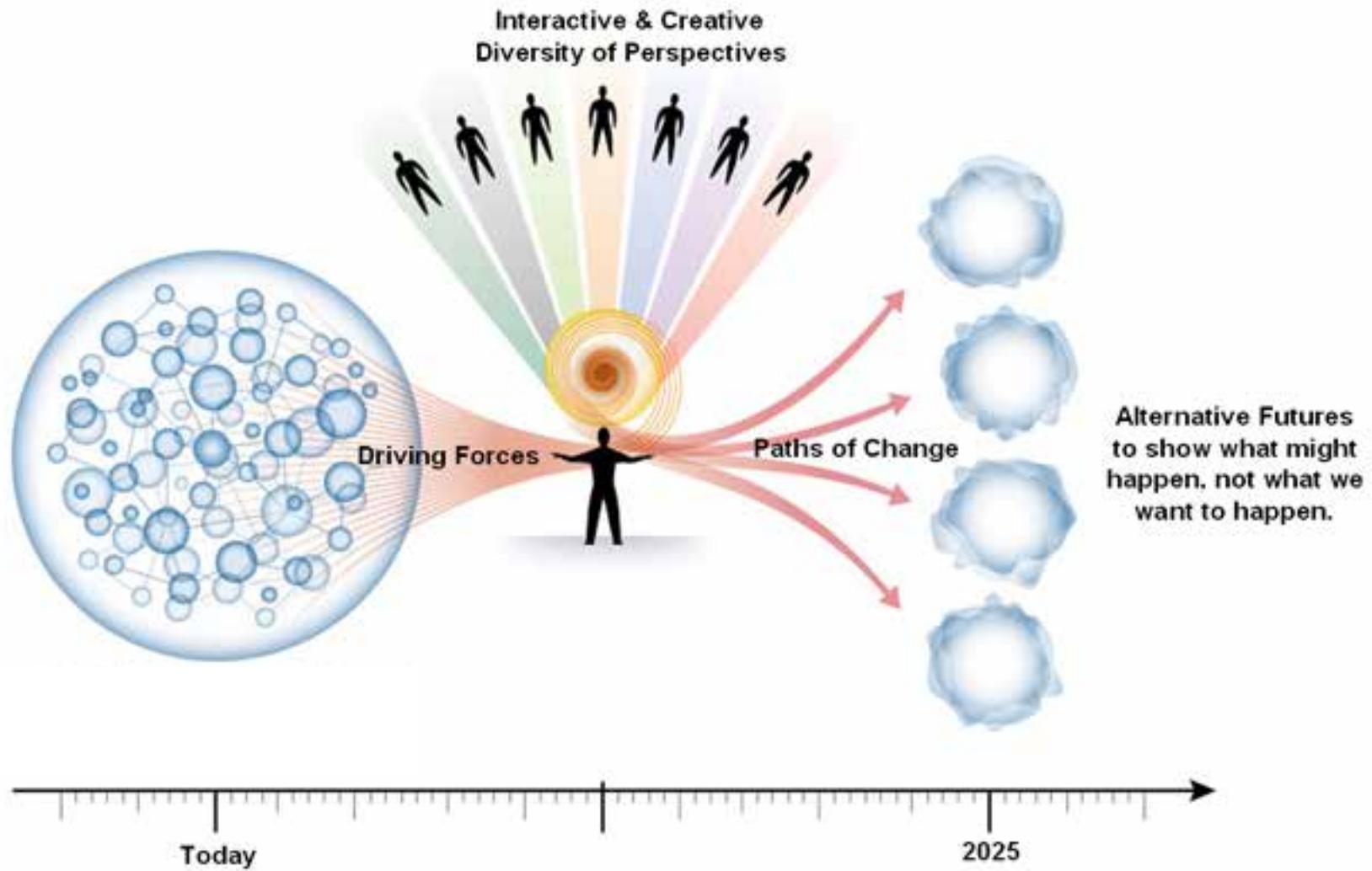


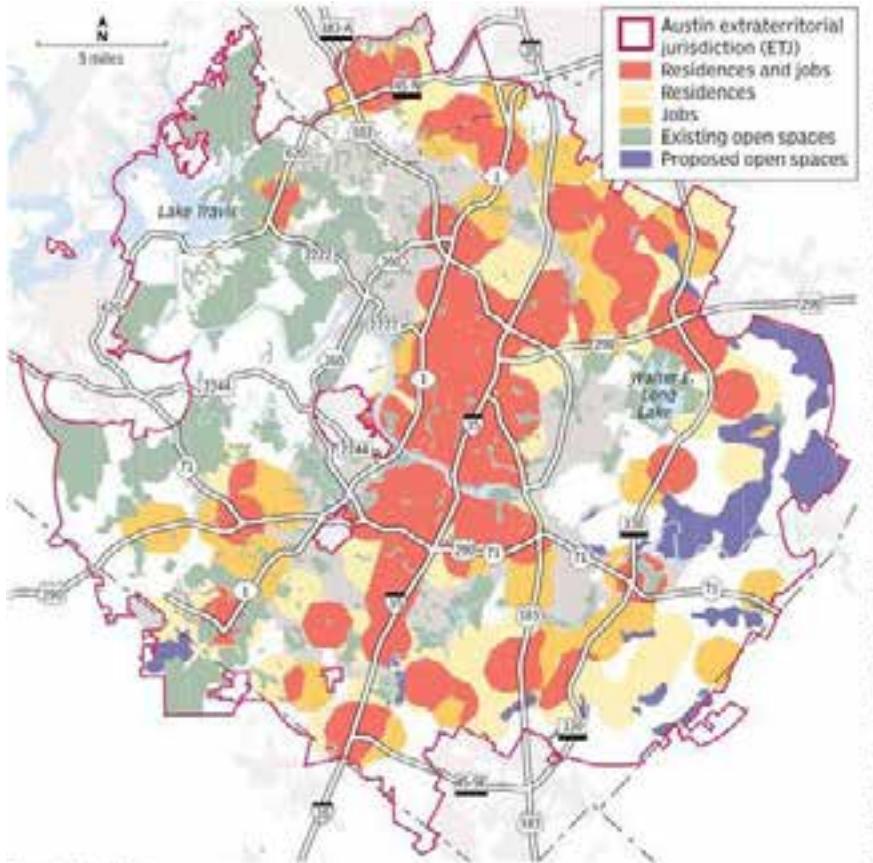


# Scenario Planning with GIS

*A Tale of Two Cities*







Source: City of Austin

AMERICAN-STATESMAN

## Current trends scenario

This scenario was created by City of Austin staff based on current population and employment trends and on planned and funded projects. It assumes no shifts in new development practices or market forces. Reflecting what would happen if current trends continue, it:

- Develops all known large projects.
- Creates one regional center downtown.
- Creates mixed-use corridors along major urban core roads.
- Generates intense development at major highway intersections.
- Places significant residential infill in most existing single-family urban core neighborhoods.

Note: this scenario represents a planning concept taken to an extreme. The final product that the city will adopt will be a melding of several concepts, based on public opinion.

Note: Each of these scenarios represents a planning concept taken to an extreme. The final product that the city will adopt will be a melding of these five concepts, based on public opinion.

### Scenario A

This scenario illustrates new development throughout the planning area, primarily along major roads. About half its development occurs through separated uses, and half occurs as mixed use, in which businesses and residences are in the same building or in close proximity. New open space to the east protects creeks and flood plains. Development occurs:

- Primarily along major roads (Centerville Rd., Texas 71, Texas 130, U.S. 302) and undeveloped areas near these roads.
- Mixed-use activity centers of intersections of major roads and along transit lines.
- Primarily on vacant land.
- On more square miles of farmland and aquifer zones than in any other scenario.

