

Scenario Planning Peer Workshop

Sponsored by the Federal Highway Administration

Location: El Paso, Texas
Date: June 4, 2008
Workshop Host Agencies: El Paso Metropolitan Planning Organization
Federal Highway Administration, Texas Division

Workshop Participants: CDM
CH2MHill
City of El Paso
City of Socorro
CSA Engineers
Doña Ana County
El Paso County
Federal Highway Administration
Fort Worth South, Inc.
Greater Cleveland Regional Transit Authority
Instituto Municipal de Investigación y Planeación
New Mexico State University
Office of Senator Eliot Shapleigh
San Diego Association of Governments
Texas Department of Transportation
Town of Horizon
University of Texas, El Paso
Volpe National Transportation Systems Center
Walter P. Moore and Associates, Inc
Wilbur Smith Associates

Summary

The following report summarizes a Peer Workshop on tools and effective practices for scenario planning in El Paso, Texas, organized jointly by the Federal Highway Administration (FHWA) and the El Paso Metropolitan Planning Organization (MPO). On the first day of the two-day event, presenters from the FHWA provided participants with an overview of the scenario planning process and described available resources and tools to assist with scenario planning analysis. Local presenters from the El Paso MPO and the Ciudad Juárez, Mexico Instituto Municipal de Investigación y Planeación (IMIP) provided the group with an overview of local issues. Sun Metro, the El Paso area transit agency, is preparing for a new bus rapid transit (BRT) system; scenario planning is of interest to the regional planning agencies.

Presenters from the San Diego Association of Governments (SANDAG), Fort Worth South, Inc., the Greater Cleveland Regional Transit Authority, New Mexico State University, and the Federal Highway Administration provided the group with information on implementing scenario planning in a variety of community contexts. On the second day, Dr. Czneriak of New Mexico State University led the group in a scenario planning exercise, the Community Land Use Game.

Attendees included local planning staff members, elected officials, and consultants from New Mexico; Texas; and Ciudad Juárez, Mexico.



I. Introduction

A. Scenario Planning Overview

Fred Bowers, [FHWA Office of Planning](#), Washington, DC

Mr. Bowers began the workshop by presenting an overview of scenario planning and the FHWA's role in supporting its use. Scenario planning employs a wide range of possible future situations to facilitate public decision-making on land use policies and transportation investments. It provides a glimpse into the future and helps visualize "what could be". The first step in Scenario Planning is to identify the quality of life values that are important to the region or community. This information provides the foundation for scenario development. These quality of life issues can be expressed as questions about the future. For example: "How can we plan our growth to limit single vehicle occupant trips?" or "What factors will create a vibrant downtown and help support economic development?"

Scenario planning is most useful in dealing with many diverse viewpoints because it allows for several combinations of possibilities to be compared across the board. It integrates many different perspectives and organizes them in the planning process. By including many diverse opinions, scenario planning helps generate support and buy-in from a large group of participants.

In addition, scenario planning enhances our ability to respond to change and predict extreme futures, including possibly unpleasant results of some decisions. It helps prepare the community for what actually can occur under various circumstances. It helps prioritize the use of limited resources. It provides information for avoiding potential major conflicts and allows us to grasp onto future unseen opportunities. The process facilitates consensus building among a wide variety of stakeholders by using new participation methods, such as keypad voting for selecting preferred alternatives.

Well-designed scenarios allow participants to use a visioning process that compares answers to these and other questions. In order to be effective, each scenario should be substantially unique, so that the community can clearly contrast the pros and cons of each possibility.

There are typically six steps in the scenario planning process. By following these steps a number of future visions can be designed and the trade offs between each compared.

Step 1: Define driving forces. We start by defining the major sources of change that affect the future, whether those forces are predictable or not.

Step 2: Determine patterns of interaction. Next we consider how the driving forces could combine to determine different future conditions. To understand the patterns of interaction that exist between driving forces, planners develop matrices that identify the driving forces and their potential positive or negative outcomes.

Step 3: Create scenarios. When generating scenarios, planners should consider the implications of different strategies in different environments. The goal is to bring life to the scenarios so that a community can easily recognize patterns that work. For example: Can a trolley system improve transportation for both visitors and workers in a downtown area?

Step 4: Analyze the implications. By employing various software tools, such as geographic information systems, planners can show the interactions in each scenario. This helps the public and decision makers understand the consequences of potential actions and the potential impacts of each scenario.

