North Texas Alternative Futures
Initial Findings

June 12, 2009

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Introduction

Vision North Texas (VNT) has three objectives for today’s workshop. First, the initial findings of the VNT evaluation of alternative futures for the region will be shared. Second, workshop participants with varied interests and based in different parts of the region will provide feedback to the research team on these initial findings. Third, participants will have the opportunity to suggest additional areas for investigation and to contribute to the complete review of alternatives that will be presented to North Texas in September 2009.

The agenda for the workshop is shown in the chart to the right. All activities will occur in one room. On arrival, participants should choose a discussion topic of interest and then sit at one of the tables for that topic. When the first set of discussions are complete, participants will move to another table and join the discussion of a different topic. After the discussion sessions, discussion table results will be shared and electronic keypad polling will be used to gain additional input from all participants.

The Vision North Texas website, www.visionnorthtexas.org, contains a great deal of information on the workshops Vision North Texas has held over the past several years. The research report, “Regional Choices for North Texas” is available for download. The site also includes more information on ways that individuals and organizations can be involved in this initiative.

Today’s Discussion Sessions

Discussion Format

The discussion today gives all participants the opportunity to contribute to the dialogue about our region’s future. This handout package contains the initial findings prepared by the Vision North Texas Alternatives Research Team. Each discussion session will begin with a brief presentation of these findings by one of our key researchers. The researcher will then lead a discussion among all participants about the findings and other research that is still underway. The results of this discussion will be recorded by a volunteer, so all comments and suggestions can be considered by the research team as it continues its analysis.

Eleven topics will be discussed this morning. These topics and the discussion leaders who will guide these discussions are listed on page 2.
For each topic, the discussions will consider questions such as:
1. What did you find most notable about the initial findings – which findings have the greatest potential to affect the future success of North Texas?
2. For each of the alternative scenarios, what are the most desirable results related to this issue?
3. What would be the biggest drawbacks to each of the alternative scenarios related to this issue?
4. What approach to this issue would support a future for North Texas that is ‘better than Business as Usual’?
5. What action tools or implementation measures (related to this issue) are most important to achieve this future?
6. Which groups or individuals need to be involved so North Texas 2050 will enjoy support on this issue?
7. Which of the adopted 10 Principles of Development Excellence (if any) should be evaluated and updated as part of North Texas 2050?
8. Should the North Texas 2050 Guiding Principles address any additional issues?
9. Is there a scenario that seems most compatible with the plans and policies of your jurisdiction or organization?
10. Based on what you heard this morning, how would you describe the future for North Texas that would be ‘better than Business as Usual’?

Continuing research will consider the topics discussed today as well as other important issues for which initial findings are not yet available. These issues may include topics related to the economy, education and other issues that will affect the region’s future success and sustainability.
Vision North Texas Overview

Vision North Texas is a private–public partnership designed to increase awareness about the growth expected in North Texas and to involve people and organizations in initiatives that accommodate that growth successfully and sustainably. The partnerships’ three Charter Sponsors are the Urban Land Institute’s North Texas District Council (ULI), the North Central Texas Council of Governments (NCTCOG) and the University of Texas at Arlington (UTA). Vision North Texas’ activities are directed by a small Management Committee representing the Charter Sponsors and other leaders in the private, public and academic sectors, and are guided by more than 70 Advisors representing key private and public sector entities.

Vision North Texas has conducted research and held successful workshops for stakeholders from across the region. It has become the forum for discussion of alternatives to “business as usual” regional growth patterns. Its objective in 2009 is the creation of North Texas 2050, a new and valuable tool for public and private sector decision-makers in this region. North Texas 2050 will address a 16-county area and will consider the growth expected through the year 2050. It will have two important parts. First, a Vision Statement will include one or more preferred scenarios that show the physical development pattern the region believes will be most successful and sustainable; it will also include a ‘regional infrastructure framework’ that will enable the region to coordinate public and private investments in regional assets such as transportation, water, housing, health care, education and open space. Second, an Action Package will provide tools for the decision-makers – cities, counties, property owners, business executives – so their choices can help create the region’s vision. North Texas 2050 will be adopted by the three Charter Sponsors. All participating entities will then be asked to adopt or endorse this plan and to use it in their own planning and investment efforts.

Principles of Development Excellence

The North Texas region began addressing its choices for the future with the creation of the Center of Development Excellence (CDE) in 2001. The Mission Statement for the CDE is to promote quality growth in North Central Texas that enhances the built environment, reduces vehicle miles of travel, uses water & energy resources effectively and efficiently, and helps advance environmental stewardship. The Development Excellence Steering Committee, a group representing varied interests across the region, developed a set of ten Principles of Development Excellence. These principles were approved by the NCTCOG Executive Board in 2002 as a guide to the public and private sector for the future development and redevelopment of the region. The 10 Principles of Development Excellence are listed below, along with a North Texas example that demonstrates each principle. All of these examples have been recognized with CLIDE (Celebrating Leadership In Development Excellence) awards.

1. Development Options
Provide a variety and balance of development options and land use types in communities throughout the region.

CLIDE Award Example: Fort Worth Urban Village Program

2. Efficient Growth
Foster redevelopment and infill of areas with existing infrastructure and promote the orderly and efficient provision of new infrastructure.

CLIDE Award Example: Gables Republic Tower
3. Pedestrian Design
Create more neighborhoods with pedestrian-oriented features, streetscapes, and public spaces.
*CLIDE Award Example: Addison Circle*

4. Housing Choice
Sustain and facilitate a range of housing opportunities and choices for residents of multiple age groups and economic levels.
*CLIDE Award Example: The Block*

5. Activity Centers
Create mixed use and transit-oriented developments that serve as centers of neighborhoods and community activity.
*CLIDE Award Example: Southlake Town Square*

6. Environmental Stewardship
Protect sensitive environmental areas, preserve natural stream corridors, and create developments that minimize impact on natural features.
*CLIDE Award Example: Trinity Uptown - Fort Worth*

7. Quality Places
Strengthen community identity through use of compatible, quality architectural and landscape designs and preservation of significant historic structures.
*CLIDE Award Example: Old Stone Dam at Allen Station*

8. Transportation Efficiency
Develop land uses, building sites, and transportation infrastructure that enhance the efficient movement of people, goods, and services.
*CLIDE Award Example: Spring Valley Station District/Centennial Park*

9. Resource Efficiency
Provide functional, adaptable, and sustainable building and site designs that use water, energy, and material resources effectively and efficiently.
*CLIDE Award Example: Texas Instruments Richardson Fabrication Facility*

10. Implementation
Adopt comprehensive plans and ordinances that support Development Excellence and involve citizens and stakeholders in all aspects of the planning process.
*CLIDE Award Example: Lancaster Mills Branch Initiative*
Alternative Futures for North Texas

Role of Scenarios
Scenarios provide a valuable tool for considering the effect of today’s decisions on important factors that will shape the future. 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 allow a community to consider how well the results meet community goals or achieve a desired vision of the future. 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.

Vision North Texas is examining five scenarios that reflect ideas and input received from stakeholders throughout North Texas at workshops during 2007 and 2008 and at the Regional Summit in December 2008. Each scenario is described by a set of key concepts, a graphic showing the expected 2030 physical development pattern, and an investment framework to serve that physical development pattern. Results of this evaluation will be presented in the “North Texas Alternative Futures” report to be released in September 2009. These results will include evaluation 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 a hybrid that combines various aspects of the scenarios that are under study now.