### Scenario B

This scenario is characterized by preserving land to the west, concentrating new development to the east and redeveloping within the urban core. Rehabilitation and infill of existing land in the city typically involves a mix of people and jobs. New open space to the east protects creeks and flood plains. Development occurs:

- At new and redeveloped centers along major roads and transit lines.
- Through infill (left within existing residential areas between Mopac Boulevard (Loop 1) and Texas 130).
- Primarily as some form of mixed use.
- On fewer square miles of farmland and aquifer zones than Scenario A.

### Scenario C

This scenario is the second most compact scenario, using 10 square miles of developed land. Most new development places a mix of people and jobs close to one another. New open space to the east protects creeks and flood plains. Development occurs:

- In mixed-use activity centers throughout the planning area at transit stops, at the intersections of major roadways.
- By encouraging infill within existing residential areas between Mopac Boulevard (Loop 1) and Texas 130.
- Primarily between Mopac and Texas 130, preserving land to the east and west.
- In a clustered manner, leaving open space to the east available for agriculture.

### Scenario D

This scenario is the most compact, using only 8 square miles of developed land. Most new development places a mix of people and jobs close to one another. Open space to the east is available for agriculture. Development occurs:

- In a concentration between I-35 and Mopac Boulevard (Loop 1).
- At five major activity centers served by transit as well as along mixed-use corridors between them.
- By encouraging infill within existing residential areas between Mopac and Texas 130.
- All new activity centers near Austin-Bergstrom International Airport, Lake Walter E. Long and Manor and at the intersection of I-35 and Texas 45 Southeast.
- On fewer square miles of farmland and aquifer zones than in any other scenario.