Step 5: Evaluate scenarios. Planners can measure the scenarios against one another by comparing indicators relating to land use, transportation, demographics, environment, economics, technology, and other driving forces. For example, one scenario might have a strong environmental indicator but fall short in economic benefits or vice versa.

Step 6: Monitor indicators. Scenario planning is an ongoing process. As the future unfolds, planners need to assess and compare real growth patterns to the selected scenarios, make new decisions, or create policies to address changing conditions.

Scenario planning offers the following benefits:

- Provides an analytical framework and process for understanding complex issues
- Facilitates consensus building by giving communities the capacity to participate actively in the planning process
- Includes tools and techniques to assess the impact of transportation and other public policy choices on a community
- Allows the opportunity to recognize the impact of tradeoffs among competing goals
- Yields an enhanced decision-making framework by bringing together many view points
- Helps in identifying and improves the management of increasingly limited resources

FHWA's defines scenario planning as:

A process in which transportation professionals and citizens work together to analyze and shape the long-term future of their communities. Using a variety of tools and techniques, participants assess trends in key factors such as transportation, land use, demographics, health, etc. Participants bring the factors together in alternative future scenarios, each of these reflecting different trend assumptions and tradeoff preferences.

FHWA supports scenario planning in the transportation planning process. As part of this support, FHWA encourages the use of Metropolitan Planning (PL) and other transportation funds to implement scenario planning, provides feedback on efforts being planned or implemented, shares and provides information on scenario planning efforts nationwide, identifies resources and tools for use in scenario planning, and facilitates peer workshops. More resources, including case studies, techniques, and tools can be found on the Scenario Planning website, www.fhwa.dot.gov/planning/scenplan/.

B. Scenario Planning Tools

Brian Betlyon, Metropolitan Planning Specialist, [FHWA Resource Center](#), Baltimore, MD

Mr. Betlyon discussed the role of tools in scenario planning and provided information on additional resources. He stated that the premise of scenario planning is that it is better to “get the future imprecisely right” than to “get the future precisely wrong” when developing transportation plans. Tools can help people involved in scenario planning get the future as “imprecisely right” as possible. These tools can provide decision-makers and the public with the information they need to make educated

decisions. Scenario planning tools can help communities plan by design instead of by default, meaning that they can make informed decisions on how the actions (or inaction) that they take today will affect the future.

A variety of technology tools can help communities consider scenarios and make better decisions. These tools can be divided into the following categories:

- *information resources*, including websites such as <http://www.placematters.com>, <http://www.smartgrowthamerica.org>, <http://www.fgdc.gov>, <http://www.fhwa.dot.gov/planning/landuse/>, <http://www.natureserve.org/>, and <http://egis.hud.gov/egis/>.
- *visualization tools and techniques*, such as photo montage, architectural drawings, visual preference surveys, visual kiosks, [Google Earth](#), and [Box City](#);
- *impact analysis and GIS models* using software such as [INDEX and Paint the Town](#), [What If?](#), [MetroQUEST](#), [UrbanSim](#), and [CommunityViz](#); and
- *process tools and techniques* such as civic participation, the [PLACE³S](#) process, and methods for finding common ground. For example, establish a neutral community meeting place, conduct large-scale town meetings, or establish a civic learning center.

Instead of concentrating on one aspect of planning for the future, many impact analysis and GIS models used in scenario planning estimate the impacts of people's decisions today on the land use, transportation system, and environment of tomorrow. Additionally, these tools take into account the interconnections between these three aspects of planning. For example, if a change to the transportation system is proposed for an area, the model will estimate the change's impact on the land use and environment. Additional changes in these areas may then need to be made to accommodate the initial change. Through this process, these tools help people plan for the future in as real a way as possible.

II. Local Trends and Planning Efforts

A. Overview of the Border: Land Use and Travel Patterns in the El Paso – Juárez Region

Salvador Gonzalez-Ayala, [El Paso MPO](#) and [Instituto Municipal de Investigación y Planeación](#) (IMIP), El Paso, TX and Ciudad Juárez, Mexico

Dr. Gonzalez-Ayala provided the group with context on land use and transportation patterns in the border region and the use of scenario planning by IMIP in Juárez as a part of its ongoing travel survey program.

Juárez has about four times the population density of El Paso, where sprawling, low density development patterns have been common. Consequently, El Paso has nearly three times the daily vehicle miles traveled (VMT) of Juárez, with a much lower population. Juárez has a larger transit system: 170 transit routes to El Paso's 30 routes; and a larger transit modal share: 25% to El Paso's 5% (2006). However, that modal share has fluctuated, declining from 45% in 1989, and increasing slightly from 2001 to the present.

