North Texas is already moving away from the development patterns that have shaped its past. Private and public investments are supporting sustainable infrastructure projects like recycling, energy efficiency and water conservation. City planners and real estate developers are creating places that incorporate new urbanism concepts, resource efficient design, and pedestrian-friendly environments. If these choices were made widely throughout the region, they would result in a future that is very different from ‘business as usual’. At the same time, other changes in demographics and personal preferences mean that the people who will be North Texas’ future residents will probably want a different sort of region than the one that results from ‘business as usual’. Finally, changes in the global and national economy and environment suggest that North Texas will face a different set of opportunities and challenges in the future. In this chapter, these alternatives to the ‘business as usual’ future are explored.

The first part of this chapter describes changes that are under discussion or already underway in the region. It provides examples, from this region, of development and investment that are different from the practices of the past. It also highlights findings of recent studies that may help North Texas evaluate the benefits and implications of changes from ‘business as usual’. It notes some of the global and national trends that affect North Texas.

The second part of this chapter reports on the changing preferences of North Texas stakeholders. These preferences were expressed during the series of subregional workshops held by Vision North Texas in 2007 and 2008. This part of the chapter presents the results of small group exercises to create a vision and a distribution of anticipated growth; it also examines the results of electronic keypad polling of workshop participants.

The third part of this chapter focuses on alternative scenarios for the region’s future. It summarizes the set of alternatives that were defined and evaluated in 2005. Those scenarios have now been modified to incorporate the input from stakeholders. The chapter ends with a set of five possible scenarios for North Texas 2050.

New Directions

Global and National Issues

Climate Change

As discussed in Chapter 3, the scientific evidence is strong for the connection between increasing greenhouse gas emissions and changes to the earth’s climate. Though the U.S. is home to less than 5% of the world’s people, it produces 25% of the CO₂ emissions on the planet. Two key contributors to greenhouse gas emission – the transportation and building sectors – are affected by the pattern of development and mobility in metropolitan regions. Several recent reports, including “Growing Cooler: The Evidence on Urban Development and Climate Change”, propose that reductions in vehicle miles traveled must be a major focus of strategies to reduce a region’s ‘carbon footprint’. Alternatives to the ‘business as usual’ development pattern for North Texas appear likely to support these reductions. For example, the alternative scenarios studied in 2005 reduced vehicle miles traveled by 5 to 9% compared to the NCTCOG forecast.
Other local action on climate change is already underway in North Texas cities. The U.S. Conference of Mayors has drafted a climate protection agreement that has been signed by over 500 Mayors on behalf of their communities. The cities that sign the agreement commit to three actions: strive to meet or beat the Kyoto Protocol targets in their own communities; urge state and federal governments to meet or beat these targets; and urge Congress to pass bipartisan greenhouse gas emission legislation. As of early 2008, over 60% of the people in the North Texas region were living in cities whose mayors had signed the U.S. Conference of Mayors Climate Protection Agreement.

The International Council for Local Environmental Initiatives (ICLEI) has established a variety of programs to help its member local governments reduce the carbon footprint of their organizations and communities. Many North Texas cities are ICLEI members. Numerous North Texas communities have formed Sustainability Committees or Task Forces and several have offices or staff members who are responsible for sustainability initiatives ranging from energy conservation education to LEED building design.

**The Texas Triangle**

Several national initiatives have focused in recent years on the role metropolitan regions play in the nation’s economic vitality. Organizations including the Brookings Institution, the America 2050 project, Texas A&M University and the Metropolitan Institute at Virginia Tech are involved in research to understand how the largest of the U.S. metropolitan areas contribute to the nation and to propose federal efforts to support these regions. This research proposes that many of the metropolitan areas defined by the U.S. Census Bureau actually combine into ‘megaregions’ or ‘megapolitan areas’. The Texas Triangle is one of these megaregions. It includes the North Texas region and extends south to include the Houston region as the second point in the triangle and San Antonio as the third point (thus also including the Austin region). These studies argue that strategies for global success should include efforts to make seamless connections within this megaregion.

**Investment Decisions**

**Grey and Green Infrastructure**

Impervious cover in the region has been shown to affect the amount and quality of stormwater that reaches the region’s rivers, lakes and streams; it contributes to the urban heat island effect that in turn impacts public health. It represents cost for construction, maintenance and operation of buildings and paved areas. Use of natural systems can reduce the amount of ‘grey’ infrastructure in a region and can help reduce impervious cover. Simply paving over less area also helps reduce impervious surfaces and heat in the urban area. The analysis of alternative scenarios during the first phase of Vision North Texas found that the polycentric scenario would require 3.5 square miles less paving for the region’s transportation system than would the baseline 2030 forecast scenario. This reduction in paving – an area the size of University Park – does not consider additional reductions that could result from reducing other types of paved surfaces (such as parking lots) or from designing streets differently (with green drainage areas instead of concrete channels, for example). Development patterns and green design could make a notable impact on the region’s impervious cover.

A second ‘green infrastructure’ initiative already underway in North Texas is iSWM – integrated storm water management. This program, developed by NCTCOG, encourages communities to use natural drainage and retention systems to manage stormwater flows. It provides best management practices and design guidance that individual cities can adopt and implement.
A third ‘green infrastructure’ approach, previously discussed, increases the planting and management of trees in the region’s urban forest. This approach will have the potential to increase the financial and functional value of the urban forest; as well as reducing the region’s carbon footprint, as well as contributing to air quality and reducing the urban heat island.

**Choosing New Travel Modes**

Research underway at the University of Texas at Arlington is exploring the attitudes and perceptions of North Texans related to new modes of travel. Through surveys and focus groups, this work has investigated the factors that cause carpoolers to choose this mode of travel and the perceptions of high occupancy vehicle (HOV) lanes and managed or ‘high occupancy toll’ (HOT) lanes. The research focused on travelers in the Dallas-Fort Worth region. It found that, for carpoolers, the ability to use HOV lanes is “the most important factor in decisions of carpool formation”. Most single occupancy vehicle (SOV) focus group participants “indicated that they would be willing to pay to use managed lanes, at least once in awhile.” Continuing research should result in a better understanding of the mode choice decisions made by North Texans for different types of trips, and should provide more precise estimates of the costs North Texans are willing to pay for managed lane facilities.

