would run on its own right-of-way with rapid boarding at stations spaced optimally to balance convenience with travel time. The LRT corridor runs from McNeil junction near the Travis – Williamson County border south through downtown and terminating in far south Austin. A spur also runs from downtown to the Mueller Airport. In addition to the commuter rail line from Georgetown to San Marcos, Scenario B includes a Commuter Rail corridor extending from the northern terminus of the light rail corridor to Leander. The main North-South corridor also runs along the MoKan alignment, east of Austin, rather than the Union Pacific alignment as in Scenario A.

WHAT WOULD LIFE BE LIKE IN SCENARIO B?

Most new people would live in new developments built close to existing developments. More people would both live and work in Williamson, Bastrop, Hays, and Caldwell counties. Unlike current subdivisions, most new ones would have a mixture of sizes and types of housing, as well as some commercial development for local shopping. The apartments would be next to the stores, with the houses getting bigger the further they are from the commercial area. One could do more things in the local neighborhood, and almost everything else would be a fairly short trip up or down the corridor. More people would work in Downtown Austin; many would take the commuter train to work every day. Once Downtown, several places would be accessible by the light rail system. Many more jobs would be close by in the next community up the highway, and these people would mostly drive to work. There would be schools close by, and it would be easy for children to walk safely to them. Communities would be more diverse, with a greater range of incomes, ethnic backgrounds, and ages. Most people would live just a few minutes drive from ranches, farms and open land. Most of the cities would have grown together along the region's major roads.

Scenario C Summary



Scenario C concentrates development in new and existing towns throughout the region. Most of these towns incorporate mixed-use development at their core and are often along major transportation corridors. With slightly more redevelopment and mixed-use development than Scenario B, Scenario C reduces development on agriculture, ranch and other undeveloped lands. Scenario C develops the least amount of aquifer lands, but because of this, development is reduced in Williamson and Hays County which have grown rapidly in the past. Scenario C offers a greater diversity of housing and distributes employment to outlying cities and towns more so than Scenarios A and B. Scenario C includes more extensive BRT and express bus networks than Scenario A.

Economic:

• Would have additional employment opportunities in areas outside of Travis County
• Distribution of new jobs by County: Bastrop--12.20%, Caldwell--9.19%,Hays--10.59%,Travis--34.79%,Williamson--33.23%
• Distribution of new households by County: Bastrop-12.20%, Caldwell-9.19%, Hays-10.59%, Travis-34.79%, Williamson-33.23%,
•Infrastructure to support new development would cost about $4.9 billion

Environmental:

• Would develop 53 (fifty-three) of the 144,878 acres of land within aquifer recharge zones and 31,000 of the 508,737 acres within contributing zones
• Amount of impervious cover created by development would be 48,549 acres

Land use:

•Scenario C would create compact pockets of growth scattered throughout the five-county region in major urban areas
• There would be a 23% increase in urbanized land, which means that 170,000 acres would be developed
• Land developed would be 136 acres per 1000 people, which is an average of 7.35 people per acre of developed land
• Would add 4,173 acres of new urban parks (about 3.33 park acres per 1,000 people)
• About 108,000 acres of the current 1,181,602 acres of agricultural land and 28,000 acres of the current 511,577 acres of ranchland would be converted to urban development

Social Equity:

• Would add 51,241 households and 158,646 employees to existing low-income areas
• Would add 6,988 households and 7,782 employees to existing very low-income areas
• Of the approximately 800,000 new jobs, 25 % would be in redeveloped areas (may or may not be low-income areas)
• Of the approximately 500,000 new households, 48% would live in redeveloped areas (may or may not be low-income areas)

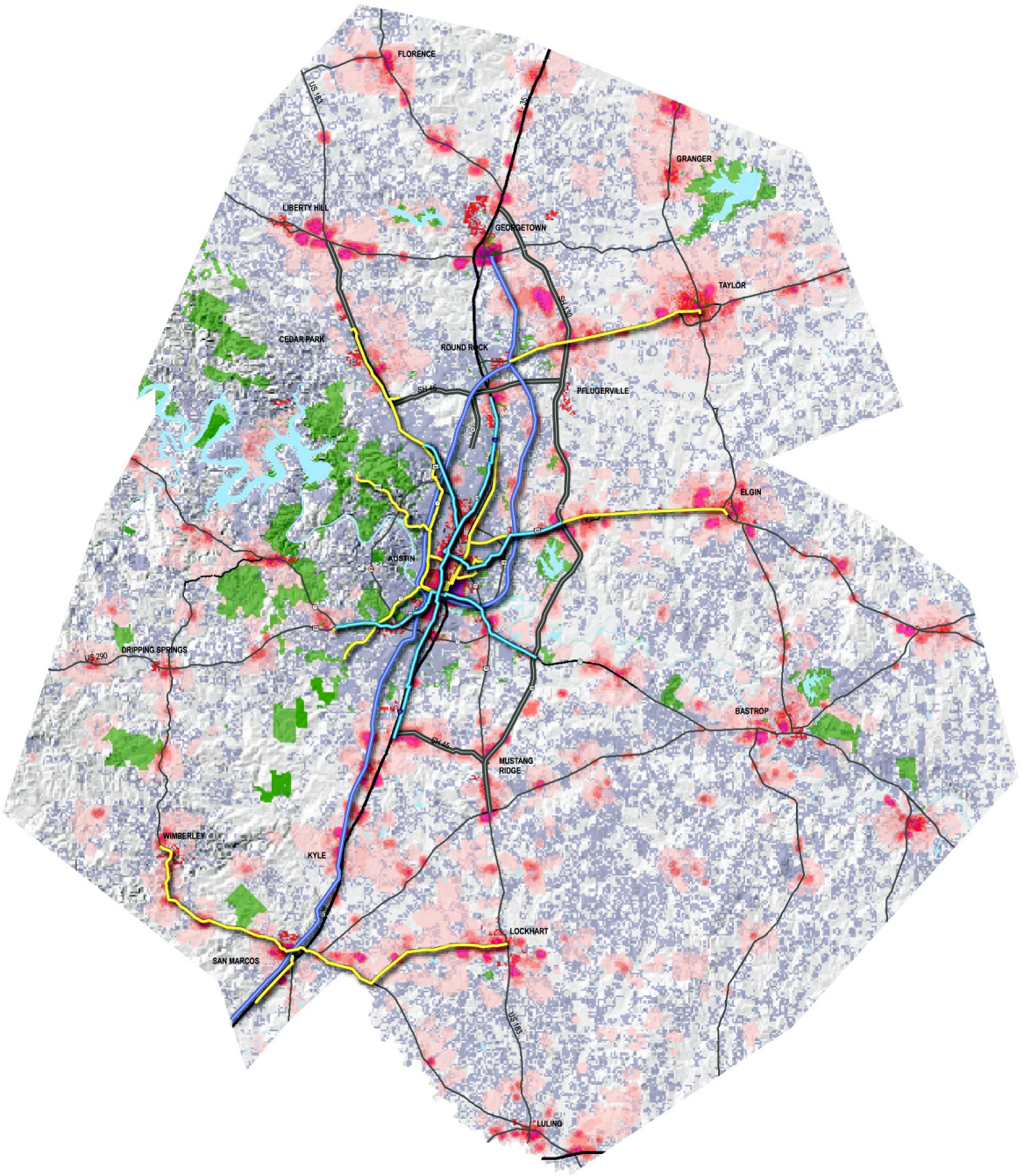
Housing:

• Housing types would be similar to patterns of the past decade but would be concentrated in existing cities and new towns located throughout the region
• There would be a significant amount of townhouse and multi-family housing, and lot sizes of single-family houses would be smaller on average than in Scenario A
• About 59% of new housing would be single-family, 7% percent would be townhouse, and 34% would be multi-family

Transportation:

• Vehicle miles traveled per capita per day—29.0
• Average morning rush hour trip time—20 minutes
• Travel Time Index (Region)—1.20
• Travel Time Index (Austin Urbanized Area)—1.23
• Daily Vehicle Hours of Delay–278,082
• Trips taken by automobile—88 percent, by transit and school bus—4 percent, by bike/walking—8 percent
• Transportation funds would be primarily targeted towards new toll roads, upgrades and expansions of existing highways and major streets and transit upgrades including commuter rail, an extensive bus rapid transit system, express buses and substantial bicycle and pedestrian facilities. Although the amount spent on roads in Scenarios A and C is similar, the road projects differ in accordance with the difference in land use patterns.

Scenario C



Scenario Transportation Corridors

Existing Land Use
- Urbanized Land
- Park & Open Space Land
- Open Water

- Light Rail Transit
- Commuter Rail Transit
- Express Bus Transit
- Toll Road
- Bus Rapid Transit

Scenario Development
Persons per Square Mile
250,000 125,000 0

SCENARIO C DETAILED DESCRIPTION

Scenario C concentrates the growth in existing communities and new clusters throughout the region. Though they are comparable in numbers, Scenarios B and C differ significantly in land use patterns. New towns and clusters with distinct boundaries appear along transportation corridors, compared to the contiguous corridor development in Scenario B. Each existing town and city would add jobs and people, with more mixed-use, infill and redevelopment development than Scenarios A and B.

While similar, housing diversity and mixed-use development are slightly higher in Scenario C than in Scenario B. More new homes will be constructed as multi-family structures and townhouses than as single-family structures. Since Scenario C utilizes more mixed-use development in existing towns and new clusters outside of the urbanized core, Scenario C contains greater housing diversity and jobs-housing balance in all parts of the region.

Similarly, Scenario C distributes employment outside of Austin to a greater degree than in Scenarios A and B. However, the employment-base in central Austin continues to grow through increased infill development and redevelopment. The clustering of development increases the viability of neighborhood-oriented and small businesses in communities outside of the urbanized core.

In Scenario C, development is spread throughout the region in redeveloped and new centers. These newly developed or redeveloped centers require greater networks of interconnected streets. Thus Scenario C adds more road capacity in the outlying parts of the region to better serve more distant clusters. This distinguishes Scenario C from the other Scenarios.

The clustering of development in Scenario C is more compatible with multiple transportation options than the growth pattern in Scenario A. Scenario C includes a more extensive BRT system than Scenario A. However, it also includes a greater network of express bus and local bus routes throughout the region. It also augments the Commuter Rail system of Scenario A with another North-South line along the MoKan corridor.

Because uses are closer together, there are many more short trips of less than 3 miles. Scenario C assumes a significant investment in bicycle and pedestrian facilities of about $100 million over the study period. We estimate that approximately 4 percent of trips now made by walking or bicycling in the region could be doubled by shifting about 15 percent of auto trips of less than 3 miles to walking and biking.

WHAT WOULD LIFE BE LIKE IN SCENARIO C?

Many people would live in new towns in Bastrop, Caldwell, and Hays Counties. It would be very likely that people would find work and shopping locally as well. Because the most common forms of development are new or expanded small towns, life would revolve around community activities. People would spend a lot of time in their local communities, since so many of their needs would be met there. Because of all the small towns, many people would be close to the country just outside the city limits. There would be many housing types to choose from, with some housing being built on small lots, condos, townhouses, and rentals in the town centers relatively common. Rural housing would be fairly scarce.

SCENARIO D SUMMARY

Scenario D uses the greatest amount of mixed-use development and redevelopment of all four Scenarios. It concentrates the greatest amount of development in existing towns and cities. It consumes the least amount of total land, agricultural land and ranch land. Development in aquifer recharge and contributing zones is minimal, yet slightly greater than Scenario C. Scenario D offers the greatest range of housing and transportation options of all four Scenarios, but has the most change in current neighborhoods due to extensive infill and redevelopment, and would be most different from the kinds of housing built in the last 10 years. Scenario D includes more extensive commuter rail, light-rail and express bus networks than Scenario B.

Economic:

• Most new growth would occur in existing urban areas, including Austin. People still would commute into Travis County from the surrounding counties, but there also would be new employment opportunities in these surrounding areas
• Distribution of new jobs by County: Bastrop--7.04%, Caldwell--5.41%,Hays--8.71%,Travis--54.33%,Williamson--24.51%
• Distribution of new households by County: Bastrop-7.04%, Caldwell-5.41%, Hays-8.71%, Travis-54.33%, Williamson-24.51%,
• Providing the infrastructure to support development under Scenario D would cost about $3 billion

Environmental:

•Would develop 397 of the 144,878 acres of land found within the aquifer recharge zone and 17,326 of the 508,737 acres within contributing zones
• Amount of impervious cover created by development would be 29,591 acres

Land use:

• The land-use strategy for Scenario D is to create a compact design that concentrates majority of new growth in existing cities and towns
• There would be an 11% increase in urbanized land, which means that 85,000 acres would be developed
•Land developed would be 73 acres per 1,000 people, which is an average of 13.75 people per acre of developed land
• Would add 3,336 acres of urban parks (about 2.86 park acres per 1,000 people
• About 57,000 acres of the current 1,181,602 acres of agricultural land and 12,000 acres of the current 511,577 acres of ranchland would be converted to urban development

Social Equity:

• Would add 52,425 households and 162,499 employees to existing low-income areas
• Would add 8,353 households and 21,529 employees to existing very low-income areas
• Of the approximately 500,000 new households, 36% would live in redeveloped areas (may or may not be low-income areas)
• Of the approximately 800,000 new jobs, 68% would be in redeveloped areas (may or may not be low-income areas)

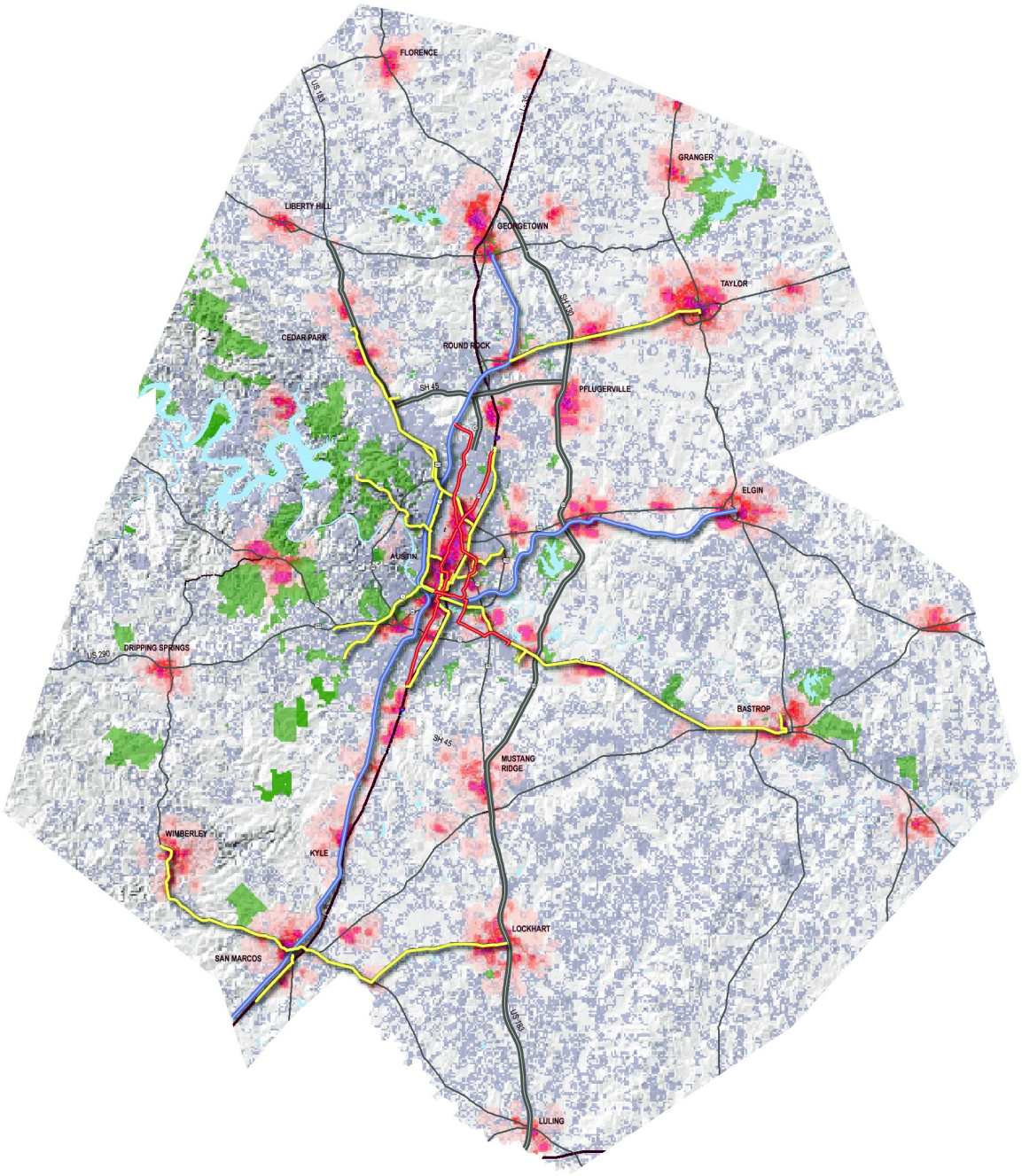
Housing:

• Housing types would be most different from what has been built during the past 10 years
• About 48%of new housing would be single-family, 10% would be townhouses, and 42% would be multi-family
• New single-family homes would be built on smaller lots of 5,000 to 8,000 square feet. Rural housing would be rare

Transportation:

• Vehicle miles traveled per capita per day—27.4
• Average morning rush hour trip time—18 minutes
• Travel Time Index (Region)—1.20
• Travel Time Index (Austin Urbanized Area)—1.24
• Daily Vehicle Hours of Delay–278,082
• Trips taken by automobile—85%, by transit and school bus—6%, by bike/walking—9%
• Transportation funds would be primarily targeted towards new toll roads, upgrades and expansions of existing highways and major streets and transit upgrades including extensive light rail and commuter rail systems, express buses, and substantial bicycle and pedestrian facilities.

Scenario D



Scenario Transportation Corridors

Existing Land Use

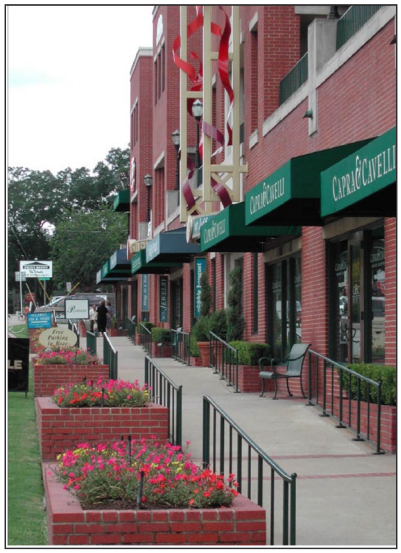
- Urbanized Land
- Park & Open Space Land
- Open Water

- Light Rail Transit
- Commuter Rail Transit
- Express Bus Transit
- Toll Road
- Bus Rapid Transit

Scenario Development
Persons per Square Mile

250,000 125,000 0

SCENARIO D DETAILED DESCRIPTION



Scenario D concentrates development in existing cities and towns. It has the highest levels of redevelopment and mixed-use development of all the Scenarios. Yet, the majority of development is still on vacant land.

Central Texans have more housing options within existing and new neighborhoods in Scenario D. Scenario D contains less new and less large-lot development than the other Scenarios. With the considerable addition of housing in mixed-use centers and neighborhoods, more people could walk, bike or "park once and walk" to accomplish daily errands in Scenario D.

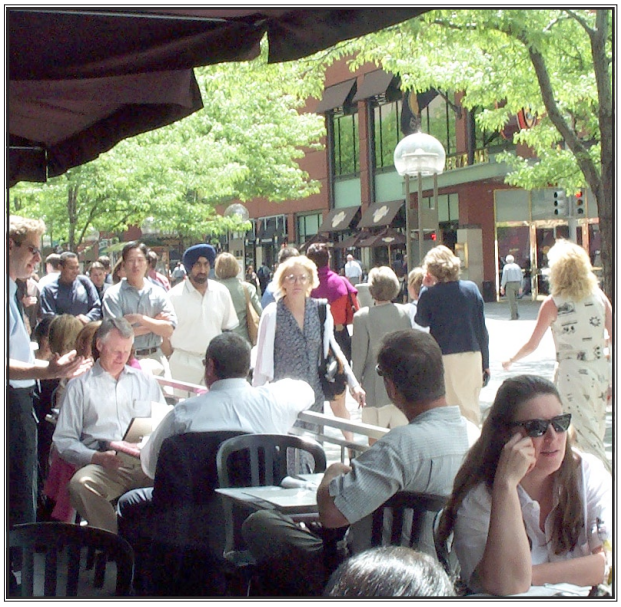
Although Scenario D includes the most redevelopment it distributes new development in cities and centers beyond the urbanized core. The many mixed-use centers outside of Austin contain most of the employment and commercial development opportunities. There is substantial new development in areas that are already developed. Redevelopment does not mean a large government agency with bulldozers. It is an incremental market process with successive developments over time. Scenario D illustrates the result of market-driven scattered redevelopment projects achieved in a manner consistent with local zoning and local neighborhood plans.

The overall road network is similar to that of Scenario C, with the exception of Scenario C's additional interconnected street networks. Scenario D invests the greatest amount in transit (to develop a full light-rail system) and the least in roads. It also includes the $100 million in bicycle and pedestrian investments discussed in the Scenario C section.

With denser corridors, Scenario D supports more transit alternatives than the other Scenarios. Since many trips would be accomplished through transit, walking and/or biking, roads would be less congested by people making short trips.

WHAT WOULD LIFE BE LIKE IN SCENARIO D?