Source: City of Austin

AMERICAN-STATESMAN

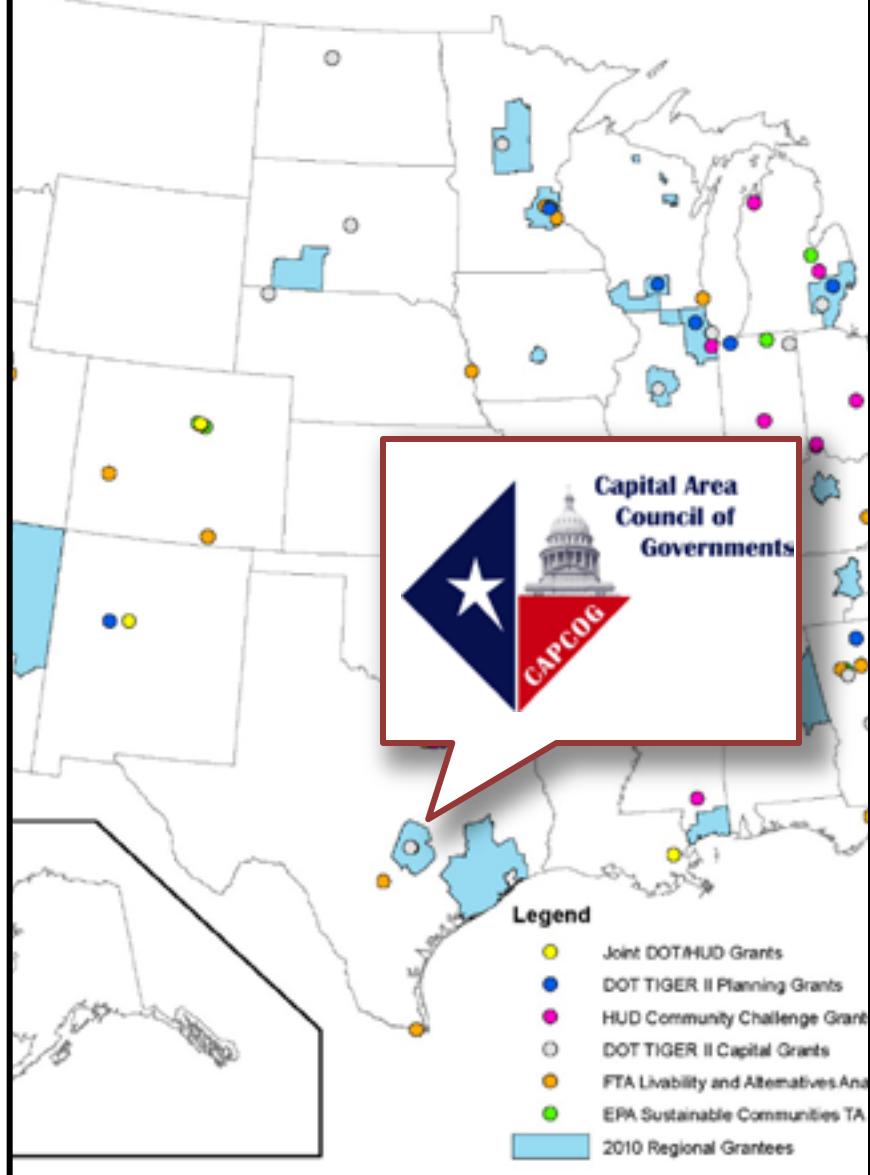


## Sustainable Communities Regional Planning Grants

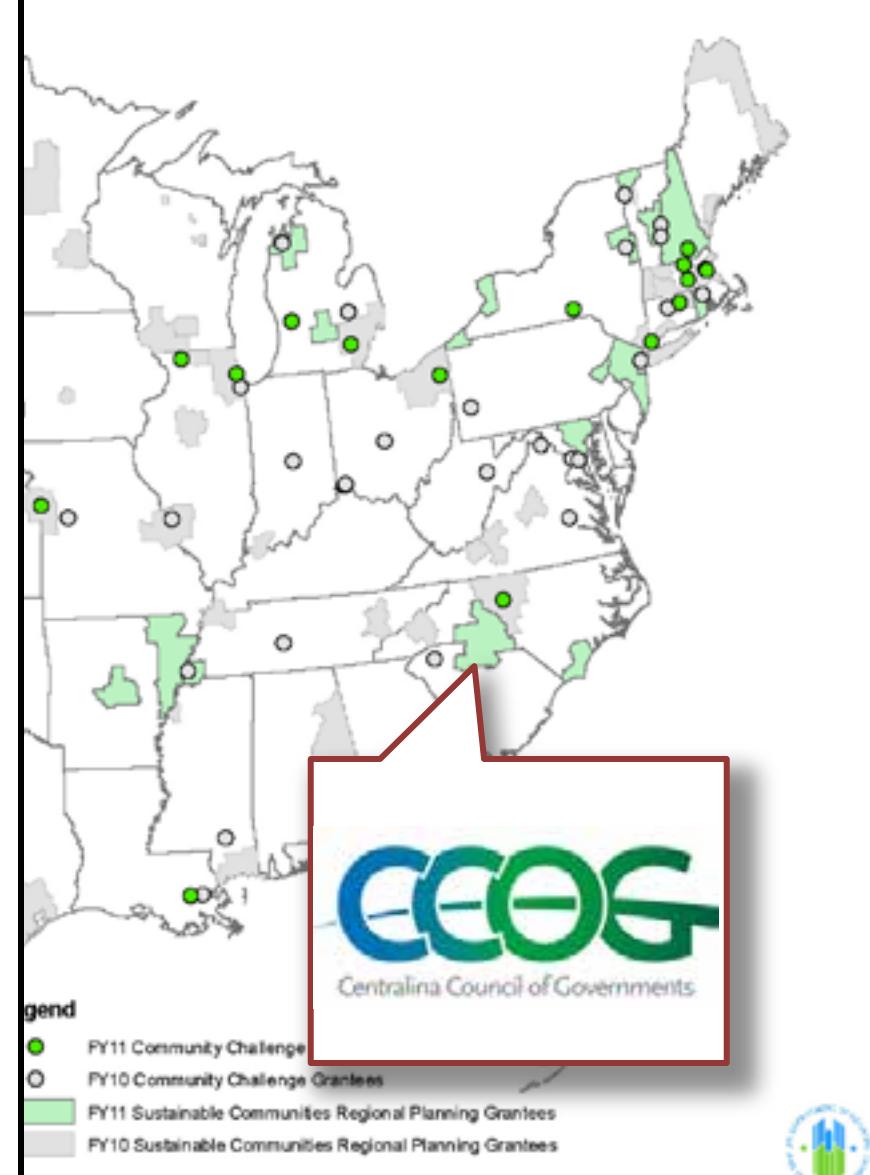
### Overview

The Sustainable Communities Regional Planning (SCRP) Grant Program supports locally-led collaborative efforts that bring together diverse interests from the many municipalities in a region to determine how best to target housing, economic and workforce development, and infrastructure investments to create more jobs and regional economic activity. The Program places a priority on investing in partnerships, including nontraditional partnerships (e.g., arts and culture, recreation, public health, food systems, regional planning agencies and public education entities) that translate the ~~strategies that direct long-term development and reinvestment, demonstrate a commitment to addressing issues of regional significance, use data to set and monitor progress toward performance goals, and engage stakeholders and residents in meaningful decision-making roles.~~ The SCRP program is key initiative of the [Partnership for Sustainable Communities](#), in which HUD works with the U.S. Dept. of Transportation (DOT) and the U.S. Environmental Protection Agency (EPA) and leverage programs and investments. To date, HUD has awarded over \$16 billion to 74 regional grantees in 44 states and helping to improve the lives of approximately 112 million people.