**Drive ‘Til You Qualify**

A common phrase within the housing community, ‘drive ‘til you qualify’ captures the economic decision-making of many households, who have chosen to spend more time commuting because housing in more remote parts of a metropolitan region is more affordable. Recent reports indicate that some of these outlying communities may be experiencing higher foreclosure rates than communities closer to the center of the region. For example, the Dallas Morning News conducted an analysis of foreclosure rates by city for Collin, Dallas, Denton, Rockwall and Tarrant counties in September 2008. Although Dallas and Fort Worth had the highest number of foreclosures among the cities in these counties, the outlying communities had a higher rate of foreclosure. The highest foreclosure rate (as a percentage of total housing units) was in Aubrey, at 7.4%, followed by Oak Point, Princeton and Haslett. None of the larger central communities had foreclosure rates above 2%. The balance between commute and housing costs may change as gas prices become less certain, congestion increases, and mortgage rates and qualifications become less generous.

**Increased Investment in Energy Efficiency & Renewable Energy Sources**

Energy demand in the North Texas region is expected to increase because of the region’s growth in population and employment. A study by the American Council for an Energy-Efficient Economy studied the increase in demand for electricity (overall and during the summer peak) in the Houston-Galveston and Dallas-Fort Worth-Arlington MSAs. It then evaluated the potential effect of a suite of nine energy conservation policies (listed in Exhibit 5.1) on electricity needs in 2013 and 2023. The study concluded that this group of policies “has the ability to meet 101% of the load growth in the

**Exhibit 5.1: Energy Policies in ACEEE Policy Suite**

| 1 | Expanded Utility-Based Energy Efficiency Improvement Programs |
| 2 | New State-Level Appliance & Equipment Standards |
| 3 | More Stringent Building Codes |
| 4 | Advanced Energy-Efficient Building Programs |
| 5 | Energy-Efficient State & Municipal Buildings Program |
| 6 | Short-Term Public Education & Rate Incentives |
| 7 | Increased Demand Response Programs |
| 8 | Combined Heat & Power Capacity Target |
| 9 | Onsite Renewable Energy Incentives |
DFW Metro Area over the next 15 years, reducing electricity use by over 24% in 2023”. The study also notes that some of these policies could actually be implemented more effectively at the local level than at the state level. This analysis suggests that North Texas could successfully meet the needs of its future residents and businesses with less reliance on new energy-generating facilities than past trends would suggest.

In addition, the study calculates that these policies will “significantly reduce customer expenses for electricity”. It estimates that “total net cumulative savings are nearly $10 billion over the next 15 years” for the Dallas-Fort Worth-Arlington MSA; air pollution is also expected to be reduced through this approach to electricity provision.

Economy and Education for Global Competitiveness
Two analyses highlight the challenges and opportunities North Texas residents and businesses face in a rapidly-changing global economy. In 2003, The Perryman Group conducted a fiscal and economic benefit analysis of a unique program at Texas Instruments (TI). The program created a new TI wafer fabrication plant in North Texas and combined that plant with support for academic research and teaching at the University of Texas at Dallas’ engineering school. The Perryman Group concluded that this combination would help North Texas to grow its share of key emerging industries related to nanotechnology. Perryman estimated that the program would generate over $12 billion in economic benefits to the Dallas-Fort Worth Metroplex and would create over 74,000 permanent jobs. Such investments – in technology and in the academic disciplines that support it – illustrate the potential value of major private investment to the region’s economic vitality and competitiveness.

On the other hand, a report by the Governor’s Competitiveness Council released in July 2008 identifies the challenge for the state in this arena. It examined six economic clusters that offer the state future economic opportunity and then made recommendations to fill the gaps that would keep the state from becoming a global leader in these areas. A major focus was on education – the ‘talent development system’ for the state’s future. The report warns that college- and workforce-readiness are essential if Texas is to have a labor force that is competitive in these global industries. As noted in Chapter 3, state testing suggests that only 39% of the graduating seniors in North Texas are ‘college ready’ in both English language arts and mathematics. Increasing these skills will be crucial to North Texas as today’s labor force ages and business has increasingly good access to global labor markets.

Approaches to Planning and Development
Comprehensive Planning
The North Central Texas Council of Governments (NCTCOG) analyzed the current long range plans for 108 of the region’s municipalities and found that cities are adopting new approaches to development and investment as they update their comprehensive plans. The cities with existing or planned transit stations are adopting comprehensive plans that support transit-oriented development around these stations. These projects, with a mix of uses, higher development intensity and pedestrian amenities, will take advantage of the region’s investment in light and commuter rail transportation. They will increase transit ridership because they result in higher numbers of residents and destinations within walking distance of the transit station. They will also help the region accommodate the anticipated increase in the market for housing units close to transit.
Exhibit 5.2: Comprehensive Plans Analyzed
Planning for Special Areas

Small communities and individual neighborhoods have been the focus of specialized plans in recent years. These plans typically address the character of the special area, whether this is based on its natural and cultural features, the heritage of its residents or some other characteristic. For existing communities that lack the resources a major developer would bring to a project master plan, the resources of UTA’s School of Urban and Public Affairs provide valuable assistance in preparing community plans. In the past five years, such plans have been completed or are underway for the:

- City of Forest Hill
- The Center City / University District of the City of Arlington
- The Ideal neighborhood in Dallas’ Southern Sector
- The Near South East community in Fort Worth
- The Joppa neighborhood (a historic Freedmans’ Town) in Dallas’ Trinity River Corridor
- The Oakland/Lancaster Village community in Fort Worth
- The Mill Street Renaissance area in Dallas’ South Dallas/Fair Park community
- The Bexar Street community in Dallas’ Trinity River Corridor
- The Vickery Meadows area of Dallas

Such special area plans make it possible for communities to identify their own needs and the landmarks and other places that give a community its unique identity. Planning for development that retains and builds on these features will help the North Texas region offer a diversity of neighborhood choices to future residents. It also supports the revitalization of developed areas and continues the benefits of investment in already-existing infrastructure.

Infill and Greenfield Development

New developments in North Texas are shifting to infill locations; increasingly, they include a pedestrian orientation. NCTCOG’s Development Monitoring database tracks major developments with over 80,000 square feet of building area or over 80 employees. In 2003, 87.5% of the major developments were located on ‘greenfield’ sites (land that has not had any previous development). In 2008 to date, 90.7% of the projects completed were greenfield projects, but only 79.8% of those under construction and 78.0% of those announced have been greenfield projects. The projects announced in 2008 include over 21% infill projects, a notable increase from the 7.5% of projects completed in 2003.