Common Characteristics for 2030 and 2050
This analysis assumes that the number and character of the people, households and jobs in the 16 county region in 2030 will not change from one scenario to another. These projections are based on the North Central Texas Council of Governments 2030 Forecast, with additional assumptions about growth and development pattern for the six counties beyond the area for which this forecast was defined.¹

<table>
<thead>
<tr>
<th>Regional Growth</th>
<th>2000</th>
<th>2030</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population (millions)</td>
<td>5.31</td>
<td>9.49</td>
<td>11.66</td>
</tr>
<tr>
<td>Total Households (millions)</td>
<td>1.94</td>
<td>3.48</td>
<td>4.38</td>
</tr>
<tr>
<td>Total Employment (millions)</td>
<td>3.22</td>
<td>5.58</td>
<td>7.17</td>
</tr>
</tbody>
</table>

Disclaimers Related to All Scenario Analysis
The projections shown above are solely for use in this Vision North Texas project, not for other modeling purposes.

Each scenario represents a different development concept. Regional household and employment growth are assumed to be the same in each scenario; however, the location of the growth varies. Development intensity was manually redistributed to best represent each scenario’s regional development pattern. This data was created specifically for Vision North Texas and has not been evaluated for other uses. Responsibility for the use of this data lies solely with the user.

The information presented here is a set of initial findings from research on a range of key topics. Team members have not yet had a chance to discuss and debate the findings across topics, so the findings for each topic represent the conclusions of that set of researchers. Refinements and revisions to these initial findings may occur as this analysis continues.

¹ The counties outside the NCTCOG forecast area are Erath, Hood, Hunt, Navarro, Palo Pinto and Somervell.
**Scenario 1: 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.

*Physical Development Pattern*

With this scenario, the pattern of population and employment distribution will reflect past trends and the current policies of local governments regarding land use.

*Investment Framework*

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.

**Scenario 2: 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.

*Physical Development Pattern*

Many human-scale, moderate intensity mixed use centers are located throughout North Texas. These centers might be similar to the development projects created in recent years near DART light rail stations.

*Investment Framework*

The investment framework emphasizes mobility choices including trails/paths, public transportation (bus, streetcar, light rail and commuter rail) and travel by car. The diagram shows important roadway connections in brown and important rail connections in green.
Scenario 3: Return on Investment
This scenario maximizes the benefit from the extensive investment taxpayers and private property owners have made in the region’s existing infrastructure and development pattern. The green shading shows areas that are generally urban (they have existing development or existing infrastructure); most of the growth through 2030 occurs in this green-shaded area.

Physical Development Pattern
Within the urban service areas, existing neighborhoods and business areas are maintained and vacant or underutilized properties are revitalized. Urban development is generally not extended into currently undeveloped areas.

Investment Framework
The investment framework focuses on reinvestment in existing infrastructure. Roads, sewers, water systems and other services are generally not extended and suburban or urban development intensities generally do not occur in areas that are now ranchland or open space.

Scenario 4: Diverse, Distinct Communities
This scenario creates a region with varied communities and centers, built on the traditional character of the region’s communities but designed to meet the needs of the region’s future markets. It focuses on the features, places and experiences that distinguish one community from another.

Physical Development Pattern
This scenario supports revitalization and investment in the downtowns of large and small communities around the region. By strengthening these traditional centers, the scenario creates places with a mix of housing and jobs, but in locations that reinforce community history and character.

Investment Framework
The investment framework provides urban levels of service in existing communities around the region. There would be some 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.
Scenario 5: Green Region
This scenario begins with the preservation of important open spaces and environmental assets.

Physical Development Pattern
This scenario includes an initial identification of the natural assets and open spaces that create a ‘green infrastructure’ for the region and that should be protected or enhanced. It emphasizes the inclusion of natural areas in the development pattern in all parts of the region, supports green jobs and reduces the region’s carbon footprint.

Investment Framework
The investment framework associated with this scenario includes 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. It uses alternative energy sources, LEED building standards and conservation to reduce the region’s energy consumption and carbon footprint.

**Evaluation of North Texas 2050 Scenarios**

This set of scenarios for North Texas is being evaluated now by an interdisciplinary research team. Today’s discussion focuses on the initial findings of this work. In September, the “North Texas Alternative Futures” report will present the complete results of this evaluation. These results will be organized in three levels:

**Level 1: Impacts**
This level of assessment will consider the entire 16-county North Texas region. It will address those issues for which data and modeling tools are available for all or most of the region. It examines how successful the scenarios are in meeting the needs of the people and jobs that will be here in 2030 and 2050.

**Level 2: Implications**
This level of assessment will be used for issues that are important to the choice between alternatives, but which cannot be examined for the entire region. At this level, case studies of smaller areas within North Texas will be used to compare “business as usual” to one or more of the alternatives.

**Level 3: Action Tools**
This level of assessment focuses on the action tools that are most important to the success of a particular alternative. Examples of action tools might include a model ordinance for moderate intensity, mixed use development; a transfer of development rights program to shift development intensities and retain key river corridors; or a ‘fast-track’ incentives program for development projects that achieve certain specified objectives.
Comparison of Physical Development Patterns

An initial assessment of the five scenarios shows that they would result in different distributions of population and housing in the region. The chart to the left considers the mix of housing intensity represented by each scenario. The household intensity ranges are the same as that used for earlier VNT workshops; it ranges from Low (up to 4 units per acre) to High (20 or more units per acre). The chart demonstrates 4 initial findings:

- In all scenarios, most of the households are located in Low intensity areas.
- Compared to ‘Business as Usual’, all other scenarios have higher shares of households located in Low-Moderate, Moderate and High intensity areas.
- Connected Centers has the largest share of households located in High intensity areas; Diverse, Distinct Communities has the second-larges share of High intensity area households.
- Both Return on Investment and Green Region have larger shares of households in Low-Moderate intensity areas.

A second assessment considers the share of new growth that locates in communities of various types. VNT has grouped communities into five types:

- Core Communities include the oldest central parts of the region’s two center cities of Dallas and Fort Worth.
- Inner Tier Communities include those that were largely developed by the 1990’s, such as Irving, Plano and Arlington.
- Outer Tier Communities are further from the region’s core and still have room to expand, such as Grapevine & Rockwall.
- Separate Communities are physically distinct from the region’s main urban area, such as Waxahachie or Greenville.
- Other parts of the region include towns and rural areas, many of which are unincorporated.

The table shows the share of new households and employment in communities of these types. The five scenarios do result in varying shares of development by community type.

The complete ‘North Texas Alternative Futures’, to be released in September, will reflect further examination of this data and will include additional findings in these areas.

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2 Note that the disclaimers discussed on page 5 apply to the information shown on this page. Responsibility for the use of this data lies solely with the user.
Discussion Topic: Nutrition, Physical Activity and Health

How do the communities we live, work and play in affect our choices for healthy nutrition and the amount of time we engage in physical activity? Examine the design of a community; the way it moves from one destination to another, the spacing and density of population and housing structures, and the availability of goods. How these factors are distributed give structure to a community and impacts the daily lives of the residents.

Selected Indicators

The need for regular physical activity and access to healthy foods must be considered when designing healthy communities. Improving dietary habits and physical activity is not just an individual problem; it is a challenge for the society. Therefore, it demands a population-based, multi-disciplinary, and culturally relevant approach.

VNT has successfully addressed the physical design of communities with mixed use for housing and businesses, transportation including public rail and bus systems, watersheds, economic growth and ecological factors. The Health Research component of VNT brings a health and vitality perspective to the vision for designing communities. This perspective includes the prevention of diseases, the promotion of health and the prolongation of life. Therefore, the first two health indicators selected for study are regular physical activity and access to healthy foods.