## Partnership for Sustainable Communities 2010 Grantees



## Partnership for Sustainable Communities Grantees, FY2010 - FY2011



The screenshot shows the homepage of the CONNECT Our Future website. The header features the "CONNECT Our Future" logo with a sun icon, followed by a row of colorful icons representing various community sectors like education, health, and environment. To the right are links for "SHAREPOINT", "SELECT LANGUAGE", a search bar, and social media links for Facebook and Twitter.

Vibrant Communities - Robust Region

What is CONNECT? FAQs CONNECT Consortium Work Groups Events Reports Resources Get Involved Contact Us

**Home Energy Audits**  
Sign up to participate in free Home Energy Assessment Program  
[Read More →](#)

**Why CONNECT?**  
The region's energy consumption is expected to grow by 20% in the next 20 years.  
[Read More →](#)

**Housing Reports**  
Provide your comments on housing assessment reports  
[Read More →](#)

**CONNECT Our Future**  
CONNECT Policy Forum Meeting  
14 @ 5:30 pm – 8:30 pm  
Location TBD  
[Read More](#)

**Sign Up For Updates**

**Resource Materials**

CONNECT CV Model - TD

File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help

11.138.734 ET Project Setup ET Paint Tool Scenario 360

**Table Of Contents**

- Tread Development
  - Flood\_Prone\_Areas
  - Flood\_Prone\_Areas
  - Flood\_Prone\_Areas
  - Major\_Roads
  - Stream\_Buffers
  - CONNECT\_County\_Boundaries
  - Interchange\_Locations
  - Major\_Intersections
  - Town\_Centers
  - Major\_Activity\_Centers
  - Regional\_Activity\_Centers
  - Express\_Bus\_Routes
  - Sever\_Service\_Areas
  - Water\_Service\_Areas
  - Watershed\_Protection\_Areas
  - Metropolitan\_Centers
  - Existing\_and\_Emerging\_Growth\_Area
  - LRT\_Stations\_AOI
  - CRT\_Stations\_AOI

**Scenarios 360 Content**

360 Analysis 360 Setup

Active Scenario

Modify

Assumptions Start Edit Attributes

View

Visualize

Present

**Key Model Components**

- Carrying Capacity Analysis*
- Build-Out Potential*
- Land Suitability Analysis*
- Growth Allocation*



# Side-by-Side Alternative Growth Concept Comparison

## Decentralized Growth Concept

The Decentralized Growth Scenario considers how the region might develop if a dispersed pattern of growth were to spread throughout the region. Future growth would favor single-use, low-density development patterns and intensities, which promote travel by car because of the distance and greater isolation between complementary land uses. Farms and undeveloped land in rural areas would be recommended to support expanding suburban development patterns and intensities. Major transit investments and redevelopment opportunities for mixed-use, walkable development would be limited to the most urban areas of the region.



Population (2050)	4,241,000
Employment (2050)	2,177,265
<b>Development Footprint</b>	
Preserved Open Space	7%
Natural Areas / Rural Living	20%
Farmland / Farmland	27%
Suburban Development	56%
<b>Activity Centers</b>	
No. of Metro Centers / Walkable Communities	304
No. of Mixed-Use / Walkable Activity Nodes	87
No. of Transit-Oriented Development Nodes	80
Housing Mix	85% SFD / 15% SFAP <sup>a</sup>
Jobs-Housing Proximity	Limited Potential
Viable Travel Options	Car-Bus-Rail <sup>b</sup>
<b>Supporting Infrastructure</b>	
Transit Service in Dedicated Right-of-Way	0.5 Miles <sup>c</sup>
New Highways	45.7 Miles
Water / Sewer Service Areas	Greatly Expanded

Notes:

- <sup>a</sup> Local governments that have adopted inter-area, walkable development principles for the entire jurisdiction.
- <sup>b</sup> Specific areas of a jurisdiction where mixed-use, walkable development nodes are called for in adopted plan.
- <sup>c</sup> Bus service could be regular bus or bus rapid transit; Rail service could be light rail, commuter rail, or streetcar.

## Community Plans Concept

The Community Plans Scenario considers how the region might develop if adopted community plans for cities, towns, and counties are strictly followed to guide future growth. Preferred development locations, types, patterns, and intensities recommended in the local plans generally vary from rural to suburban to urban for different parts of the region.

Information for building the scenario was translated directly from locally-adopted plans. It assumes other rules, requirements, and policies that influence development would conform with the vision and goals summarized in the local growth plans.



Population (2050)	4,241,000
Employment (2050)	2,177,265
<b>Development Footprint</b>	
Preserved Open Space	5%
Natural Areas / Rural Living	20%
Farmland / Farmland	27%
Suburban Development	36%
<b>Activity Centers</b>	
No. of Metro Centers / Walkable Communities	214
No. of Mixed-Use / Walkable Activity Nodes	67 <sup>d</sup>
No. of Transit-Oriented Development Nodes	57 <sup>e</sup>
Housing Mix	75% SFD / 25% SFAP <sup>f</sup>
Jobs-Housing Proximity	Some Potential
Viable Travel Options	Car-Bus-Ped <sup>g</sup>
<b>Supporting Infrastructure</b>	
Transit Service in Dedicated Right-of-Way	0.5 Miles <sup>c</sup>
New Highways	15.7 Miles
Water / Sewer Service Areas	Follow Master Plans

- <sup>d</sup> Specific areas of a jurisdiction where mixed-use, walkable development nodes are called for in adopted plan.
- <sup>e</sup> Bus service could be regular bus or bus rapid transit; Rail service could be light rail, commuter rail, or streetcar.
- <sup>f</sup> Transit service in dedicated ROW could be bus rapid transit, light rail, streetcar, or commuter rail.

