

# Placemaking

## tools for community action

Tools that engage the community  
to create a future that works for everyone

CONCERN, Inc.  
Environmental Simulation Center  
Denver Regional Office of the U.S. Department of Energy  
U.S. Department of Housing and Urban Development

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Bethesda Row in the Washington, D.C. metropolitan area. Photo: CONCERN, Inc.

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## Development of this Guide

Over the past few years, under the leadership of the Denver Regional Office of the U.S. Department of Energy, a number of tools developers, practitioners, foundations, government agencies and community activists have met to exchange information about placemaking tools, their applications, and benefits, and to explore ways to promote innovative planning efforts that enhance public participation in decision-making.

In early 2002 a new organization was formed, PlaceMatters.com, from this process. It is designed to help community leaders, public agencies, and land use planners understand and employ new tools and techniques, and to spread the word about how using these tools can help manage growth and its impacts.

One of the public education resources developed by the Denver Regional Office of

the U.S. Department of Energy is a PowerPoint presentation that vividly describes the need, benefits, and applications of tools for community design and decision-making that is intended for both general audiences and professionals. With the support of the U.S. Department of Housing and Urban Development, this guide was developed as a companion to the PowerPoint presentation. Both resources are available to the public on cd-rom as well as the following websites:

[HTTP://WWW.SUSTAINABLE.DOE.GOV/PLACEMAKING.STML](http://www.sustainable.doe.gov/placemaking.stml)

[HTTP://WWW.PLACEMATTERS.COM/PLACEMAKING](http://www.placematters.com/placemaking)

## For more information

A comprehensive discussion of the tools described in this manual, access to tools, and support to using them may be found at [HTTP://WWW.PLACEMATTERS.COM](http://www.placematters.com).

Database site: [HTTP://WWW.PLACEMAKINGTOOLS.ORG](http://www.placemakingtools.org)



Fountain plaza in Washington, D.C.  
Photo: CONCERN, Inc.

*“I’ve been in city planning for 31 years,  
and this is the best planning tool I’ve  
ever seen used.”*

— Cerritos Assistant City Manager  
Dennis Davis, on his experience  
with MultiGen-Paradigm’s  
3D simulation

# Introduction

## Purpose of the Guide

**T**his guide provides a starter kit for a community member, city official, planner, or design professional to identify currently available planning tools and to assess their applicability and appropriateness to specific projects or issues, alone or in combination. It builds upon the work being done at [HTTP://WWW.PLACEMATTERS.COM](http://www.placematters.com) and provides a springboard for community action.

- For the community member it is intended as a community action guide to further the understanding of the importance of civic engagement and participation processes that draw on the collective wisdom, creativity, and experience of those involved. It will show how to begin the process of leveraging available tools for better decision-making in planning and to understand the requirements, strengths, and limitations of the tools as they apply to particular planning applications.
- For software developers it is a guide to understand how planners use existing visualization software, its limitations, and its usefulness to input new functionality.
- For planners and community members it illustrates the potential of these tools in the planning process and how to use technology to create better decision-support systems in specific planning processes.

*Councilman Mike Hernandez of the Los Angeles Mayor's Office explained, "The real value is to allow citizens to participate in the planning process. It really benefits in developing large projects and in looking at the impacts of those projects on communities. With virtual reality, you can actually see it before you build it."*

— Tony Knight, "Virtual L.A. in the Works."  
San Jose Mercury News, San Jose,  
California, August 11, 1997

From Roy Chan's paper, *Urban Simulation: An Innovative Tool for Interactive Planning and Consensus Building*



Photo: CONCERN, Inc.

This is not meant to be an exhaustive guide to available tools, but instead to represent a sampling of what is currently available. It highlights the steps a community might take when exploring how cutting-edge tools might be appropriately integrated into their planning processes. Feedback on these and other tools are critical to the ongoing improvement of planning resources. Contact [HTTP://WWW.PLACEMATTERS.COM](http://www.placematters.com) with your ideas, comments, and examples of tools development and applications, or use the Feedback Form on page 47.

## How to Use the Guide

This guide helps you to understand which tools might be an appropriate match to your community planning needs and goals.

For most individuals the first questions might be, "What is a design and decision-making tool? What are some examples of its application? Do we need training and technical assistance? How much will it cost?" To answer these questions we have created an Introductory Tour to help readers understand the breadth and diversity of available tools. It includes:

- Overview
- Discussion of the goals, values, and design principles involved
- Description of selected planning tools
- Sample scenarios
- Case studies
- Resources, and a
- Glossary.