Pedestrian orientation is also a much more frequent characteristic of projects in recent years. Of the projects completed in 2003, 95.3% were auto-oriented and only 4.7% were pedestrian-oriented or of a hybrid design that included features of both orientations. For the
projects announced in 2008, 18.3% are pedestrian-oriented and 11.8% are hybrids; only 69.9% are auto-oriented. This represents a notable shift in development project design in only five years.

Impact of New Design and Location Choices
The American Institute of Architecture has adopted the Architecture 2030 Challenge proposed by New Mexico architect Ed Mazria. Architecture 2030 used information from the U.S. Department of Energy to calculate the contribution of the ‘building sector’ on climate change and found that buildings are responsible for 48% of U.S. energy consumption and greenhouse gas emissions annually. To reduce these contributions, the challenge calls for “all new buildings and renovations to immediately reduce their energy consumption by 50% and all new buildings to be ‘carbon neutral’ by 2030”. Mazria argues that these goals can have a significant impact on energy and greenhouse gas emissions because nationwide, approximately 75% of the building stock that will exist in 2035 will be either new or renovated. Thus, action to address future construction can have a major impact even if existing, unrenovated buildings remain unchanged.

Since so much of the North Texas region’s building stock is relatively new, the assumptions used to generate this national estimate do not apply directly to this region. Calculations are not yet available to determine how much of the entire North Texas building stock in 2030 will be new or renovated and thus could contribute to decreased energy consumption and greenhouse gas emission by 2030. However, calculations related to housing units suggest an initial estimate of this impact for the residential part of the built environment. Estimates for 2030 were developed using the region’s 2007 occupancy rates and the number of residential units demolished between 2000 and 2008. These calculations suggest that 45 to 50% of the housing stock that will exist in North Texas in 2030 will have been built since the year 2000. New housing built to higher standards could, therefore, play a notable role in addressing energy and climate change issues in this region. New non-residential construction and building renovations would contribute further to these goals. If these new buildings are located where their occupants drive less, the impact will be even greater.

Development Excellence
Begun in 2003, the biannual CLIDE Awards Program celebrates regional excellence by recognizing individuals and entities that are helping to ensure the region’s sustainability into the future. It does this by honoring projects and practices that promote the Center of Development Excellence’s Ten Principles of Development Excellence. In the first year, close to 50 applications were submitted and 13 projects were recognized. In 2005, 31 applications were submitted and eight projects were honored with awards. In 2007, 31 applications were received and 14 awards were presented. Each year, the selections are made by a national jury of prominent leaders in development, design and planning. Projects were recognized in all three years in the categories of “Public Planning and Policy”, Redevelopment” and “Raising Public Awareness”; projects in “New Development” and “Special Development” categories were each recognized two of the three years. Exhibit 5.3 shows the location of CLIDE award winners.

Many mixed-use developments have been built in North Texas or are under construction now. In most cases, these projects are developed on large land holdings that enable a developer to design and execute an overall master plan for the project and gain economies of scale for infrastructure and building construction. In McKinney, recent news reports highlight an example of mixed-use that is intended to fill in a small parcel within an already-developed area. The Dallas Morning News reports that the ‘Appleseed Project’ in McKinney will be pedestrian-oriented and will include smaller-scale office and retail uses on a 12-acre site. It is designed to bring walkability and mixed-use design to a site that serves the residents of existing adjacent neighborhoods.
Changing Stakeholder Preferences

The people who live and work in North Texas are concerned about the region’s future and are interested in new forms of development and new types of communities. Vision North Texas has involved the region’s residents and has listened to their ideas about the region’s future. These ideas reflect a change in the preferred patterns of regional growth and the traditional approaches to investment in the region’s communities.

Subregional Workshop Process

When the first region-wide Vision North Texas workshop was conducted in 2005, participants recommended that similar workshops be held for smaller parts of the region. In response to this feedback, VNT conducted four subregional workshops in 2007 and 2008. The goal of each subregional workshop was to educate leaders from particular areas of the region about the issues facing both their subregion and North Texas as a whole. Participants worked together to recommend strategies that would accommodate projected growth while creating and maintaining livable communities.

Subregional workshops were held as follows:

**Southeastern Subregion.** This workshop was held on January 27, 2007 at Lancaster High School in Lancaster. It addressed southern Dallas County, most of Ellis County and all of Kaufman County – approximately 1,900 square miles of territory.

**Southwestern Subregion.** This workshop was held on June 30, 2007 at Aledo High School in Aledo. It addressed all of Hood and Johnson counties, southern Parker County, a portion of Palo Pinto County and southwestern Tarrant County – approximately 2,086 square miles of territory. This workshop was held in conjunction with AIA Fort Worth as part of their project to celebrate AIA’s 150th anniversary.

**Northeastern Subregion.** This workshop was held on April 19, 2008 at Justin Wakeland High School in Frisco. It addressed northern Dallas county, all of Collin, Rockwall and Hunt counties, and eastern Denton County – approximately 2,660 square miles of territory.

**Northwestern Subregion.** This workshop was held on May 31, 2008 at Northwest High School in Justin. It addressed all of Wise County, northern Parker County, western Denton County and the northern and central parts of Tarrant County – approximately 2,469 square miles of territory.

At each workshop, participants represented a cross section of diverse business, government, nonprofit, academic, and civic interests from communities throughout these counties. They engaged in a hands-on visioning exercise designed to help them consider alternative scenarios for how new development could occur in the region. Using oversized maps of the subregion, participants marked major regional features (such as open spaces and employment centers) and then placed color-coded Lego blocks representing new households and businesses on the map to depict preferred locations for expected growth. All groups presented their results to one another. After all participants heard the reports for the discussion groups, they used electronic keypads to provide individual responses to questions about the region’s future.
Discussion Group Results

Each of the subregional workshops began with a Lego-based version of the distribution of new households and jobs in the area, based on the NCTCOG forecast for 2030. Participants were assigned to discussion groups so each group included 8 to 12 people with diverse backgrounds. Each of these discussion groups developed a ‘headline’ statement that captured the key features of their vision for the subregion; they also provided more detailed ideas about the development pattern, environmental assets, urban design and other issues.