## Big Ideas Concept

The Big Ideas Scenario considers how the region might develop based on the thoughts and opinions shared by residents who participated in one of 57 community growth workshops for CONNECT Our Future. Future development would be focused in mixed-use, walkable activity centers planned throughout the region. Woodlands, farmland, natural features, and rare areas outside the activity centers would be preserved as green space. Significant investments in premium transit (i.e., bus rapid transit, light rail, or commuter rail) would connect several of the activity centers and reduce residents' need for a car to satisfy their daily travel needs.



Population (2050)	4,241,000
Employment (2050)	2,177,265
<b>Development Footprint</b>	
Preserved Open Space	7%
Natural Areas / Rural Living	20%
Farmland / Farmland	27%
Suburban Development	36%
<b>Activity Centers</b>	
No. of Metro Centers / Walkable Communities	214
No. of Mixed-Use / Walkable Activity Nodes	67 <sup>d</sup>
No. of Transit-Oriented Development Nodes	57 <sup>e</sup>
Housing Mix	50% SFD / 50% SFAP <sup>f</sup>
Jobs-Housing Proximity	Greater Potential
Viable Travel Options	Car-Bus-Rail-Walk-Bike <sup>g</sup>
<b>Supporting Infrastructure</b>	
Transit Service in Dedicated Right-of-Way	0.5 Miles <sup>c</sup>
(Buses 2050 / Auto 2050)	277.5 / 565.5 Miles <sup>c</sup>
New Highways	25.7 Miles
Water / Sewer Service Areas	Follow Investment

- <sup>c</sup> - Mixed-use, walkable development nodes located along a premium transit corridor.
- <sup>d</sup> - Transit service in dedicated ROW could be bus rapid transit, light rail, streetcar, or commuter rail.

## Centers & Corridors Concept

The Centers and Corridors Scenario considers how the region might develop based on the big ideas that have emerged through all phases of CONNECT. Infrastructure investments would maximize the efficiency of existing systems, helping control the cost to government for providing future public facilities and services. A greater concentration of activity centers along premium transit corridors (compared to the big ideas scenario) would also increase the amount of land preserved as open space and reduce further residents' need for a car to satisfy their daily travel needs. Opportunities to live, work, shop, and be entertained in new mixed-use, walkable activity centers would draw people to urban or urbanizing areas.



Population (2050)	4,241,000
Employment (2050)	2,177,265
<b>Development Footprint</b>	
Preserved Open Space	22%
Natural Areas / Rural Living	29%
Farmland / Farmland	29%
Suburban Development	37%
<b>Activity Centers</b>	
No. of Metro Centers / Walkable Communities	214
No. of Mixed-Use / Walkable Activity Nodes	47 <sup>d</sup>
No. of Transit-Oriented Development Nodes	38 <sup>e</sup>
Housing Mix	40% SFD / 60% SFAP <sup>f</sup>
Jobs-Housing Proximity	Greatest Potential
Viable Travel Options	Car-Bus-Rail-Walk-Bike <sup>g</sup>
<b>Supporting Infrastructure</b>	
Transit Service in Dedicated Right-of-Way	0.5 Miles <sup>c</sup>
New Highways	45.7 Miles
Water / Sewer Service Areas	Existing Service Areas

Notes:

- <sup>c</sup> - Local governments that have adopted inter-area, walkable development principles for the entire jurisdiction.
- <sup>d</sup> - Specific areas of a jurisdiction where mixed-use, walkable development nodes are called for in adopted plan.
- <sup>e</sup> - Bus service could be regular bus or bus rapid transit; Rail service could be light rail, commuter rail, or streetcar.
- <sup>f</sup> - Transit service in dedicated ROW could be bus rapid transit, light rail, streetcar, or commuter rail.
- <sup>g</sup> - Car-Bus-Rail-Walk-Bike = Car, Bus, Rail, Walk, Bike.

### Urban Footprint



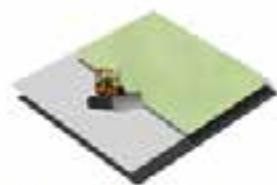
Decentralized Growth



Compact Centers



Green Print Initiative



Jobs - Housing Balance

### Agriculture Land Consumed



Decentralized Growth



Compact Centers

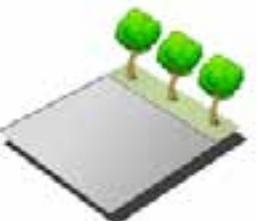


Green Print Initiative

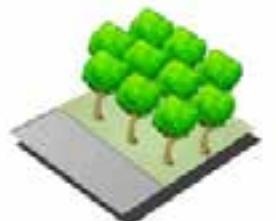


Jobs - Housing Balance

### Eco-Core Land Consumed



Decentralized Growth



Compact Centers



Green Print Initiative



Jobs - Housing Balance

### Amount of Protected Open Space



Decentralized Growth



Compact Centers



Green Print Initiative



Jobs - Housing Balance

**SUSTAINABLE  
PLACES** Project[Analytics Tool](#)[Indicators Project](#)[HUD OSHC](#)[CAPCOG](#)[ECT](#)[CAMPO](#)[Documents](#)**AUSTIN**

ELGIN

DRIPPING SPRINGS

HUTTO

LOCKHART

**Austin**

The proposed Urban Rail system is located primarily within the Central Austin and Mueller Activity Centers and has the potential to be the most significant community investment on the future sustainability of Central Texas. Urban Rail would link downtown, UT, the Capitol, Mueller Redevelopment, the airport, and the regional rail network.