Healthy diets and regular, adequate physical activity are major factors in the promotion and maintenance of good health throughout the entire life course. It is important to ensure populations can access affordable and healthy foods regardless of where they live. Healthy nutritious food choices help to:

- achieve energy balance and a healthy weight,
- limit the intake of total fats and shift fat consumption away from saturated fats to unsaturated fats and towards the elimination of trans-fatty acids,
- increase consumption of fruits and vegetables, and legumes, whole grains and nuts,
- limit the intake of free sugars and limit salt (sodium) consumption and ensure that salt is iodized

It is equally important to assure that populations can access affordable physical activity opportunities regardless of where they live. Physical inactivity is an independent risk factor for chronic diseases. Physical activity is a key determinant of energy expenditure, and thus is fundamental to energy balance and weight control. Physical activity reduces the risk of coronary heart disease and stroke, reduces risk of Type II diabetes, and reduces the risk for colon cancer and breast cancer among women.

Impacts on the Region's Future

The VNT Health Research Team evaluated the impact that each community model has on health indicators. Cells with a score of (+) indicate that the model strongly impacts the key health indicator, in a positive manner. A score of (0) means there is no impact, and a score of (-) means there is a strong negative impact on the indicator. Initial findings indicate that the community models of Return on Investment and Diverse, Distinct Communities have the highest, positive impact on health, if you consider a more complete set of six health indicators. If the focus is placed on our selected health indicators (access to healthy food and opportunities for physical activity) then the Green Region model must also be included.
Keeping our North Texas population healthy is extremely important. Making sure we have access to healthy affordable food and opportunities for physical activity are two ways to improve health. The 3 models with the highest ranking for these indicators, all have unique characteristics. The Diverse, Distinct Communities and Green Region models both emphasis the inclusion of natural areas, parks, trail connections, walking, biking and non-automobile options. The Return on Investment model speaks of retrofitting existing auto-oriented arterial streets to become complete streets for all modes of travel.

**Action Tools**
Currently, we are looking at various methodologies that prioritize and filter indicator measurements. Central to this task is clearly defining the key health indicators. Outcome measurements for nutrition might include access to full service grocery stores, 5 vegetables/fruits per day, availability of farmers markets and reasonable food and beverage portions. Physical activity measurements might include the amount of time spent on regular physical activity, school and workplace physical activity and available time to spend on physical activity.

**Yet to Come**
The Health Research Team will continue to refine the key health indicators and place them into a modified logic matrix. The additional detail will make it possible to determine how each community model contributes to a healthy lifestyle of regular physical activity and healthy nutrition. The salient issue in designing a community is to provide opportunities for people to enjoy physical activity and have access to healthy and nutritious foods. The long range goal is for North Texas built environments to contribute to the health and vitality of the community.
Discussion Topic: Housing for the Region’s Future

North Texas is growing by millions over the next 40 years. Where will they live? What will tomorrow’s neighborhoods look like? How will they function in a regional system? *Housing for the Region’s Future* considers the policies and practices that will shape the future of North Texas’s communities.

**Selected Indicators**

The housing indicators selected for Vision North Texas are designed to measure three important facets of the housing market. The first, **availability**, assesses the variety and location of housing opportunities that are accessible to consumers in a community. It serves as an evaluation of the extent to which the supply of housing meets the varying needs of consumers along dimensions such as income, housing type, and location of housing. Next, **sustainability** assesses the effect of a particular dimension on the environmental, economic, and social sustainability of a community, mindful of the fact that housing and development decisions have implications on the quality of life and advancement of a community. Finally, **value** assesses the condition and cost of housing opportunities available to consumers.

Six indicators will measure North Texas’s progress along these three important areas. They are presented below.

<table>
<thead>
<tr>
<th>Housing Development Intensity</th>
<th>Housing Affordability</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Measures the concentration and depth of housing opportunities available in the region.</td>
<td>- Measures the distribution of economic variety in the region’s housing opportunities.</td>
</tr>
<tr>
<td><strong>Alignment of Supply and Demand</strong></td>
<td><strong>Housing Variety</strong></td>
</tr>
<tr>
<td>- Measures the extent to which existing housing supply meets the demand within the region.</td>
<td>- Measures the style, density, and structural diversity of housing opportunities within the region.</td>
</tr>
<tr>
<td><strong>Housing and Neighborhood Condition</strong></td>
<td><strong>Housing Migration</strong></td>
</tr>
<tr>
<td>- Measures the physical condition of available housing within the region.</td>
<td>- Measures the movement within the region generated by social and economic forces, and the resulting impact on the housing market.</td>
</tr>
</tbody>
</table>

**Impacts on the Region’s Future**

With millions projected to move to North Texas in the coming decades, there is little doubt that housing will be important. More important than providing basic shelter, though, the housing choices we make as a region today will impact almost every area of our tomorrow. Successfully aligning a variety of housing choices with the job market will decrease commutes, increasing productivity and reducing air pollution. Developing neighborhoods of diverse opportunities will restore many communities to economic vibrancy while retaining the individual character that makes them special.

Among the housing indicators outlined above is the intensity of housing development. Figure 1 presents the change in number of housing units (single- and multi-family units) from 1990 through 2008\(^3\). Note that no single county in our region has gone without seeing net increases, most with areas receiving from 200 to 1,500 new housing units. More importantly, the map illustrates the drastically different levels of growth experienced by areas in Palo Pinto, Erath, and Wise counties, for instance, compared to the corridor bordering Denton and Collin counties. In the former, most areas saw a moderate increase in the number of housing units (these are the areas shaded yellow on the map). In the latter, however, block groups experienced growth of 6,000 housing units or more (these are the areas shaded in dark blue on the map). Neighborhoods in Kaufman, Rockwall, Ellis, and Tarrant counties also saw sizeable increases of 3,000 to 6,000 housing units (shaded in

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greens and light blues). In the face of these patterns, it is critical that we act as a region to align our housing demands with our existing infrastructure, planned infrastructure investments, and inclusionary growth opportunities. Figure 1 illustrates the change in housing intensity (units per square mile) by county from 1990 through 2008. As the map in Figure 1 would lead us to suspect, Collin and Rockwall counties have faced the largest increases in density, nearly tripling over the last 18 years.

Implications for the Region
One might consider the intensity patterns in these figures as representative of Business as Usual, with inadequate advanced planning to ensure an alignment of infrastructure and social services with new development. Under the five alternative regional growth scenarios, we would anticipate divergent patterns of change in housing intensity. For instance, under a scenario of Diverse, Distinct Communities, one would envision increased densities throughout the region, concentrated around areas of core community and infrastructure investments. Housing intensity and the remaining five indicators will illustrate the implications of the various growth strategies in North Texas.

Action Tools
As the housing research team continues its work, we’re identifying a number of action tools that will help the region shape its housing policy in a way that supports our selected growth scenario. A number of these tools, such as voluntary inclusionary zoning, are currently used by cities elsewhere in the nation. Others, such as community land banking, are already used in North Texas communities. The final alternatives report will highlight those tools that will help North Texas achieve each growth scenario.

Yet to Come
The research team is working to identify the best measures for each of the six selected indicators. We’re tapping a variety of local, regional, and national data sources, and are working to ensure that the measures selected allow us to work at the smallest levels of geography.
Discussion Topic: Transportation System

The performance of the transportation network and traffic congestion makes a significant impact on the work and non-work trips of commuters in the region. The Business As Usual Scenario and the four alternative scenarios modeled by the NCTCOG Transportation Department show that changes in development patterns can make a considerable difference to travel time, commuting patterns, and infrastructure needs.