Many people would live in new developments in existing cities – most would be townhouses, condos, and lofts on either vacant land or on the sites of buildings that were torn down or extensively redeveloped. There would be many jobs close by, with shopping and services located in remodeled older buildings and newer buildings built as infill projects. Many people would work in areas that had lots of local restaurants and shops around, and they would shop both near their place of work and at home. Compared to all other Scenarios, more trips are taken by walking, biking, and transit, about 19 percent in Austin's urbanized area in total (compared to 8 percent today). Most of these trips are walking and biking for short distances, close to places where people live or work. On average people would spend less per person operating their cars. There would be parks in the newer areas, but there would be more people in them than in Scenario A. On the other hand, the country would be as close to town as it is today, and the cities and towns of the region would not have grown together, but remained distinctly separate entities.



INDICATORS

The following indicators on changes in Land Use, Social Equity, the Economy, the Environment, Housing and Transportation compare the variety of consequences associated with each Scenario's development patterns. While these indicators do not include every potential consequence of growth, they illustrate the trade-offs facing Central Texans in choosing the direction or qualities of future growth in their region.

Most of the indicators refer only to the future growth each Scenario adds to existing development. For these indicators, comparing Scenarios on additional growth more clearly illustrates the differences between the Scenarios and their consequences.

Additionally, even if a Scenario appears drastic, its effects on the region are significantly reduced when it is averaged with existing development. For example, while the density in particular areas of each Scenario varies widely, the overall densities of the total urbanized areas of the region do not differ greatly across the Scenarios after existing development is included in the calculation.

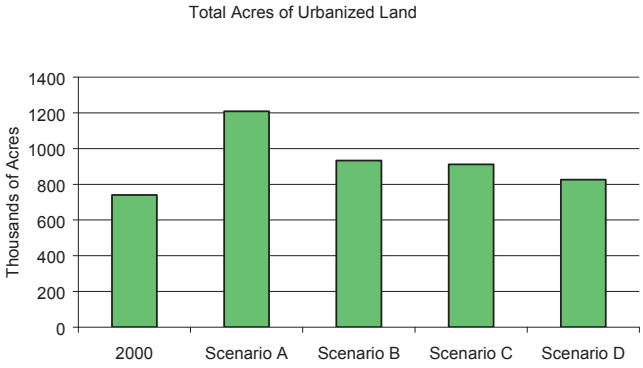
Some indicators refer to both existing and incremental growth. The transportation results of the models are calculated for all trips within the region, regardless of whether generated by existing or future development. In all cases, the indicator graphs show the most recently available data for the Central Texas region as well as the data for all four Scenarios.

Land Use

Land use is the key component to defining and distinguishing the four growth Scenarios. After all, ECT is an evolving visioning process meant to explore alternative ways Central Texas can grow and the consequences of these alternatives. But land use is a dynamic and multi-faceted component of the region's future. This section of indicators measures how much, in what style, at what density and with what level of redevelopment each Scenario uses the land. These quantitative characteristics should be considered with the regional development patterns, as summarized in the Scenario descriptions. As shown below, the land use measurements, with the regional development patterns, are inextricably linked to the subsequent Scenario indicators evaluated in this document.

Land Consumption

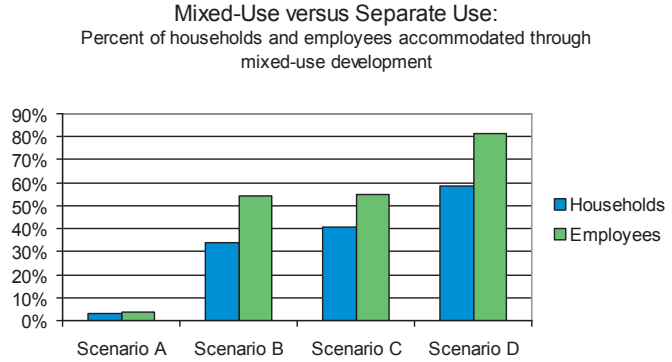
Total land consumption is vital to characterizing and distinguishing Scenarios from one another. Scenario A develops the most previously undeveloped land, at 730 square miles. As a point of reference, the entire region consisted of 1,150 developed square miles in the year 2000. Scenario B develops 300 square miles, less than half of Scenario A. Scenario C also reduces land consumed to about 270 square miles while Scenario D develops only 130 additional square miles. The reduction in land consumption from Scenario A to Scenario D is due to a number of factors, including the amount of mixed-use development, the density of all development and the level of redevelopment in existing developed areas.



Mixed-Use and Separate-Use Development

To reflect the various development type combinations chosen at the public workshops, the Scenarios vary in the proportion of additional development that is mixed-use. Descriptions of mixed-use and separate-use development types can be found in the appendix.

The Scenarios generally have a low level of mixed-use development. One percent of the households in Scenario A are provided by mixed-use development. Scenarios B and C include five and eight percent of total households in mixed-use development, respectively. Scenario D contains the greatest amount of households in mixed-use development at 21 percent.

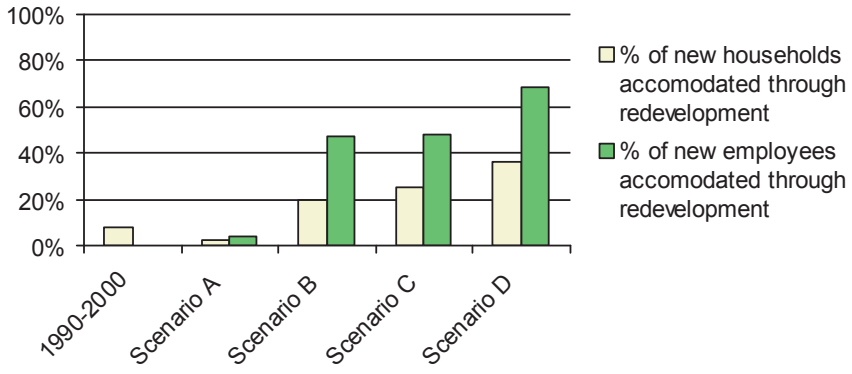


Redevelopment

Redevelopment is when development takes place on land that has been developed before, such as when a new office is built on the site of an abandoned gas station – recycling of urban land. Compared to development on vacant land, redevelopment is usually at higher densities and may be more expensive to build. However, older communities are often on existing transportation corridors, already have sewer and water service, and already have the capacity to mix housing, employment and civic space in a walkable center. This combination of factors helps reduce the amount of new roads built and new land developed in other areas, such as agricultural areas and aquifer zones.

The scenarios utilize reinvestment to degrees consistent with the use of mixed-use and higher intensity development. Consistent with trends, Scenario A utilizes little reinvestment – 1 percent of scenario development is on previously developed land (another way to say reinvestment), providing 3 percent of the housing units and 4 percent of the jobs added in the scenario. While Scenario B slightly increases reinvestment land to 3 percent of all development in the scenario, 20 percent of the housing units and 47 percent of the jobs in Scenario B are gained through this reinvestment. The significant contribution of reinvestment is mainly because it consists of higher-intensity development. Similarly, 5 percent of development in Scenario C is on previously developed land, which provides for 25 percent of the households and 48 percent of the jobs added in Scenario C. Scenario D utilizes reinvestment to the greatest degree, with 11 percent of the scenario's development occurring on previously developed lands. 36 percent of housing units and 68 percent of jobs in the scenario are derived from reinvestment.

Percent of new Growth accommodated through Redevelopment



Social Equity

Although the entire region owns the issues of social equity, such as health care, public education, race relations, jobs, housing, etc., and while no one area or jurisdiction can determine the success or failure of ECT's goals for social equity in future development, it is helpful to focus on what happens to those who currently reside in low-income communities. These communities can be identified by use of census data. Experience tells us that if a substantial portion of the population of an area is low-income, then the area should be a target of concern.

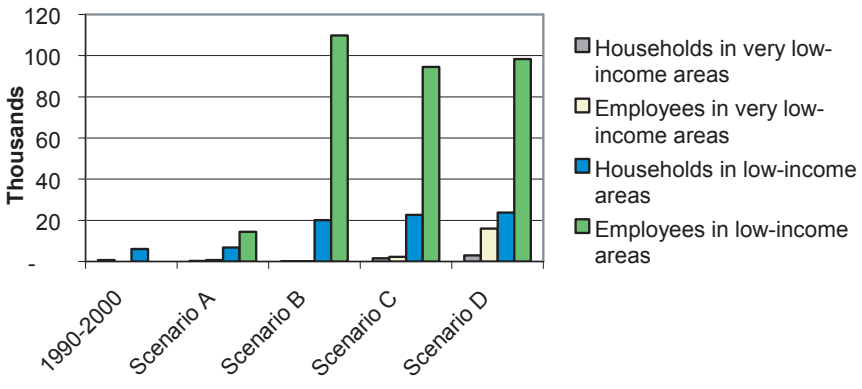
While realizing that there are a range of considerations pertaining to social equity, those we can most readily address in this process are related to jobs and housing. There is a dilemma for low-income communities and neighborhoods. If there is no investment in new developments, then the area tends to be slowly abandoned. Those who can, leave, leaving behind an increasingly isolated and increasingly disadvantaged group. On the other hand, new development can displace people, sometimes removing so many long-time residents and businesses as to change the character of the neighborhood completely.

In rural areas, the dilemma is the proliferation of pockets of substandard housing that contain high concentrations of low-income families. These neighborhoods lack adequate infrastructure, such as roads, sidewalks, water, wastewater and parks, and strategies are needed to improve the standard of living in these areas and connect residents with necessary services.

The challenge for these neighborhoods and for all of Central Texas is to find the right policies with the right balance of investment in these neighborhoods so as to promote prosperity while avoiding gentrification, abandonment or isolation, in both urban and rural communities.

There are several lessons from other areas that can be used. One universal rule is to involve the people of the neighborhood and community in plans for

Development in Low-Income Areas



redevelopment. Listening to the people of the neighborhood is essential, as they are the experts on what the neighborhood most needs. They are also, if not involved, likely to be the biggest opponents as well as potential victims of any new development.

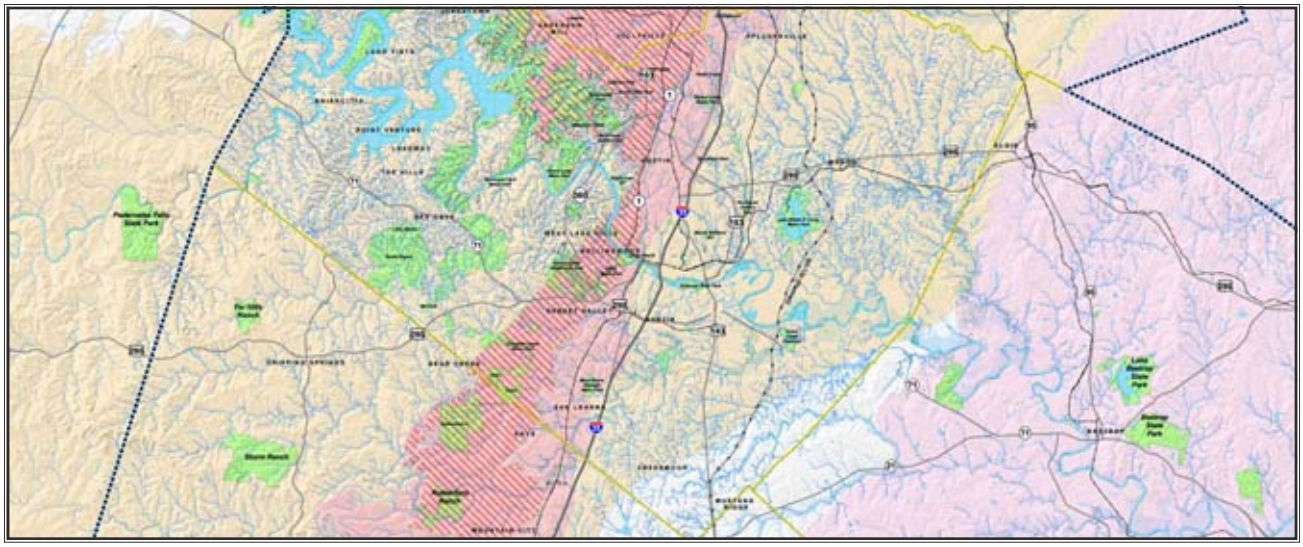
Some strategies that have been introduced in this area could be expanded on further. These include ensuring that services for existing residents stay in place, providing training so that existing residents qualify for new jobs, targeted economic development so that existing residents have new job opportunities, and partnering with various community groups to ensure positive connections between new developments and existing institutions.

All of the scenarios have advantages and disadvantages for different groups within the region. There are few indicators for some of the concerns for lower income households and for households without an automobile. The automobile dependence of the region means that those who do not drive, for whatever reason, have special challenges in dealing with their daily needs.

In all of the scenarios, the effects for these populations are not inevitable results of land use and transportation choices. There are specific policies that can affect these outcomes, regardless of the scenario. However, the mix of policies that is likely to be effective very much depends on the context as shown in each scenario. In one scenario, the problem may be how to provide access to jobs. In another, it may be how to prevent gentrification from overwhelming a neighborhood.

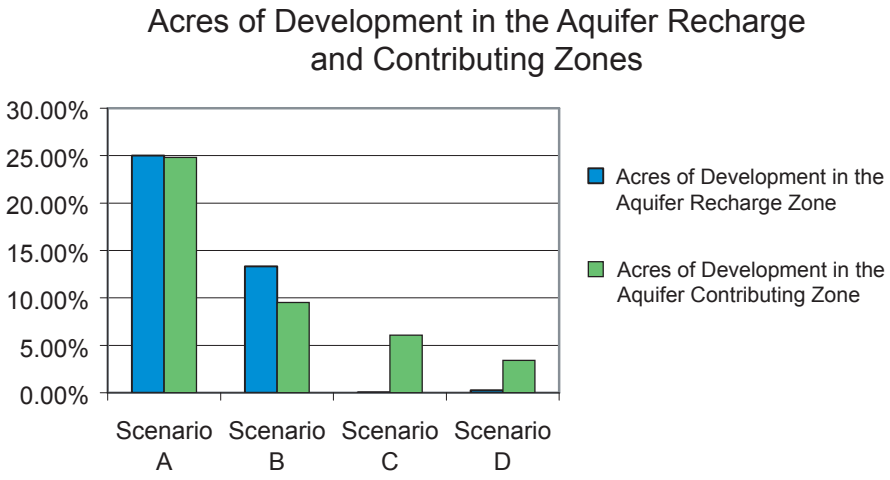
Development in Low-Income Areas (25% of Median Household Income)

Just as reinvestment levels vary, each Scenario incorporates different degrees of development in areas with 25 percent of area median income – areas which have typically undergone divestment and underutilization. If well designed and well planned with the community, reinvestment in areas of low-income can raise the income of existing community members, diversify and improve the housing, and bring employment to the communities that need it. This indicator does not presuppose the income or type of job to be added to these areas, it is only a sign of the intent to invest in these communities. Scenario A increases the household total in these low-income communities by 300 and the job total by 750. Household and Job growth in Scenario B are both under 100. Scenario C increases households in these block-groups by 1,600 and it increases jobs by 2,300. Scenario D increases households and jobs the most of all four Scenarios, increasing households by 3,000 and jobs by 16,000 in these low-income block groups. If the consensus vision is more like Scenario A or Scenario B, access to jobs from these low-income areas becomes a critical component of Social Equity. If the vision is more like Scenario A or Scenario B, access to jobs from these low-income areas becomes a critical component of Social Equity. If the vision is more like Scenario C or Scenario D, then there is more of a concern with accommodating growth without overwhelming a neighborhood.



Environment

The environmental consequences in this section are inextricably tied to the style, location and amount of land used in each Scenario. For example, continuing current development trends will result in considerable development of aquifer and agricultural lands. Regional land use patterns also have immediate and cumulative effects on water usage and demand. This section reviews each Scenario's effects on the regional environment with indicators on aquifer lands developed, agricultural lands developed, impervious surfaces created, air quality and water usage.



Housing

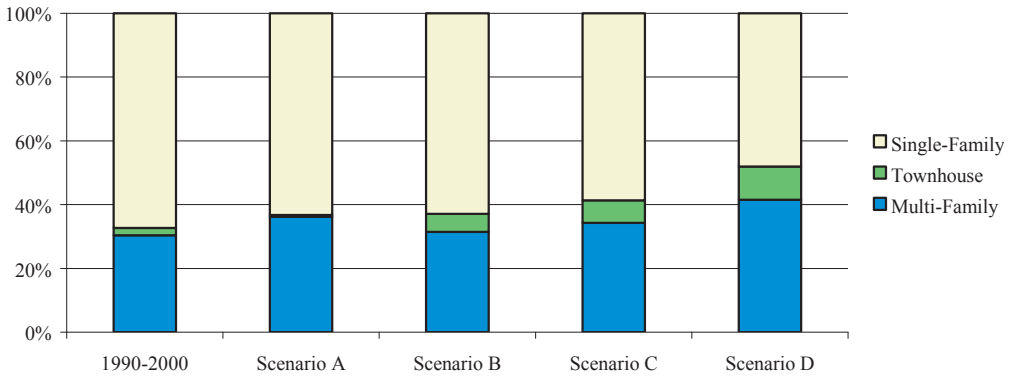
In 1990 61 percent of the new housing constructed in Central Texas consisted of single-family homes, this number grew to 64 percent in the year 2000. Since housing drives so much of land consumption and transportation habits, the Scenarios consider a diversity of styles, common in other cities but not seen frequently in Central Texas. Many people in the workshops used development types with a mix of housing types and a mix of amenities within a walkable environment. A walkable, mixed-use environment complements a neighborhood with housing diversity. So, for example, grocery stores could be accessible to seniors or community centers can be accessible to youth who cannot drive. This section reports each Scenario's housing split by type and total housing units within walkable development.

Housing Diversity

Each Scenario has a unique mix of housing types as a result of its development type composition. Despite the differences between the Scenarios, single-family homes comprise the largest housing type of all four Scenarios. Roughly 60 percent of housing units are single-family homes in Scenarios A, B and C. 48 percent of housing units in Scenario D are single-family homes.

Scenario A has the lowest diversity of housing, with townhomes comprising less than 1 percent and multi-family homes 36 percent of all housing units in the Scenario. Scenario B and C are both roughly one-third multi-family homes and 6 percent townhomes. Scenario D offers the greatest housing choice: 10 percent of the housing units are townhomes and 42 percent are multi-family homes.

Incremental Housing Mix



Transportation

Central Texans view traffic congestion as a threat to the quality of life in the region. A realistic approach to addressing congestion is through planning for transportation and land use, which are inextricably bound to each other. Land use patterns reflect and influence the type of transportation all of us will use.

Some say that a good response to the congestion problem is to spread the traffic out, either through dispersing development, adding road capacity, or both. These solutions can reduce local congestion.

Others say that increasing dispersion and road capacity is a temporary fix which typically reduces congestion for only a few years. Some advocate for more development in concentrated areas where, such as urban downtowns, travel time for individual trips can actually be low. This is because many trips can be completed through walking, short transit trips, or short drives.

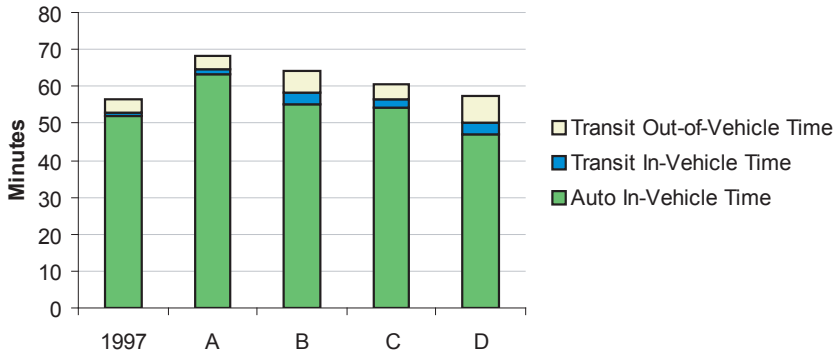
Land use patterns and development types significantly affect traffic congestion and other quality of life indicators related to transportation. Using a transportation system consistent with their land use patterns, the four Scenarios illustrate this point. The following indicators of transportation efficiency measure each Scenario's impact on transportation and congestion. One item to note; trips by transit include the trips made by students from home to shool and back by bus.

Travel Time

The amount of time each of us spends getting around each day can really add up. As the chart below shows, the amount of time per capita spent in car travel and transit each day varies significantly between the Scenarios. People in Scenario A spend the most average time traveling, 68 minutes per capita per weekday on average. People in Scenario D spend 57 minutes traveling per day – about 11 minutes per weekday less than in Scenario A, or 48 hours per year.

Scenario B and Scenario C are between Scenarios A and D in terms of travel time, with a difference of four minutes between the two.

Total Time Traveled Per Capita by Travel Mode



Travel Time Index

The Travel Time Index (TTI) was created by the Texas Transportation Institute at Texas A& M University. It is a ratio of actual total travel time to total theoretical "free-flow" travel time. Free flow traffic is assumed to be the level of traffic in the middle of the night. The following chart shows the travel time index for the four Scenarios. Measured by the travel time index, Scenario A is the most congested, with a value of 1.26. Scenario B has a travel time index of 1.23. Scenarios C and D have the same travel time index of 1.20. All Scenarios are more congested than today, which has a travel time index of 1.14.