After the group reached agreement on a ‘headline’ and key concepts, the participants used colored markers to note important areas on a large map of the subregion. Then they used Lego blocks to illustrate their ideas about how best to accommodate future growth according to the concept expressed in their ‘headline’. Groups were assigned different levels of population and job growth to test varying options for each subregion. The high and low growth projections for the subregions were based on the work done by the stakeholders at the initial regional workshop.

The images on this page show the Lego versions of the NCTCOG 2030 forecast – the ‘business as usual’ approach – for each of the four subregions. In each case, orange Legos represent households added to
The discussion groups’ results have several common themes. Across all four subregions, there was frequent support for protection of existing resources and preservation of community character. Many groups also expressed a strong desire to concentrate development, particularly in areas with existing or planned infrastructure. Compared to the regional scenarios developed during the first workshop, the more local focus at the subregional workshops allowed participants to be more specific in the way they balanced objectives such as preserving rural character while simultaneously ensuring economic viability. The limits of natural resources, particularly water, shaped the headlines, priorities and subregional forms created by many workshop groups. The general issues that ranked highest for most workshop groups were water quality and quantity, transportation, air quality, quality of life, infrastructure and economic development.

The workshop results also show the different approaches taken by different groups of stakeholders. For some, most of the new development was located close to the Fort Worth and Dallas downtowns. Other groups planned linear development patterns, some along transit lines and others along major highways. Still other scenarios reflect the concept of concentrating development in centers separated by low density development and open space. Some groups emphasized centers around transit stations while others focused on adding new mixed-use development in the cores of the existing cities in the outer parts of the region. These ideas and priorities translate into different possible development patterns for North Texas.

The images on the following pages show the ‘headline’ and development pattern created by each of the discussion groups at all four subregional workshops. In all cases, the orange Legos represent new households and the blue Legos represent new jobs.
Group 1: Nodes and Corridors. In order to preserve environmental assets, the southeast region will develop by creating growth opportunities in nodes and corridors fed by public transportation and by encouraging high density in mixed-use settings.

Group 2: Development Nodes and Preservation Corridors.

Group 3: Sustainable economic development and redevelopment to retain quality of life and livability of our communities.

Group 4: More intense makes sense!
Group 5: Healthy and safe rail-oriented growth.

Group 6: Path to sustainability.

Group 7: Growth and transportation while conserving our natural resources and open spaces.

Group 8: Conserve our natural resources and enhance our quality of life by integrating live/work/play/educate.
Group 9: Mejor Tierra – A Better Earth.

Group 10: Self-supporting, sustainable exurban nodual development linked by commuter rail.
Southwestern Subregional Workshop

**Group 1:** Urban notes win the day.

**Group 2:** Wide open spaces: economic development opportunity and quality of life.

**Group 3:** Smart growth along transit corridors through preservation/conservation of natural/cultural resources.

**Group 4:** Growth in green: path to the future.
Group 5: Preserving the best of the West through transportation-focused development.

Group 6: Transit-linked employment anchors.

Group 7: Preserving rural character with nodal development.

Group 8: Rural character, city living: development, transportation, open space.
Group 1: Building an Educated Coalition for Responsible Development: The Smart Utilization of Existing and New Resources.

Group 2: P.O.D. for T.O.D.

Group 3: On the Right “Track.”

Group 5: Efficient Facilities and Resources for a Successful Future.

Group 6: Regional Approach to Smart Growth for a Sustainable Future.

Group 7: Balanced Efficient Growth

Group 8: Live, Work, Life Together: Future Growth Accommodated through Transit Expansion and Diversification.
Northeastern Subregional Workshop

Group 1: Where the West Goes Green: Community, Economy and the Environment

Group 2: A Delicate Balance

Group 3: Do Grey Right to Achieve the Right Green

Group 4: Live Life Linked
Group 5: Utilize Our Greener Pastures Through Focused Development.

Group 6: A Clean Slate: Regionally Coordinated, Transit-Focused Development

Group 7: Community Centered Development “Cradle to Grave”

Group 8: Produce Where We Consume
Northwestern Subregional Workshop
Keypad Polling Results

Vision North Texas has used electronic keypad polling as one of its public input techniques since the initial workshop in 2005. With this technique, a series of questions are displayed on a large screen in the front of the auditorium. Each participant is provided with a handheld wireless keypad. Her or she responds to these questions based on her or her own knowledge and opinions. Responses are automatically and instantly tallied and the results are displayed on the screen, providing immediate feedback to participants about the opinions of the entire group.

The keypad polling tool encourages participation and more effective communication because everyone is heard equally. The ‘voting’ is anonymous, which allows the participants to respond based on their individual preferences, which might vary from the overall consensus recorded during the small group discussions or in a public hearing setting. Also, the anonymity allows participants to voice their true opinions without being affected by the views of the other participants.

Keypad polling is not a statistically significant reflection of the views of the community as a whole, because the people who self-select to attend a workshop do not necessarily comprise a representative sample of all residents. But this input is valuable because these workshop participants do express a range of the viewpoints likely to be held by other members of the community. Also, these individuals are likely to be involved in local policy discussions and activities that will ultimately carry out a vision for the region’s future, so their support would be important for elected leaders who seek to address these concerns. For these reasons, the participant views documented by the keypad polling suggest directions regional leaders may choose to take in shaping the future.

The first questions in the keypad polling series tested the respondents’ views about the scenarios developed by the discussion groups. The questions were aimed at finding out whether respondents felt the general direction advocated by the small groups made sense. The group responses from all of the workshops clearly support the scenarios crafted in the exercise. This question was asked at each workshop and between 84% and 95% of participants at each workshop said the scenarios represented realistic choices the region should consider, or that even more dramatic changes were needed. These responses show strong support for the concepts identified by Vision North Texas participants and for action to incorporate these ideas into local and regional policies.

The second series of keypad polling questions investigated the issues that were important in creating a desirable pattern for future regional development. The questions were designed to gain a sense of the priority measures that should be used in further evaluation of scenarios. They asked how important a set of evaluation measures was in making decisions about future development scenarios.

At each workshop, four choices were available to the participants replying:
- Essential to examine immediately;
- Important;
- Interesting but not important; or
- Not worth evaluating.