Selected Indicators

The following Transportation System Performance Indicators were modeled for the Business As Usual Scenario and the four alternative scenarios: Average Trip Length, Rail Transit Boardings, Bus Transit Boardings, Auto Vehicle Miles Traveled, Auto Vehicle Hours Traveled. The average trip length is the length of trip made by each commuter. Based on the above indicators, savings in infrastructure, funding needed and air quality benefits were calculated.

The following Transportation System Benefit Indicators were modeled for the Business As Usual Scenario and the four alternative scenarios: Auto Vehicle Hours of Delay, Lane Mile Needs; Roadway Pavement Needs (Square Miles); Financial Needs ($ Billions); VOC Emissions (Volatile Organic Compounds); Nox Emissions (Nitrogen Oxides); CO Emissions (Carbon Monoxide); and CO2 Emissions (Carbon Dioxide). The Auto Vehicle Miles Traveled is the number of miles traveled by residential vehicles. Vehicle emissions are a major contributor to ozone formation due to the presence of two key ingredients to ozone formation in automobile emissions: nitrous oxides (NOx) and volatile organic compounds (VOCs). NCTCOG created models for the transportation network within the Metropolitan Planning Area (MPA) boundary, which includes 5 full counties and portions of four other counties for 2030.

Impacts on the Region’s Future

In comparison to the Business As Usual Scenario, all the alternative scenarios reduce the average trip length by over 10 percent. The Return on Investment Scenario and the Diverse, Distinct Communities Scenario have the lowest average trip length, 13 percent lower than the Business As Usual Scenario. The Connected Centers Scenario has the highest increase in rail transit boardings, 19 percent higher than the Business As Usual Scenario. The Diverse and Distinct Communities Scenario shows the largest reduction in travel miles, by 11 percent, and the largest drop in travel time, by 13 percent. This scenario also increases the bus boardings by 20 percent.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Business As Usual</th>
<th>Connected Centers</th>
<th>Return on Investment</th>
<th>Diverse, Distinct Communities</th>
<th>Green Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>2030 Data for All Scenarios (Metropolitan Planning Area)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Trip Length (miles)</td>
<td>12.2</td>
<td>10.91</td>
<td>-10.57%</td>
<td>10.55</td>
<td>10.60</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.93</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-10.41%</td>
</tr>
<tr>
<td>Rail Transit Boardings (thousands)</td>
<td>224,000</td>
<td>267,000</td>
<td>19.2%</td>
<td>235,000</td>
<td>235,000</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>227,000</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.3%</td>
</tr>
<tr>
<td>Bus Transit Boardings (thousands)</td>
<td>365,000</td>
<td>436,000</td>
<td>19.7%</td>
<td>437,000</td>
<td>438,000</td>
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<td></td>
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<td>418,000</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td>14.3%</td>
</tr>
<tr>
<td>Auto Vehicle Miles Traveled (millions)</td>
<td>242</td>
<td>222</td>
<td>-8.05%</td>
<td>223</td>
<td>215</td>
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<td></td>
<td></td>
<td>-11.07%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-8.34%</td>
</tr>
<tr>
<td>Auto Vehicle Hours Traveled (millions)</td>
<td>6.3</td>
<td>5.7</td>
<td>-9.7%</td>
<td>5.7</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-11.3%</td>
</tr>
</tbody>
</table>
Implications for the Region

The Green Region and the Diverse and Distinct Communities Scenarios reduce the hours residents spend time stuck in traffic by 19 percent. The Return on Investment and Diverse, Distinct Communities Scenarios need 8 percent fewer lane miles and more than 7 square miles less in road paving than the Business As Usual scenario. These scenarios save roadway paving equivalent to an area almost as large as the city of Joshua or White Settlement. The Return on Investment scenario showed nearly $6.9 billion cost savings to meet the infrastructure needs. The Diverse, Distinct Communities scenario shows the maximum air quality benefits at 11 percent reduction in VOC and CO emissions, 10 percent reduction in CO2 emissions and 9 percent reduction in NOx emissions. All the alternative scenarios show a general decrease in traffic congestion levels with almost no congestion near the MPA boundaries in Collin, Denton, and Kaufman counties.

Action Tools

The action tools for the alternative scenarios may include expansion of road and transit networks, the outer loop, and the Rail North Texas rail network as per the Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area, 2009 Amendment. Mobility 2030 is the defining vision for transportation systems and services in the Dallas-Fort Worth Metropolitan Area. In addition, funding transportation infrastructure connecting infill and mixed use developments to promote walkable and transit oriented communities, expansion of bike and pedestrian trail system (Veloweb), and implementation of other congestion management strategies (traffic signal improvements, employee trip reduction programs, vanpools, etc.) in the Dallas-Fort Worth Region can be other action tools to promote transportation network suitable to the alternative scenarios. This analysis assumes that the current Mobility 2030 transportation system is the background for this analysis. Additional analysis is required to equilibrate for supply and demand for the redistribution of demographics. Local governments should work with the Council of Governments and the Center of Development Excellence to balance the Transportation-Land Use interface.

Yet to Come

The analysis of Transportation System Performance Indicators and Transportation System Benefit Indicators is substantially complete. More details on the action tools pertaining to each scenario will be developed by the workshop in September. Additionally an analysis of potential bicycle trips and opportunities for infrastructure investments will be conducted.
Discussion Topic: Natural Assets

The North Texas region lacks a comprehensive regional approach to “green” infrastructure, defined by the Conservation Fund as “strategically planned and managed networks of natural lands, working landscapes and other open spaces that conserve ecosystem values & functions and provide associated benefits to human populations.” Ideally green and gray infrastructure (such as roadways) are planned simultaneously before development; given equal priority in the planning process; planned as complimentary systems; and given equal attention in the funding process.

Selected Indicators

While the region already uses sophisticated computer modeling tools to assess transportation system performance and benefits, similar tools for green infrastructure are just in the early stages of design. Spurred by Vision North Texas, the first phase of a regionwide greenprinting initiative with the Trust for Public Land was completed in 2008. Under the guidance of a Regional Ecosystem Task Force, a framework of eight land conservation and open space goals was established. These greenprinting goals will define the range of Natural Asset issues for scenario analysis. Indicators will relate to each goal and the related criteria.

The regional goals are:

- Provide trail connections that people can use for recreation & travel
- Foster new opportunities for recreation, access & parks
- Protect & enhance existing ecosystems
- Restore vital ecosystems
- Preserve the assets that define “character of place”
- Protect water quality and promote natural storm water management
- Sustain the region’s watersheds, waterways and water resources
- Use natural & land assets to improve public health

For each goal a set of criteria were identified. For example, the criteria to restore vital ecosystems are: broken connections in natural and ecological corridors; former prairie grass areas; and forest communities that require restoration.

Impacts on the Region’s Future

The best opportunities are for watersheds that are in the path of future development but are now predominantly non-urban. One definition of the urban and non-urban parts of the region is the U.S. Census Bureau’s ‘urban area’. The percent of households and employment in 2030 located inside the Census 2000 defined urban area under each of the Alternative Futures scenarios is shown in the table below. As more growth is accommodated in the currently urban area, less growth occurs in areas that are not urban today.