# Getting Started — An Introductory Tour

## Overview: How Tools Improve Decision-Making

**D**esign and decision-making tools provide tangible means to help planners, policy makers, and citizens of varying backgrounds build consensus about the design and development of a place. If used properly and in context, tools can help people make better planning decisions by enabling improved **communication, design, and analysis**.

*“They love it. People think this is the best thing we’ve ever done.”*

— Ted Mondale, Chair of the Metro Council,  
Twin Cities area, on GIS-based  
maps used in community meetings  
to illustrate planning issues

### Places are complex and dynamic systems

Geographic places are complex organisms made up of an interrelated system of values and activities that extend far beyond the domain of a particular

disciplinary interest such as water, transportation, land use, economic development, or social equity. Decision support tools can provide new capacity to understand and model these complex interrelations and develop representation of the community and its assets.

## Comprehensive Representation

Comprehensive stakeholder representation is the human embodiment and tacit knowledge of a given community in its natural, built, economic, and social domains. Comprehensive representation allows communities to capitalize on all their assets, assure buy-in to the Placemaking process, and strengthen capacity to implement community plans. Process tools are critical for bridge-building and collaborative design.

## Communication: Promote open, clear public participation processes

Good communication is vital during the process of decision-making among stakeholders of different backgrounds, technical knowledge, needs, and agendas. For example, a traditional approach to communicating proposed plans for a dense commercial development in a historic neighborhood may involve the presentation of two-dimensional site plans, architectural plans, or even long written reports that are

difficult to interpret and more prone to audience misunderstandings. Shown to a potentially sensitive audience, impacts of such a development can be communicated more clearly using photo-realistic images of the proposed buildings in context. Even more effective, a virtual reality computer tool can communicate the development's impacts using a live walk-through of the proposed design. When all the information and issues are made transparent and

understandable to the range of stakeholders involved, more fruitful discussion and effective consensus-building can occur in a public participation setting. Planning tools can translate complex planning jargon, issues, and designs into a common visual language that all participants sitting around the table can understand and discuss to make better decisions about the development of their community.



Image © Florida House Institute

## Design: Visualization tools at the beginning of the planning process

The many design implications of where buildings are placed on a block, for instance, may include access, pedestrian experience, parking, and visual quality. Such implications are difficult to show or assess using traditional methods of representation such as site plans or artist renderings from a bird's-eye view or even a written description of the place.

There are a number of virtual reality tools now available for the computer that can effectively illustrate design plans by visualizing them photo-realistically in three dimensions, in context of a real place, and from a range of different vantage points. These features are critical because it is the third dimension in which people relate to the environment, and it is the recognition of real places that helps people understand their impacts on issues of scale, visual quality, relationship with pedestrians, and cars. It is important to note that such tools should be integrated throughout the entire design and planning process. This allows design decisions to be made more effectively from the start, rather than using such tools at the end for presentations, after all critical decisions have been made.

## Analysis: Demonstrate impacts of development

Beyond a visual analysis or an understanding of the physical implications of a design, it is often critical to understand broader public planning impacts, such as service infrastructure requirements or density goals of a community, when considering, for instance, new commercial

development patterns. Many planning analysis tools on the computer are now available to help a user understand such impacts and to provide quantitative and visual outputs for a variety of development scenarios. Such analysis can work directly with place-based data regarding the unique demographics, land-use, block layout, and environmental issues of a particular place.

**Geographic Information Systems (GIS)**, a mapping and analysis software, is becoming more commonly used and accessible in many city governments across the country. Using mapping, table, and other data gathered about a community, local assets can be identified easily on a map, and these assets, for example, could be shown on the same map with neighborhood demographics. By visualizing a combination of such critical information, proposed development sites could be easily identified, located, and queried. Beyond this, a GIS analysis could be done on the sustainability of specific development on these sites, identifying the environmental impacts, infrastructure, and economic thresholds of the place.



Left to right: Map of a part of Washington, D.C. area (CONCERN, Inc.); Citizens work on a scenario analysis in Houston, Texas (Environmental Simulation Center); Physical model of city. Physical modeling is still a popular method of presenting planning ideas.