**JOIN MAILING LIST**

Email:

  
your email joins the project-wide list. Choose cities below if desired

- Austin Updates
- D.S. Updates
- Elgin Updates

**Welcome to the Sustainable Places Project**

CLICK PICTURES ABOVE TO VISIT HOME PAGES FOR EACH CITY

The Capital Area Texas Sustainability (CATS) Consortium, through a grant from HUD and a regional partnership of local governments and other stakeholder groups, is developing a new approach to planning in Central Texas through the Sustainable Places Project. The project will examine several growth scenarios for activity centers in Austin, Dripping Springs, Elgin, Hutto, and Lockhart. An innovative analytics tool is being developed to identify the long-term effects of the various scenarios on municipal budgets.

**NEWS UPDATE**

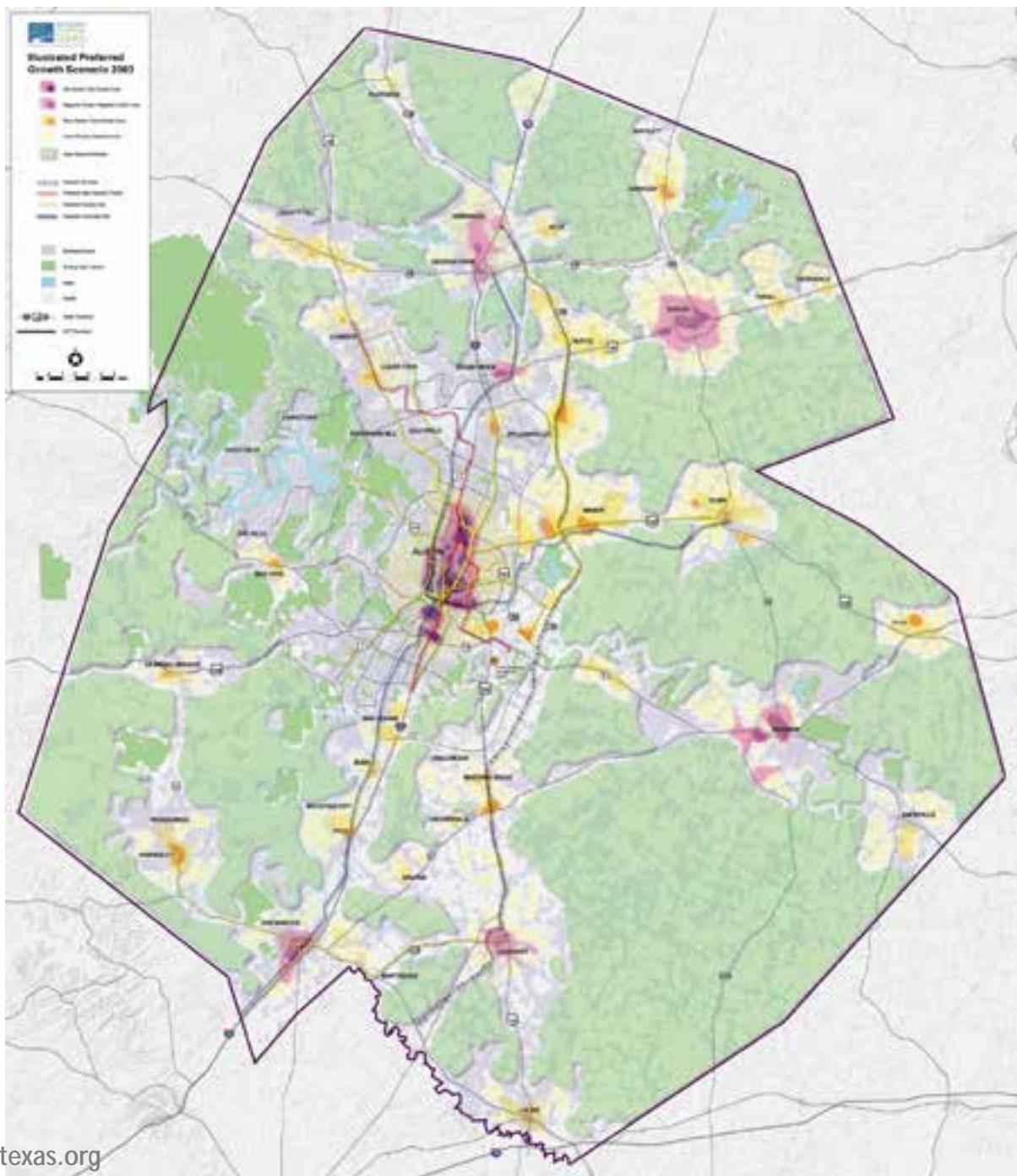
Date	Title
2012-09-26	Housing and Transportation Affordability Initiative
2012-09-07	September 2012 Newsletter
2012-08-22	Hutto and Elgin Public Events Announced