By definition and design, the Green Region scenario would bring about the highest level of natural asset protection and enhancement. Community design would begin with the preservation of open spaces and environmental assets. Interestingly, it would have the second-highest share of new growth in unincorporated areas (compared to Business-As-Usual). It would emphasize techniques such as integrated Storm Water Management (iSWM) approaches for natural site design.
The Connected Centers Scenario would provide enhanced opportunities for travel-based trail investment in the Veloweb and non-motorized access to transit. Those areas that are not “connected” for urban development would be open spaces that could be better connected for protection of vital ecosystems and water quality.

Under the Return on Investment Scenario, the adopted 200-mile Trinity River Trails system would be completed, linking turn to many hundreds of miles of local trails. Attention would still need to be placed on restoring vital ecosystems, such as daylighting stream reaches currently under parking lots or removing armoring & restoring natural corridors. Current parks could be improved. Tree canopy could be restored. The Business-As-Usual Scenario would not place green infrastructure any higher than currently in the local priorities for funding and investment.

**Implications for the Region**

Case study analysis of natural assets is still underway. Studies of the urban forest in Dallas and of natural systems in the Lake Worth area are among those that will be used to evaluate the implications of these scenarios as research continues.

**Action Tools**

There are some things we can do to help protect our region’s natural assets. A few of these “Action Tools” are:

- Develop a better understanding of existing natural resources and their conditions. For example, more information regarding native grassland prairies in the region could be an important tool in maintaining ecosystem quality.
- Follow through with the development of the regional greenprint initiative.
- Improve stream management and stream corridor preservation elements in community plans and development standards, including daylighting.
- Use Transfer of Development Rights, so a property owner can “sell” the development rights to a developer to be used on a different development site.
- Rethink tax and estate planning policies that discourage the transfer of family farms and ranches to future generations.
- Provide subsidies for prime farmland property owners to help make their production of goods profitable and sustainable.
- Purchase permanent conservation easements on farmland, either with public and/or private funds.

**Yet to Come**

Two major regional initiatives are underway. The first example, supported by funding from the Federal Highway Administration (FHWA) is the “Integrating Transportation and Resource Planning To Develop Ecosystem Based Infrastructure Projects.” The objective is to conduct an integrated planning effort and develop ecosystem-based approaches for transportation related efforts as outlined in Eco-Logical. We will examine the use of a cumulative effects analysis in the development of infrastructure planning. This analysis tool will help ensure that important ecosystem level considerations are incorporated into the Regional Ecosystem Framework that NCTCOG’s Executive Board will consider in the fall of 2010 to coincide with important regional transportation planning efforts. The second major effort is conducting greenprinting with the TPL for selected watersheds to our regional water supply reservoirs.
Discussion Topic: Water Resource Management

Water supply and water quality are key issues facing our region as we plan for the anticipated increase in population over the next 40 years. Where households and employment are located can significantly impact our water quality and supply. Protecting our region’s watersheds and floodplains is integral to providing an adequate water supply for the residents and commerce activities of the region.

Selected Indicators

At the Vision North Texas Regional Summit in December 2008, the participants identified the most important issues for assessing the development scenarios to the year 2050. The two issues rated as most critical are “conserving the region’s water supply” and “protecting water quality in streams and lakes.” NCTCOG’s Executive Board has endorsed the goal that North Texans will SEE SAFE waterways with CLEAN water within a regional ecosystem framework of GREEN watersheds. Key indicators include reduced risk of flooding; having sufficient water supplies with lakes & streams meeting state-adopted water quality standards; and providing “green” infrastructure.

Impacts on the Region’s Future

The percent of future growth, from 2000 – 2030, located in the water supply and Trinity River watersheds under each of the Alternative Futures scenarios is shown in the table to the right. Most of the region’s current households and employment are in watersheds that drain directly to the Trinity River and its tributaries. Under the Business-As-Usual scenario, more than half of the new households would be in watersheds that drain to our major water supply reservoirs. The challenges to these important lakes would be numerous - increased risk of development filling in natural floodplains, greater potential for pollution and sedimentation of these reservoirs, and loss of valuable natural assets.

More growth translates into more imperviousness and stormwater runoff and a wider array of potential pollutant sources from urban activities. Watersheds for reservoirs that supply the region’s drinking water have a special value because they represent key drivers for the volume and quality of those water supplies. Conditions with more development can potentially impact water yields due to greater sedimentation and silting in of water bodies. Urban activities often generate more nutrients or other contaminants that impair lake water quality, creating more difficult and costly treatment of our water supplies.

Cities and counties in the urbanized portion of our region have state permits that require control of storm water runoff quality, and many are or will be using the iSWM family of tools developed through NCTCOG. Contrary to what might seem likely, placing even more development within the River watersheds actually increases opportunities for water quality improvement and flood risk reduction by bringing new revenues and best management practices into place. Scenarios which concentrate development, such as Connected Centers, increase the potential for creative design that requires fewer lawns and thus less outside watering. The life-cycle savings of maximizing the use of current water and wastewater infrastructure, as opposed to extending new service, is considerable. The

<table>
<thead>
<tr>
<th>Key Water Quality Indicators</th>
<th>Business As Usual</th>
<th>Connected Centers</th>
<th>Return on Investment</th>
<th>Diverse Distinct Communities</th>
<th>Green Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Future Growth in the Watersheds of Water Supply Lakes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Share of households</td>
<td>50.4%</td>
<td>29.5%</td>
<td>25.5%</td>
<td>25.9%</td>
<td>26.6%</td>
</tr>
<tr>
<td>2. Share of employment</td>
<td>35.0%</td>
<td>30.1%</td>
<td>27.9%</td>
<td>26.9%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Percentage of Future Growth in the Watersheds of the Trinity River</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Share of households</td>
<td>34.5%</td>
<td>62.2%</td>
<td>69.9%</td>
<td>56.9%</td>
<td>62.2%</td>
</tr>
<tr>
<td>4. Share of employment</td>
<td>56.2%</td>
<td>62.7%</td>
<td>67.7%</td>
<td>58.6%</td>
<td>62.5%</td>
</tr>
</tbody>
</table>

4 Note that the disclaimers discussed on page 5 apply to the information shown on this page. Responsibility for the use of this data lies solely with the user.
Green Region Scenario by definition would assure the highest degree of protection for the water supply reservoirs and their watersheds, while still providing for urban growth similar to the other three scenarios.

Implications for the Region

There are several recent studies which highlight significant opportunities for innovation. The University of North Texas conducted a pioneering study that established the relative value of protecting the water quality of subwatersheds throughout the Lake Lewisville drainage area, on a 5-level scale of least to most important to protect. The City of Fort Worth has examined the costs and benefits of in-line wastewater treatment, partly because it may be impractical to add larger conveyance facilities to its major treatment plant - a strong benefit would be enhanced reuse opportunities of treated effluent.

Action Tools

There are some tools that we can use to help us protect our watersheds and floodplains and better manage our water resources. A few examples of these types of “Action Tools” are listed below. While some are relevant to selected Scenarios, while other apply to all.