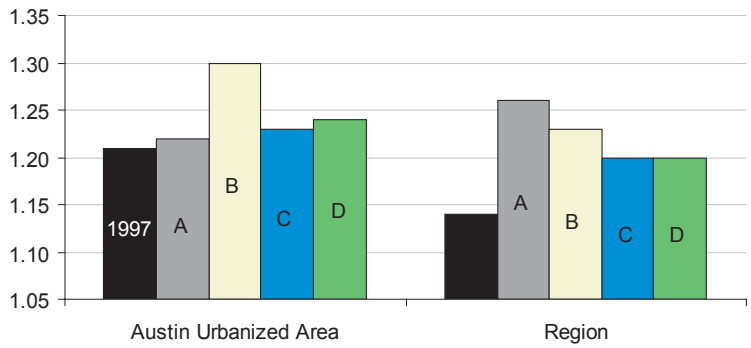
The travel time for the Austin urbanized area is quite different. When the center of the region is looked at, Scenario B has the highest congestion with a TTI of 1.30, while Scenario A has the least congestion with a TTI of 1.22. Scenario C and D are close to Scenario A. Again, all Scenarios are more congested than today, where the urban travel time index is 1.21

While Scenarios C and D have similar daily travel time, the amount of travel time that is due to congestion is greater in Scenario B, which has a higher TTI value. The most dense Scenario D has the lowest regional TTI ratings, and a fairly low urbanized area rating.

The combination of mixed-use development which shortens trip lengths on average, with increased walking, biking and transit use causes less congestion delay than in Scenario B.

Many regions have to face a trade-off between travel time and delay. They may have less time in the car, but more of that time is spent in congestion. But the modeling of these land use Scenarios indicate that both time and delay can be reduced through a customized mix of transportation investments coupled with land use changes. With the right combination, both time and delay can decrease.

Travel Time Index

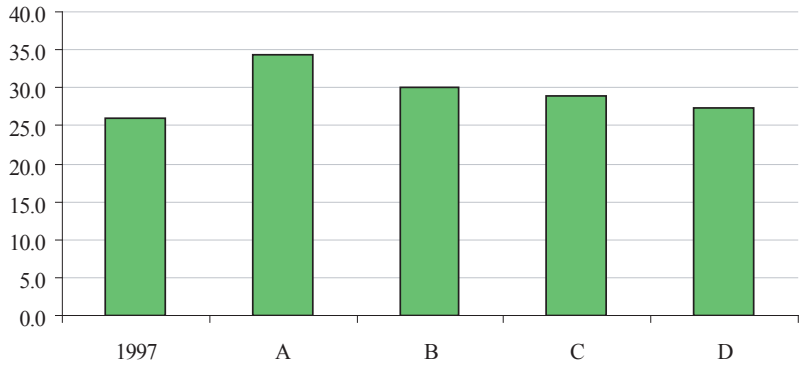


Vehicle Miles Traveled Per Person Per Day

Besides the time spent driving, Central Texans spend money for gas and other expenses to keep their cars running. Most of these expenses depend on how many miles are driven. The more miles driven, the greater the expense. So as individuals and as a region, the total miles we travel to carry on our everyday lives make a significant difference. Total vehicle miles traveled vary in each of the four Scenarios. The chart below shows these differences.

Central Texans in Scenario D drive 20 percent fewer miles per capita than in Scenario A. Scenarios B and C are between the two. Using an estimate of 20 cents a mile for car costs, a person in Scenario D would spend about $1.40 per weekday less than in Scenario A. That's about $375 for a year of 260 weekdays or $511 if that is done for all 365 days of a year. In addition, fuel consumption is directly proportional to vehicle miles traveled.

Vehicle Miles of Travel per Capita



Travel Mode Shares

The Central Texas region has grown up in the automobile age, like most of the Southwest. Outside of the historic centers, cities and towns in the region have been shaped by the availability and capability of the automobile. Under any pattern of future development, the existence of the already-developed regional patterns and increasing automobile ownership means that Central Texans will continue to do most of their travel by private automobile. Others, who either cannot or choose not to use automobiles, need alternatives. The pattern of future development makes significant differences in the share of automobile trips in the region.

In each Scenario, a system of transit, toll roads and other appropriate roads were modeled. In some Scenarios, additional transportation factors were modeled. For example, in Scenarios C and D, the compact pattern of mixed-use development makes walking or bicycle riding more likely to many destinations. Assuming $100 million in additional investments in walk and bicycle infrastructure, this was modeled by assuming that 15 percent of all trips of less than three miles could be bike or walk trips.

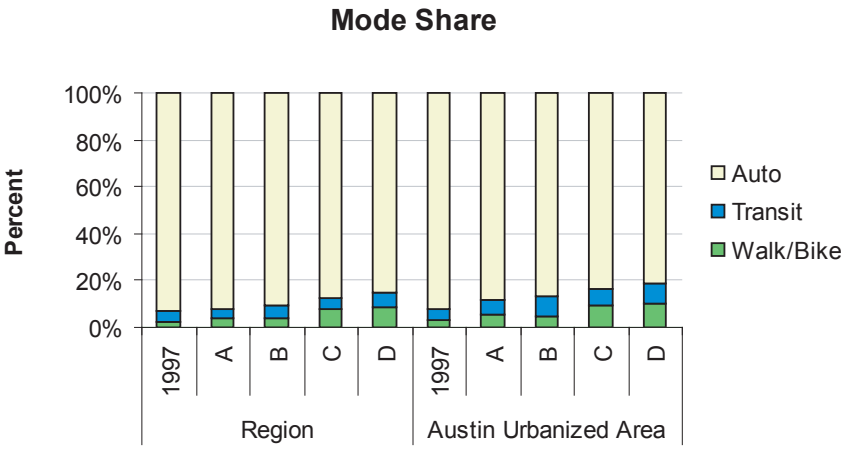
The following table shows mode share for trips in the future Central Texas. Transit trips (including school bus trips) are shown both as walk to transit and drive to transit.

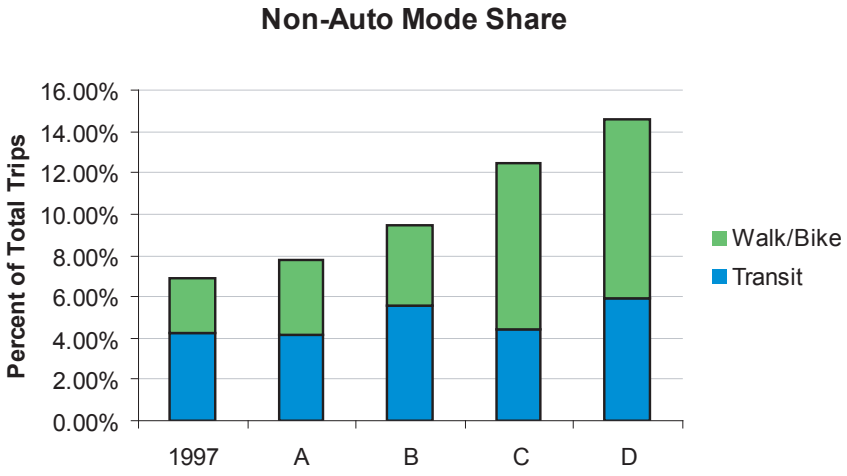
In all Scenarios, automobile trips dominate, with Scenario A at about 92 percent being the most automobile-focused and Scenario D at over 85 percent being the least. Transit and walking/biking account for relatively significant amount of trips for a region this large, especially in the more mixed-use and walkable Scenarios. The differences between the Scenarios are noticeable, even at the regional level. Walking and bicycling levels are greatest in Scenarios C and D, showing the impacts of their mixed-use development and the placement of that development, and the assumption that one out of seven trips under three miles would be by walking or biking.

Total transit share is lower in Scenario C than in Scenarios B and D, partly due to less development in central Austin, where transit mode shares are highest.

Since most transit riders need to be able to walk to transit stops, transit is not an option for much of the region. A more accurate picture of transit use can be gained by narrowing the focus to the Austin urbanized area, as the part of the region with the most access to transit in all Scenarios. The following table shows the mode shares for the Austin urbanized region in each of the future Scenarios.

In Scenario A, about 12 percent of the trips are made using something other than a car. In Scenario B, the non-automobile trips account for a little more than 13 percent of the total. Scenario C has almost 16 percent of the trips happening without car travel. Scenario D has almost 19 percent of the trips being made by non-automobile modes.





Air Quality

Air quality is affected by the pollution from many different sources. In this report, the amount of fixed sources (power plants, dry cleaners, etc.) and off-road sources is assumed to be the same for all four Scenarios. The differences in air quality measures for the four Scenarios are caused by differences in mobile sources of emissions. In all Scenarios, the two vehicle emissions that are precursors to ozone are substantially reduced below today's levels as shown on the chart below.

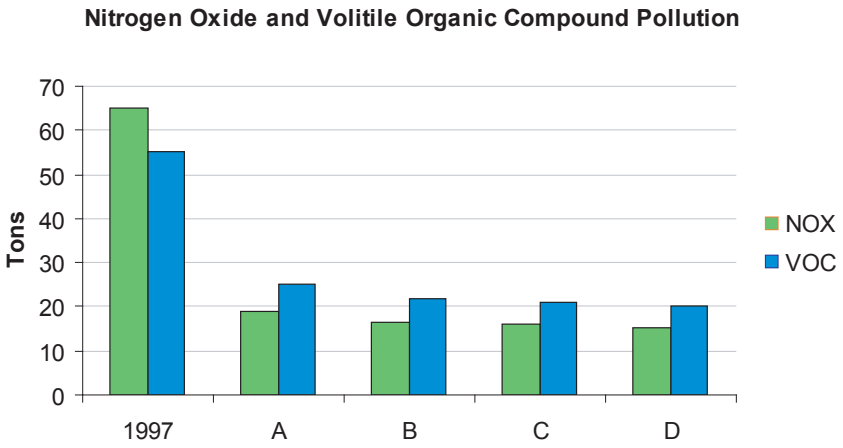
The replacement of older higher polluting cars with newer cars that have substantially less ozone producing emissions will result in significantly reduced impacts on air quality. Over the next twenty years, this factor alone will reduce air pollution in Central Texas by a substantial amount. Within this framework of overall improvement in air quality, ECT examined the two air pollutants that result in ozone in terms of their differences in the four Scenarios.

These two are volatile organic compounds (VOC) and nitrous oxide (NOX), both of which are estimated using the Environmental Protection Agency's standard model for this process. The table below shows the results for the four Scenarios as compared to today's levels.

As the graph below shows, these two pollutants, which are the main contributors to ground-level ozone, are highest for Scenario A, lowest for Scenario D, and in the middle for Scenarios B and C, with almost equal amounts.

The emission levels of both VOC and NOX are due to the differences in automobile use. Scenario A has the highest level of vehicle miles traveled per day, so it has the highest level of automobile emissions per day. Scenarios B and C have lower levels of automobile use and so lower levels of emissions. Since Scenario D has the lowest use of automobiles, it also has the lowest level of emissions. All of the Scenarios have substantially less emissions than currently required by federal standards.

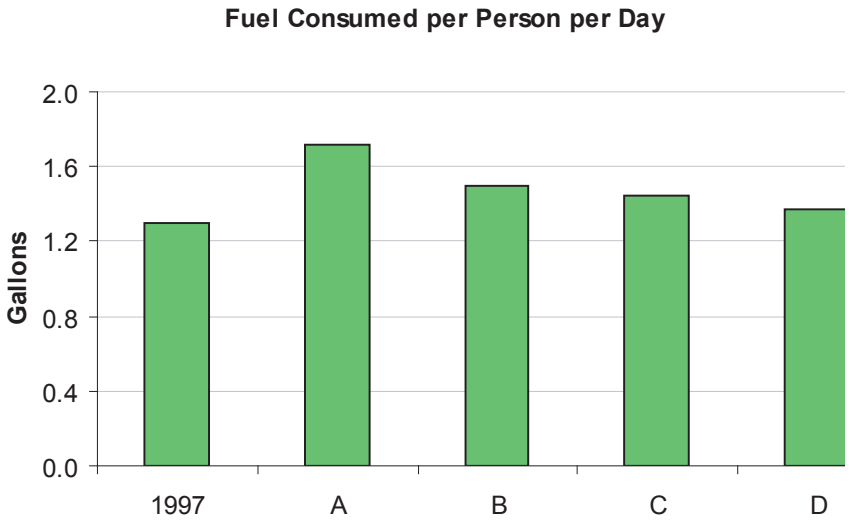
As mentioned earlier, there are a number of sources of air pollution other than mobile emissions. Air quality remains an issue today and air pollution occasionally exceeds current regulatory standards. This requires diligent attention to reduce sources of both mobile and off-road vehicles, equipment and point sources of pollution to assure healthy air quality standards are maintained.



Fuel Consumed

Fuel Consumption per capita

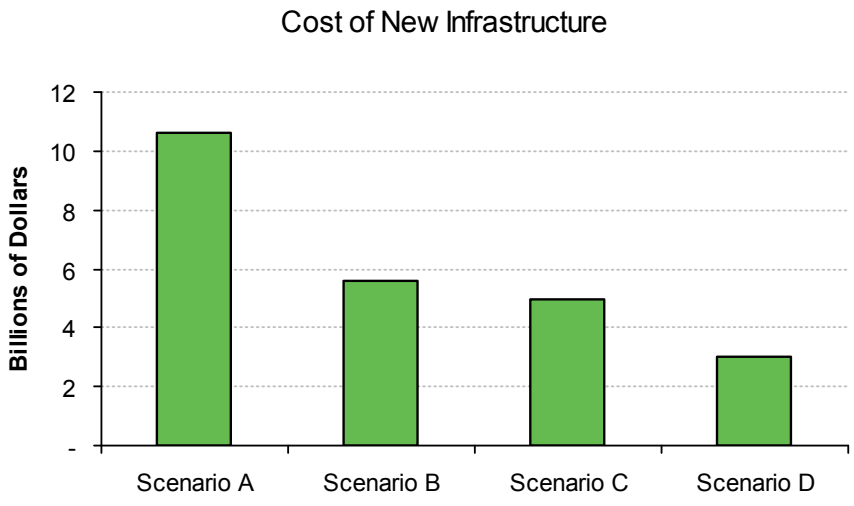
Based on the vehicle miles traveled per capita in each of the Scenarios, it is possible to estimate the amount of fuel consumed each weekday. Using an estimate of 20 miles per gallon as the average for all vehicles, the estimated fuel consumed per capita in each Scenario is shown in the chart below. In Scenario A, the fuel consumption per capita is 1.72 gallons a day for a weekday. This is about 30 percent more than the current amount, estimated at 1.30 gallons a day. In Scenario B, fuel consumption per capita is estimated to be 1.5 gallons per capita a day, which is a 16 percent increase over the current amount. Scenario C is very similar in that 1.4 gallons per capita a day are consumed, which is about a 12 percent increase. In Scenario D, per capita fuel consumed is 1.37 gallons a day. This is about a 6 percent increase over the current level.



Economy

While the economic climate, should Central Texas reach 2.5 million people, is difficult to predict, certain economic consequences of the four Scenarios are measurable. There are many factors that determine a region's competitiveness; few are directly determined by patterns of land use. However, one possible factor is local infrastructure costs that do vary with land use patterns. The extent, needs, costs and reuse of infrastructure varies with each Scenario's regional land use pattern and style of development. Therefore, certain infrastructure costs are measured in this section; others are discussed in the transportation indicators section.

Within the region, one concern is the balance between tax revenue generated by different kinds of development and the costs of providing public services to different kinds of development. While it is not possible to determine exactly what the revenues and costs will be for any given Scenario, two indicators are important to consider: new job development and new households created. For the region as a whole, the number of jobs and the number of households is the same for all Scenarios. Within the region, the distribution of jobs and households is very different across the four Scenarios. The balance between the jobs and the housing for each county is an indicator of the balance between tax revenue and costs of local government services.



Cost of Infrastructure

Different types of development can have different impacts on cost of local infrastructure, in this case on the costs of local streets, water, sewer and storm sewer. (Transportation costs are analyzed separately in the transportation section.) Typically, separate-use development on previously undeveloped land incurs higher public infrastructure costs. For example, since residential subdivisions are often low-density development with disconnected street networks (see development type discussion in appendix); they necessitate a great number of road miles. This increases the total road construction, sewerage and water service costs. On a related note, the grid street network of a mixed-use center also contains many streets. However, mixed-use centers often reduce land consumption per unit of development and therefore expensive infrastructure.

The costs of infrastructure for redevelopment vary widely, depending on the particular situation. If the existing infrastructure has excess capacity and is in good condition, the infrastructure cost of redevelopment may be very low. If the existing infrastructure needs to be expanded or replaced, the infrastructure costs for redevelopment may be quite high. Replacement costs are not, strictly speaking, entirely attributable to the redevelopment project in that the infrastructure would eventually need replacement whether or not there was a redevelopment project under consideration. Because of this variability in redevelopment-related infrastructure costs, it was decided to present infrastructure costs for new development only.

Scenario A incurs the greatest infrastructure costs of the Scenarios, at more than $10.6 billion. This is largely due to the greater land consumption in Scenario A. Scenario B incurs about half the infrastructure costs, at slightly more than $5.5 bilion. The costs of Scenario C are similar to that of Scenario B, at $4.9 billion Water, sewer and storm sewer costs the least in Scenario D, at $3 billion. (NOTE: The estimated infrastructure costs listed above are calculated based on new development only.)

In many cases, the costs of infrastructure for new development are partially or wholly paid by the developer, who then includes those costs in the cost of the house. In most cases, the ensuing maintenance costs are borne by the relevant jurisdiction; these costs depend on a number of factors including the amount of infrastructure originally constructed.

What's the Next Step?

This report summarizes the regional and local visioning processes Envision Central Texas has undertaken up to the summer of 2003. It includes an overview of the process, summaries of the Scenarios and the measured indicators and trade-offs of each Scenario. Yet, it is still only a summary of the process to date.

The report represents a beginning more than anything else. ECT has brought the important issues of growth and planning into the discussion of the region's future. Soon Central Texans will have important information about these alternative futures that may occur in this region. They will also have an understanding of the consequences and local impacts of those alternative futures. It will soon be time for public officials, civic leaders and community members to weigh in on the qualities of growth they envision for the future of Central Texas.

Envision Central Texas is a non-profit, non-partisan citizen group made up of people from a wide variety of backgrounds and a wide variety of views. We are not a governmental agency, and our goal is not to develop a governmental type of plan. Rather, our goal is to develop a vision based on an understanding of the choices we have, and a common set of strategies that we can work on together.

Envision Central Texas needs to know what you think is important for the region's future. This fall, we are going to ask the larger community for feedback on the four Scenarios and what they could mean for our future. We will distribute information on the Scenarios through newspaper inserts, radio announcements, and neighborhood meetings. There will be a questionnaire both in the newspaper insert and on our website. Thousands of Central Texans can weigh in on these important issues.

All of the questionnaires – whether they arrive via mail, phone or online – will be considered. All of the responses will be entered into a database system. Then the project's team of consultants will analyze the data – trying to understand exactly what people have said they wanted, what the counties and communities of the region said, and how to incorporate all of that information into a resultant "vision" for the future of Central Texas.

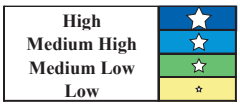
The draft vision then will be brought back to the community for additional input and comments. After that public review period, final revisions will be made so that the Envision Central Texas Board of Directors can adopt a final vision. It then will be the responsibility of Envision Central Texas to work cooperatively with jurisdictions within the region to take the next step by adopting tools that will move us toward what residents and community leaders have said they wanted for the future of their region. Each city, county or other agency will have its own process to choose what steps it takes next.

Get Involved!

Now we want to make sure we hear from you. It's your turn. Tell us what you think.

Please review the material in this packet and the range of choices developed as part of Envision Central Texas. When the time comes this fall to fill out the questionnaire please take time to tell us what you think. If you would like to stay up to date with current events and ongoing work of Envision Central Texas please visit:
www.envisioncentraltexas.org.