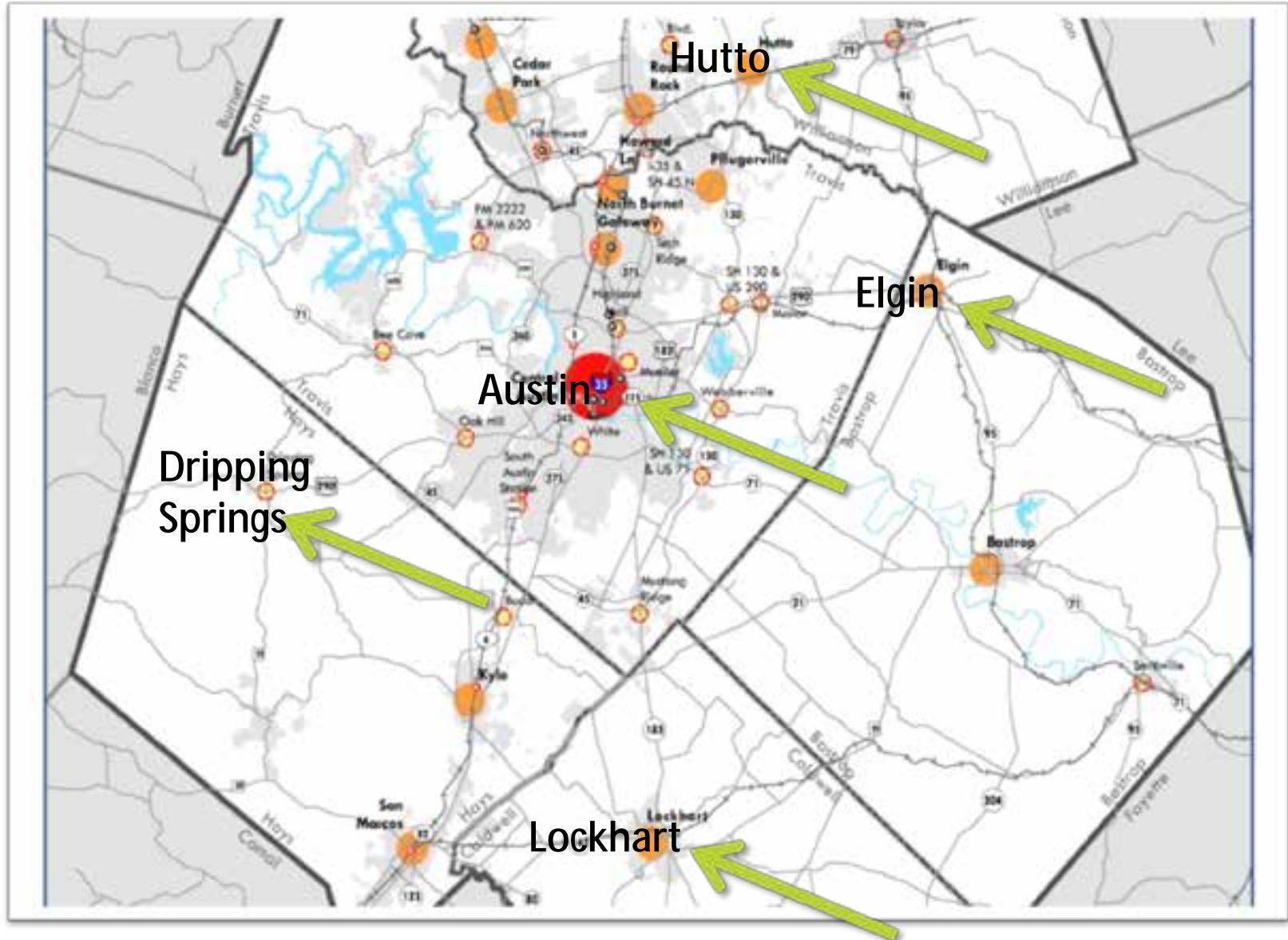


Painting by Mary Thorne

## A Vision for Central Texas May 2004

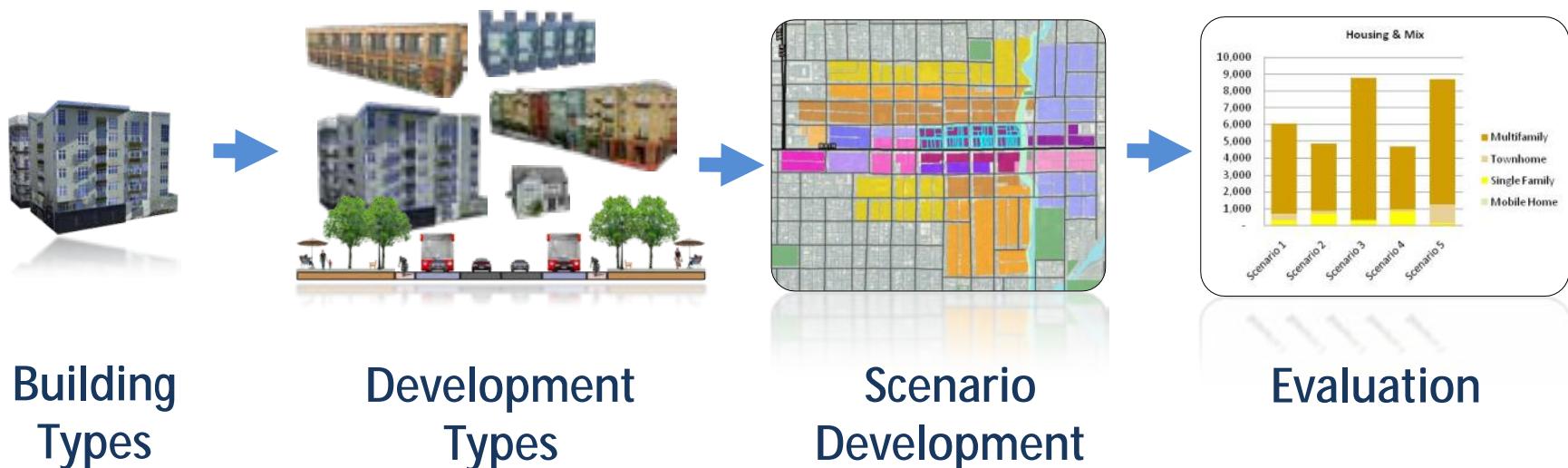








## Scenario Planning Software



Building  
Types

Development  
Types

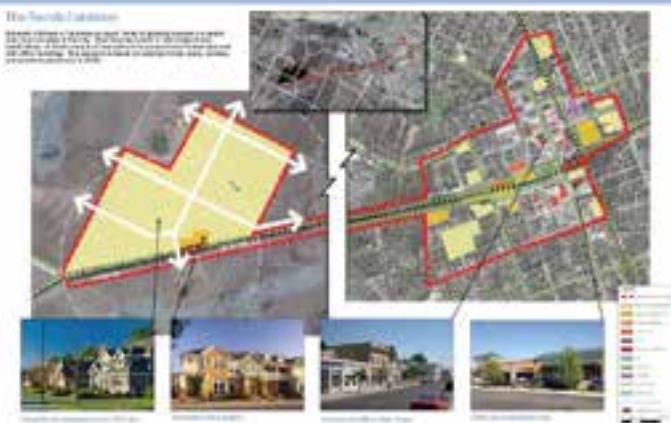
Scenario  
Development

Evaluation

Source: Fregonese Associates



## SCENARIO A: Business As Usual



## SCENARIO B: New Neighborhoods & A Civic Center



## SCENARIO C: A Resurgent Old Town



## SCENARIO INDICATORS

Compare each scenario's performance over the next couple of decades based on its impact on community, the economy, transportation and the environment.

### INDICATOR

### MEANING

INDICATOR	MEANING	Trends Continue	Neighborhood & Civic Center	Resurgent Old Town
<b>Population Growth</b>	Future vitality depends a lot on its ability to grow. Each scenario performs differently in how it attracts newcomers to the city.	 1,840 New Population	 1,322 New Population	 1,871 New Population
<b>New Housing Mix</b> % of all new construction	Each scenario emphasizes a different mix of new kinds of housing.	 Total New Housing Mix (A) 1,840 Small Lot Single Family 40% Standard Single Family 10% Cottage Home 10% Other Residential 40%	 Total New Housing Mix (B) 1,322 Small Lot Single Family 30% Standard Single Family 30% Cottage Home 10% Other Residential 30%	 Total New Housing Mix (C) 1,871 Small Lot Single Family 30% Standard Single Family 30% Cottage Home 10% Other Residential 30%