Understanding the driving factors behind mode choice is one of the issues where scenario planning can be useful. The rising cost of gasoline, among other variables, impacts mode choice and the number and length of trips. Scenario planning can consider, for example, the impact of higher gas prices on mode choice and how it could change under other land use scenarios.

Travel surveys provide revealed preference information by asking users to report on their trips and mode choices using the existing transportation system. IMIP has added stated preference questions to its standard travel survey. Respondents were provided information about the functionality and trade-offs of new components of the transportation system, such as bicycle paths. For example, respondents were told to assume that bicycle paths were on every major street and that they would travel twice the distance as walking by expending the same energy.

Four scenarios were included in the 2006 Juarez IMIP travel diary and survey respondents were asked to choose which mode or combination of modes they would have used for the same trip under that scenario, given that those modes were in existence. Fifty-two percent of respondents indicated a mode change to BRT, bike paths, or a combination under the high congestion scenario. It should be noted that these mode switches would only occur if the systems were built as described. This type of survey can pinpoint characteristics of the individual and the system to maximize the system's usefulness. For example, in the stated preference survey, including BRT increased the demand for bike paths by a factor of two. Dr. Gonzalez-Ayala concluded by noting that they hope to apply some of the lessons learned by IMIP at the El Paso MPO.

III. Peer Practices and Observations

A. Planning in the San Diego Region: Integrating Land Use and Transportation

Coleen Clementson, [San Diego Association of Governments](#), San Diego, CA

Overview

Ms. Clementson began by introducing SANDAG, the San Diego region's regional planning agency and designated MPO. The region includes 18 cities and the unincorporated areas of San Diego County, an area of 4,230 square miles. The region is bordered to the south by Mexico and includes Camp Pendleton, a U.S. Marines Corps Base, and 18 tribal nations.

Today the region's population is approximately 2.8 million. Population projections forecast another million residents by 2030, along with 450,000 jobs and 300,000 housing units. Many residents already feel that the region is fairly well built out. When the population projections were received, SANDAG created a trend scenario forecasting growth patterns under existing plans and policies. There is significant interest in habitat planning in the region, so the sprawling development seen under the trend scenario was unpopular with many. Growth patterns under a "smart growth" scenario were selected.

Regional Comprehensive Plan

The Regional Comprehensive Plan (RCP) was identified as a way to bring together all of the local plans and create a way to get to the preferred alternative. Three key principles guided the planning process: connect transportation and land use plans; provide incentives and collaboration; and guide infrastructure investments. There was general agreement on protecting open space and concentrating development in the areas where transportation investments have already occurred. These investments include light rail and commuter rail service, as well as the development of a new BRT system, now in progress. The general approach was to connect the "smart growth areas" (those deemed appropriate for development) with regional transit investments..

The RCP defined smart growth place types that were appropriate to the local context, each with density and transit service levels, ranging from metropolitan center to rural village. Special use centers include major employment centers, such as universities and military bases, where there may be an opportunity to provide more housing. Rural village areas have no minimum transit service. Rather, the focus in these areas is to appropriately provide goods and services nearby to reduce VMT.

Table 1: Smart Growth place types from SANDAG's RCP

Smart Growth Place Type	Minimum Residential and Employment Targets	Minimum Transit Service Characteristics
Metropolitan Center	75+ du/ac; 80+ emp/ac	Regional

Urban Center	40+ du/ac; 50+ emp/ac	Corridor
Town Center	20+ du/ac; 30+ emp/ac	Corridor/ Community
Community Center	20+ du/ac	High Frequency Local
Rural Village	10.9+ du/ac	N/A
Mixed Use Transit Corridor	25+ du/ac	High Frequency Local
Special Use Center	Opt. res; 50+ emp./ac	High Frequency Local

SANDAG worked with the local jurisdictions to jointly identify smart growth opportunity areas over a period of 6 to 8 months. The local jurisdictions proposed the opportunity areas, which were reviewed by SANDAG for compatibility with the place type and transit criteria. Those that met the criteria were defined as “existing / planned” areas. If not, they were identified as “potential areas”, which may need local land use or zoning changes or regional transportation plan changes before compatible development could occur.

Implementation

Information on all of the identified smart growth areas was compiled on a Smart Growth Concept Map which is available on the SANDAG website.. The data provided on the website is intended to bring together information for community members, developers and other interested parties to easily understand the opportunities available today and in the future.