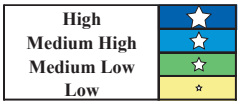
APPENDIX I : SCENARIOS AT A GLANCE

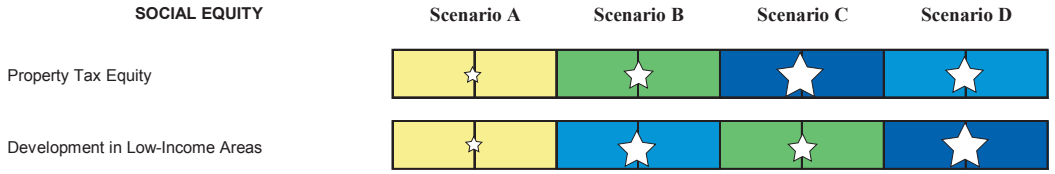


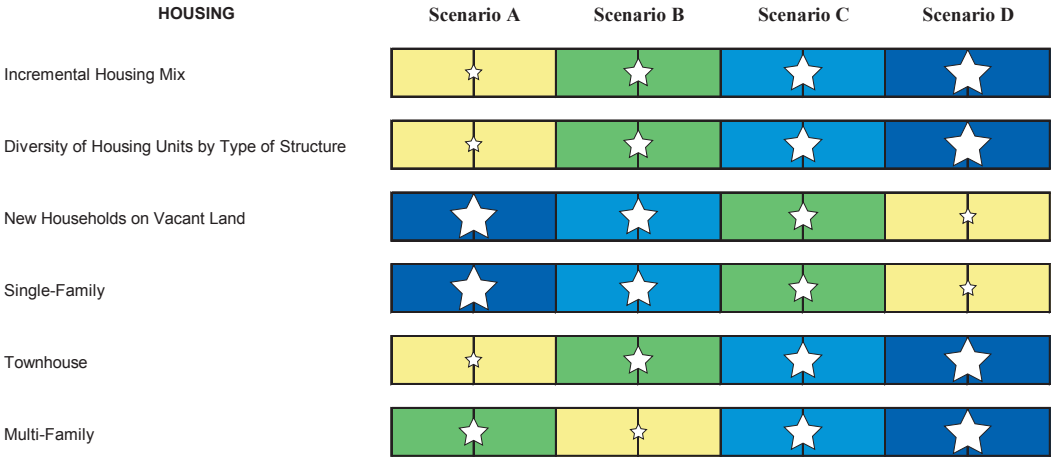
LAND USE	Scenario A	Scenario B	Scenario C	Scenario D
Total Acres of Urbanized Land	★	★	★	★
Regional Density (persons / sq mile)	★	★	★	★
Percent of New Growth Accommodated Through Redevelopment	★	★	★	★
Percent of Jobs and Households Accommodated Through Mixed-Use Development	★	★	★	★

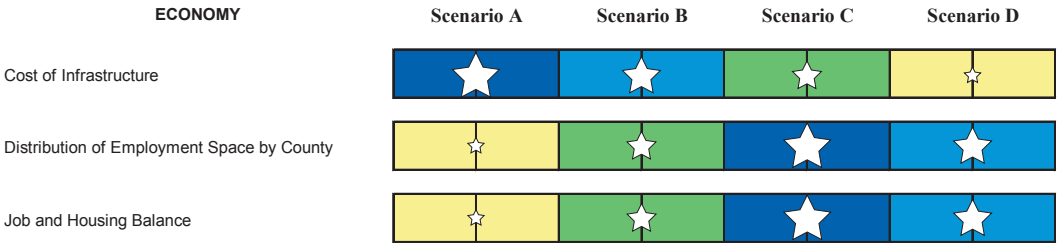
TRANSPORTATION	Scenario A	Scenario B	Scenario C	Scenario D
Travel Time (Minutes Per Person Per Day)	★	★	★	★
Travel Time Index (TTI)	★	★	★	★
Vehicle Miles Traveled Per Person Per Day	★	★	★	★
Auto (percent mode share)	★	★	★	★
Transit (percent mode share)	★	★	★	★
Walk/Bike (percent mode share)	★	★	★	★
Total Regional NOx (Air Quality)	★	★	★	★
Total Regional CO (Air Quality)	★	★	★	★

ENVIRONMENT	Scenario A	Scenario B	Scenario C	Scenario D
Acres of Development in the Aquifer Recharge and Contributing Zones	★	★	★	★
Number of New Well and Septic Systems Installed	★	★	★	★
Acres of Agricultural and Rangeland Lost to Development	★	★	★	★
Acres of Urban Parks per 1000 people	★	★	★	★
Proximity to Open Space	★	★	★	★


High
Medium High
Medium Low
Low


SOCIAL EQUITY
Scenario A
Scenario B
Scenario C
Scenario D
Property Tax Equity
Development in Low-Income Areas


HOUSING
Scenario A
Scenario B
Scenario C
Scenario D
Incremental Housing Mix
Diversity of Housing Units by Type of Structure
New Households on Vacant Land
Single-Family
Townhouse
Multi-Family

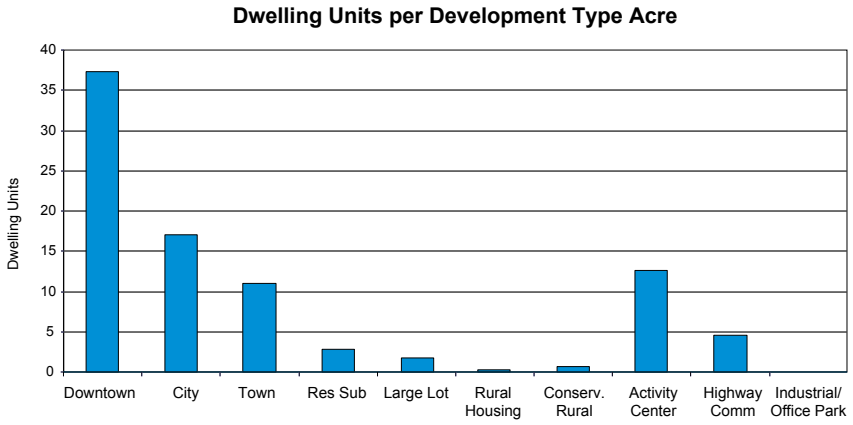

ECONOMY
Scenario A
Scenario B
Scenario C
Scenario D
Cost of Infrastructure
Distribution of Employment Space by County
Job and Housing Balance

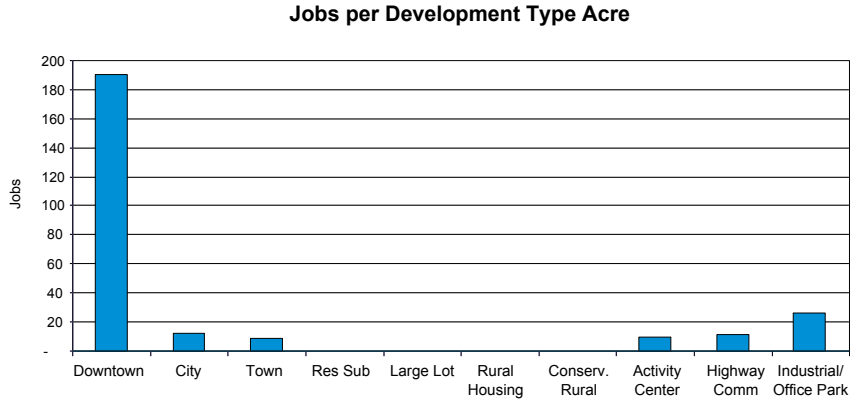
Appendix II : Development Type Descriptions

Introduction to Development Types

This appendix summarizes the development types used in the Envision Central Texas workshops and scenario-building processes.

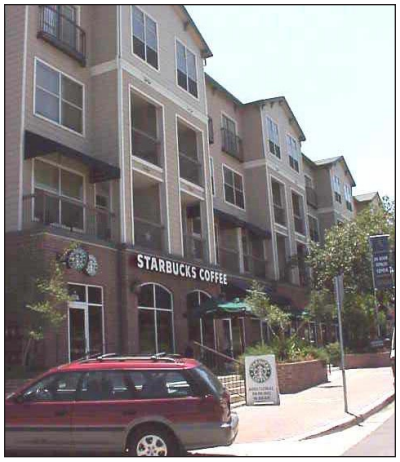
Development types form the building blocks of the workshop exercise and the development scenarios. When members of the public "play planner" for the workshop game, they accommodate the forecasted growth in jobs and households with various combinations of unique development types - each represented by a game piece, or chip. The development types represent a range of ways in which jobs and households can be accommodated on the land. Each development type contains a unique number of jobs and households, mix of employment and housing types, residential density, and degree of walkability. These development type specifications were based on existing and planned places in Central Texas. The same development types (with minor adjustments for scale) were used to build the scenarios. The types are categorized as either mixed-use or separate-use development types and are described in the following pages.

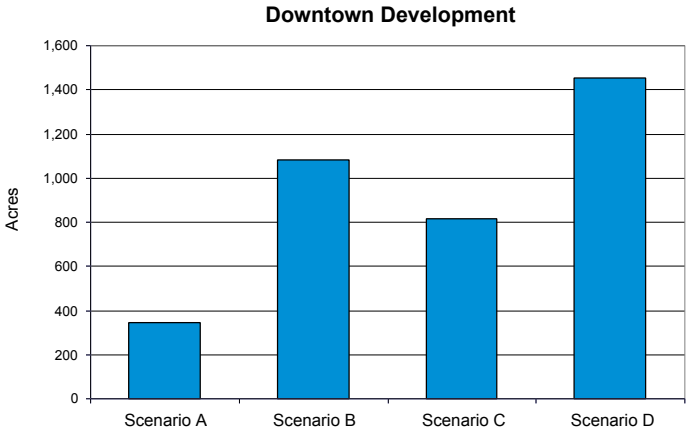




Mixed-Use Development Types

Mixed-use development types consist of human-scale development and interconnected street networks that are suitable for a number of transportation choices – including the automobiles transit, walking and bicycling. At the core of each of these types lies a pedestrian-oriented center with a mixture of jobs, households – often in mixed-use buildings. The core allows residents and visitors to arrive via automobile, park once and walk easily to destinations such as the grocery store, the bank and their home or office. It also provides a balance of uses that is conducive to transit use, carpooling and cycling. The grid of interconnected streets extends to residential neighborhoods beyond it. The mixture of housing types within these residential areas ensures that working families, couples and others can live in their neighborhoods at any stage of their lives.



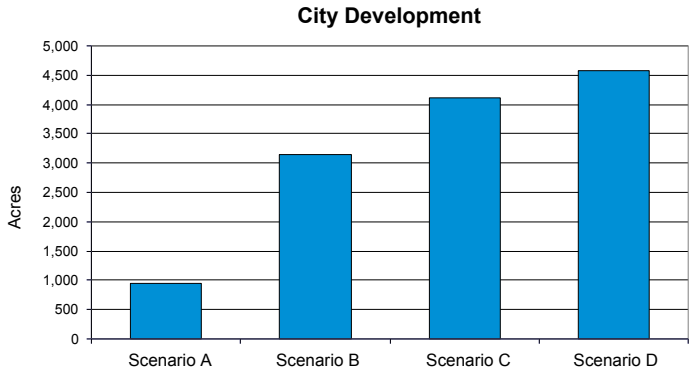


Downtown

The Downtown development type incorporates households, offices, retail, and civic uses into a walkable and mixed-use environment. This type is modeled on downtown Austin and serves as a commercial destination and employment center. But the Downtown type also contains a diverse array of multi-family homes and townhouses. The building types range from three-story mixed-use buildings to mixed residential towers and commercial high-rise buildings. Interconnected street networks and a variety of amenities within walking distance make downtowns accessible by automobile, transit, bicycle and foot. Due to the walkability and diversity of uses in Downtowns, they are lively throughout the day and evening. This development type is especially apt for infill in the downtowns of existing cities.

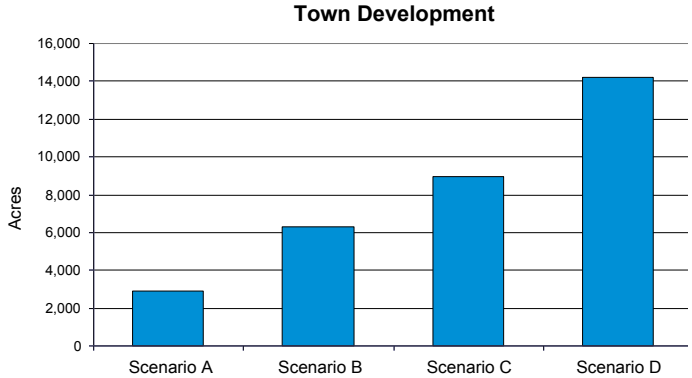
City

The City development type is walkable and incorporates a diverse mix of residential and employment uses, though at a lower density than the Downtown. The City still serves as a significant source of employment. Like most historic cities in Central Texas, the City development type has a walkable center at its core. It may require structured parking and is accessible via multiple modes of transportation. Cities include a greater proportion and diversity of housing than downtowns, including multi-family homes, single-family homes and townhouses.



Town

As with the Downtown and City, Towns are also walkable because of their mix of uses and interconnected street network, but at an even lower density. Towns are primarily service destinations rather than centers of employment. Surface parking lots provide parking in Towns. Buildings on the main street typically stand two to three stories tall and include townhouses or apartments above storefronts. Most homes in a Town are detached single-family residences that are oriented towards the street, commercial areas and open space. The town was modeled on places such as Bastrop or Lockhart.

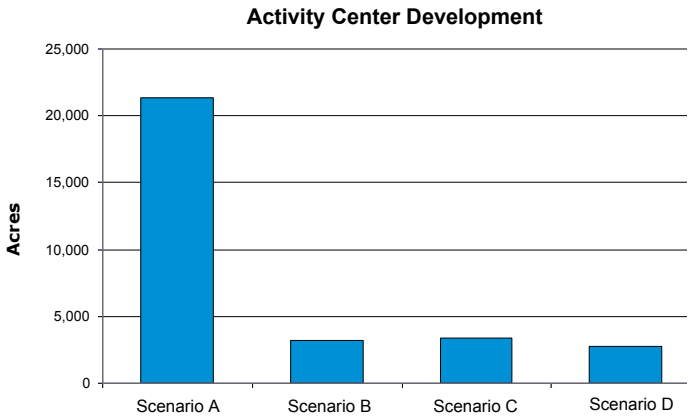


Separate-Use Development Types

Separate-Use development types consist of development that is separated according to use and situated on disconnected street networks. This type of street network includes long blocks or circuitous streets with few intersections, most of which are not suitable for walking. Connections between, and sometimes within, residential and commercial areas are designed for automobile travel.

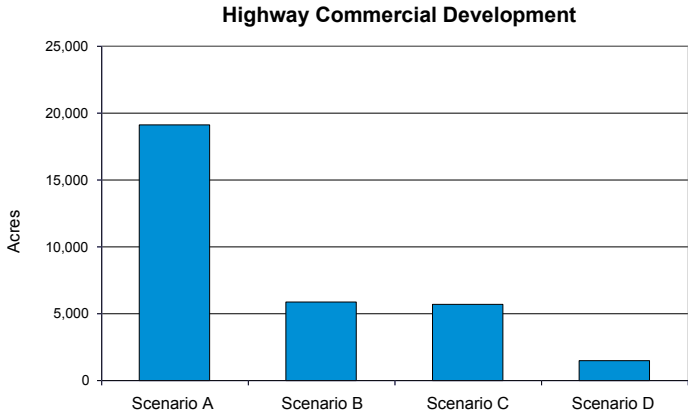
Activity Center

An Activity Center is an agglomeration of large-scale retail buildings, offices and multi-family housing. The Activity Center type contains a relatively dense mix of uses, comparable to a City. But, unlike the City, it is not pedestrian-friendly. Land uses are separated from each other by parking areas, freeways or arterials. Activity Centers are usually positioned at intersections of highways or arterials, sometimes along major transit corridors.



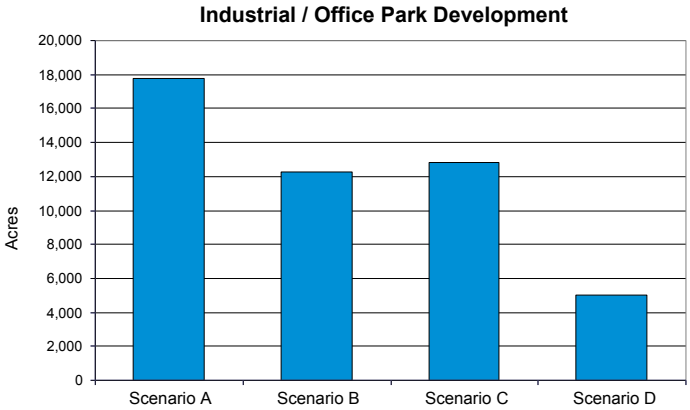
Highway Commercial

This type is modeled after highway-oriented development in the Central Texas region. Like the Activity Center, it contains many residential units as well. But rather than agglomerated at a highway intersection, highway commercial development takes a linear form along both sides of highways. Connections in this development type consist mostly of highways and frontage roads. Housing is either in the form of multi-family apartments or residential subdivisions, both are typically auto-oriented.



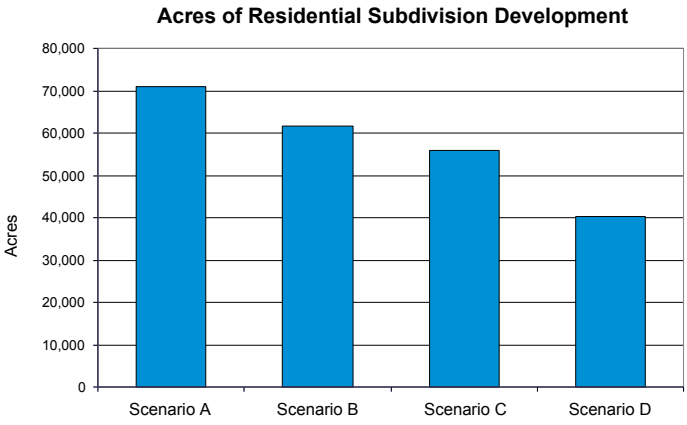
Industrial / Office Park

The Industrial / Office Park development type is made up of a mix of low and medium density industrial and office buildings. They often consist of industrial yards and campuses. While industrial areas often need to be separated from other uses, the office park is a separate-use alternative for the offices that could be accommodated in mixed-use centers. This development type is often near highways and accessed via automobile also.



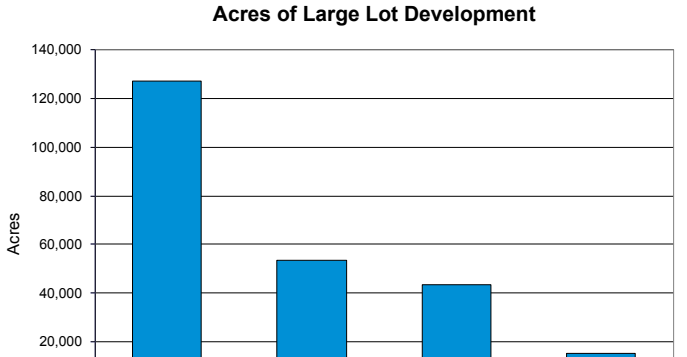
Residential Subdivision

Residential Subdivisions are made up entirely of single-family, detached homes on lots and in street networks typical of post -World War II suburbs. Residential Subdivisions are designed for automobile travel. Due to the extensive use of cul-de-sacs and channelling of traffic onto arterials, street connectivity and walkability are generally low. Residential subdivisions also contain the greatest amount of parks per person of any development type. It amounts to nearly 5 units per acre.



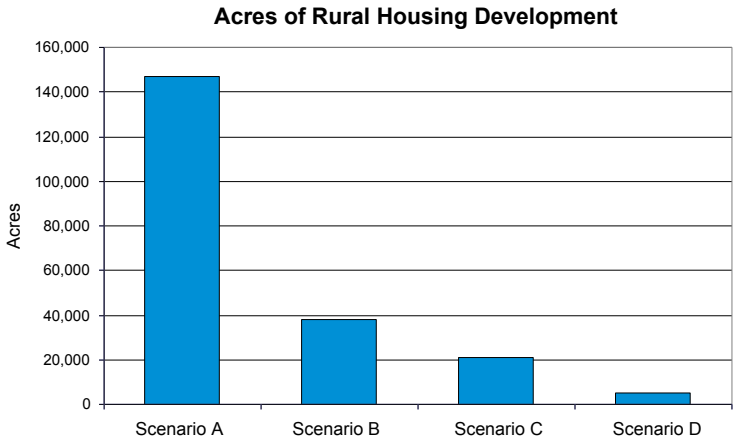
Large-Lot Subdivision

Large lot subdivisions are also composed entirely of single-family, detached homes. This type can be found on the edge of the region and closer to the core – lining highways, adjacent to open space or near recreation areas like Lake Travis. Large Lot Subdivisions are typically isolated or far from employment and retail. Averaging 1 unit per acre, this type is usually served by rural infrastructure, such as septic tanks over centralized wastewater treatment. Street connectivity is low and travel to and from the Large-Lot Subdivision type is usually by automobile.



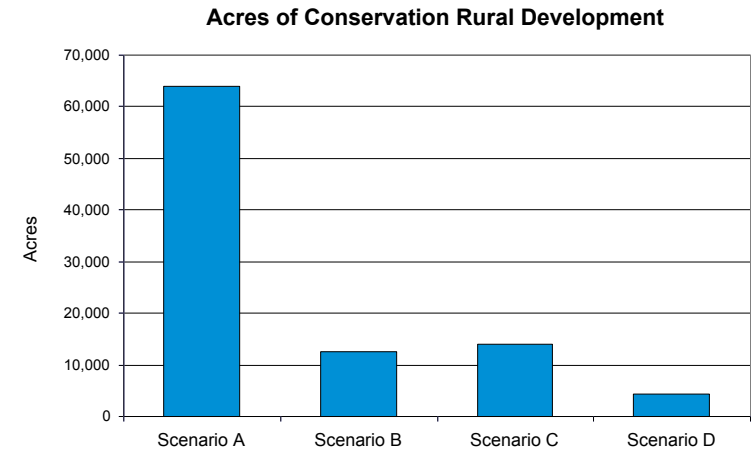
Rural Housing

The Rural Housing development consists of estate lots that amount to 1 unit per five acres. Rural Housing development provides residents with access to rural areas while being within reach of urban amenities. This development type consumes greater amounts of open space and tends to be farther from employment than Large-Lot Subdivisions. Street connectivity is also generally low among estate lots.



Conservation Rural

Conservation Rural development, also known as rural cluster, is a way to maintain the rural lifestyle while leaving large tracts of agriculture or open space contiguous. While it is approximately the same density as Rural Housing, it actually conserves more land than it develops. In Conservation Rural development, homes are clustered around a shared public space or street, rather than scattered across rural areas amongst large parcels. The remaining acres of each lot form a contiguous open space, in which 50 to 90 percent of the site can be preserved in its natural or farmed state. The resulting density is around 160 households per 640-acre section.



Appendix III : Road & Transit Type Glossary

This appendix discusses the specific road types and transit technologies incorporated into the scenarios. The transit technology modeled strongly affects capital costs, operating costs, and service characteristics. Land use patterns and capital costs make more sense with knowledge of the technology assumed, rather than general designations such as "priority transit."

Light Rail Transit

Light Rail Transit (LRT) uses overhead electric lines to power rail cars within mixed traffic (streetcars), at-grade or in exclusive rights-of-way. LRT connects medium and higher density suburbs with the center city. Stations can be anywhere from a few blocks to a mile and one-half apart. LRT vehicles can operate as single or multiple-unit trains. They are called "light" in contrast to the heavy volume of passengers of heavy-rail systems, such as subway, elevated or metro systems. Yet, LRT serves passenger volumes greater than express and local buses do. LRT can be accessible to and supported by local bus service and park-and-ride lots. LRT systems are attractive and can often spark reinvestment, yet they require significant initial capital investment. The cost of light rail systems is highly variable and depends on many factors, such as electrification and grade separation.