<b>Jobs-Housing Balance</b>	Jobs-housing balance refers to the approximate distribution of employment opportunities and workforce population across the area. It is measured in terms of the proportion of jobs per household.	 0.8 Jobs-housing balance ratio	 3.0 Jobs-housing balance ratio	 1.8 Jobs-housing balance ratio
<b>Fiscal Impact</b> Revenue/Cost Ratio	Each scenario would stimulate a different amount of new revenue and costs in the city based on new growth.	 1.04 Fiscal Impact ratio	 1.05 Fiscal Impact ratio	 1.00 Fiscal Impact ratio
<b>Fiscal Impact</b> Net Revenue (Revenues minus Costs)	Net income is calculated by taking the total revenue then removing the total cost of new growths.	 \$125,000	 \$303,000	 \$16,000

Elgin Open House

February 11, 2017

Source: McCann Adams Studio





## Scenario C for UP Lands/Old Town: A Mixed Use District



## CONCEPTS FOR MAIN STREET

## CONCEPT A:

Keep it as it is.

- 70' curb-to-curb
- Diagonal pull-in parking



## CONCEPT B:

Add trees and "bulb-outs".

- Reduce walking distance at crosswalks
- Possible reverse angle parking



## CONCEPT C:

Add a tree-lined median.

- Pedestrian refuge at crosswalks
- Calm traffic
- A green "ribbon".



## CONCEPT D:

Widen the sidewalks.

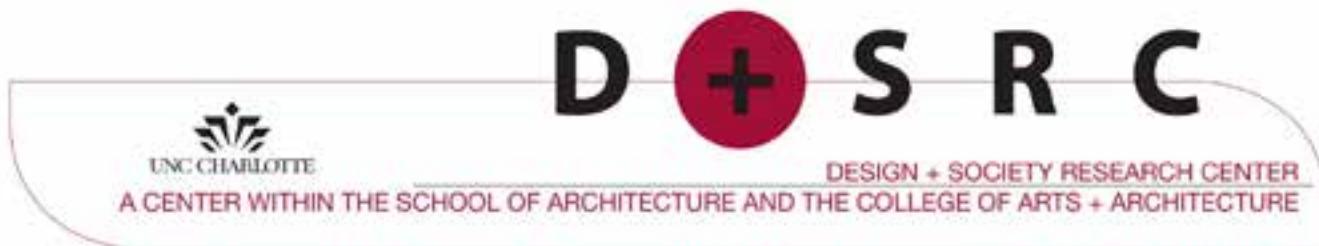
- Replace diagonal with parallel parking on one side
- Add trees
- Reduce street width





# FACTORS FUTURE

# SCENARIO PLANNING



CHARLOTTE  
AUSTIN

[ [ming-chun.lee @ uncc.edu](mailto:ming-chun.lee@uncc.edu) ]