• Floodplain Preservation ordinances
• Cluster development located in the watersheds so as to minimize the amount of impervious cover which reduces the amount of storm water runoff and nonpoint source pollution into our lakes and rivers
• Ordinances promoting or requiring the recycling of gray water
• Encourage greater re-use of non-potable water for landscape irrigation
• Facilitate or streamline building code guidelines and requirements for rainwater capture and use for landscapes
• Design, coordination and assistance with city storm water management programs for effective implementation of practices and controls
• Plan water and wastewater service facilities and infrastructure to maximize use of current and near-term planned infrastructure
• Evaluate water and wastewater system start-up design to facilitate efficient planning and growth of infrastructure to meet service demands cost effectively

Yet to Come

NCTCOG will be updating long-range policy positions for the Trinity River COMMON VISION and protection of the water supply lakes to 2030, conducting a watershed protection study that will seek to develop tools for identifying key watershed areas that warrant protection, and improved assessment of cumulative water resource impacts. This will start with an assessment of the opportunities and challenges to our watersheds, followed by a greenprinting of priority watersheds which provides an interactive, community-based process that highlights conservation opportunities and priorities. The final “tool” of this study initiative will be development of a long-range watershed protection strategy that assists in focusing on approaches to development as it relates to water resources for the region. All of these efforts will orient to and use the watershed and subwatershed building blocks for analysis of current and future conditions. The Regional Water Planning Groups will be updating their long-range plans during 2010.
Discussion Topic: Policies Affecting Sustainable Development

Every policy affecting development has an effect on the region. Many municipalities in North Texas have policies in place which either facilitate or discourage development of the kind of projects the Vision North Texas scenarios describe. Every policy also has an impact on land ownership and value, and on the access that citizens have to resources. This session will discuss both policies that support the scenarios and those which inhibit them, and the resulting impact on the community.

Selected Indicators

Incentives for development (tied to measurable factors such as LEED construction, brownfield development or TOD):

- Increased density allowances to prevent further sprawl
- Eased height restrictions to allow for greater density
- Reduced parking requirements to prevent expanses of asphalt parking
- Expedited permitting to reward efforts toward sustainability
- Shared parking permitted to reduce overall need for parking
- Preserved green areas to enhance habitat preservation

Inhibitors of development:

- Mixed use prohibited – prevents walkable communities
- Large set-back requirements – creates pedestrian unfriendly streets
- Wide street width – facilitates increased speed, pedestrian discomfort
- No on-street parking – forces surface lots, facilitates increased speed
- Height or massing limitations – can inhibit density and profitability for infill projects
- Specific uses restricted (apartments, retail) – inhibits mixed-use, walkable environments
- Specified plant lists – discourage innovative, draught-tolerant designs

Impacts on the Region’s Future

The predicted results on development as reviewed, based on the proposed scenarios, are shown below.

Business as usual: Current policies reward and require continued sprawl expansion, limit density and walkable environments

Connected Centers: To enable development of connected live/work/play centers policies enabling mixed uses in greater density will be required.

Return on Investment: Municipal policies, probably tax policies, must reward developments which utilize the capacity of existing utilities.
Diverse, Distinct Communities: Planning policies must be developed which define specific characteristics and then provide incentives for including those characteristics.

Green Region: Incentives to allow economic compensation for owners of targeted green areas will be required. Alternatively, funding for purchase of areas to be preserved must be obtained. The use of Eminent Domain is a possibility.

Implications for the Region: Case Study

One example of a Planned Development (PD) with the goal of increasing density and walkability is Vitruvian Park in Addison. This 100-acre development is permitted in a PD to allow 62,000 residential units and 250,000 square feet (s.f.) of retail. The city created a PD to be approved by City Council which struck a balance between standard accepted practice and New Urbanism. Some of the issues dealt with in this case were:

1. The PD did not allow “hotel” uses, due to a perceived excess of low market quality “hotels”

2. The PD contains specific restrictions to ground floor residential units – i.e. walk-ups, etc – that will pre-empt them from being used as live/work, unpredictable parking being cited as one reason.

3. The traffic engineers relied upon suburban traffic geometries – i.e. wide intersection radii, lane widths, etc – even though the street sections that are part of the PD are very urban.

4. The traffic engineers disallowed stop signs and traffic signal along Brookhaven Club Drive out of concern that it would slow down the traffic.

5. The PD was written for residential. No incentive was created to motivate the residential developer to include other uses.

6. Brookhaven Community College to the south actually lies on the other side of the county line in Farmers Branch. Given that it makes common sense to connect the street network to the college to facilitate student living in walking distance, there is a lot of red tape to get this accomplished.

Action Tools

Presentations to the region’s city planners, with case studies to show data and images.
Tours for interested parties (city staff, city councils and planning boards, developers) of successful developments of preferred type
Open discussion sessions with traffic engineers, fire fighters, police, etc. to establish realistic and workable scale streets.

Yet to Come

A matrix of comparative regulations and incentives with several example projects will be compiled to highlight policies which will impact the development of the region.
Discussion Topic: Mixed Use Developments & Centers in North Texas

This topic examines the physical configurations, typologies and distribution of the approximately 214 mixed-use developments and centers that have been identified (as planned and ongoing, or built), within the 16 county region. This particular discussion concentrates on the existing and projected distribution of these types of developments in the region based on the five scenarios under investigation. Regional examples will be used to illustrate various typologies and their effectiveness in accommodating sustainable growth and density within the region.

Selected Indicators

In the first portion of our study published last year in “Regional Choices for North Texas” (Mixed-Use Developments & Centers), mixed-use development is defined as three or more significant uses that have significant functional and physical integration of project components (and thus a relatively close-knit and intensive use of land), including uninterrupted pedestrian connections; and Development in conformance with a coherent plan that frequently stipulates the type and scale of uses, permitted densities, and related items (See Schwanke, 2003; Witherspoon and Abbett, 1976; and Regional Choices for North Texas, 2008 for details). In short, the definition used in this study described developments that essentially include living, working and entertaining/shopping. The physical configuration of mixed-use developments/centers (whether they are vertical or horizontal in architectural character) is defined in four broad categories:

- Mixed-use tower,
- Integrated multitower structures,
- Mixed-use town centers/urban villages/districts (Schwanke, 2003),
- Traditional/Historic town centers, Main Street Districts, downtowns, neighborhood districts, and Central Business Districts (Ozdil, 2008).

Current review of the data collected within the past year illustrates that there are currently 214 built or planned and ongoing mixed-use developments and centers within the 16 county North Central Texas Region (See Figure 3). While physical typologies are not exhaustive, these developments are commonly presented by the stakeholders as Mixed-Use Centers, Transit-Oriented Developments, Town Centers, Urban Villages, Neighborhood Centers, Historic Districts, Community Centers, Lifestyle Centers, and Entertainment Districts in the region.

This particular discussion primarily concentrates on the indicators such as physical configuration and typologies of mixed-use developments and centers (see the definition above) as well as the typologies and intensities of uses that currently exist within them in order to address how selection, placement, and distribution of mixed-use developments and centers may potentially benefit to the region under various scenarios. Although, it is speculative, and open to discussion in this workshop, it is suggested in the following sections that the effect of such developments on selected key indicators such as density, share of population, health and walkability will vary under the different scenarios.

Figure 3. Existing Distributions of Mixed-Use Developments and Centers
Impacts on the Region’s Future

Further study of the mixed-use developments and centers illustrates the possible impacts of these developments on selected quality indicators for the whole for the region. Five alternative development scenarios on mixed-use developments and centers are speculated and the implications to the regional development are discussed (See Table 1). For example, under the Business as Usual scenario the impact of the various, mixed-use types would be that density, sense of “community,” and walkability would likely not increase, while vehicle miles traveled (VMT) would continue to increase. Communities would remain unconnected, mostly horizontal, and continue to move out further toward the agricultural edges. Green infrastructure, character and identity would likely see a decline. Inner-city mixed-use developments and traditional centers would likely to see an ongoing deterioration and random pockets of transition. Under the Connected Centers and Return on Investment scenarios the various mixed-use developments would likely have a more favorable impact as they encourage increased density, walkability, reduced VMT; less intrusion into the green infrastructure; and an increased sense of character and identity. Under the Green Region scenario mixed-use centers would be more clustered giving more opportunities for non-auto travel within the community and promoting environmental quality.