Streetcar

LRT vehicles operating within mixed traffic are often called streetcars. Since streetcars intermingle with pedestrians and automobile traffic, their speeds are considerably slower. Without a grade-separated right-of-way, streetcar capital costs are less than LRT lines in an exclusive right-of-way. Streetcars operate within dense areas and often as a catalyst for reinvestment. In Portland, a new streetcar has been sponsored by local "redevelopers" as a way to distinguish and add value to certain neighborhoods.

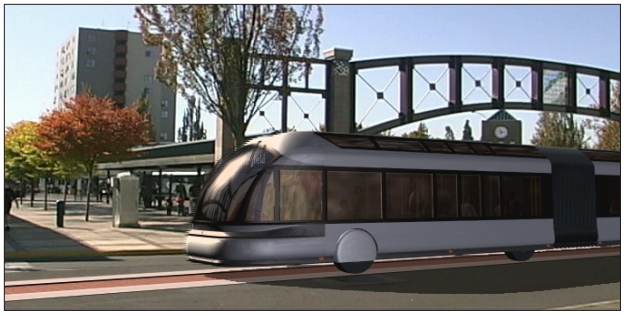
Local and Regional Bus Routes

Local and regional bus routes are an integral part of successful transit systems. They provide service to many different locations and are essential links between other public transit options such as light rail or commuter rail. These routes currently provide the bulk of the service for the region and will likely continue to be the most dominant form of public transportation in the future. While bus systems are often viewed as an option only for those who do not have access to an automobile, the most successful systems attract a large majority of riders who are there by choice – they have access to a car, but prefer to use transit for some trips.

Bus rapid transit

Bus rapid transit offers the convenience of light rail at a fraction of the cost. It has a lower capacity than LRT. But it can be more flexible and provide express service to regions which can not yet justify the cost or capacity of light rail or a higher capacity transit system. BRT consists of a mixture of improvements to street and station design, signal technology, and the rapid buses themselves to streamline bus travel.

Generally, bus rapid transit systems offer express, or limited stop, service. Rapid buses have the flexibility of operating in a guideway, exclusive busway or in streets with mixed traffic. This also allows for fine-tuned phasing and implementation of BRT systems. Signal priority and bypass lanes allow rapid buses to reach their destinations quickly and with greater reliability than local buses. Buses with low floors, stations with pre-pay ticket kiosks, and improved station designs allow for quick passenger loading. Since BRT uses rubber tire vehicles, it is often easier to change the routes, stations, and service frequency of BRT lines than of fixed guideway transit lines.



Commuter rail

Commuter rail runs on conventional railroad tracks and is generally powered by diesel or electric locomotives. These trains typically travel great distances and concentrate service during peak travel periods: the morning and evening commute. Some regions are experimenting with trains that run more frequently, with non-diesel technologies or with diesel multiple units (DMUs).

This system often is used to connect medium- to low-density passenger environments to the center city. Lines can extend 30 or more miles long with stations from two to five miles apart. Commuter rail trips are generally longer than LRT or BRT trips and are often served by local buses and park-and-ride lots.

Commuter rail is an attractive option where an available railroad exists and the tracks can be shared. While sharing tracks reduces the capital cost (as compared to building the new tracks) commuter rail train schedules and the amount of service provided can be compromised by having to share tracks with intercity passenger and rail freight trains.

Diesel Multiple Units

A Diesel Multiple Unit (DMU) is a diesel-fueled, self-propelled commuter rail vehicle designed to operate on standard U.S. rail lines. It offers many advantages of heavy rail transit but, since it can utilize existing railroads, it can reduce capital costs by taking advantage of existing railroads. DMUs are common in Europe but have not met US standards to operate on freight lines until recently. Now they are being manufactured and implemented in commuter rail systems around the country.

One advantage of DMUs is that they are incredibly fuel-efficient. Another advantage is the supply can be matched a lot better to demand, without affecting the frequency of trains. Since each train has its own engine, trains of one or two cars can provide service to remote areas if necessary. DMUs are bidirectional as well, so turn around time is saved compared to a standard locomotive.

Tollways

A tollway has smoothly flowing traffic, with no traffic lights or intersections. To exit or enter a tollway drivers utilize slip-roads. A tollway is a divided highway that features two or more traffic lanes in each direction, with opposing traffic separated by a median strip; elimination of grade crossings; controlled entries and exits; and advanced designs eliminating steep grades, sharp curves, and other hazards and inconveniences to driving. Generally freeways and tollways share many of the same elements; however, users pay a fee to use a tollway. Because of this, they tend to have trips that are longer, and higher peak traffic flows. If there is a parallel freeway drivers avoid the toll road except at times of congestion.

Freeways

Characteristics of a freeway are high volumes, restricted access and fairly high speeds. A freeway is a roadway with two or more lanes in each direction of travel with full control of access. Essential freeway elements include medians, grade separations at cross streets, and ramp connections for entrance to and exit from the through pavements. They are similar to construction to toll roads; there is no charge for using the facility. Because of this, in urban areas are used for short in-town trips as well as long distance trips. Sometimes capacity is added to freeways by including High Occupancy Vehicle lanes (HOV).

Highways

A highway is defined as a divided roadway by means of intermittent barriers or a dividing section. They are major roads, many times in rural areas, but frequently passing through urban areas where points of entrance and exit for traffic are limited and controlled. A highway may have median strips and more than two traffic lanes in either direction. It also has traffic lights, intersections and crossroads.

Arterials

By definition, an arterial is a main thoroughfare that carries the majority of the traffic volume through an area. These roads distribute traffic between the various residential, industrial and principal business districts of the town and form the link between the primary network and the roads within residential areas. They also carry fairly high volumes of traffic and be characterised by moderate speeds. They are often used for bus routes as well.

Boulevards

When arterials run in urban areas, boulevards can provide an attractive and efficient multi modal corridor. Through traffic is separated from local traffic, speeds are generally lower, and wide sidewalks and buildings close to the street provide for active main street environments. Traffic calming devices reduce traffic speeds and through trips. Traffic controls also limit conflicts between motorists, pedestrians and bicyclists.

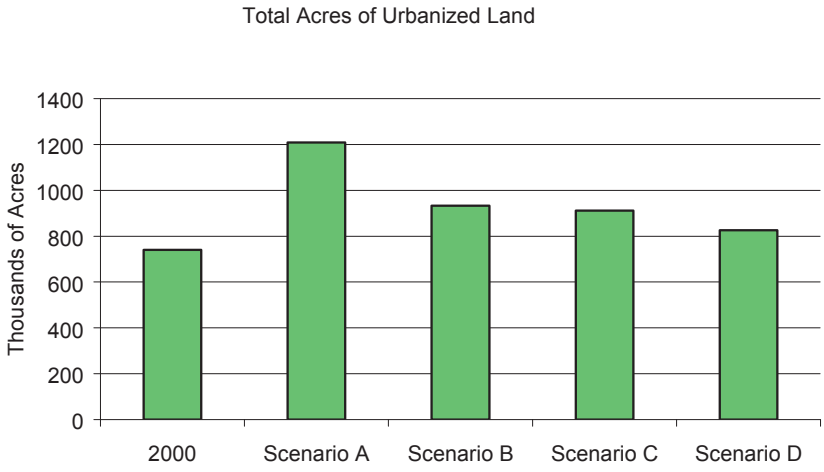
Boulevards are auto related semi-local routes that are designed to match mixed use urban development. In many cases a boulevard can be split into a couplet of one-way streets, eliminating time consuming left turns. Public transit, such as light rail or Bus Rapid Transit (BRT), can be located on either side of the lanes for automobile traffic, many times in the same right of way.

APPENDIX IV : INDICATOR "ONE SHEETS"

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.



Indicator	Total Urbanized Acres	Incremental Acres
2000	740,563	-
Scenario A	1,208,841	468,278
Scenario B	932,982	192,418
Scenario C	911,340	170,777
Scenario D	825,346	84,783

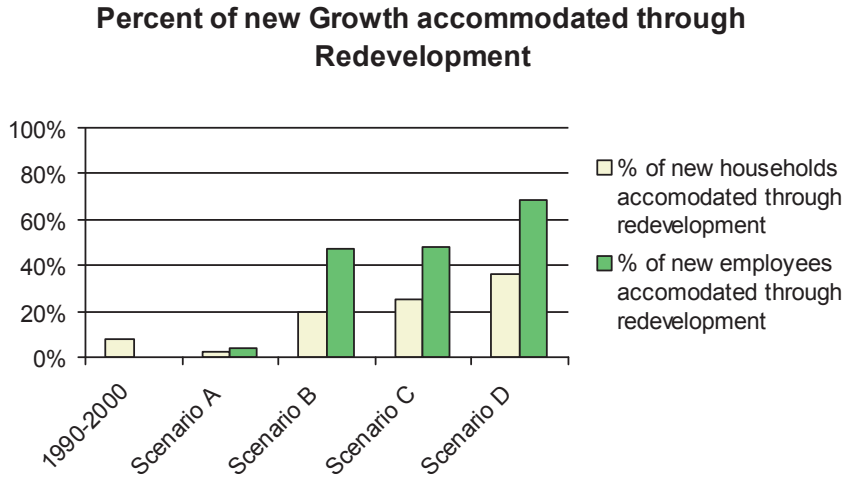
How was it measured?

Each scenario consists, in part, of a map of the Austin 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.

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.



	% 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%

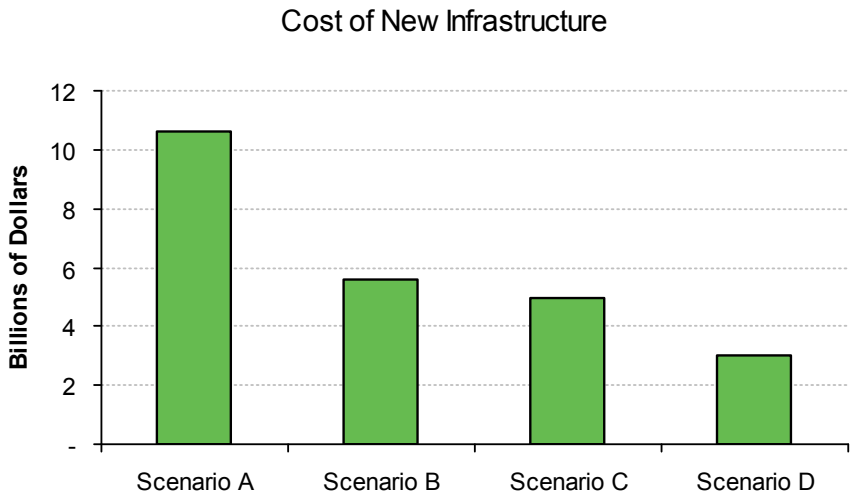
How was it measured?

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.

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

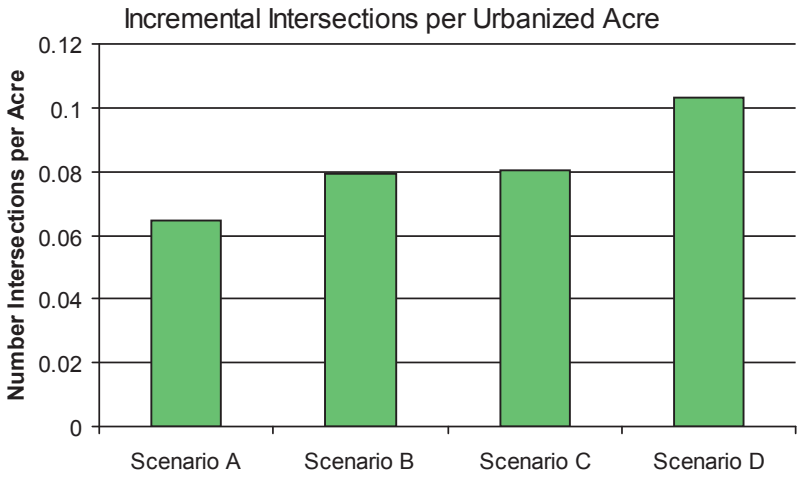
How was it measured?

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.



	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
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

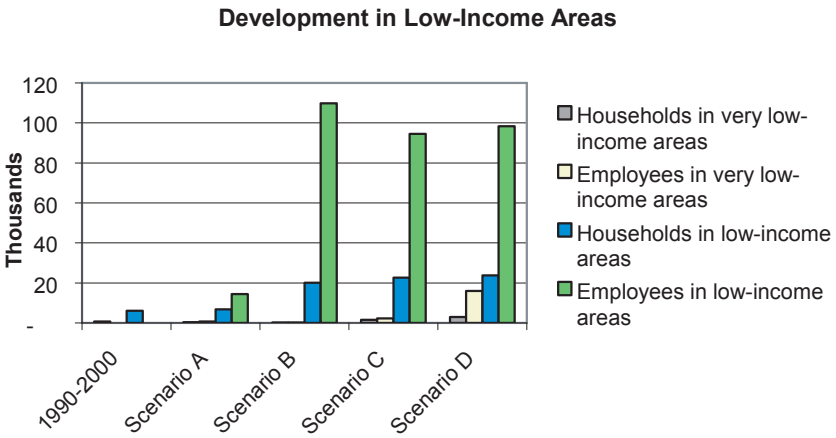
How was it measured?

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.

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.



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

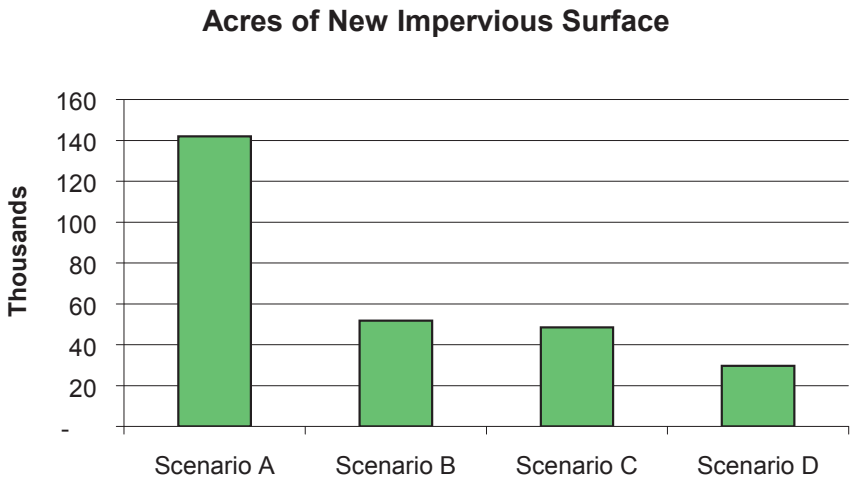
How was it measured?

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.

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.



Acres of new impervious surface	
Scenario A	141,986
Scenario B	51,733
Scenario C	48,549
Scenario D	29,591

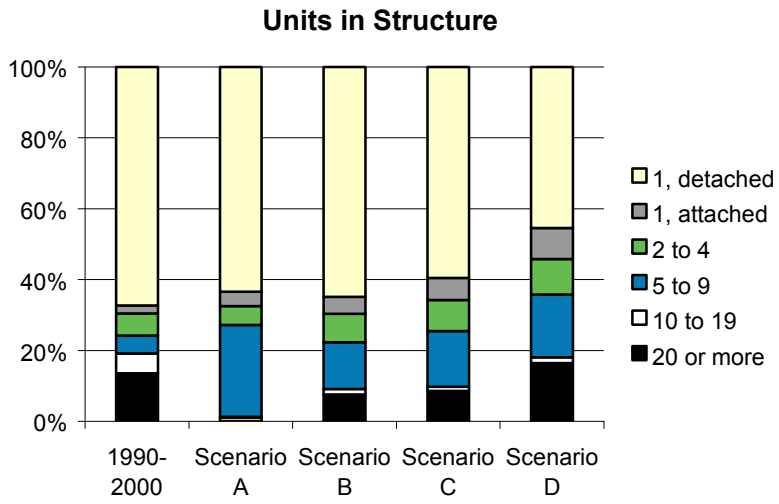
How was it measured?

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.

HOUSING UNITS BY TYPE OF STRUCTURE

What does it mean?

Housing units by type of structure indicates whether the housing in an area is single-family detached, townhouse, duplex, or apartments. It also indicates the size of the apartment buildings. This is similar to Housing Mix but is in a form used by the U.S. Census.



Total Units in Structure:							
	1, detached	1, attached	2 to 4	5 to 9	10 to 19	20 or more	Total
1990	170,054	13,428	24,791	12,334	19,768	36,257	276,632
2000	317,714	18,391	38,357	23,525	31,964	66,053	496,004
Scenario A	636,088	38,641	65,081	153,742	32,660	71,533	997,745
Scenario B	645,138	42,878	78,682	90,075	40,038	104,210	1,001,021
Scenario C	616,478	49,950	81,893	102,510	37,802	109,319	997,952
Scenario D	529,682	59,284	84,953	106,083	39,701	142,654	962,357
1990-2000	147,660	4,963	13,566	11,191	12,196	29,796	219,372
Scenario A Increment	318,374	20,250	26,724	130,217	696	5,480	501,741
Scenario B Increment	327,424	24,487	40,325	66,550	8,074	38,157	505,017
Scenario C Increment	298,764	31,559	43,536	78,985	5,838	43,266	501,948
Scenario D Increment	211,968	40,892	46,596	82,558	7,737	76,602	466,353
1990	61.5%	4.9%	9.0%	4.5%	7.2%	13.1%	
2000	64.1%	3.7%	7.7%	4.7%	6.4%	13.3%	
Scenario A	63.8%	3.9%	6.5%	15.4%	3.3%	7.2%	
Scenario B	64.5%	4.3%	7.9%	9.0%	4.0%	10.4%	
Scenario C	61.8%	5.0%	8.2%	10.3%	3.8%	11.0%	
Scenario D	55.0%	6.2%	8.8%	11.0%	4.1%	14.8%	
1990-2000	67.3%	2.3%	6.2%	5.1%	5.6%	13.6%	
Scenario A Increment	64.0%	4.0%	5.0%	26.0%	0.0%	1.0%	
Scenario B Increment	65.0%	5.0%	8.0%	13.0%	2.0%	7.0%	
Scenario C Increment	60.0%	6.0%	9.0%	15.0%	1.0%	9.0%	
Scenario D Increment	45.0%	9.0%	10.0%	18.0%	2.0%	16.0%	

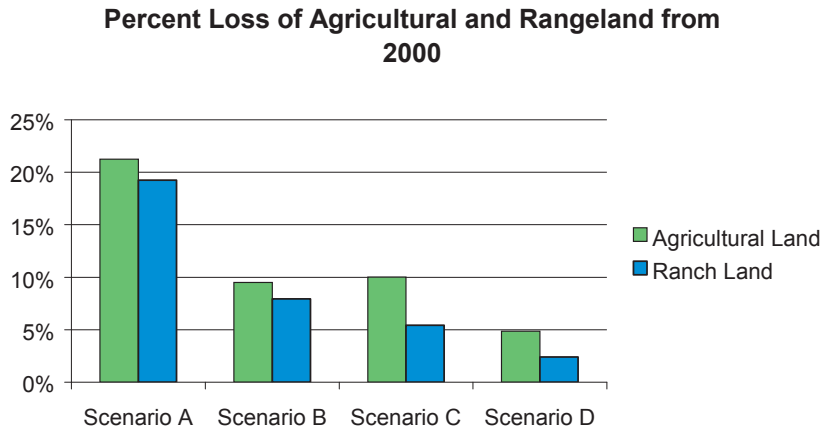
How was it measured?

Each scenario contains a different mix of development types, and each development type is composed of a certain mix of building types, which are defined to contain a certain number of dwelling units per acre. For each scenario, the number of acres in each development type is summarized, and the number of acres in each building type is calculated. Acres of building types are multiplied by dwelling units per acre to get dwelling units by building type. Each building type is then categorized by the number of units it contains.

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.



	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%

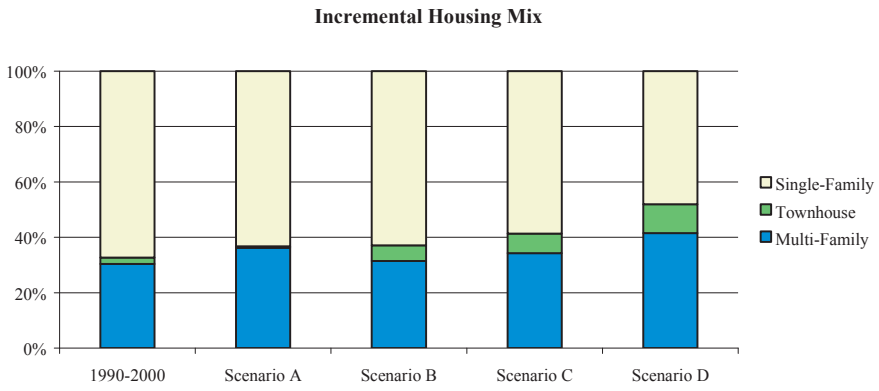
How was it measured?

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 CAPCO. 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.

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.