SANDAG has also developed a smart growth tool box, which includes both planning and financing tools. Examples include smart growth design guidelines, which help local officials incorporate the concepts in their plans and codes. Another example is use of the I-PLACE3S, a scenario planning software application which allows communities to create alternative land use scenarios by applying new land uses to parcels, blocks, or other geographic units. I-PLACE3S is internet-based and hosted in Davis, California. After the initial work to assemble the data and conduct internal staff training, which took about a year, SANDAG has started making the software available to local jurisdictions. A pilot program has recently been completed with three jurisdictions at different stages in the planning process. The pilot projects used I-PLACE3S for public meetings, environmental analysis, and in generating new ideas. While they found that the software was somewhat labor intensive to use at a community meeting, they decided it was a worthwhile endeavor. Community members were given the opportunity to try changing land uses around a transit station. As a result, they saw modeled changes in housing units and jobs. SANDAG made the decision not to directly integrate I-PLACE3S with their transportation modeling, as they determined it may be inappropriate to provide VMT estimates based on sketch planning. Rather, they are using a “red light / green light” approach, asking, “Is the area becoming more or less transit friendly?”

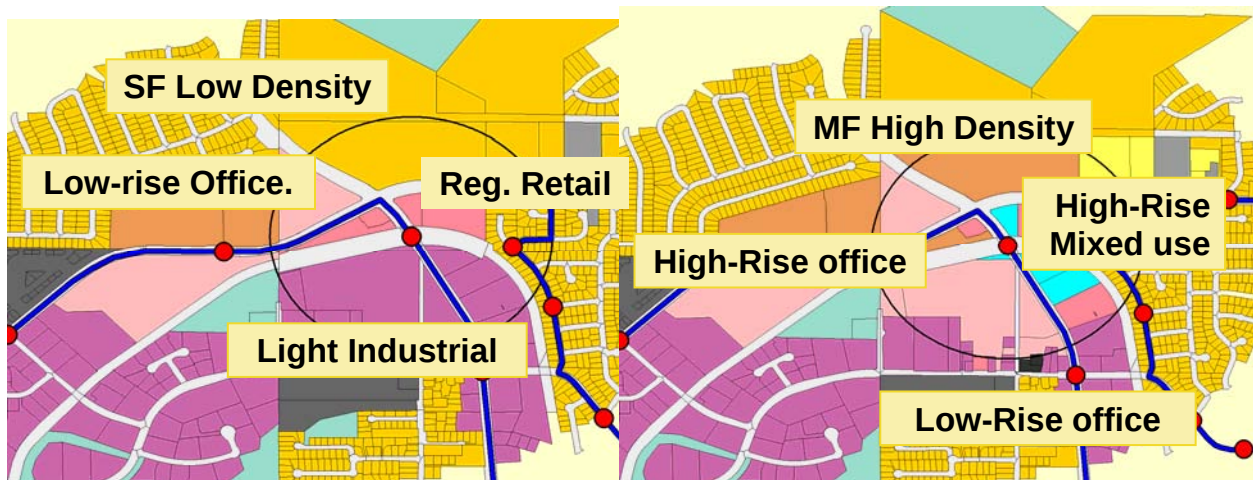


Figure 1: An I-PLACE3S exercise at the Melrose Sprinter station in Oceanside, replacing single-family low density, regional retail, and light industrial with multi-family high density, high-rise mixed use, and high-rise office.

As I-PLACE3S does not have a graphic component, SANDAG hired consultants Urban Advantage to create visual simulations to help residents conceptualize what smart growth would look like in the San Diego region. To create the visual simulation, existing conditions images are layered with potential new changes based on the long-range plan and inputs from local planners, at a cost of approximately \$6,000 per visual simulation.

Smart Growth Incentive Program

Key toward implementing the RCP and its smart growth policies is the SANDAG Smart Growth Incentive Program which provides incentive for local jurisdictions to identify smart growth opportunity areas is the Smart Growth Incentive Program. Areas which are “on the map” are eligible for planning funding (up to \$200,000) or capital improvements (up to \$2 million) grants. The former may be used by local jurisdictions to update comprehensive plans or zoning and the latter for projects such as streetscape improvements and transit amenities. Funding for this program comes from a half-cent sales tax dedicated to transportation, approved in 2004. Two percent (approximately \$7 million annually) of those funds are for the Smart Growth Incentive Program. Once the program formally begins, there will be a call for projects every two years with evaluation criteria including housing and transit considerations; the SANDAG board will make the project selections.