## Steps to Selecting and Integrating Tools

- Define Your Goals
- Create Shared Values
- Select the Right Tool or Combination of Tools

*“The continuing failure of planners to use computers extensively for core planning functions results less from limitations of their hardware and software than from a limited understanding of the proper role these tools should play in planning.”*

— Richard Klosterman, University of Akron

This section will take you through a series of steps and questions that will help you identify your goals and particular planning **process**, create a community **value** system, and finally consider and further explore specific planning tools based on a set of design **principles**. As this guide will demonstrate, there are a range of tools available on the market, ranging from GIS analysis tools to high-end three-dimensional visualization tools. By doing this self-analysis, the selection of a planning/decision-making tool will become a thoughtful and iterative process that is tailored to your community’s needs both in the short and long term, and will lead you to other important resources.

## Example — How a Community Might Develop a Process to Create a Community Playground

### *Define your goals (pages 11–12)*

You and your neighbors want a community playground. How should you begin? First define your goals. Do you want a safe, attractive place where children could play? A place where community members of all ages can socialize? A place where the community can celebrate events? A place that would not require a lot of maintenance?

To help assess these goals you might use an **asset mapping** tool to identify local assets that are important to this project: for example, a flat, open space with a border of trees; a community organization willing to commit to design, support, help build and maintain the playground; and local

businesses to contribute materials and sweat-equity to the project.



Photo: CONCERN, Inc.

### *Create shared values (pages 14–15)*

Your community has special characteristics — culturally and historically — so you probably would want this project to reflect these values. Such a **'place-based'** approach would be important to the design of the playground and community space. The values you develop, as well as your goals, should be defined through a **consensus process** where everyone's ideas are presented, discussed, and evaluated so all community members have a stake in the outcome. **Community process tools** help insure an **open, equitable and participatory** process.

### *Select the right tools (pages 16–17)*

Your community believes that asset mapping and community process tools would best serve this effort. It's now time to evaluate the appropriateness of these tools by reviewing a list of design principles to see if the tools match the principles that apply to your project. For example, are the



Community playground, Washington, D.C.  
Photo: CONCERN, Inc.

tools **accessible, affordable, adaptable, and interactive**? After reviewing the list, your group might decide that asset mapping and community process are the best tools for your project and move on to selecting the specific tools themselves.

The **short-term** outcome will be a new recreational facility for the neighborhood, but because the entire community was involved the **longer-term** impact might be that neighbors decide to work on more projects that would make the community healthier, safer, and more livable.

## Define your goals — What do you want to do?

*Identify the planning goals, processes, and application.*

Before the exploration of tools, a community should identify their planning and process goals through a comprehensive needs assessment. *What needs to be analyzed, assessed, evaluated or designed? What are the planning goals and the processes necessary to achieve them?*

It is often easy for a community to confuse the process with the tools. Processes represent the planning issues and decisions that are being explored by a community and the accompanying methodologies used. While there are a variety of tools available with a range of functionality, it is a community's particular issue that drives the process of how a tool might be used. A

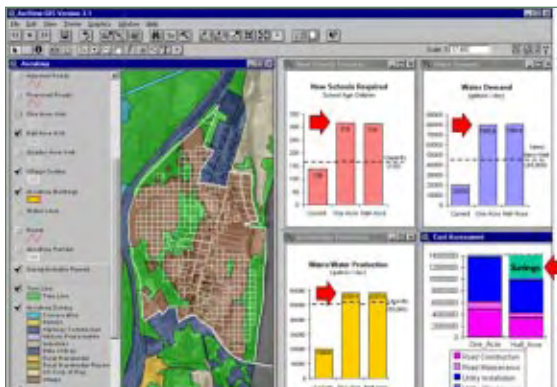
community should begin by identifying the planning issues they are exploring and the types of processes/analysis that may be required. For instance, if the planning issue is the economic revitalization of an impoverished neighborhood, then the planning processes necessary to achieve this might be an asset mapping of the existing place and a scenario analysis of proposed strategies or designs. This will then help identify the steps needed to assess and select the appropriate tools to address your issue.

Often, specific tools are used in an isolated fashion and do not reveal all the critical implications of the planning alternatives (i.e., simply looking at the economic impacts of a proposed development and not the aesthetic ones through 3D representation of a development pattern). When visual and analysis tools are used in combination, images and content become a more integrative whole to guide planning decisions.

The following is a list of general planning processes and a list of some specific planning tools that may accompany these processes. The list below, though not an exhaustive one, should be reviewed by community planners to help in the initial identification process.

The following tools are listed in the order a community might use them, e.g.,

1. community process tools
2. asset mapping
3. visualizing the future
4. impact analysis
5. scenario analysis
6. performance-based planning, and
7. predictive modeling.