Looking at all four of the workshops, the top two issues were water supply/quality and transportation. An average of 97% of the respondents chose one of the top responses for reducing traffic. For the water issues, water supply especially, an average of 97% also chose
either essential or important as a rating.

The next two areas receiving interest were air quality and proximity of new development to existing infrastructure. Over 96% of the participants said that air quality was essential or important. The question related to locating new homes and jobs where existing infrastructure is available received an average of over 95% responding it was either essential or important.

Six other measures received an average of over 90% support for “essential” or “important”.

- Conserve energy
- Revitalization of existing downtowns and neighborhoods
- Balance jobs and housing in local communities
- Retain open space
- Is served economically by public infrastructure
- Locate new homes and jobs near rail

The final set of keypad polling questions asked respondents about next steps for Vision North Texas and the region. These responses will be used to help set priorities for action in the future. Respondents had four choices:

- Essential to undertake during the next year;
- Important to undertake as resources become available;
- Not a good use of regional resources; or
- Don’t know enough to decide.

The top choices revealed that on average 99.5% of the workshop attendees said that analyzing examples of “best practices” for sustainable development was essential or desirable in the upcoming years. (70% indicated that it was essential.) Next, over 96.5%

indicated that an online resource sharing sustainability information in the region was either essential or important.

An average of over 94% of those responding said that sustainability should either be a criterion for regional investments or serve as a measurable target to strive for in the region. Participants continued to express strong support for the use of a ‘preferred regional scenario’ as the basis for regional investment decisions. From 83 to 96% of respondents felt that this was either ‘essential’ or ‘important to undertake as resources become available’.

**Alternative Scenarios**

Scenarios provide a valuable tool for considering the effect of today’s decisions on important factors that will shape the future. Merriam Webster defines a scenario as “an account or synopsis of a possible course of action or events”. A range of scenarios are defined and then evaluated in order to test the implications of choices such as development patterns or capital investment options. Scenarios can give a community useful information about the likely outcomes of today’s decisions. Comparisons across scenarios use a consistent set of evaluation factors. They allow a community to consider how well the results meet community goals or achieve a desired vision of the future. Vision North Texas used a set of scenarios in its initial work. A second set of scenarios will be used for evaluation of North Texas 2050 choices. These new scenarios reflect the input received from stakeholders throughout North Texas at workshops during 2007 and 2008. They describe possible futures that may be desirable for the region.

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* Merriam Webster online dictionary (www.merriam-webster.com/dictionary); definition 3.
Phase 1 Scenarios

During Phase 1 of Vision North Texas (in 2004 and 2005), a total of nineteen scenarios were evaluated to examine desired futures for the Dallas – Fort Worth Metroplex. These scenarios included:

- The NCTCOG 2030 Forecast;
- The scenarios developed by the 15 discussion groups at the Vision North Texas regional visioning workshop;
- Two additional scenarios developed by NCTCOG’s Transportation Department prior to the regional visioning workshop; and
- A final scenario that combined the ideas from several workshop groups.

Of these, four scenarios were modeled by the North Central Texas Council of Governments’ Department of Transportation. These scenarios are described below; their effect on the distribution of people and jobs among community types is presented as well.2

NCTCOG 2030 Forecast

The first scenario is, in many ways, the base case for comparison of all other scenarios. The NCTCOG’s official 2030 Forecast was developed by the Research and Information Services Department of NCTCOG. It was prepared through a standard process of forecasting and modeling based on past trends and policies reflected in the comprehensive plans of the region’s cities.

This scenario is the region’s currently-approved distribution of jobs and households. Transportation modeling of this scenario demonstrated that traffic congestion would significantly increase if growth follows this development pattern. The impacts of this scenario on the region’s quality of life prompted regional leaders to create Vision North Texas as a way to identify alternatives that can be more successful.

Workshop Group Scenarios

A diverse group of stakeholders gathered at UT Arlington for the initial Vision North Texas workshop in April 2005. Participants worked in small groups to describe their desired vision for the region’s future growth. Each of the 15 small groups developed alternative development scenarios, which accommodate the same amount of growth but use different geographic patterns to do so.

NCTCOG Rail & Infill Scenarios3

NCTCOG’s Transportation staff created two alternative scenarios while Vision North Texas was underway. Their policy direction is similar to some of the workshop scenarios.

The “Rail Scenario” sought to redistribute growth to more effectively use the region’s rail system. Population and employment growth (2010 – 2030) were redistributed from agricultural and high growth suburban areas to central business districts and rail station areas. Growth in existing single-family neighborhoods, airports and undevelopable lands was unchanged from the 2030 forecast. At the Vision North Texas Workshop, Groups 1, 10, 12 and 17 created scenarios similar to this Rail Scenario.

The “Infill Scenario” redistributed growth (2010 – 2030) to increase development in already-developed areas. Growth was moved from

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2 This section of the report is excerpted from the “Vision North Texas Phase 1 Report”.

3 The NCTCOG Rail & Infill Scenarios affected growth only within the Metropolitan Planning Area (MPA). Due to this geographic boundary, some outlying areas within the 10-county region maintained current 2030 Forecast demographics. Additionally, the Rail & Infill Scenarios redistributed growth occurring between 2010 and 2030, assuming that the distribution of growth occurring between 2000 and 2010 remained unchanged from the official 2030 Forecast. The Polycentric Scenario includes all of the 10 counties and allocated growth occurring between 2000 and 2030.
agricultural and high growth suburban areas to central business districts, infill areas and freeway & tollway frontages. Existing neighborhoods, airports and undevelopable lands retained current 2030 projections. The scenarios developed by Workshop Groups 4 & 19 are similar to this Infill Scenario.

**Polycentric Scenario**
A final scenario was developed after the Vision North Texas Workshop in April 2005. It combines features of several workshop scenarios to create a hybrid that differs from the official forecast and from the Rail and Infill scenarios. This scenario also emphasizes development in the Dallas and Fort Worth central business districts and near transit stations. In addition, it focuses growth around centers such as the downtowns of smaller outlying communities. As a result, it distributes new growth more widely across the region but at higher intensities. It combines concepts from Workshop Groups 5, 6 and 11.