Discussion

What has the trolley done for economic development?

- We have not done that analysis. We have had light rail for some time, but it has taken place at the same time that there is interest in downtown redevelopment, making it hard to determine the impacts. On an anecdotal basis, SANDAG staff often meet with developers interested in making transit connections to their development.

What's the air quality status? Did you look at air quality impacts in creating the regional comprehensive plan?

- The San Diego area is in attainment for air quality. While the regional transportation plan includes significant consideration of air quality impacts, the comprehensive plan focused on land preservation and increasing transit ridership.

How long did the public involvement process take?

- It took about two years and SANDAG received a \$1 million grant from Caltrans, which was very helpful. Public involvement was structured differently in different jurisdictions. The City of San Diego and San Diego County were also both updating their comprehensive plans while the Regional Comprehensive Plan was under development. The planning directors of the cities in the region, who meet monthly, were viewed as key stakeholders. SANDAG also worked at the policy level with the city councils to enable them to perform outreach. Chapter 1 of the RCP provides an overview of the public involvement process and is available at:
http://www.sandag.org/programs/land_use_and_regional_growth/comprehensive_land_use_and_regional_growth_projects/RCP/rcp_final_complete.pdf

Do forest fires have an impact on the planning process?

- The two major fires in 2007 happened after the RCP was complete, but forest fires are a big factor in refining the open space network. Land uses do not appear to be changing in response to the fires, but there are building code changes.

How do you integrate the military into regional planning?

- We have a military representative as an advisory member on the SANDAG board, as well as representatives from the State of Baja California, Mexico, and the chair of the coalition of tribal governments.

B. Fort Worth's Near Southside: Promoting Revitalization with Form-Based Development Standards

Mike Brennan, [Fort Worth South, Inc.](#), Fort Worth, TX

Fort Worth South, Inc. is a non-profit group that has an advocacy function and also administers the tax-increment financing for Fort Worth's Near Southside neighborhood. They have a close working relationship with the City and also with local businesses, many of whom also contribute to the agency's work.

Citywide comprehensive planning efforts began in 1999. Pedestrian-friendly mixed-use development was determined to be appropriate policy direction for the Near Southside. However, there was a mismatch between that policy, which called for complete streets, on-street parking, comfortable and attractive streetscape, mixed uses, and pedestrian-oriented design, and the existing zoning. A set of goals for the district was developed, with residential density as the major goal. Street standards were also inconsistent with goals, as the standards were characterized by oversized travel lanes, no pedestrian amenities or streetscaping, and applied throughout the city without respect for context.

Fort Worth South, Inc. had established a precedent by petitioning for mixed-use zoning in individual sections of the district. Projects were developed under the mixed-use zoning, both demonstrating market viability and establishing a consensus that the zoning changes were heading in the right direction. To update the zoning more efficiently district-wide, Fort Worth South, Inc. requested the City Council to initiate development of a form-based zoning code. The result, the [Near Southside Development Standards and Guidelines](#), is available at Fort Worth South Inc's website, as well as that of the Form-Based Codes Institute.

The standards are based on a set of general development principles. The transect, an urban planning model which creates a range of place types from rural to urban, was used as the basis for the classification system. The streets were classified based on context, as well as capacity and function. There are height bonuses for mixed-use or public space projects.

Lessons learned

- Prioritize **great customer service**; be inclusive and respond to all stakeholder concerns. There were more than 2,000 owners in the district and no opposition at final hearing.

- There were **tough compromises**. For example, one of the five hospitals did not want to be included in the new code and the property was left zoned as-is; there was no multi-story requirement on “Main” Streets; there was no frontage percentage requirement; and there were fewer neighborhood zones than Fort Worth South, Inc. would have liked.
- Having code in place completely **changes the tone** of discussions with developers and architects, and in a great way. Now Fort Worth South, Inc. can help developers navigate the process, instead of just asking them to do something different.

Discussion

How did you address objections throughout the process? There is concern locally about putting parking in the back, for example.

- We gave examples of successful existing developments that meet the standards. For example, Magnolia Avenue had enough examples of the desired development types and was drawing people in. Allowing suburban development types would dilute that success. Also, it takes a while for businesses to realize that existing uses will not be affected. To reassure existing owners and tenants, a long list of permitted uses was created, to avoid making existing businesses nonconforming.