Scenario Analysis using ArcView GIS.  
*Image: Environmental Simulation Center*



## Planning Applications Checklist

The following tools are listed in the order a community might use them.

### Community Process Tools

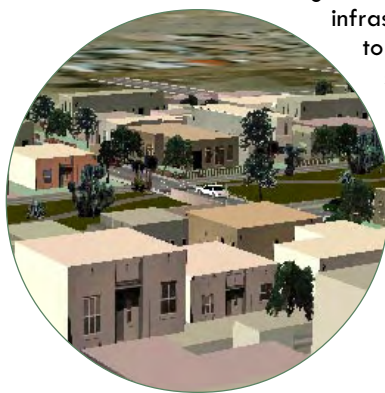
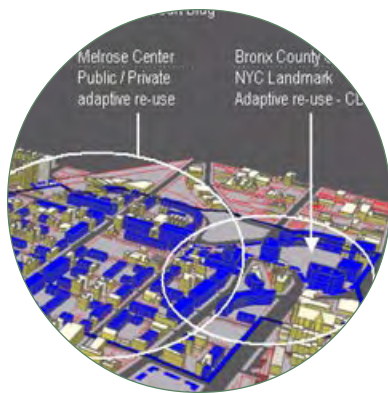
These tools focus on how the planning process can become integrated into community building empowerment efforts. How can democratic principles of planning collectively be initiated? This involves the exploration of community technology centers, neighborhood workshops, online information access about local planning decisions being explored, and the online permitting process for development.

**Associated planning applications:** *Participatory Planning and Design, Community Development*

### Asset Mapping

This is the process of identifying and documenting a community's assets including cultural, historical, physical, economic, and social (i.e., locating the historic buildings/current transportation hubs or assessing the buying power of an inner city neighborhood to attract investment).

**Associated planning applications:** *Neighborhood Revitalization, Economic Development, Historic Preservation, Tourism and Outreach.*



Left: Asset mapping. Right: Visualizing the future. Images: Environmental Simulation Center

### Visualizing the Future

Using a variety of two-dimensional or three-dimensional medium, a community will be able to see how their environment (ranging from a single infill development to a regional plan) will evolve over time. This may involve a number of design alternatives that include various physical planning considerations such as density, land use, transportation access, and parking requirements, all of which contribute to the look and feel of the place.

**Associated planning applications:** *Urban Design, Land-Use/Zoning, Neighborhood and Regional Visioning, Transportation Planning, Landscaping and Site Planning*

### Impact Analysis

Using a range of GIS applications, an impact analysis gives a community specific economic and physical impacts of future development plans. This involves the identification of infrastructure or population thresholds that measure how much commercial development, for instance, can occur in a given area before more associated infrastructure costs or housing is required to support it. The focus here is on the specific impact of a specific planning decision in a given moment in time.

**Associated planning applications:** *Land-Use Planning/Zoning, Transportation Planning, Economic Development*

### Scenario Analysis

Analyzing a scenario involves a more comprehensive analysis of the many implications of a planning scenario. Based on the location and density of a proposed commercial corridor, what are the range of impacts: infrastructure costs, population it serves, access, and environmental effects of context (i.e., amount of impervious surface).

**Associated planning applications:** *Land-Use Planning/Zoning, Transportation Planning, Economic Development*

### Performance-Based Planning

This is the process of identifying and developing performance criteria to measure how effective a plan is over time, and creates accountability through performance-based standards. Rather than a prescriptive set of regulations, this process allows planning to occur as managing change over time. It is an evaluation process that responds, for instance, to a set of design guidelines as they relate to how a physical place evolves.

**Associated planning applications:** *Urban Design Guidelines, Visioning, Parking Requirements, Transportation Planning*

### Predictive Modeling

This is the process of looking at planning in the fourth dimension (time). What are the long-term implications of population growth and sustainability issues of a master plan, for instance, over the next 30 years?

**Associated planning applications:** *Sustainability, Visioning, Land-Use Planning, Long-Term Economic Development/Viability*

## Create Shared Values — How do you want to do it?

*Define and maintain an underlying set of values throughout the planning process.*

Values are principles that are held in common by the stakeholders of a community throughout the planning process. Stakeholders should develop consensus on these values early in the process. They reflect the mission and vision of the community, are documented clearly to the public and to planning professionals, and drive the entire planning process. When we talk about the effectiveness of a tool for participatory design or the democratization of a planning process, we are referring to the values that drive the process rather than the functionality of the tools themselves. If one of the city's underlying values is to empower local residents into the design and planning process of a neighborhood, then the use of the tools in the process must be monitored for accountability in upholding this value.