Implications for the Region

The existing development pattern of our region illustrates that certain type of mixed-use developments and centers may be likely to promote certain population and job densities (See Table 2). Under the Business As Usual scenario it is likely that the scattered development pattern of mixed-use centers which primarily support private investment concerns may continue. This pattern of development would likely to promote additional sprawl and further exploitation of the green infrastructure. Appropriate mix of uses within the framework of other scenarios such as Return on Investment and Green Region could potentially generate more small scale but compact self-sustaining communities that would potentially contribute to larger sustainable regional vision. It is also noted that if mixed-use developments and centers become favored choice of land-use type for the region, then future planning for the

<table>
<thead>
<tr>
<th>Impacts of Mixed-Use on Alternatives</th>
<th>Business As Usual</th>
<th>Connected Centers</th>
<th>Return on Investment</th>
<th>Diverse, Distinct Communities</th>
<th>Green Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>-/o</td>
<td>o/+</td>
<td>-/o/+</td>
<td>o/+</td>
<td>+</td>
</tr>
<tr>
<td>Share of population in Mixed-Use communities</td>
<td>o/+</td>
<td>+</td>
<td>-/o/+</td>
<td>o/+</td>
<td>o/+</td>
</tr>
<tr>
<td>Housing diversity</td>
<td>-/o</td>
<td>o/+</td>
<td>+</td>
<td>+</td>
<td>o/+</td>
</tr>
<tr>
<td>Ability to reduce obesity</td>
<td>-/o/+</td>
<td>o/+</td>
<td>o/+</td>
<td>o/+</td>
<td>+</td>
</tr>
<tr>
<td>Proximity to open space</td>
<td>-</td>
<td>-/o/+</td>
<td>-/o/+</td>
<td>-/o/+</td>
<td>+</td>
</tr>
<tr>
<td>Automobile VMT</td>
<td>-/o</td>
<td>o/+</td>
<td>o/+</td>
<td>o/+</td>
<td>o/+</td>
</tr>
<tr>
<td>Non-Auto Travel (Walk, Bike, Transit)</td>
<td>-</td>
<td>o/+</td>
<td>+</td>
<td>o/+</td>
<td>+</td>
</tr>
<tr>
<td>Access to jobs</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>o/+</td>
</tr>
<tr>
<td>Crime</td>
<td>-/o</td>
<td>-/o</td>
<td>-/o</td>
<td>-/o/+</td>
<td>-/o/+</td>
</tr>
<tr>
<td>Education</td>
<td>-</td>
<td>o/+</td>
<td>o/+</td>
<td>o/+</td>
<td>o/+</td>
</tr>
<tr>
<td>Air quality</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Energy consumption</td>
<td>-/o</td>
<td>-/o/+</td>
<td>o/+</td>
<td>o/+</td>
<td>o/+</td>
</tr>
<tr>
<td>Highway lanes/miles</td>
<td>-</td>
<td>-/o/+</td>
<td>-/o</td>
<td>-/o</td>
<td>o/+</td>
</tr>
<tr>
<td>Character/identity</td>
<td>-/o</td>
<td>-/o/+</td>
<td>-/o/+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 1. Potential impacts of Mixed-use Developments/Centers on some key issues for the Region
Legend: + Positive Effect - Negative Effect O Neutral effect

<table>
<thead>
<tr>
<th>Mixed-Use &amp; Density</th>
<th>Range A</th>
<th>Range B</th>
<th>Range C</th>
<th>Range D</th>
<th>Range E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households (per acre)</td>
<td>0 to 4</td>
<td>4 to 8</td>
<td>8 to 12</td>
<td>12 to 16</td>
<td>16 to 20 or more</td>
</tr>
<tr>
<td>Jobs (per acre)</td>
<td>0 to 6</td>
<td>6 to 18</td>
<td>18 to 30</td>
<td>30 to 41</td>
<td>41-53 or more</td>
</tr>
<tr>
<td>Mixed-Use Tower</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Integrated Multitower Structure</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Mixed-Use Town Centers, Urban Villages, &amp; Districts</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Traditional/Historic Town Centers</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Vertical Mixed-Use</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Horizontal Mixed-Use</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 2. Occurrence of Mixed-use Developments/Centers by Type and Intensity Range
Legend: + Likely to Occur - Not Likely to Occur
most appropriate mixed-use typology with appropriate design would become a key issue to accommodate larger population and job densities. For example, Figure 4 illustrates how mixed-use examples in the region accommodate different number of residential units per acre.

**Action Tools**

It is critical for decision makers to further examine the existing conditions of various mixed-use developments and centers in the region in order to inform physical configuration, placement, and distribution of future such developments for the scenarios under review. Existing distribution of mixed-use developments and centers must be also examined in conjunction with larger regional patterns such as access to multi-modal transportation networks, proximity to high density clusters and employment centers, and connection to green infrastructure in order for them to be preferred choice of development types under various scenarios. To create less auto dependent, low impact, self-sustaining communities in the region land-use practices that promote high density clusters with balanced combination of diverse uses, with access to multi modal transportation networks should be further scrutinized by the stakeholders. Although, it is speculative and open to discussion, mixed-used developments and centers likely to be preferred choice of development types especially in the scenarios such as Return on Investment, Green Region and Connected Centers.

**Yet to Come**

- Detailed regional case studies on design, implementation, and impact of Mixed-use developments and centers to set examples for the future,
- Detailed study of Transit Oriented Developments.
Discussion Topic: Design Choices for Public Places – Creating Value

Public places are made up of four types of public systems which include transportation, architecture, parks and open spaces and surface water. Public places that are designed to incorporate more than one of these systems generate more value. In addition, the design of public places in this region should be measured by the quadruple net (economic, social/cultural, environmental and visual) value that it generates for its specific location and the region.

Selected Indicators

The measure of the quadruple net value of a public place is demonstrated by case studies such as Millennium Park in Chicago, IL; Louisville Waterfront Park in Louisville, KY; and the San Antonio River in San Antonio, TX. The value generated by the investment in these public places is measured and continually evaluated as these places mature. The location of future public places in this region should reflect a thoughtful process that evaluates quadruple net value, connectivity, sustainability and incorporation of multiple public systems into the design. Also, future public places should not be designed to satisfy a purely functional program but should reflect a balance between function and aesthetics.

Impacts on the Region’s Future

The impacts of these alternative scenarios on public places are summarized in the table on the next page.

Implications for the Region

The case study is Millennium Park in Chicago, IL. This case study demonstrates the value generated by a holistic design approach that creates economic, social/cultural, environmental and visual benefits in an urban setting. Future regional public spaces can benefit from this approach to planning and design.
**Action Tools**

- Create guidelines for public place development that incorporate general measurements for quadruple net value. For example:
  - **Economic Value** – taxable value of the property after improvements; tax revenue created after development (5 year model); income model; tourism; etc.
  - **Social/Cultural Value** – visitation to the place; educational opportunities; public access days; public art displays; public transportation access; safety and security; etc.
  - **Environmental Value** - LEED; porous surface and green surface requirements; landscape requirements; storm water management; environmental education, etc.
  - **Visual Value** – safe and secure place; contextual or iconic architecture; high maintenance standards and funding; public art; way-finding; etc.
- Generate a regional master plan that identifies the four types of public systems in the region which will guide the creation of community scale plans. These plans will identify where these systems intersect, where gaps exist for future public places, connectivity gaps, and areas for enhancement.
- Identify general guidelines to enhance connectivity and generate economic, social and environmental sustainability throughout the region.