**Comparison of Phase 1 Scenarios**
The 19 scenarios produce a wide variation in the number of people and jobs in individual counties. The table below lists each county and then shows which scenario resulted in the highest and lowest share of the region's population and employment. The table shows the percentage of regional growth in each county as well as the percentage of the 2030 total population and employment that would be located there.
### Exhibit 5.4: Population and Jobs in Phase 1 Scenarios

<table>
<thead>
<tr>
<th>County</th>
<th>Highest Scenario</th>
<th>Lowest Scenario</th>
<th>Change 2030</th>
<th>Population</th>
<th>Highest Scenario</th>
<th>Lowest Scenario</th>
<th>Change 2030</th>
<th>Employment</th>
<th>Highest Scenario</th>
<th>Lowest Scenario</th>
<th>Change 2030</th>
</tr>
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<tr>
<td>Collin</td>
<td>Group 17</td>
<td>Group 8</td>
<td>23.7%</td>
<td>16.0%</td>
<td>Group 1</td>
<td>Group 11</td>
<td>11.7%</td>
<td>6.3%</td>
<td>18.9%</td>
<td>7.2%</td>
<td>6.8%</td>
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<tr>
<td>Dallas</td>
<td>Group 11</td>
<td>COG 2030</td>
<td>45.5%</td>
<td>44.7%</td>
<td>Group 6</td>
<td>Group 4</td>
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<td>14.7%</td>
<td>48.9%</td>
<td>19.9%</td>
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<td>Group 2</td>
<td>Group 10</td>
<td>20.6%</td>
<td>13.9%</td>
<td>Group 2</td>
<td>Group 6</td>
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<td>22.5%</td>
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<td>5.0%</td>
<td>Group 7</td>
<td>Group 17</td>
<td>4.9%</td>
<td>3.1%</td>
<td>9.5%</td>
<td>2.3%</td>
<td>1.9%</td>
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<tr>
<td>Johnson</td>
<td>Group 4</td>
<td>Group 7</td>
<td>9.8%</td>
<td>5.6%</td>
<td>Group 4</td>
<td>Group 7</td>
<td>4.2%</td>
<td>1.8%</td>
<td>8.0%</td>
<td>0.5%</td>
<td>1.1%</td>
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<tr>
<td>Kaufman</td>
<td>Group 7</td>
<td>Group 11</td>
<td>9.7%</td>
<td>5.0%</td>
<td>Group 7</td>
<td>Group 11</td>
<td>2.4%</td>
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<td>4.5%</td>
<td>0.0%</td>
<td>0.6%</td>
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<td>Parker</td>
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<td>Group 11</td>
<td>7.6%</td>
<td>4.3%</td>
<td>Group 4</td>
<td>Group 11</td>
<td>3.2%</td>
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<td>6.3%</td>
<td>0.0%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Rockwall</td>
<td>Group 4</td>
<td>Group 11</td>
<td>4.1%</td>
<td>2.3%</td>
<td>COG Infill</td>
<td>Group 11</td>
<td>1.3%</td>
<td>0.0%</td>
<td>2.3%</td>
<td>0.0%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Tarrant</td>
<td>Group 8</td>
<td>Group 19</td>
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<td>29.7%</td>
<td>Group 10</td>
<td>Group 7</td>
<td>30.3%</td>
<td>17.5%</td>
<td>34.4%</td>
<td>20.4%</td>
<td>24.5%</td>
</tr>
<tr>
<td>Wise</td>
<td>Group 4</td>
<td>Group 5</td>
<td>6.0%</td>
<td>3.2%</td>
<td>COG Rail, COG Infill, Groups 2, 6, 11</td>
<td>Group 5</td>
<td>1.8%</td>
<td>0.0%</td>
<td>3.4%</td>
<td>0.0%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

Dallas County’s share of future growth ranges from just under 15% to almost 45%. All workshop groups envision a larger share of growth in this central county than under the 2030 Forecast. Tarrant County’s share of future households ranges from about 18% to almost 31%. Notable variations also occur for Johnson and Kaufman counties, where the shares of household growth range from 0% to almost 10%. Group 11 placed the greatest emphasis on development in Dallas County; it located no new households in Kaufman, Parker or Rockwall counties. Under this scenario, almost 45% of the region’s residents in 2030 would live in Dallas County.

The geographic distribution of new employment does not vary quite as widely, but there are also important differences in these patterns. Dallas County, where 55% of the region’s jobs were located in 2000, continues to be the largest employment center under all scenarios. But Dallas County’s share of regional employment growth is less than 55% in all cases, so its share of employment declines over time. These scenarios locate 40% to 52% of 2030 jobs in Dallas County.
Tarrant County had the second highest number of jobs in 2000 (27% of the total). Group 10’s scenario would give Tarrant County a 30% share of the region’s jobs in 2030. The lowest allocation of jobs to this county (by group 7) would mean a decline to a 24% share. Collin, Denton and Ellis counties all increase their share of regional employment under all 19 scenarios.

North Texas 2050 Scenarios

Role of Scenarios
A major part of North Texas 2050 will be a vision of the region’s preferred future. This vision will be expressed in several ways: through a brief descriptive statement, a set of goals or principles for development, an integrated framework of regional investments and one or more preferred scenarios for the geographic distribution of neighborhoods, business areas, open spaces and other regional assets in the year 2050. These preferred scenarios will be created by studying a larger set of possible scenarios and holding a regionwide dialogue about the implications of these possible patterns for growth and development.

In this report, a set of five possible scenarios are described. A scenario is not a prediction of the future; it is a description of a possible future that would result from a set of assumptions about external trends and possible choices available to decision-makers. These scenarios build on the scenarios evaluated in 2005 and on the results of four subregional workshops held by Vision North Texas in 2007 and 2008. These possible scenarios will be a topic of discussion at the subregional update sessions in November 2008; they will be a major focus of stakeholder dialogue at the Regional Summit 2008.

This is not the time for participants to pick a single scenario. Rather, participants should consider whether this set of scenarios does a good job of covering the range of reasonably possible futures that Vision North Texas should study. Stakeholder input may change the set of scenarios that Vision North Texas will study in early 2009. Results of this evaluation will be presented in the “North Texas Alternative Futures” report to be released in June 2009. These results will include a ranking of all scenarios using a consistent set of indicator measures. Debate about these scenarios will occur in summer 2009 and will shape the North Texas 2050 vision that is created in fall 2009. The final result could be an approach that combines various aspects of the scenarios that are proposed for study now.