Who sits on the design review committee?

- As Fort Worth South, Inc. is very familiar with the standards, they provide informal project review as assistance to the City. The City’s urban design commission reviews projects that do not clearly conform to the standards and either does or does not issue a certificate of appropriateness. The urban design commission members are appointed by the City Council. Six of the nine members must be design professionals, developers, real estate, or have a law background.

C. Euclid Corridor: Context Sensitive Design

Maribeth Feke, [Greater Cleveland Regional Transit Authority](#), Cleveland, OH

The Euclid Corridor bus rapid transit (BRT) project is one of the premier BRT projects in the country. Construction is two-thirds complete and opening day is scheduled for October 26, 2008. The Euclid Corridor has been one of the longest running projects in Federal Transit Administration history at over 22 years, much of which was taken up by the environmental process. The corridor includes 6.7 miles on Euclid Avenue, which is one of Cleveland’s main streets and includes five distinct neighborhoods. Along about one-third of the corridor, service operates in an exclusive lane; fare collection is off-vehicle. Bus route #6 on Euclid Avenue carries 27% of ridership on the entire system. One of the project goals is to attract development along the corridor instead of the more typical urban sprawl.

There have been curb-to-curb streetscape improvements along the corridor and a strong focus on public art and signage. Both functional and standalone public art elements were key to emphasizing the identity of the corridor and of the neighborhoods through which it passes. Functional art elements include paving treatments, trash receptacles, and tree grates. Consequently, a cohesive graphic identity was created. For development, there are form-based standards for the corridor, with decreasing densities as you move away from the corridor.

While the regional economy is struggling, approximately \$2.5 billion in



Figure 2: One of the new Euclid corridor stations.

development has occurred in the corridor, achieving half of the housing and two-thirds of the development square footage goals originally set forth, and the project is not yet even open. GCRTA intends to study the economic development impacts as the project progresses.

Discussion

How did you select the corridor?

- It represented more than 20% of entire system ridership plus the largest employment centers, including two medical centers.

Were there art incentives?

- A consultant did a comprehensive public art program and put out a call for projects.

How was the level of service (LOS) for automobile traffic impacted?

- The LOS did not degrade although two travel lanes were removed. However, a new north-south street was added to mitigate construction impacts. (fewer vehicles on Euclid; construction impacts; no accidents)

What has been the response to the facilities?

- They have been very well received. Riders love the facilities as they are brightly lit, visible, easy to get on and off (level boarding), and that the buses are faster and more reliable.

What are the headways?

- Every 12 minutes, coordinated with feeder bus service

D. Scenario Planning: Lessons from Local History

Dr. Robert Czerniak, New Mexico State University, Las Cruces, New Mexico

Dr. Czerniak began by stating that scenario planning can be difficult to implement since results are unknown and can take 20 years to materialize. When making growth projections, rates of growth are more important than the end results, as they dictate what capital improvements are needed. Expansion of infrastructure capacity occurs in a step function rather than a straight line as does population increase. Funding rarely comes at the right time or in the right amount. The further into the future one forecasts, the more important multiple scenarios are because a single projection rarely is accurate. We have tools today that did not exist in the past, such as GIS, so scenario planning can be done more effectively and in greater detail.

Dr. Czerniak reviewed the Las Cruces, NM planning documents and discovered scenario plans from 1981, when the area was designated an standard metropolitan statistical area (SMSA) by the 1980 Census. White Sands Missile Range had just received significant Federal funding and growth was expected. The City of Las Cruces wanted to do a major comprehensive plan revision. A 100-person citizens' advisory committee (CAC) was created and a consultant, EDAW, was hired. The plan, adopted unanimously by the CAC, developed a set of conceptual scenarios. There was strong support in the CAC for infill development and a clear rejection of growth along the lines projected in the trend scenario. However, the plan was confusing for the elected officials, who wanted to see a single future and ultimately rejected it. The City developed a new comprehensive plan along more conventional lines; a byproduct of which was a growth scenario different than that being used by the County government, a situation only rectified within the last two years.

E. Evaluating the Future: Forecasting Urban Development Using the UrbanSim Land Use Model in El Paso, TX.

Quinn P. Korbolic, New Mexico State University, Las Cruces, NM

New Mexico State University (NMSU) is working with the City of El Paso to support development of a land use model using UrbanSim, a multi-agent microsimulation-based behavioral model. For example, a household's choice to move to a specific location will be shaped by land prices, proximity to arterials, shopping, and characteristics of the household, such as income, children, and age of the head-of-household.