Scenerio	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%
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%

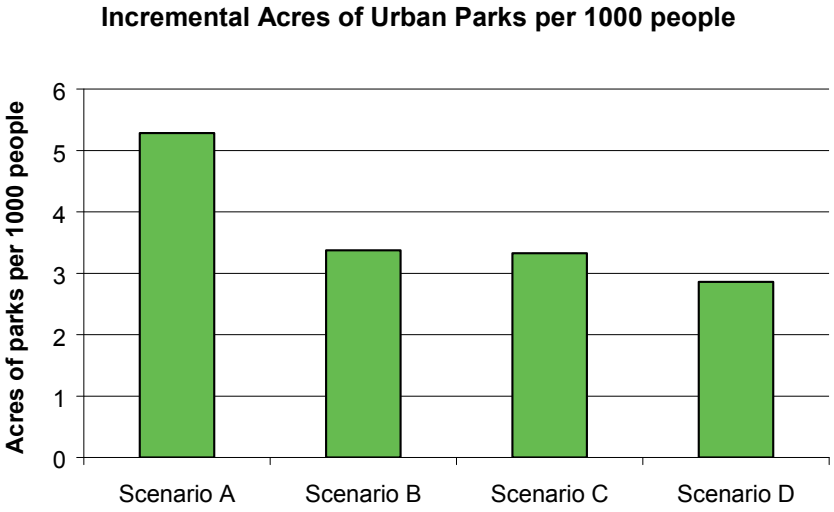
How was it measured?

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.

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.



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

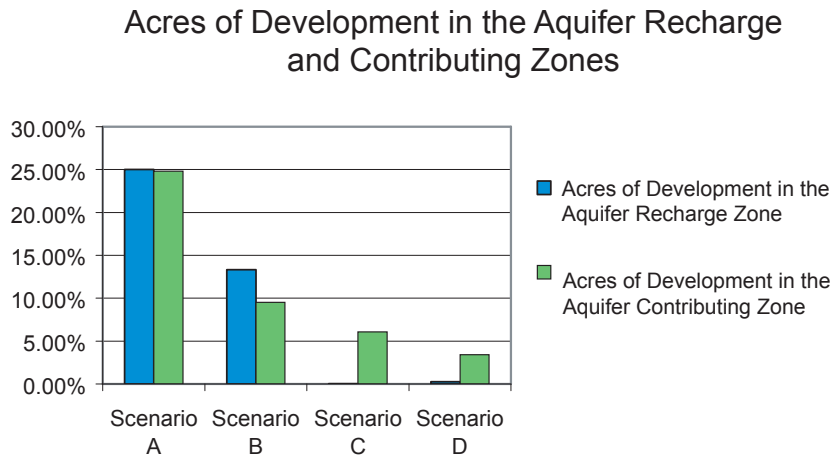
How was it measured?

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.

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.



	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%

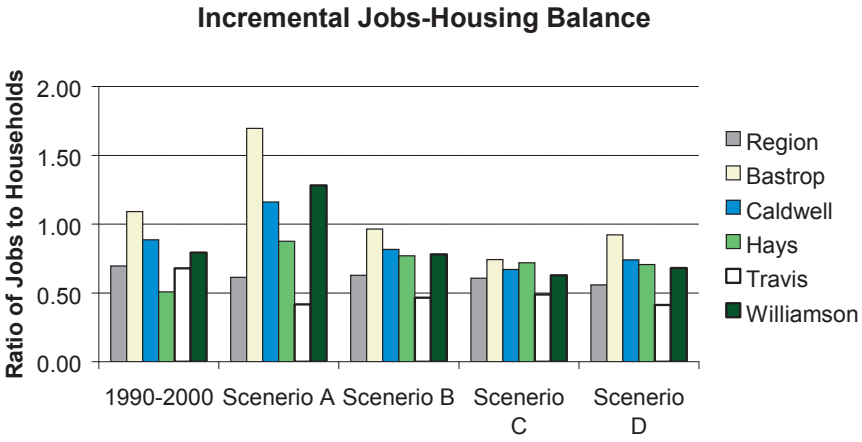
How was it measured?

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.

JOBS-HOUSING BALANCE

What does it mean?

The ratio of jobs to households in the various counties within a region can be an important indicator of the health of a region. If there exists a large mismatch between employment and housing in one or more counties, then significant incommuting and outcommuting will occur, putting pressure on the transportation system.



Jobs-Housing Balance						
	Region	Bastrop	Caldwell	Hays	Travis	Williamson
1990	2.12	0.90	1.02	1.16	2.68	1.14
2000	1.79	0.91	1.04	1.43	2.07	1.20
Scenerio A	1.71	0.71	0.94	1.26	2.22	0.94
Scenerio B	1.69	1.00	1.18	1.35	2.10	1.25
Scenerio C	1.72	1.25	1.41	1.41	2.06	1.46
Scenerio D	1.79	1.04	1.28	1.42	2.20	1.37
1990-2000	0.70	1.09	0.89	0.51	0.68	0.79
Scenerio A Increment	0.61	1.70	1.16	0.87	0.42	1.28
Scenerio B Increment	0.63	0.96	0.82	0.77	0.47	0.78
Scenerio C Increment	0.61	0.74	0.67	0.72	0.49	0.63
Scenerio D Increment	0.56	0.92	0.74	0.71	0.41	0.68

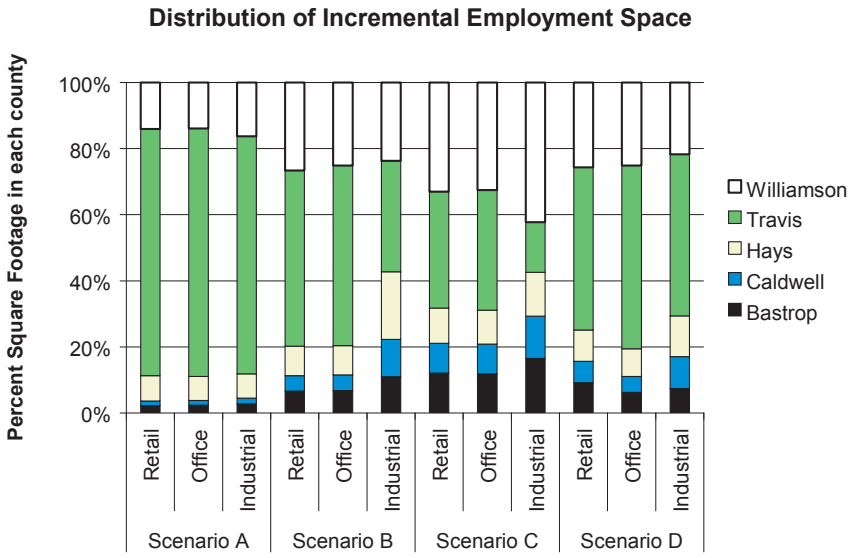
How was it measured?

For each scenario, a raster format map showing households and one showing employment are created, and the number of new households and employees in each county and the region as a whole are summarized. New employees are divided by new households to get jobs-housing balance. The jobs-housing ratio for each county is divided by the regional ratio to get the percent of average.

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.



Incremental Employment Space - Thousands of Square Feet

		Region	Bastrop	%	Caldwell	%	Hays	%	Travis	%	Williamson	%
Scenerio A	Retail	67,939	1,514	2%	928	1%	5,231	8%	50,714	75%	9,552	14%
	Office	52,327	1,245	2%	745	1%	3,800	7%	39,260	75%	7,277	14%
	Industrial	18,725	520	3%	317	2%	1,388	7%	13,448	72%	3,052	16%
Scenerio B	Retail	67,832	4,526	7%	3,140	5%	6,077	9%	36,007	53%	18,083	27%
	Office	52,221	3,560	7%	2,470	5%	4,617	9%	28,468	55%	13,106	25%
	Industrial	18,725	2,052	11%	2,113	11%	3,841	21%	6,276	34%	4,444	24%
Scenerio C	Retail	67,942	8,229	12%	6,109	9%	7,230	11%	23,928	35%	22,446	33%
	Office	52,327	6,221	12%	4,681	9%	5,386	10%	19,030	36%	17,010	33%
	Industrial	18,725	3,087	16%	2,393	13%	2,498	13%	2,835	15%	7,911	42%
Scenerio D	Retail	67,939	6,204	9%	4,423	7%	6,433	9%	33,444	49%	17,435	26%
	Office	52,327	3,252	6%	2,555	5%	4,354	8%	29,018	55%	13,148	25%
	Industrial	18,725	1,396	7%	1,804	10%	2,304	12%	9,151	49%	4,071	22%

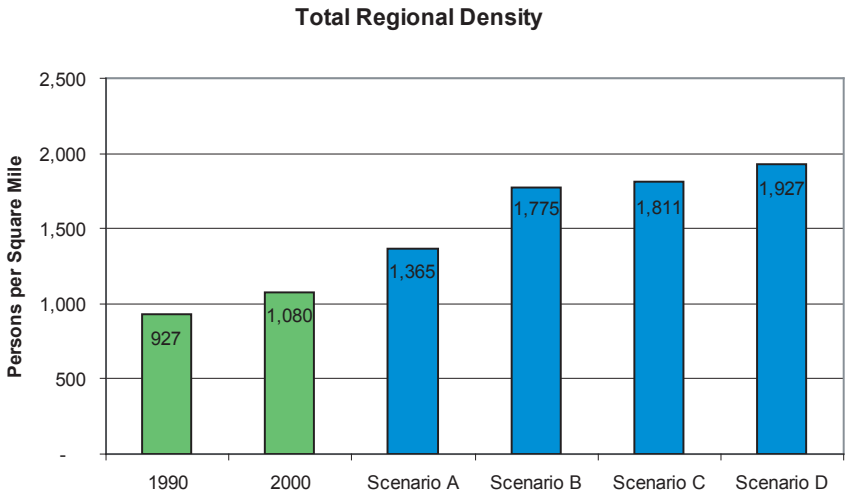
How was it measured?

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.

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.



Regional Density (persons/sq mile)	
1990	927
2000	1,080
Scenario A	1,365
Scenario B	1,775
Scenario C	1,811
Scenario D	1,927
1990-2000	1,655
Scenario A Increment	1,714
Scenario B Increment	4,199
Scenario C Increment	4,703
Scenario D Increment	8,801

How was it measured?

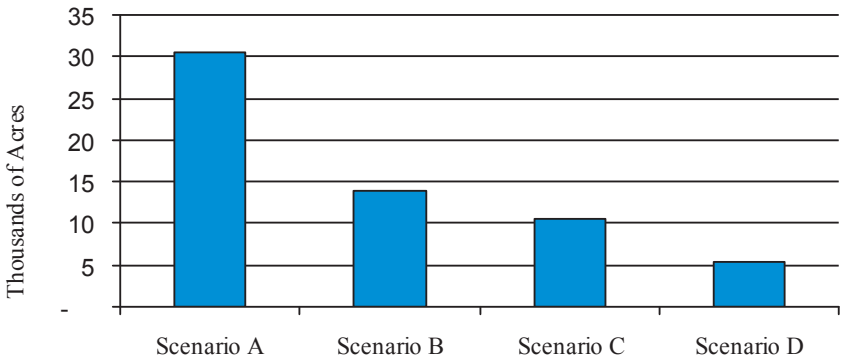
CAPCO provided an estimate of the number of people that will live in the Central Texas region by 2030 (2,500,000). Regional density was measured by dividing the number of people by the number of urbanized acres in each scenario.

ACRES OF IMPERVIOUS COVER IN AQUIFER RECHARGE AND CONTRIBUTING ZONES

What does it mean?

The amount of impervious surface has a large impact on the health and purity of water resources in an area. 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. This can be mitigated by proper development practices. Because the Edwards Aquifer feeds many creeks and streams in the Central Texas region, including Barton Springs, the amount of impervious surface is of particular importance in the areas that replenish the aquifer.

New Impervious Cover in Aquifer Recharge & Contributing Zones



New Impervious Cover in Aquifer Recharge and Contributing Zones		
	Acres	% of Total Area of Zones
Scenario A	30,437	5%
Scenario B	13,854	2%
Scenario C	10,492	2%
Scenario D	5,330	1%

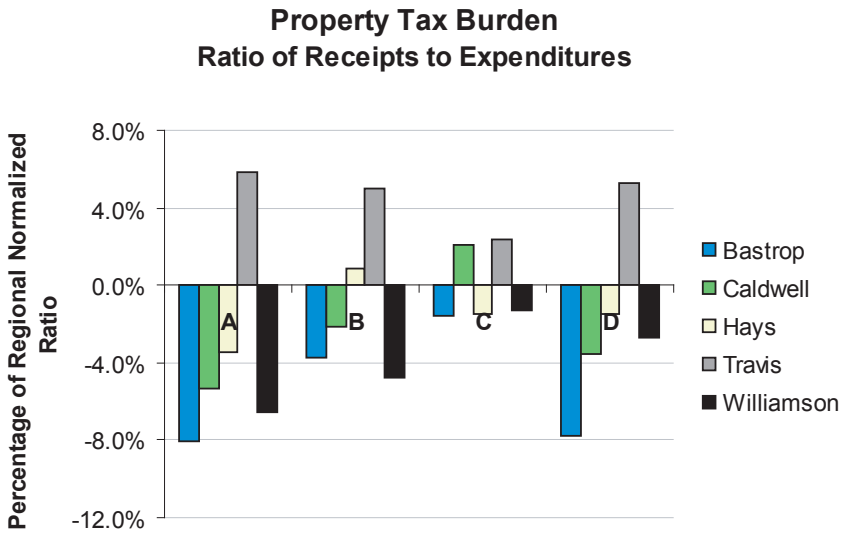
How was it measured?

For each scenario, a raster format map 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 in the aquifer recharge and contributing zones is calculated by summarizing the grid cells of each development type within the aquifer recharge and contributing zones and multiplying them by the impervious surface percentage for that development type.

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.



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

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

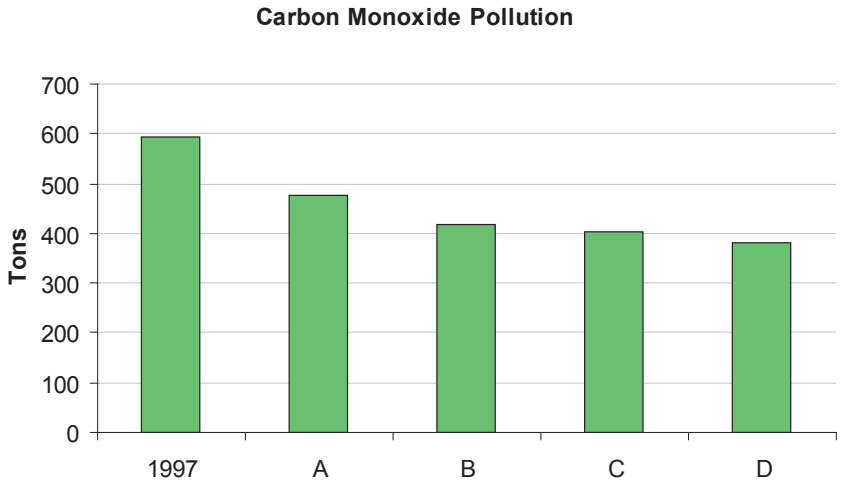
How was it measured?

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.

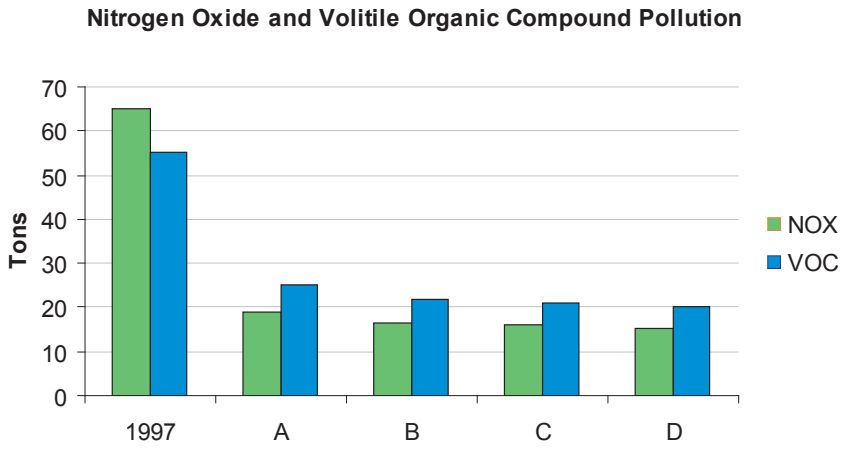
AIR QUALITY

What does it mean?

The total Volatile Organic Compounds (VOC), Carbon Monoxide (CO), and Nitrogen Oxide (NOX) emitted in tons are the measures for air quality. Ground-level ozone, a compound that degrades air quality, results from chemical reactions of these ozone precursors. As reported below, these emissions levels represent the PM peak hour. All the scenarios have greatly improved air quality compared to today. Carbon Monoxide is not a pollutant that exceeds standards today in Central Texas.



Air Pollution (tons)			
	NOX	VOC	CO
1997	65.0	55.1	592.1
A	19.0	25.1	476.4
B	16.6	22.0	417.8
C	16.0	21.2	402.1
D	15.2	20.0	381.0



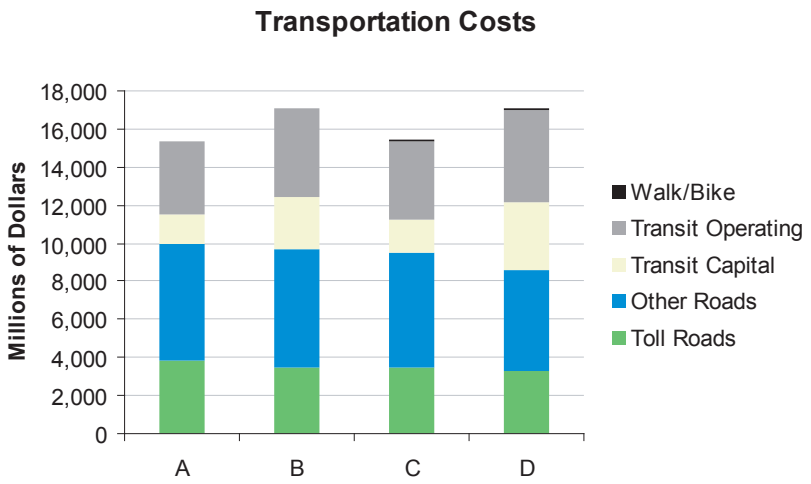
How was it measured?

The emission factors for NOx and VOCs are outputs from the MOBILE model sponsored by the U.S. EPA. Traffic volumes and speeds by link and by time of day are extracted from the transport model and are factored by emission rates. In addition to vehicle speed, emission factors are sensitive to vehicle characteristics, meteorological data, and emission control strategies. Some of these data were not available for the region, and as such national level data were substituted. The model used in recent conformity determinations is MOBILE5b.

CAPITAL AND OPERATING COSTS OF TRANSPORTATION

What does it mean?

Compiling the capital and operating costs of a transportation system is a useful exercise because it helps show where money is being spent and what a community's priorities are. For this analysis, approximately the same amount was spent in each scenario. Each scenario contains almost the same amount in new Toll roads. Most of the differences in the scenarios are a shift from "other roads" to transit capital and operating costs. Road maintenance and operating costs are not included.



Capital and Operating Costs of Transportation

	Toll Roads	Other Roads	Transit Capital	Transit Operating	Walk/Bike
A	$3,813,177,370	$6,190,822,630	$1,527,152,163	$3,825,173,940	
B	$3,480,177,370	$6,231,822,630	$2,732,428,331	$4,618,428,896	
C	$3,460,069,565	$6,029,930,435	$1,718,739,829	$4,144,371,936	$100,000,000
D	$3,293,069,585	$5,326,930,435	$3,505,470,107	$4,875,487,816	$100,000,000

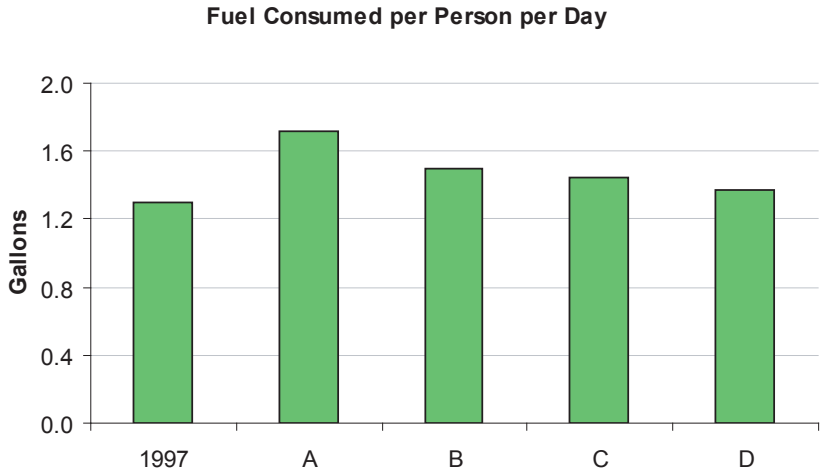
How was it measured?

Roadway and transit capital and operating costs were based on local data, whenever available. Estimates from earlier years were converted to 2003 dollars. Where project-specific estimates were not available, average costs were developed from local data where possible. For example, an average number was estimated for a lane mile of roadway capacity. Where local estimates were not available, e.g. bus rapid transit, numbers were adapted from comparable systems in other U.S. cities.

FUEL CONSUMPTION

What does it mean?

The scenarios differ in terms of fuel use primarily because of variation in the number of miles traveled. The four scenarios direct households and jobs to different parts of the region, resulting in variation in the number of trips made and average trip distance. In addition, different modes of travel consume different amounts of fuel (transit consumes less fuel per person than single-occupancy automobiles, while walking and biking consume zero fuel).