Overview of North Texas 2050 Scenarios
The five scenarios described below provide a range of possibilities for North Texas. Key features of the scenarios are summarized in Exhibit 5.5. They are described in greater detail below. The investment framework associated with each scenario is also discussed. All scenarios assume that the sixteen county region will have 9.49 million residents and 5.58 million jobs in 2030. These projections are based on the North Central Texas Council of Governments 2030 Forecast, with additional assumptions about growth and development patterns for the six counties beyond the area for which this forecast was defined.4 They are solely for use in this Vision North Texas project, not for other modeling purposes.

4 The counties outside the NCTCOG forecast area are Erath, Hood, Hunt, Navarro, Palo Pinto and Somervell.
Exhibit 5.5: North Texas 2050 Scenario Summary

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Key Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business As Usual</td>
<td>Continuation of current trends and adopted plans</td>
</tr>
<tr>
<td>Connected Centers</td>
<td>Give people more choice about how they connect to the places where they live, work and play</td>
</tr>
<tr>
<td>Return on Investment</td>
<td>Maximize the benefit received from the extensive investment taxpayers and property owners have made in the region’s existing infrastructure &amp; development pattern</td>
</tr>
<tr>
<td>Diverse, Distinct Communities</td>
<td>Create a region with different sorts of communities and centers, built on the traditional character of regional communities but designed to meet the needs of the region’s future markets</td>
</tr>
<tr>
<td>Green Region</td>
<td>Emphasize green development or natural assets as the foundation for future regional growth</td>
</tr>
</tbody>
</table>

These scenarios will be analyzed in terms of the development pattern, benefits and impacts on the region in the year 2030. This is the year for which modeling technology and data are currently available. A qualitative analysis will extend the 2030 conclusions to compare the scenarios’ outcomes for 2050. In this way, these scenarios will guide the creation of the North Texas 2050 vision.

Business as Usual

This scenario represents the region as it will exist in 2030 if private and public decision-makers continue in the direction the region is headed today. With this scenario, the pattern of population and employment distribution will reflect past trends and the current policies of local governments regarding land use. Infrastructure investments will reflect existing adopted plans, such as Mobility 2030 for transportation facilities and the 2007 Texas Water Plan for major water supplies and facilities.

Connected Centers

This scenario envisions a region where people have more choices about how they connect to the places where they live, work and play. The amount of population and employment in the region in 2030 is the same as in the Business as Usual scenario, but the locations of jobs and housing are different and the networks that connect them are different as well. The digital image in Exhibit 5.6 provides an example of the development pattern of this scenario.

With this scenario, many human-scale mixed-use centers would be located throughout North Texas. These centers might be similar to the development projects created in recent years near DART light rail stations:

- Within about one-half mile of the center’s primary destinations, so people can walk to and from locations within the center;
- Including a mix of residential, office, retail, restaurant and public uses;
- Generally developed at a moderate intensity;
- Designed with a consistent or compatible urban design approach for the center, with features such as those associated with ‘new urbanism’; and
- Containing places for people to gather such as parks or plazas.

The investment framework associated with this scenario would include:

- An emphasis on mobility choices within the centers, particularly for walking and biking;
An emphasis on mobility choices between centers, including trails/paths, public transportation (bus, streetcar, light rail and commuter rail) and routes for travel by car;

The potential for shared locations for public facilities and services in centers (such as libraries, schools, clinics and recycling locations);

The potential for shared energy infrastructure (such as district heating or cooling);

 Provision of urban levels of water and wastewater services to these centers; and

 Use of parks or open spaces to define and identify particular centers.

These centers might be located in areas that are already developed or in outlying parts of the region where few urban areas exist today. As a result, some might be in unincorporated areas of the region.

This scenario is similar to the 2005 ‘Rail’ scenario.

**Return on Investment**

This scenario envisions a region that maximizes the benefit received from the extensive investment taxpayers and property owners have made in the region’s existing infrastructure and development pattern. The amount of population and employment in the region in 2030 is the same as in the Business as Usual scenario, but the locations of jobs and housing are different and the networks that connect them are different as well. The digital image in Exhibit 5.7 depicts one group’s concept of how to accomplish a return on investment.

This scenario is based on the identification of the areas within North Texas where urban-scale services are generally available. Such services include water and sewer systems, adequate transportation facilities, parks, schools and hospitals. Within these urban service areas, there is an emphasis on development that fills in vacant properties or revitalizes underutilized properties. Other concepts reflected in this scenario are:
Stable single family neighborhoods are the focus of maintenance and investment so they remain highly livable and good investments for homeowners;

Existing commercial and employment centers might be more stable because reinvestment would help existing locations remain successful in the marketplace and would make a move to a new center less economically attractive;

Mixed-use, higher intensity development might occur where land is available or underutilized along freeways and tollways;

Older commercial areas along arterial streets might be revitalized with moderate intensity mixed-use development; and

Areas that are now in agricultural use would generally remain so.

The investment framework associated with this scenario would include:

A higher priority on maintaining and rehabilitating existing infrastructure than on extending infrastructure into areas where it does not currently exist;

An emphasis on conservation, transportation demand management and other strategies that use existing infrastructure more effectively;

Attention to reinvestment that helps existing infrastructure meet new needs – for example, retrofit of existing auto-oriented arterial streets to become ‘complete streets’ for all modes of travel; and

Expansions of service areas (if needed) would focus first on locations where some services already exist; or on locations where such an expansion appears to be very cost-effective – generating its own high return on investment.

In this scenario, most of the future jobs and residents would be located within existing services areas. As a result, little new development would be expected in areas that are currently unincorporated or outside an existing utility service area.

This scenario is similar to the 2005 ‘Infill’ scenario.
**Diverse, Distinct Communities**

This scenario creates a region with different sorts of communities and centers, built on the traditional character of regional communities but designed to meet the needs of the region’s future markets. Instead of focusing on quantities (of new population or of facility capacity), it focuses on qualities—the features, places and experiences that make one community stand out from another and that encourage residents to develop strong and lasting ties to their own community. The digital image in Exhibit 5.8 illustrates how one workshop group envisions diverse, distinct communities.