For the El Paso, Texas pilot study, a relatively small study area with clearly defined political and geographic boundaries were chosen. The primary tables in UrbanSim are gridcells, which act as the unit of change within the model. For this study the gridcells were set at 150 meters on a side. Multiple attributes, such as income, race, and gender, can be added to the gridcells. Demographic data comes from the Census but is synthesized using household synthesis software.

It is fairly simple to build scenarios in UrbanSim and they can be combined in multiple ways. Scenarios included institution of an urban growth boundary (UGB), as it provides a sharp contrast, not because it is likely to be implemented. The basic scenarios developed were "Trend 2027" and "UGB 2027" scenarios. The latter increased density and reduced development of new land, although only by 1.25 people per acre over the study area. Total density (jobs plus population) was also compared under both scenarios. Other scenarios include not allowing development inside the floodzones, adding 1,000 housing units under a planned development, and combinations of these scenarios.

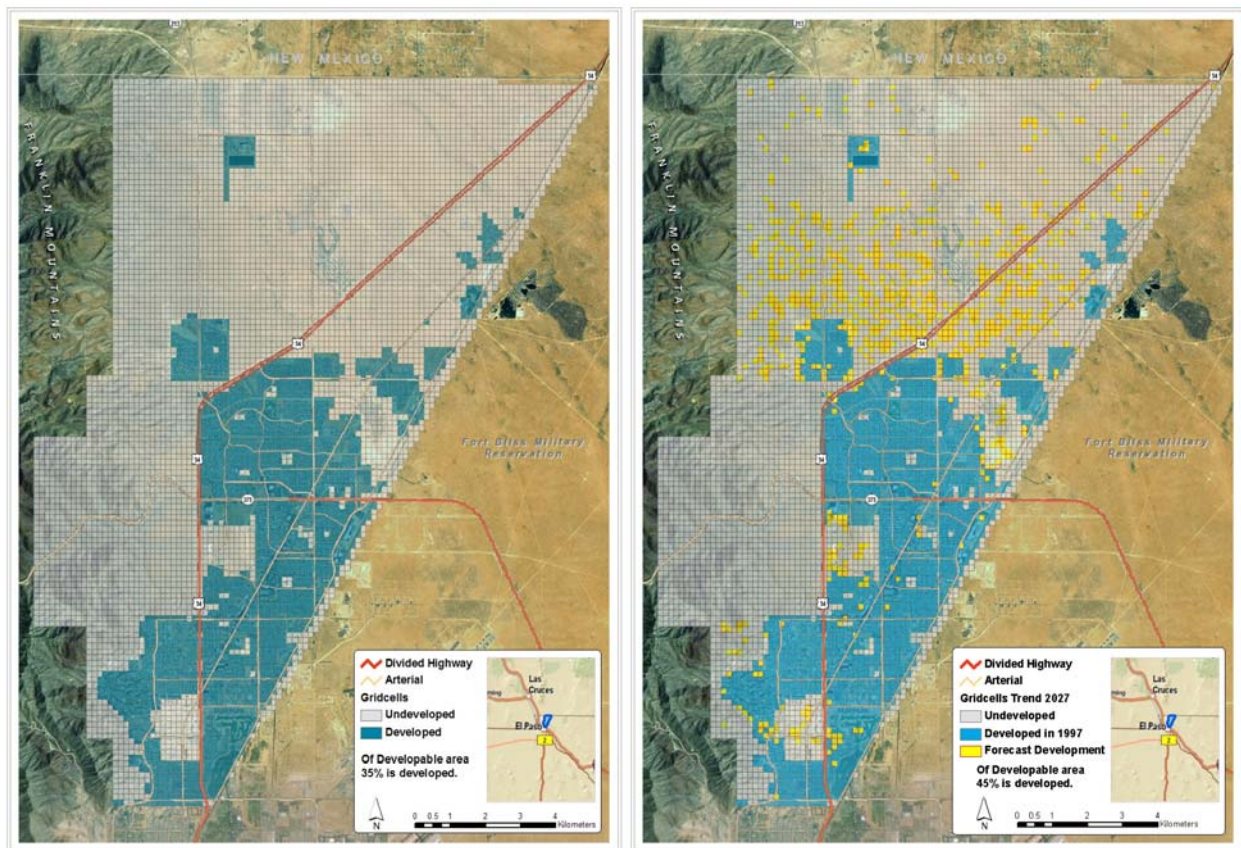


Figure 3: Study area development forecast in the 2027 trend (right) and 2027 urban growth boundary (left) model runs.