Fuel Consumption					
	1997	A	B	C	D
Gallons of Fuel Consumed per Person per Day	1.30	1.72	1.50	1.45	1.37

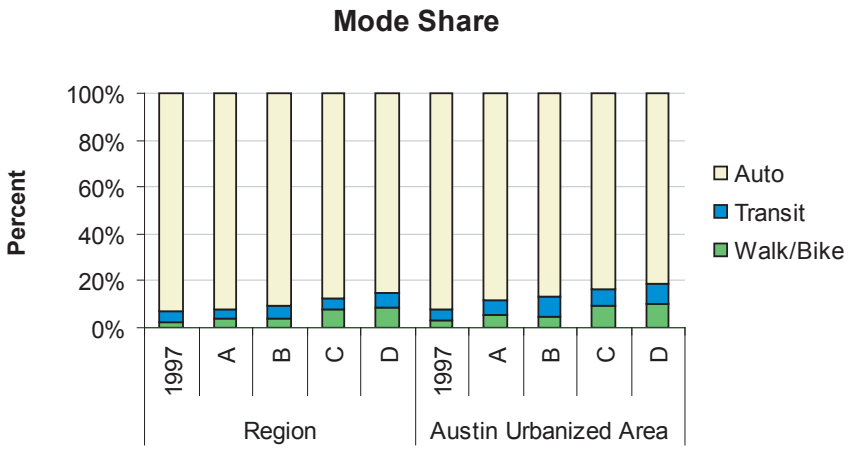
How was it measured?

The model derives the vehicle miles traveled per day by mode for each scenario. The fuel consumption is calculated by multiplying the number of miles traveled per person per day by an average fuel consumption factor for each travel mode, resulting in the number of gallons of fuel consumed per person per day.

MODE SHARE

What does it mean?

The mode share is a measure of the percent of trips made on an average day that are made by the various modes—walking, transit, and auto. Even small changes in the share of trips made by automobile can make a big difference in congestion levels for those who are driving, especially in areas of congested corridors .



Mode Share						
		1997	A	B	C	D
Region	Walk/Bike	3%	4%	4%	8%	9%
	Transit	4%	4%	6%	4%	6%
	Auto	93%	92%	91%	88%	85%
Austin Urbanized Area	Walk/Bike	3%	5%	5%	10%	10%
	Transit	5%	7%	9%	6%	9%
	Auto	92%	88%	87%	84%	81%

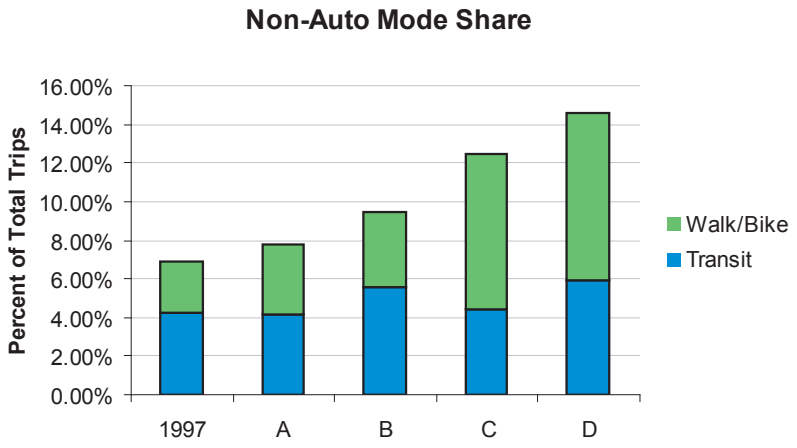
How was it measured?

The demographic, travel behavior, and transport infrastructure data for each scenario are used as model input. The travel demand model uses these inputs, including the service characteristics of each mode, to calculate a probability of a trip choosing each mode. Choices are summed to determine the total probability of use by mode.

MODE SHARE (NON AUTO)

What does it mean?

The non auto mode share is a measure of the percent of trips made on an average day that are made by walking or by transit. The higher the non-auto mode share, the more capacity to carry people the roads will have. Transit trips consolidate many travelers to a single vehicle, and walk trips do not use congested transportation infrastructure. Conversely, smaller walk and transit mode shares suggest higher use of private autos for trip making.



Mode Share						
		1997	A	B	C	D
Region	Transit	4.28%	4.14%	5.58%	4.43%	5.89%
	Walk/Bike	2.65%	3.68%	3.85%	8.02%	8.69%
Austin Urbanized Area	Transit	4.88%	6.58%	8.65%	6.43%	8.87%
	Walk/Bike	3.16%	5.46%	4.78%	9.65%	9.77%

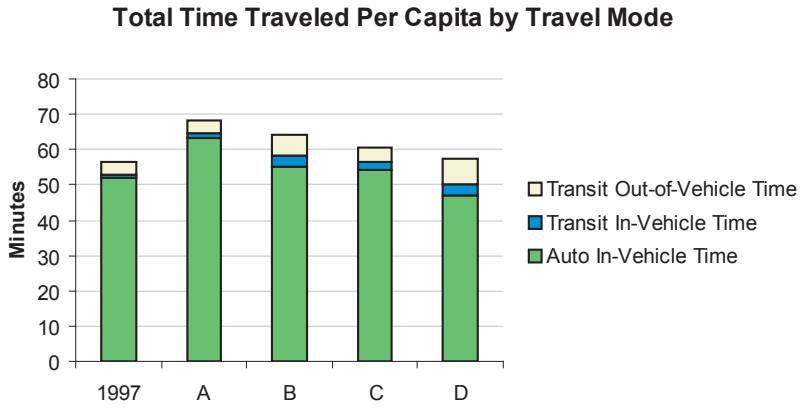
How was it measured?

The demographic, travel behavior, and transport infrastructure data for each scenario are used as model input. The travel demand model uses these inputs, including the service characteristics of each mode, to calculate a probability of a trip choosing each mode. Choices are summed to determine the total probability of use by mode.

TRAVEL TIME BY TRAVEL MODE

What does it mean?

Total time spent traveling is an estimate of the amount of time an average individual spends traveling during an average 24 hour period. This measure is a good indicator of transportation system efficiency at connecting people with their destinations. This can result from both better proximity of trip ends and less congested travel. The less time spent traveling, the more efficient the system. When considering the components of travel time, alternatives with more transit time and less auto time result in less congestion generally.



Total Time Traveled Per Capita by Travel Mode

	Auto In-Vehicle Time	Transit In-Vehicle Time	Transit Out-of-Vehicle Time	Total Travel Time
1997	52.11	0.99	3.25	56.34
A	63.09	1.74	3.33	68.16
B	55.32	2.95	6.09	64.36
C	54.35	2.18	4.10	60.62
D	47.00	3.37	6.92	57.28

How was it measured?

Out of vehicle time is the sum of walk time, wait time and transfer time. Transit time and auto time are the time spent actually moving by each mode. Auto time is calculated by the methods discussed in that section. Transit out of vehicle time and transit in vehicle time are calculated based on the estimates of mode share and service characteristics. These factors are combined with trip matrix data for transit trips to determine the total person-time spent in transit in-vehicle and out-of-vehicle time. These values are divided by the total regional population to arrive at the average time per person per day.

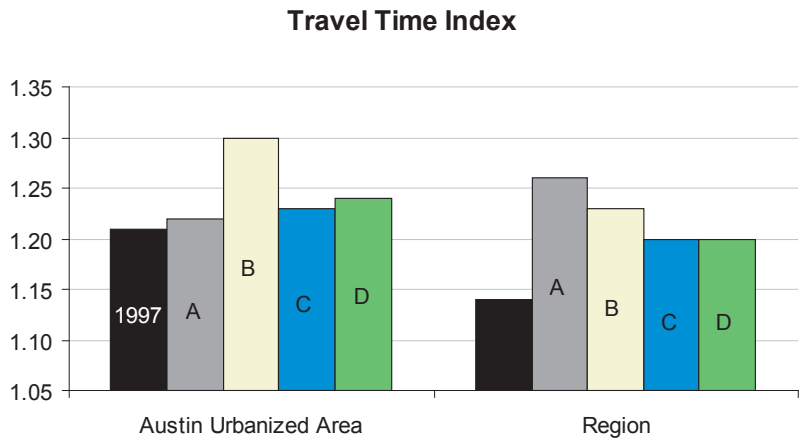
TRAVEL TIME INDEX

What does it mean?

The Texas Transportation Institute has created a measure of congestion called the Travel Time Index (TTI) that calculates the ratio of peak period travel time to free-flow travel time. The TTI expresses the average amount of extra time it takes to travel in the peak relative to free-flow travel. A TTI of 1.3, for example, indicates a 20-minute off-peak trip will take 26 minutes during the peak travel periods.

Travel Time Index

	Austin Urbanized Area	Region
1997	1.21	1.14
A	1.22	1.26
B	1.30	1.23
C	1.23	1.20
D	1.24	1.20



How was it measured?

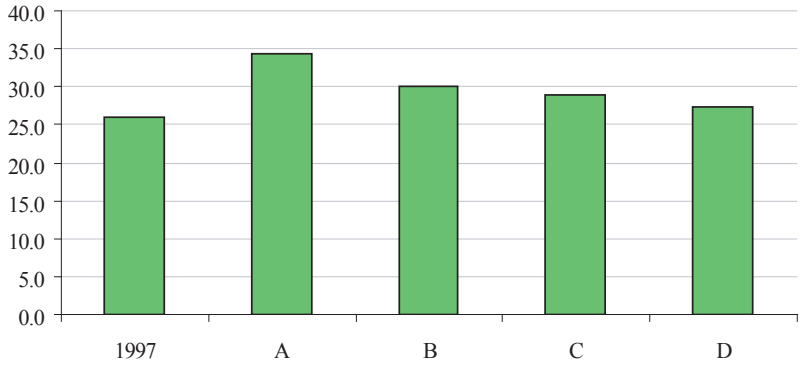
For each link in the transportation network, the model generates the amount of time it takes to travel that link given the average road conditions in each scenario. The TTI is calculated by dividing each scenario's modeled travel time by the time it takes to travel the link when traffic is free-flowing.

VEHICLE MILES OF TRAVEL PER CAPITA

What does it mean?

Vehicle Miles Traveled (VMT) per person per day is the average distance traveled by a single person in a 24 hour period. This can reflect the spatial relationship between residence and employment or other destinations. Lower average VMT often reflects a better spatial match between residence and employment, while higher average VMT can indicate a spatial mismatch between place of residence and place of employment. VMT per person per day also will be lower when non-auto mode share (walk and transit) increases.

Vehicle Miles of Travel per Capita



Vehicle Miles of Travel per Capita	
1997	26.0
A	34.3
B	30.1
C	29.0
D	27.4

How was it measured?

The traffic volumes on each road network link are calculated using travel demand modeling software. The demographic, travel behavior, and transport infrastructure data for each scenario are used as model input. Each link volume is multiplied by the average vehicle occupancy rate in the region. This value is multiplied by the length of each link to determine the person-miles traveled on each network link. All these values are added and then divided by the total regional population to determine the average VMT per person per day.

APPENDIX V : INDICATOR MATRIX

Indicators (TOTAL)

Indicator	1990	CURRENT	Basecase (Scenario A)	Scenario B	Scenario C	Scenario D
EFFICIENT GROWTH						
Urbanized Acres						
Bastrop	128,641	166,526	237,337	193,398	195,205	176,141
Caldwell	103,113	107,913	130,775	124,237	135,278	115,621
Hays	69,894	89,187	172,294	115,157	111,114	101,760
Travis	150,657	182,148	292,542	248,190	216,692	207,325
Williamson	126,752	194,789	375,893	251,999	253,050	224,499
Region	584,471	740,563	1,208,842	932,982	911,340	825,346
Urbanized Acres per 1000 people	691	593	469	361	353	332
Regional Density (persons / sq mile)	927	1,080	1,365	1,775	1,811	1,927
Intersections		47,614	77,761	62,849	61,368	56,383
Intersections/Urbanized Acre		0.0643	0.0643	0.0674	0.0673	0.0683
TRANSPORTATION						
Vehicle Miles Traveled per capita		26.0	34.3	30.1	29.0	27.4
Average Trip Time--Region						
AM Period		18.02	21.69	19.47	20.41	18.1
MID Period		11.9	13.31	12.19	12.72	11.16
OP Period		12.6	13.76	12.72	13.47	11.87
PM Period		13.95	16.02	14.83	15.26	13.61
Average Trip Time--Austin Urbanized Area						
AM Period (from AUA)		12.63	14.35	12.57	13.43	13.22
PM Period (to AUA)		10.33	11.31	10.96	11.14	11.06
Average Trip Time for AM Period						
Bastop		45.06	47.2	36.73	30.18	33.82
Caldwell		35.53	38.48	31.49	25.19	24.49
Hays		28.33	31.53	26.61	29.31	26.23
Travis		15.78	20.24	17.83	19.33	17.47
Williamson		29.96	30.37	25.52	25.7	24.74
Number of AM Vehicle Work Trips						
Bastop		13,514	35,322	48,404	61,790	47,293
Caldwell		6,921	15,705	27,243	38,536	26,328
Hays		22,190	60,363	62,120	66,702	59,632
Travis		202,991	388,528	332,995	297,038	317,661
Williamson		51,318	154,555	154,470	165,657	151,514

Total Time Spent in Travel			total (thousands of minutes)	minutes per capita	total (thousands of minutes)	minutes per capita	total (thousands of minutes)	minutes per capita	total (thousands of minutes)	minutes per capita	total (thousands of minutes)	minutes per capita
Auto Person Minutes			59,924	52	151,412	63	132,770	55	130,431	54	112,789	47
Walk Access Transit Minutes			4,394		11,077		19,897		13,781		22,976	
In Vehicle Time/Out of Vehicle Time			1,064	3,331	3,811	7,266	6,592	13,305	4,798	8,983	7,617	15,359
Drive Access Transit Minutes			477		1,088		1,798		1,281		1,718	
In Vehicle Time/Out of Vehicle Time			75	402	360	728	488	1,311	430	851	459	1,259
Total Transit Minutes			4,871	4	12,165	5	21,695	9	15,062	6	24,694	10
In Vehicle Time/Out of Vehicle Time			1,139	3,733	4,171	7,995	7,080	14,615	5,228	9,835	8,076	16,618
Total Travel Time Minutes			64,795	56	163,577	68	154,465	64	145,494	61	137,483	57
Travel Time Index			1.14		1.26		1.23		1.20		1.20	
Austin Urbanized Area			1.21		1.22		1.30		1.23		1.24	
Vehicle Hours of Delay			94,327		412,760		321,741		278,082		249,408	
Mode Share--Region			5,054,882		11,081,498		10,945,400		10,858,445		10,700,006	
Walk/Bike			134,010	3%	407,483	4%	420,885	4%	870,497	8%	929,589	9%
Drive to Transit			10,021	0.20%	16,504	0.15%	31,489	0.29%	19,246	0.18%	30,543	0.29%
Walk to Transit			206,076	4%	442,140	4%	579,631	5%	461,839	4%	599,659	6%
Auto			4,704,775	93%	10,215,371	92%	9,913,395	91%	9,506,863	88%	9,140,215	85%
Mode Share--Austin Urbanized Area			3,366,495		3,125,564		3,947,006		3,703,895		4,085,862	
Walk/Bike			106,434	2%	170,505	2%	188,488	2%	357,467	3%	399,176	4%
Drive to Transit			6,646	0.13%	4,155	0.04%	12,261	0.11%	6,151	0.06%	12,678	0.12%
Walk to Transit			157,514	3%	201,532	2%	329,191	3%	232,109	2%	349,559	3%
Auto			3,095,901	61%	2,749,372	25%	3,417,066	31%	3,108,168	29%	3,324,449	31%
Total Regional CO (tons/day)			65.0		19.0		16.6		16.0		15.2	
Total Regional NOX (tons/day)			55.1		25.1		22.0		21.2		20.0	
Total Regional VOC (tons/day)			592.1		476.4		417.8		402.1		381.0	
Gallons of Fuel Consumed per Person per Day			1.30		1.72		1.50		1.45		1.37	
Average Cost of Average Commute			$2.39		$3.19		$2.91		$2.90		$2.84	
Austin Urbanized Area			$1.78		$2.39		$2.11		$2.24		$2.18	
Bastrop			$4.22		$2.87		$3.79		$3.37		$3.75	
Caldwell			$3.78		$3.93		$3.42		$2.53		$2.59	
Hays			$3.36		$3.62		$2.97		$3.35		$3.10	
Travis			$1.79		$2.46		$2.31		$2.49		$2.31	
Williamson			$3.16		$4.08		$3.64		$3.26		$3.38	
Capital and Operating Costs (millions of $)												
Toll Roads					$3,813.18		$3,480.18		$3,460.07		$3,293.07	
Other Roads					$6,190.82		$6,231.82		$6,029.93		$5,326.93	
Transit Capital					$1,527.15		$2,732.43		$1,718.74		$3,505.47	
Transit Operating					$3,825.17		$4,618.43		$4,144.37		$4,875.49	
Walk/Bike					$0.00		$0.00		$100.00		$100.00	

SHARED PROSPERITY												
Median Household Income												
Bastrop			43,578									
Caldwell			36,573									
Hays			45,006									
Travis			46,761									
Williamson			60,642									
Households in concentrated low-income areas (Blockgroups with median household income < 25% of the county MHI)	4,718		5,383		5,688		5,471		6,988		8,353	
Employees in concentrated low-income areas (Blockgroups with household income < 25% of the county MHI)			5,487		6,240		5,560		7,782		21,529	
Households in low-income areas (Blockgroups with household income < 50% of the county MHI)	22,579		28,660		35,518		48,783		51,241		52,425	
Employees in low-income areas (Blockgroups with household income < 50% of the county MHI)			64,092		78,528		173,840		158,646		162,499	
JOBS AND HOUSING												
Population by County		% of region		% of region		% of region		% of region		% of region		% of region
Bastrop	38,263	4.52%	57,733	4.62%	152,254	5.90%	213,768	8.26%	273,003	10.58%	213,610	8.60%
Caldwell	26,392	3.12%	32,194	2.58%	72,505	2.81%	131,508	5.08%	183,654	7.12%	132,056	5.31%
Hays	65,614	7.75%	97,589	7.81%	251,701	9.76%	270,877	10.47%	281,241	10.90%	247,878	9.98%
Travis	576,407	68.11%	812,280	64.99%	1,457,258	56.51%	1,313,546	50.77%	1,168,349	45.30%	1,287,200	51.80%
Williamson	139,551	16.49%	249,967	20.00%	675,873	26.21%	711,092	27.48%	747,343	28.98%	651,990	26.24%
Region	846,227		1,249,763		2,578,685		2,587,359		2,579,233		2,484,953	
Households by County		% of region		% of region		% of region		% of region		% of region		% of region
Bastrop	13,435	5.51%	20,097	4.26%	53,000	5.44%	74,413	7.62%	95,033	9.76%	74,358	7.93%
Caldwell	8,768	3.60%	10,816	2.29%	24,359	2.50%	44,182	4.52%	61,701	6.34%	44,366	4.73%
Hays	22,165	9.09%	33,410	7.08%	86,171	8.85%	92,736	9.49%	96,284	9.89%	84,862	9.05%
Travis	158,112	64.88%	320,766	67.98%	575,465	59.11%	518,714	53.10%	461,376	47.38%	508,310	54.18%
Williamson	41,235	16.92%	86,766	18.39%	234,602	24.10%	246,827	25.27%	259,410	26.64%	226,312	24.12%
Region	243,715		471,855		973,597		976,872		973,804		938,208	
Average Household Size by County												
Bastrop	2.85		2.87									
Caldwell	3.01		2.98									
Hays	2.96		2.92									
Travis	3.65		2.53									
Williamson	3.38		2.88									
Region	3.47		2.65									

Indicators (INCREMENT)

Indicator	1990-2000		Basecase (Scenario A) Increment		Scenario B Increment		Scenario C Increment		Scenario D Increment	
EFFICIENT GROWTH										
New Development on Vacant Land (acres)				% Increase		% Increase		% Increase		% Increase
Bastrop	37,885		70,811	43%	26,872	16%	28,679	17%	9,615	6%
Caldwell	4,800		22,862	21%	16,324	15%	27,365	25%	7,708	7%
Hays	19,293		83,108	93%	25,970	29%	21,928	25%	12,573	14%
Travis	31,491		110,394	61%	66,042	36%	34,544	19%	25,177	14%
Williamson	68,037		181,104	93%	57,210	29%	58,261	30%	29,710	15%
Region	156,093		468,278	63%	192,418	26%	170,777	23%	84,783	11%
Population	403,536		1,254,355		1,262,543		1,254,873		1,165,883	
New Urbanized Acres Consumed per 1000 people	387		373		152		136		73	
Regional Density (persons / sq mile)	1,655		1,714		4,199		4,703		8,801	
New Households on Vacant Land										
Bastrop	6,662		32,831		48,958		58,939		37,060	
Caldwell	2,048		13,482		27,519		38,913		23,258	
Hays	11,245		52,527		50,444		48,972		35,671	
Travis	144,403		242,577		157,401		92,757		119,407	
Williamson	45,531		147,581		119,972		134,823		82,645	
Region	209,889		488,998		404,294		374,404		298,041	
New Employment on Vacant Land										
Bastrop			19,323		50,145		76,241		25,974	
Caldwell			11,569		37,035		51,671		20,600	
Hays			59,862		65,586		60,669		33,646	
Travis			583,895		182,435		85,787		137,392	
Williamson			115,121		89,451		153,530		48,207	
Region			789,770		424,652		427,898		265,819	