Tools are basically objective, and can be used and applied in a number of ways. Although certain three-dimensional planning tools, for instance, offer a more understandable form of communication about a place because of their very intuitive nature, they can be used by a planning agency for different purposes and agendas with very different outcomes

within a public workshop. Simply by the way a 3D visualization is used, for example, the tool can serve to create a partnership with local residents from the very beginning of the process or it can serve to manipulate residents into political leverage for some agenda. Therefore it is critical to retain and recall a set of values that are established prior to and throughout the decision-making process.



Top: Asset mapping.  
Middle: Children at the National Zoo, Washington, D.C. Bottom: Townhouses in Washington, D.C. Photos: CONCERN, Inc.



## Values Checklist

Over the past few years, a series of workshops have been conducted by the Department of Energy called Tools for Community Design and Decision Making (TCDDM, website: [HTTP://WWW.TCDDM.ORG.](http://www.tcddm.org)) Through these meetings, users and experts from across the country developed the following overall common values. These values can serve as a guideline for a community to begin the development of their own set of values. To ensure the integrity in the use of the tools, the questions following each value may be reviewed and answered by a community within an accountability structure from the selection of the tools to their application at every step of the decision-making and planning process.



Citizen-based participatory democracy is essential for developing a community's common set of values. Photo: CONCERN, Inc.

### Alignment of Local and Regional Actions

- Does the system recognize the interrelationships between activities at the local and regional scales?
- Can the system switch between the local and regional scales to see a proposed plan in different contexts and perspectives?

### Alignment of Short-Term Actions with Long-Term Consequences

- Does the system address both tangible improvements in the near term and also lead to a healthy, sustainable, long-term future?
- Does the system show the phases over time of a proposed plan and their short- and long-term implications?

### Citizen-Based Participatory Democracy

- Is every effort made for the system to be understandable and clear for all stakeholders to participate in the design, or does the nature of the tools or the level of sophistication speak only to certain stakeholders, while excluding others in the process?
- Rather than simply being used as a presentation piece at the end of the process after decisions have been made, are the tools integrated, where possible, throughout all the relevant phases of project?

- Does the visualization tool show selected positives and hide selected negatives of a development to stakeholders? Or is every effort made for the environment to be objective in its communication of the plan?
- Who controls the tools? Who owns the tools? Who gets to learn the tools and use them more consistently?
- Who is invited to the process? Is the 'steering committee' representative of the community at large?
- In referring to Sherry Arnstein's "Ladder of Citizen Participation," what level of participation is the process? Is it Nonparticipation (Manipulation and Therapy), Tokenism (Informing, Consultation, Placation), or does it offer Citizen Power (Partnership, Delegated Power, Citizen Control)? See [HTTP://WWW.PARTNERSHIPS.ORG.UK/PART/ARN.HTM](http://www.partnerships.org.uk/part/arn.htm) for details on each level.

### Consensus and Collaboration

- Is the goal of the process to build consensus and develop collaboration among the different stakeholders? Or is it to convince the audience to agree on a pre-determined policy or plan?
- Does the system highlight values or needs held in common by the different stakeholders or does it focus on a particular agenda from a select few?

### Measurable Outcomes

- Are there mechanisms within the system that establish accountability for decisions and actions based on terms that are understandable and quantifiable?
- Does the system allow for an ongoing assessment of the plan in action by a range of stakeholders?

### Place-Oriented

- Does the system identify place-specific issues that take into account the context of the area being studied? Or does it offer a generic "one-size fits all" approach to the planning issues?
- Are the neighborhood models identifiable and recognizable to residents, and are the proposed alternatives sensitive to the style, scale, and culture of the area?

### Systems-Based Analysis

- Do the tools and system help build an understanding of interconnections between the natural, built, economic, and social systems of a community?

## Select the Right Tools

The selection of a planning tool should be measured against design principles to ensure that the proper tool is used and integrated into the process. These principles represent a number of place-specific considerations that a community must evaluate before embarking on its integration into the process. Essentially, this step involves an assessment of the needs, technology, and data of the community's resources and the range of planning tools currently available.

The following principles checklist — which a community or planner can measure against a proposed planning tool — was developed by the *Tools for Community Design and Decision Making* planners and experts. These questions are simple examples of those that could be asked to evaluate a tool.

It is important for a community to analyze the following criteria and ask the accompanying questions from two perspectives:

1. The community (resources, interest-levels, mutual goals, and needs), and
2. The tool being evaluated (design, functionality, and availability).