This scenario combines some aspects of other scenarios with a different approach to the regional form. Key concepts include:

- Support for reinvestment and development in downtown Dallas and downtown Fort Worth as the centers for the entire region;
- Support for revitalization and investment in the downtowns of other communities around the region, both large and small, providing regional support for the efforts many of these communities have underway;
- By strengthening these traditional centers, create places with a mix of uses and more intense development, but in locations that reinforce community history and character;
- Develop additional centers in locations near transit stations, major employment centers and other major regional destinations;
- Use of parks and natural areas to create buffers that separate one outlying community from another, helping them to maintain distinct boundaries; and
- Ensure that the region as a whole provides neighborhoods and communities that match the market demands anticipated in the future.

The investment framework associated with this scenario would include:

Exhibit 5.8: Subregional Workshop Results: Example of Diverse, Distinct Communities Scenario
An emphasis on mobility choices such as walking and biking in downtowns and new centers around the region;
- An emphasis on mobility choices between these centers, including trails/paths, public transportation (bus, streetcar, light rail and commuter rail) and routes for travel by car;
- Use of natural areas to differentiate communities as they grow;
- Provision of urban levels of service in existing communities and focused on their downtowns;
- Extension of urban services and facilities to new areas, but to centers where this infrastructure can be clustered efficiently rather than to large areas of low intensity development; and
- The potential for outlying communities to include economic growth related to alternative energy generation from wind or solar sources.

This scenario also provides for the same level of population and job growth as the ‘business as usual scenario’. This scenario would involve growth in outlying parts of the region. Unlike the ‘business as usual’ scenario, this growth would be focused around existing downtowns and town centers and would occur with a mix of uses and at moderate development intensities.

This scenario is similar to the 2005 ‘Polycentric’ scenario.

**Green Region**

Vision North Texas began a ‘greenprinting’ process with the first of the four subregional workshops. Greenprinting is a process that uses geographic information systems (GIS) to assemble demographic and geographic data; this information is then combined with stakeholder input to develop a set of shared open space priorities within the context of regional growth and development. A set of greenprint goals has been developed and confirmed through the input of stakeholders at each of the four workshops. Many of the workshop groups emphasized green development or natural assets as the foundation for future regional growth. This scenario reflects these ideas. It includes:

- An initial identification of natural assets and open spaces that create a ‘green infrastructure’ for the region and that should be protected or enhanced;
- Support for development in communities where residents can enjoy the green assets envisioned by Vision North Texas stakeholders;
- An emphasis on the inclusion of natural areas in the development pattern in all parts of the region;
- The use of tools such as the transfer of development rights (TDR) to protect natural areas while enabling property owners to benefit from previously-approved development intensity;
- Provision for new jobs and neighborhood areas that can benefit from these green assets;
- Support for green jobs – economic development based on the area’s natural assets, continuing agricultural uses and eco-tourism; and
- An emphasis on reducing the region’s carbon footprint even as its population and job base expand.

The investment framework associated with this scenario would include:

- An initial design of green infrastructure to serve the region’s needs for parks and trail connections and for storm water management and other needs;
- A strong emphasis on networks for non-auto mobility options;
The use of alternative energy sources, LEED building and conservation to reduce the region’s energy consumption needs;

- An emphasis on water conservation and demand reduction above current levels as a strategy to meet the region’s needs; and

- A greater emphasis on public infrastructure design, materials and locations that reduce the region’s carbon footprint.

This scenario also provides for the same level of population and job growth as the ‘business as usual scenario’. While much of the region’s development might occur within the existing urban fabric, some development of free-standing ‘green communities’ will occur in outlying areas as well. Exhibit 5.9 depicts one group’s desire to consider environmental features as the framework to the planning process.

**Refinement of Possible Scenarios**

These possible scenarios for the region’s future will be presented to stakeholders at four subregional update sessions in November 2008. At each session, participants will be asked whether this set of scenarios provides a reasonable range of possibilities for study. Their input will be received through general discussion and through the use of electronic keypad polling. The input of these stakeholders may modify this set of possible scenarios.

A Regional Summit will be held on December 9, 2008. At this session, participants will consider this set of possible alternative scenarios and the input received from stakeholders at the subregional update sessions. Discussion at this summit will guide the Vision North Texas advisors and Management Committee as they finalize a set of scenarios to study.

**Evaluation of Possible Scenarios**

During the first half of 2009, the selected set of possible scenarios for North Texas will be evaluated. In June, the “North Texas Alternative Futures” report will present the results of this evaluation. A set of evaluation measures will give an assessment of how well each scenario fits the visions described by regional stakeholders. Key measures or indicators to be used in this evaluation may include:

- The distribution of population and employment within the region

- Development within downtown areas

- Share of population and employment in communities of various form type (center city, inner tier, outer tier, separate communities)

- Proximity of jobs and housing

- Mix of single family and multi-family development

Exhibit 5.9: Subregional Workshop Results: Example of Green Region Scenario
- Cost of investment framework
- Average vehicle trip length
- Rail transit boardings
- Non-rail transit boardings
- Vehicle miles traveled
- Vehicle hours traveled
- Vehicle hours of delay (due to congestion)
- Lane miles needed
- Roadway pavement area needed
- Share of trips by non-motorized means
- Nitrogen oxide (NOx) emissions
- Volatile organic compound (VOC) emissions
- Carbon footprint
- Area in urban use
- Proximity of neighborhoods to open space & natural resources
- Energy consumption
- Share of energy from renewable sources
- Amount of benefit provided to the region by the urban forest
- Water supply and availability
- Water demand
- Housing stock diversity
- How well the housing supply matches the demands of the anticipated market
- Housing affordability and condition
- Jobs-housing balance
- Share of development served by existing infrastructure
- Safety from flooding and other hazards
- Amount of impervious cover in the region
- Protection of open spaces and other natural assets
- Retention of agricultural lands in agriculture or related uses
- Habitat diversity
- Benefits to the region from the urban forest
- Use of natural systems for storm water management
- Preservation of historic places and community landmarks
- Sustainability
- Water quality in streams and lakes
- Impact on obesity
- Reduced number of people with asthma
- Impact on other public health issues
- Diversity of the region’s economy
- Increase in net business formation
- Increase in per capita income
- Decrease in violent crime
- Decrease in property crime
- High school graduation rate
- College-readiness of high school graduates
- Match between skills needed by employers and those available in the regional labor force.