New Households on Developed Land										
Bastrop	0		72		5,358		15,997		17,201	
Caldwell	0		61		5,847		11,972		10,292	
Hays	0		234		8,882		13,902		15,781	
Travis	18,251		12,122		40,547		47,853		68,137	
Williamson	0		255		40,089		37,821		56,901	
Region	18,251		12,744		100,723		127,545		168,312	
New Employment on Developed Land										
Bastrop			71		6,202		24,651		32,943	
Caldwell			109		3,901		24,334		24,687	
Hays			476		11,584		26,865		39,206	
Travis			28,764		243,246		201,863		316,992	
Williamson			353		115,869		121,265		156,757	
Region			29,773		380,802		398,978		570,585	
Percent of new development occurring through infill development or redevelopment										
% of HH accommodated through redevelopment	8%		3%		20%		25%		36%	
% of employees accommodated through redevelopment			4%		47%		48%		68%	
Amount of new development that is mixed-use versus separate use				% of total development		% of total development		% of total development		% of total development
Acres of mixed-use development			4,210	1%	10,543	5%	13,877	8%	20,222	21%
% of HH accommodated through mixed-use development			14,905	3%	168,315	34%	201,953	40%	292,800	59%
% of employees accommodates through mixed-use development			32,053	4%	452,304	55%	454,009	55%	677,132	82%
Cost of Infrastructure (Millions of $)			10,675		5,682		5,098		3,241	
Intersections			30,147		15,235		13,754		8,769	
Intersections/Urbanized Acre			0.0644		0.0792		0.0805		0.1034	

SHARED PROSPERITY										
Households in concentrated low-income areas (Blockgroups with median household income < 25% of the county MHI)	665		305		88		1,605		2,970	
Employees in concentrated low-income areas (Blockgroups with household income < 25% of the county MHI)			753		73		2,295		16,042	
Households in low-income areas (blockgroups with household income < 50% of the county MHI)	6,081		6,858		20,123		22,581		23,765	
Employees in low-income areas (blockgroups with household income < 50% of the county MHI)			14,436		109,748		94,554		98,407	

JOBS AND HOUSING										
Households by County										
Bastrop	6,662		32,903		54,316		74,936		54,261	
Caldwell	2,048		13,543		33,366		50,885		33,550	
Hays	11,245		52,761		59,326		62,874		51,452	
Travis	162,654		254,699		197,948		140,610		187,544	
Williamson	45,531		147,836		160,061		172,644		139,546	
Region	228,140		501,742		505,017		501,949		466,353	
Jobs by County										
Bastrop	6,111		19,394		56,347		100,892		58,917	
Caldwell	2,314		11,678		40,936		76,005		45,287	
Hays	22,120		60,338		77,170		87,534		72,852	
Travis	239,856		612,659		425,681		287,650		454,384	
Williamson	57,365		115,474		205,320		274,795		204,964	
Region	327,766		819,543		805,454		826,876		836,404	
Jobs-Housing Balance by County										
Bastrop	0.92		0.59		1.04		1.35		1.09	
Caldwell	1.13		0.86		1.23		1.49		1.35	
Hays	1.97		1.14		1.30		1.39		1.42	
Travis	1.47		2.41		2.15		2.05		2.42	
Williamson	1.26		0.78		1.28		1.59		1.47	
Region	1.44		1.63		1.59		1.65		1.79	
Households by Subregion										
North			70,924		67,632		62,574		65,842	
Southwest			35,199		31,571		33,321		32,830	
East			68,416		75,899		70,680		72,766	
Central			85,566		79,198		59,570		62,616	
Jobs by Subregion										
North			120,640		115,174		120,706		135,383	
Southwest			64,601		87,982		73,729		84,646	
East			136,249		127,590		123,824		140,847	
Central			166,963		149,189		120,107		132,456	

Jobs-housing balance by Subregion										
North			1.70		1.70		1.93		2.06	
Southwest			1.84		2.79		2.21		2.58	
East			1.99		1.68		1.75		1.94	
Central			1.95		1.88		2.02		2.12	
Retail Employees										
Bastrop			3,994	2%	11,672	7%	21,946	12%	15,645	9%
Caldwell			2,449	1%	8,098	5%	16,293	9%	11,153	7%
Hays			13,802	8%	15,671	9%	19,281	11%	16,224	9%
Travis			133,804	75%	92,853	53%	63,812	35%	84,339	49%
Williamson			25,202	14%	46,632	27%	59,860	33%	43,968	26%
Region			179,251	100%	174,925	100%	181,192	100%	171,331	100%
Office Employees										
Bastrop			8,855	2%	25,040	7%	44,601	12%	22,834	6%
Caldwell			5,301	1%	17,372	5%	33,561	9%	17,944	5%
Hays			27,036	7%	32,474	9%	38,616	10%	30,578	8%
Travis			279,319	75%	200,226	55%	136,446	36%	203,770	55%
Williamson			51,774	14%	92,183	25%	121,960	33%	92,325	25%
Region			372,285	100%	367,294	100%	375,184	100%	367,451	100%
Industrial Employees										
Bastrop			940	3%	3,796	11%	5,428	16%	2,426	7%
Caldwell			573	2%	3,907	11%	4,208	13%	3,134	10%
Hays			2,510	7%	7,103	21%	4,393	13%	4,003	12%
Travis			24,313	72%	11,607	34%	4,985	15%	15,899	49%
Williamson			5,518	16%	8,220	24%	13,909	42%	7,073	22%
Region			33,854	100%	34,632	100%	32,922	100%	32,534	100%
Other Employees										
Bastrop			5,547	2%	15,840	7%	28,917	12%	16,397	7%
Caldwell			3,318	1%	11,559	5%	21,944	9%	12,888	6%
Hays			16,870	7%	21,923	10%	25,245	11%	20,369	9%
Travis			173,787	75%	120,994	53%	82,408	35%	122,321	53%
Williamson			32,625	14%	58,286	25%	79,067	33%	56,879	25%
Region			232,148	100%	228,602	100%	237,581	100%	228,854	100%

Square Footage of Retail Space			Square Feet (1000's)		Square Feet (1000's)		Square Feet (1000's)		Square Feet (1000's)	
Bastrop			1,514	2%	4,526	7%	8,229	12%	6,204	9%
Caldwell			928	1%	3,140	5%	6,109	9%	4,423	7%
Hays			5,231	8%	6,077	9%	7,230	11%	6,433	9%
Travis			50,714	75%	36,007	53%	23,928	35%	33,444	49%
Williamson			9,552	14%	18,083	27%	22,446	33%	17,435	26%
Region			67,939	100%	67,832	100%	67,942	100%	67,939	100%
Square Footage of Office Space										
Bastrop			1,245	2%	3,560	7%	6,221	12%	3,252	6%
Caldwell			745	1%	2,470	5%	4,681	9%	2,555	5%
Hays			3,800	7%	4,617	9%	5,386	10%	4,354	8%
Travis			39,260	75%	28,468	55%	19,030	36%	29,018	55%
Williamson			7,277	14%	13,106	25%	17,010	33%	13,148	25%
Region			52,327	100%	52,221	100%	52,327	100%	52,327	100%
Square Footage of Industrial Space										
Bastrop			520	3%	2,052	11%	3,087	16%	1,396	7%
Caldwell			317	2%	2,113	11%	2,393	13%	1,804	10%
Hays			1,388	7%	3,841	21%	2,498	13%	2,304	12%
Travis			13,448	72%	6,276	34%	2,835	15%	9,151	49%
Williamson			3,052	16%	4,444	24%	7,911	42%	4,071	22%
Region			18,725	100%	18,725	100%	18,725	100%	18,725	100%
Housing Mix--Single-Family										
Bastrop	5,639	95%	29,130	89%	40,323	74%	49,007	65%	27,925	51%
Caldwell	1,533	86%	11,163	82%	23,386	70%	34,447	68%	16,415	49%
Hays	8,397	81%	40,338	76%	43,191	73%	40,111	64%	28,259	55%
Travis	95,330	61%	120,794	47%	110,540	56%	72,204	51%	78,023	42%
Williamson	36,761	83%	116,017	78%	100,370	63%	98,434	57%	73,526	53%
Region	147,660	67%	317,442	63%	317,810	63%	294,203	59%	224,148	48%

Housing Mix--Townhouse										
Bastrop	57	1%	0	0%	1,717	3%	4,017	5%	6,176	11%
Caldwell	89	5%	0	0%	1,446	4%	2,781	5%	4,112	12%
Hays	284	3%	0	0%	2,898	5%	3,831	6%	4,758	9%
Travis	3,642	2%	2,547	1%	12,273	6%	11,982	9%	20,497	11%
Williamson	891	2%	0	0%	10,272	6%	13,221	8%	12,882	9%
Region	4,963	2%	2,547	1%	28,606	6%	35,831	7%	48,425	10%
Housing Mix--Multi-Family										
Bastrop	257	4%	3,759	11%	12,361	23%	21,901	29%	20,178	37%
Caldwell	156	9%	2,378	18%	8,512	26%	13,644	27%	12,992	39%
Hays	1,715	16%	12,400	24%	13,219	22%	18,931	30%	18,459	36%
Travis	57,898	37%	131,312	52%	75,180	38%	56,329	40%	89,038	47%
Williamson	6,723	15%	31,876	22%	49,412	31%	60,990	35%	53,119	38%
Region	66,749	30%	181,724	36%	158,684	31%	171,794	34%	193,785	42%
Total units in structure:										
1, detached	147,660	67%	318,374	63%	327,424	65%	298,764	60%	211,968	45%
1, attached	4,963	2%	20,250	4%	24,487	5%	31,559	6%	40,892	9%
2 to 4	13,566	6%	26,724	5%	40,325	8%	43,536	9%	46,596	10%
5 to 9	11,191	5%	130,217	26%	66,550	13%	78,985	16%	82,558	18%
10 to 19	12,196	6%	696	0%	8,074	2%	5,838	1%	7,737	2%
20 or more	29,796	14%	5,480	1%	38,157	8%	43,266	9%	76,602	16%

ENVIRONMENTAL STEWARDSHIP										
Acreage of new developed land in the aquifers										
Edwards Aquifer			126,261		48,412		30,951		17,326	
Edwards Recharge Zone			36,255		19,300		53		397	
Trinity Aquifer			368,076		142,769		114,719		65,911	
Carrizo Aquifer			80,314		31,825		32,601		11,772	
Acres of agricultural land consumed by development			251,004		112,402		107,572		57,404	
Acres of ranchland consumed by development			98,440		40,563		27,815		12,228	
Acres of new impervious surface	47,328		141,986		51,733		48,549		29,591	
Acres of impervious cover in the aquifers										
Edwards Aquifer	17,230		28,139		13,854		10,486		5,330	
Edwards Recharge Zone			10,584		6,151		7		103	
Trinity Aquifer			90,778		38,625		34,288		23,319	
Carrizo Aquifer			9,067		7,604		9,738		3,837	
Acres of Urban Parks			6,626		4,262		4,173		3,336	
Urban Parks per capita - Acres of parks per 1000 people			5.28		3.38		3.33		2.86	
Number of new well and septic systems installed			78,221		17,867		14,541		4,158	

APPENDIX VI : ECT GUIDING PRINCIPLES

The Board of Directors of Envision Central Texas has adopted a set of guiding principles for the Central Texas Regional Visioning Project. These principles are a statement of values on policy choices concerning land use in Central Texas. They are intended to be stated and used as a set; no one principle stands alone. As a coherent whole, these principles expand the overarching principles:

The region's transportation system, environmental planning and preservation goals, social equity aspirations, and economic foundation should be coordinated to support a sustainable regional community.

Regional policy choices should support choices of housing, transportation, and employment.

Central Texas values diversity in all policy choices.

All decisions should promote enhanced quality of life for the residents of Central Texas.

Many of these principles include reference to others, including references to those in other areas. This interdependence reflects the Board's discussions and in no way implies a dominance of any one principle, or subset of principles.

Many of the guiding principles are measurable and can be quantified; some are not. In general, principles that can be associated with different land use and transportation choices can be associated with different scenarios.

The following are the guiding principles, divided into sections on transportation, environment, social equity, and economics (jobs and housing).

TRANSPORTATION

Sustainable regional community requires transportation planning to be synchronized with land use policies to provide mobility choices for the community. (Choices should include, but are not limited to, living close to work, working close to transit, living in a walkable or bikable city or town, or working out of one's home.)

Transportation should be safe and reliable for all to use.

The transportation system should be cost-effective and efficient.

The transportation system should provide appropriate choices so that all segments of the community can meet their needs for daily living. (These needs include, but are not limited to, housing, jobs, education, and health care.)

Planning for the region will be based on the understanding that all cities and counties and other governmental entities are members of the same transportation region.

Central Texas should have a transportation system that appropriately addresses environmental concerns, striving to improve the environment of the region. (Environmental concerns include air quality, water quality, noise, and visual quality.)

Central Texas should devise and implement adequate and efficient new transportation infrastructure, and assure adequate and timely maintenance of existing needed infrastructure.

The transportation system needs to provide adequate and efficient movement of freight as part of a sustainable regional economy.

ENVIRONMENT

Sustainable regional community requires development patterns that protect and conserve environmental resources.

Growth should enhance, if possible, rather than degrade, the quality of the region's air and water. (Water resources include aquifers, sources of drinking water, and rivers, streams, creeks, springs, and ground water.)

Central Texas should provide a regional greenspace network, comprised of connected open spaces, trails, and extensive parks. (Greenspace includes both non-accessible private property and publicly accessible properties.)

Development patterns should preserve important environmentally sensitive, agricultural, and plentiful scenic lands; farmers and ranchers, developers, homeowners, and business will be good environmental stewards.

Preservation efforts should include open space, green belts, unique habitats, historic and cultural resources and the rural character of outlying communities.

Central Texas should place a premium on neighborhood safety from crime and environmental degradation.

Open space should be considered essential infrastructure on par with sewer, water and roadways.

SOCIAL EQUITY

Sustainable regional community means that access to quality childcare, housing, jobs, healthcare, education, and basic needs shall be available to all.

Central Texas will act to narrow the gap between the haves and have-nots.

Central Texas is a place where all ethnicities and cultures are recognized as valuable assets.

Communities shall strive for inclusivity, a variety of income levels, and be accessible to all races, cultures, and ethnicities.

All individuals will have access to quality lifelong education.

Intolerance and prejudice, explicit or covert, will not be used in the formation of land use and other public policy.

Central Texas should strive for greater engagement in government and other civic institutions for all people.

Everyone should have access to publicly owned green and open spaces.

All people and places should benefit from the region's prosperity while preserving a sense of place in Central Texas' many unique cities, town and rural areas.

ECONOMICS: JOBS AND HOUSING

Sustainable regional community requires that planning for the region will be based on the understanding that all cities and counties are members of the same economic region; prosperity should be shared across the region.

Continued economic success and prosperity for Central Texas residents, and the ability to compete effectively in the global economy, require a continuous, sustained and coordinated economic development effort by public and private entities throughout the region.

Economic development efforts should recognize the important role that the quality of life, natural beauty, diversity and uniqueness of the region play in attracting and keeping businesses and employees, and every effort should be taken to preserve and enhance these qualities.

Economic success requires long-range planning and infrastructure investment necessary to attract and keep companies in the region, including transportation, water, electric power and telecommunications, without overburdening taxpayers of the region.

New centers of employment should be located so as to make efficient use of existing transportation and other infrastructure and minimize the travel time and distance for employees.

Economic success requires a lifelong educational system that provides an educated workforce from all segments of the community with a wide-range of job skills and the ability to adapt to changing economic circumstances.

Economic success requires the creation of an ongoing partnership with the colleges and universities in the region to provide the research that generates economic development opportunities.

Public and private entities in the region must cooperate with each other in attracting and keeping employers and jobs within the region, and should avoid competition among themselves that does not result in new opportunities that benefit the region.

Economic success and prosperity are at risk if Central Texas residents do not have an opportunity to obtain affordable housing that is conveniently located near their places of employment, or if other living costs substantially exceed those of competing regions.

Each city and town in the region should be given the opportunity to participate in the development of a regional economic development program that incorporates the goals and aspirations of that community, and gives each community the opportunity to attract companies and employees to fulfill its goals.

Public and private entities in the region should strive to attract companies that bring a wide range of job opportunities to Central Texas residents.

BOARD DISCUSSION

In all of the Board's discussions, a few central concerns appeared, representing shared values. Choices, diversity, and opportunity were all mentioned in virtually every area under discussion. Preservation of those aspects of Central Texas that attract people to live here was a topic at every table. Some values, such as social equity, were included in all discussions, and not separated from concerns about transportation, the economy, etc.

The discussion of the four areas reflects all of the Board and committee discussions to date. The principles with their associated evaluation criteria follow the discussions.

Transportation - Transportation issues concerned everyone. It was agreed that existing infrastructure is inadequate for existing needs even before significant additional growth. There was agreement that Central Texas needs a better transportation system, with more choices, less travel time, and more cost effectiveness. 'Multi-modal' and 'walkable' were an adjective used by several tables. The centrality of transportation choices to economic, environmental, social equity, and etc. values was emphasized repeatedly. Interestingly, reducing congestion was not mentioned as a goal in and of itself, but rather, less travel time and transportation efficiency and safety were seen as the primary values.

Environment - Environmental concerns were equally ubiquitous. The value of the natural environment, in terms of health, economic attraction, and community character, was stressed in a variety of ways. Air quality, water quality, and adequate green space are all important for Central Texas. Specific areas mentioned were almost exclusively water related, such as: preserving aquifers, rivers, streams, creeks, wetlands and floodplains. Some tables mentioned preserving land without addressing ownership, while some talked specifically about public access and ownership of a regional open space system.

There is a strong desire to avoid becoming Anywhere, USA. Although there was no specific discussion about 'sprawl', concerns were expressed about related topics, such as the urban areas growing together, loss of scenic lands, loss of agricultural and natural lands to urbanization, etc. There was common discussion on greenspace protection, rural character, encouraging higher density and infill and separation of communities in regards to urban form. A balance between vacant land and redevelopment was mentioned on multiple occasions.

Social Equity - Social equity was included in many tables' results with topics such as, tolerance, acceptance, diversity, equal access to everything from housing to government, and inclusiveness to a variety of lifestyles. When combined with the desire to keep the 'flavors' of Central Texas, it is clear the board feels that social equity should not result in homogenization. The committee that met on social equity agreed that the essence of social equity is opportunity for all people in the region to access jobs, housing, education, childcare, healthcare, and basic needs. The problem of balancing individual preferences with the ideal of an inclusive community was considered at length.

The connections between social equity and other areas were also discussed. Social equity includes access to green spaces, clean air and water, as well as economic opportunities.

Economy - Economy and prosperity were discussed, encouraging job growth and treating it regionally and ensuring the prosperity was spread equitably. There was no mention of encouraging or promoting greater growth. It appears that continuing economic growth was an underlying assumption in the November meeting. Community character and quality of life concerns are strong Central Texas values. The diversity of communities, as well as the diversity within communities, is seen as an asset to be preserved.

Perhaps reflecting the strong regional economy of the past decade, economic concerns were primarily expressed in terms of the quality of jobs, the equity of their distribution, and maintenance of adequate infrastructure. The most frequently expressed concern was that prosperity be distributed equitably across the region. The only "will we have enough" concern expressed in the first meeting focused on adequacy of water and power. In subsequent discussions, continued economic growth was given more concern, with the feeling that enough good jobs for the region's population should not be taken for granted. (It was noted that, even without continued substantial immigration to Central Texas, there will be substantial population growth, given the demographics of the existing population.)

There was some discussion of counties needing to play a larger role in growth management for Central Texas, along with the regional agencies involved with particular aspects of growth.

EVALUATION CRITERIA

The following evaluation criteria will be reviewed by the Board of ECT as the scenario development and evaluation proceeds.

TRANSPORTATION

* Amount of development in areas that can already be served by transit and roadways
* Vehicle Miles Traveled per capita
* Average Trip time
* Vehicle Minutes Traveled per capita, by mode
* Vehicle Hours under Congestion or Vehicle Hours of Delay (VHC or VHD) region wide ("Hours spent in congestion").
* Miles of Congested Arterial (% of system total miles)
* Jobs housing balance measured by individual community and by sub region
* Amount of new development located within proximity of transit
* Percent trips by all modes and working at home
* Connectivity index (street and path connectivity and intersections)
* Index of urban amenities (connectivity + job density + population density)
* Total time traveled per capita, by travel mode
* Average speed by travel mode
* Air pollution caused by transportation sources
* Consumption of fuel
* Greenhouse gas emissions
* Total cost of transportation improvements and maintenance (public and private costs, not financially constrained)
* Public and private total cost by travel mode
* Public and private marginal costs by mode
* Travel by mode, by trip purpose

ENVIRONMENT

* Amount of acreage of wetlands, riparian areas, aquifer recharge zones and floodplains that become developed
* Air quality measures - total mobile emissions
* Per capita water use - calculated from characteristic development types used to create the scenario
* Number of new well and septic systems installed
* Change in amount of impervious surface, measured in acres or percentage
* Measure of non point source pollution and effect on water quality
* Open space per capita - Acres of parks per 1000 people
* Connectivity of open space
* Access of population to open space - number of people with access, varying by time, to different classes of open space
* Acreage of land urbanized
* Acres of endangered species habitat preserved.
* Amount of impervious cover in the aquifer recharge and contributing zones
* Amount of agricultural land consumed by development
* Amount of tree coverage

SOCIAL EQUITY

* Share of people living in concentrated low-income areas
* Displacement of existing housing resulting from redevelopment, especially displacement of low-income housing
* Jobs-housing balance by sub region
* Accessibility to regional jobs from neighborhoods earning below 80% of the regional median income
* Location of employment relative to existing moderate-income neighborhoods
* Accessibility to green space of low-income neighborhoods.

ECONOMICS: JOBS AND HOUSING

* Diversity of employment, measured by percentage of new jobs per sector
* Location of employment relative to existing neighborhoods earning below 80% of the mean income
* Jobs-housing balance by employment type measured by sub-region
* Percent of new homes affordable to buyers earning Central Texas's median income
* Ratio of owner occupied to rental units
* Discrepancy between housing supply and demand by housing type
* Ratio of jobs to rental units and affordable units by community and subregion
* The variety of housing styles and sizes by community and subregion
* Housing and job density of land urbanized