For the pilot study, only a general approximation of land use controls was used to create the development constraints table, which had far ranging effects on the results. The model still needs refinement before it is ready to be used operationally. An updated development constraints table and

travel data are necessary, and other questions must be answered. The model did not accurately estimate 2007 conditions.

While the software is free, and used in major cities such as Portland, Houston, Detroit, Honolulu, and others, it is an immense undertaking. The data creation and the staffing components are complex and time-consuming.

IV. Scenario Planning Exercise

On the second day of the workshop, participants broke into two groups to play the Community Land Use Game (CLUG). The game was facilitated by Dr. Czerniak and several NMSU graduate students. CLUG is a highly interactive game designed to provide participants with an understanding of the underlying factors affecting the growth of an urban region. It has been used with players from junior high to graduate students and also with non-students.

In the workshop exercise, the CLUG game board was overlaid with a grid that had major community facilities located upon it – a highway network, a transport terminal, a utility network, and an industrial facility with a nearby environmental justice community, employed at the facility. The existing infrastructure and transport terminal served as points of direct access to export markets, and thus, had important location benefits for teams acquiring land near them. Private land was identified directly by the set of grid coordinates along the perimeter of the game board. The game included rules¹ and a scenario for teams to operate within. In this case, teams in one group were given a typical “market scenario” and the other group given a “smart growth scenario”. The groups were given the same baseline environment and funding and tasked with developing lots to be served with utilities and the existing road network. In playing the game, teams had to consider the need for additional road and / or utility expansion, budget, the availability of employees and housing, the availability of credit and its terms, taxes, and other factors. Teams competed with each other, but also cooperated for some purposes.

After several iterations of the game, the two development patterns that evolved in each group were compared and discussed. Differences between the “market-based” group and the “smart growth” group included:

- There was a much higher degree of coordination and agreement amongst the teams operating under the smart growth scenario. There was more uncertainty and speculation under the market-based scenario.
- The net worth of the development under the smart growth scenario was \$700,000; compared to \$400,000 under the market-based scenario.
- The development in the smart growth scenario was much more compact.
- The overwhelming emphasis in the market-based scenario was profit. Profit was important in the smart growth scenario as well, but other community factors were also considered.

Overall, the participants found the exercise to be a valuable and fun learning experience. The El Paso MPO took the opportunity to emphasize the need to educate the public and decision-makers on the nature of the development process and the link between land use and transportation planning.

¹ A series of modifications can be made to the basic rules of the game and allows players to explore systematically the effects of the other urban phenomena such as municipal finance, land use regulation, environmental pollution, 4(f) resources, historic neighborhoods, etc.

V. For More Information

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VI. Attachments

A. Agenda

Scenario Planning Peer Workshop June 4, 2008

8:30 am	Welcome Mayor John Cook, City of El Paso
8:45 am	Welcome and Presentation: Overview of Scenario Planning Fred Bowers, FHWA – Office of Planning
9:15 am	Overview of the Border: Land Use and Travel Patterns in the El Paso – Juárez Region Salvador Gonzalez-Ayala, El Paso MPO and Instituto Municipal de Investigación y Planeación (IMIP)
10:15 am	Scenario Planning Tools Brian Betlyon, FHWA – Resource Center
11:00 am	Planning in the San Diego Region: Integrating Land Use and Transportation Coleen Clementson – San Diego Association of Governments
12:00 pm	Working Lunch – Planning Practices and Observations Andrew Howard - Kimley-Horn and Associates
1:15 pm	Fort Worth's Near Southside: Promoting Revitalization with Form-Based Development Standards Mike Brennan – Fort Worth South, Inc
2:00 pm	Euclid Corridor: Context Sensitive Design Maribeth Feke – Greater Cleveland Regional Transit Authority
2:45 pm	Scenario Planning: Lessons from Local History Dr. Robert Czerniak – New Mexico State University
2:15 pm	Evaluating the Future: Forecasting Urban Development Using the UrbanSim Land Use Model in El Paso, TX. Quinn P. Korbolic – New Mexico State University
4:30	Adjourn

B. List of Presenters

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FHWA – Office of Planning	Fred Bowers	Frederick.Bowers@dot.gov
FHWA – Resource Center	Brian Betlyon	Brian.Betlyon@dot.gov
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