**Yet to Come**

Currently evaluating other case studies that evaluate the quadruple net value created through good design.
Discussion Topic: Design Choices for Traditional Centers & Edge Cities

This session will discuss urban design issues related to Traditional Centers & Edge Cities of varying sizes and scales, of both large and small populated centers. This session will help you determine how your city’s center could be impacted by projected regional growth – and most importantly, what urban design actions can lead your community’s center to a desirable regional pattern with economic success and a sustainable development mix.

**Selected Indicators**

1. Mixed Use - The vertical integration of different land uses into one multi-story building. An example of mixed use development (MXD) is residential over street level office and/or retail. (Mixed use developments & centers discussion topic also includes some definitions)

2. Parking Aggregated - Group parking together as to share need from different properties. This parking, depending on the need, can take the form of a surface lot or a structured parking garage.

3. High Density - Many times the centers of a community will have its highest density. This density can be reflected in the recommendations for building heights; 2 floor, 3 floors, 4 floors and 5+ floors.

4. Housing - Residential housing is a must for a true center within a community. A recommendation of the gross land area within a traditional or edge city core environment that is identified for housing of some type (lofts, townhomes, live work units, condominiums, apartments, etc.) can be:
   - 50%, 40%, 25% or a minimum 15%.

5. Public Green Space – Traditional centers often have a central green space as a focal point. This green space can have a theme (history, civic, etc) and a set of uses for special events (festivals, music concerts, sports, arboretum and/or passive enjoyment, etc). The general size of these green spaces can vary according to density patterns, street grids and many others. The following are a range of green space sizes to consider:
   - 1 city block, 2 city blocks, and 4 city blocks.

6. Transit System – Transit is vital to the success of a community center. Options for transit include the following: shuttle, bus, LRT (light rail), modern streetcar, and heavy rail.

7. Pedestrian Orientation – Centers need to have a safe and understandable network for pedestrian movement. This network includes wide sidewalks, ample streetscape furnishings, lighting and access for all citizens. (Yes or No)

8. Land Use Pattern – Community centers should have a diverse pattern of land uses – i.e. a great mix of places accommodating a broad mix of developments. A recommendation would desire: a minimum of 9 different land use categories in the center’s core, next a minimum of 7 land uses, next 5 different land use types.

9. Urbanism - The above set of indicators define a pattern of urban development. Research, placemaking desires and citizen input can establish three different levels for this urban typology within traditional centers & edge cities – we recommend a high, medium and low level.

**Implications for the Region: Case Studies**

- Denton
- McKinney
- Midlothian
- Pilot Point
- Red Oak
### Design Choices for Traditional Centers & Edge Cities

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<tr>
<td>Urbanism</td>
<td>High</td>
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Case Study Findings: The following generally describes the alternative scenarios and their relationship to design choices for Traditional Center & Edge Cities.

1. Connected Centers  
   MXD, Parking Aggregated, High Density, Housing, Green Space, Transit, Land Use Pattern & Urbanism
2. Return on Investment  
   MXD, Parking Aggregated, High Density, Transit
3. Diverse & Distinct Communities  
   MXD, Parking Aggregated, High Density, Housing, Green Space, Transit, Land Use Pattern, Ped. Orientation & Urbanism (All)
4. Green Region  
   MXD, Parking Aggregated, High Density, Housing, Green Space, Transit, Land Use Pattern, Pedestrian Orientation & Urbanism (All)
5. Business as Usual  
   Transit

**Action Tools**
Tools to further sustainable development include a Future Land Use Plan, Mixed Use Development districts in a community’s Development Code, a Form Based Code (center specific area), a Transportation Plan, Regional Cooperation Agreements and Sustainability Action Plan & Development Practices.

**Yet to Come**
Additional findings and details to follow.
Discussion Topic: Smart Design Choices for Inner Tier Communities & Neighborhoods

Two recent projects in downtown Dallas dispel a couple of commonly held beliefs – that we can’t provide quality affordable or workforce housing in or near the CBD and you that must have a car to live in Dallas.

Selected Indicators
- Existing Economic & Social Characteristics
- Existing Development Pattern near Center
- Density Pattern

Impacts on the Region’s Future

While these project do not represent a broad analysis of the of the entire region, they will provide examples that should facilitate discussion of the relationship of the choices in developing inner tier communities with the five alternative scenarios

Implications for the Region

Two Case Study Examples will be examined.

CitiWalk@Akard

This project is an adaptive reuse of an office building in the Dallas CBD that has stood vacant for 10 years. The project will provide affordable housing for 138 working persons/families (most who will work downtown), 50 formerly homeless individuals that have been referred by partnering agencies and 12 market rate lease units. Located directly in the CBD and two blocks from a DART Light Rail station, the project provides a viable opportunity to live in Dallas without owning a car. Housing density: 200 units residing on .90 acres equating to approximately 224 units per acre.

Buzz Lofts

Buzz is an innovative development of 49 condominiums located on the fringe of the Dallas CBD in an urban renewal area. The urban infill project provides both workforce units and moderately priced market rate units. Located just three blocks from a DART Light Rail station, and each resident has been provided an electric moped and free moped charging station. This project provides a viable opportunity to live in Dallas with limited or no dependence on an automobile. Many sustainable strategies were implemented in the construction of the project, including: rainwater collection, xeriscaping, bamboo flooring and the use of recycled materials. Housing density: 49 units residing on 32,000 square feet equating to 66 units per acre.
Action Tools

Tools for development of smarter inner tier communities will likely include:
- Land Use Planning
- Form Based Codes
- Transportation Planning
- Regional Cooperation Agreements

Yet to Come

More in depth presentations of these and other case studies will be offered in September.

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Discussion Topic: Smart Design Choices for Outer Tier Communities & Neighborhoods

A discussion of two large scale planned communities that illustrate interesting new ideas for alternative to “business as usual” in suburban and apartment communities.

Selected Indicators
- Existing Economic & Social Characteristics
- Existing Development Pattern near Center
- Density Pattern

Impacts on the Region’s Future

While these projects do not represent a broad analysis of the entire region, they will provide examples that should facilitate discussion of the relationship of the choices in developing inner tier communities with the five alternative scenarios.

Implications for the Region

Two Case Study Examples will be examined.

Vitruvian Park

The 99 acre mixed-use master plan redevelops a region formerly occupied by apartments that had exceeded their useful life. The redevelopment increases the density and provides a mix of uses in a pedestrian friendly district with an abundance of outdoor spaces and other neighborhood community activity centers. Density: 5,500 planned units within the overall 99 acres provide 55 units per acre in addition to 300,000 s.f. of office space, retail and many acres of green space and parks.

Montgomery Farm

More than 250 acres of permanent private green space have been integrated into the pedestrian-friendly neighborhoods of the 500-acre development, creating an oasis of meadows and natural preserves surrounded by neighborhoods, retail, and workplaces. The result is an example of how developers and communities can work together to conserve a community’s precious resources. Within the overall master plan are a variety of densities in housing and the Waters Creek mixed use center. A portion of the plan incorporates a neighborhood to be developed in accordance with the LEED ND criteria. This neighborhood provides an example suburban development that is smart and sustainable. Density: 7.2 units per acre for the LEED ND neighborhood.
Action Tools

Tools for development of smarter outer tier communities will likely include:
- Land Use Planning
- Form Based Codes
- Transportation Planning
- Regional Cooperation Agreements

Yet to Come

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