*I thought it was great. What really impressed me was how you managed to put a year's worth of discussions, debates and ideas into less than 20 minutes. I can't think of anything that was overlooked. It was concise yet thorough.*

*The 3D computer visualization ... could take local, familiar buildings and place them in my neighborhood. It was neat to see buildings that are presently in need of some serious rehab, and just by adding a few trees and a sidewalk the whole nature of the building, and its surroundings for that matter, are changed. Kind of like imagination visualization.*

— Debbie Tesar, City of Houston resident



### Design Principles Checklist

#### Accessible

- How is technology made available to stakeholders? Website? Public Kiosk? Community Technology Center? Public Hearings? Bulletin Board? Television? Newspaper? Media? Is the tool capable of presenting a plan or being used in these mediums of communication?

#### Adaptable

- How compatible are the tools with each other and other agencies/cities?
- Does this software have good potential to become mainstream in time?
- Are the tool's file format convertible to other standard formats used in other software/programs?

#### Affordable

- What are the range of costs for Software and Hardware and Data and Training? Can this cost be amortized? Pro-rated? Offset? Over time?
- Also, how affordable is the technology in terms of working hours to produce a visualization?

#### Citizens and Support Face-to-Face Interactions

- Does the tools enhance the community process? Does it bring people together from various interest groups on common ground rather than isolate people?
- Is it engaging and understandable to a range of audiences?

#### Comprehensive Coverage and Integration of Issues

- Does the tool facilitate cross-discipline approach?
- Does it take into account all the diverse implications of planning in a community from social to cultural to economic to aesthetic?

#### Contacts

- What is the background/history of the tools/software provider and developer?
- Who are the users/customers of the tool? Are there examples?

## Impact Analysis Including Short-, Mid-, and Long-Term Effects

- Are all the mid- and long-term effects on different groups of a community taken into account during this analysis?
- Are the effects of choices identified over time?

## Interactive

- How interactive is the tool?
- Will the user be able to respond to information presented and provide input?

## Intuitive

- How easy is the tool to use by a range of users?
- What are the skill levels required and the learning curve for the various types of users?

## Maintainable

- What are the short-, and long-term maintenance issues of the tools?
- Does the tools/software provider offer adequate training and support? How often are there updates of the tool?
- Will the tool be used on a one-time basis in the short-term, or is it foreseeable that the tool can be used in a number of projects long-term?

## Open Architecture

- Is this an open system allowing users to tailor application over time and to see indicators, constraints, and equations used for analysis?

## Promote Identification of Design Options

- Is the tool capable of highlighting design options and providing feedback on the impact of these different development options? In other words, how effective is it in its ability to create viable and creative design options for decision support?

## Quality of Data

- What is the quality of the data required?
- How much data, how accurate, how up-to-date, what resolution, and how consistent must it be for the tool to be effective?

## Regular Monitoring and Reports

- Does the system allow for an ongoing evaluation of the planning decisions being made?

## Scale: Local/Regional

- What scale is community being explored? Single site? Neighborhood? Regional?

## Values: Cause and Effect

- Is the tool capable of documenting, tracking, or prioritizing community values?
- What are the indicators and how credible is the information used?

## Visual Imagery

- Is a variety of visual imagery made available to illustrate the effects of choices?



Photo: CONCERN, Inc.



Images: Environmental Simulation Center

## Description of Available and Emerging Planning Tools

*“For people engaged in evaluating myriad community impacts or dynamics, INDEX provides an immensely valuable resource.”*

— Randy Goers, Planning Director, Tampa, Florida

Now that a general sense of the use of design and decision-making tools has been established, this section will describe the different simulation, GIS, and database tools on the market.

### Available and Emerging Planning Tools

- Traditional Methods By Hand
- Impact Analysis and Economic Forecasting
- Web-Based Tools
- GIS
- 3D Animation
- 3D Real-Time
- 3D GIS
- Process Tools
- Predictive Modeling

## Traditional Methods By Hand

Prior to the use of advanced computer software, proposed plans were represented by hand-drawn or CAD-generated site plans, colored maps, still colored renderings, and physical cardboard or foam models. These methods, still widely used as the most typical way to communicate, are relatively low-cost to generate initially, but require drawing and model-making expertise. As plans and designs change, however, it becomes cumbersome and laborious to manually redraw a plan or a revised scenario because changes through the process are inevitable.

### Miniature Modeling

Box City is a way for adults and children alike to use readily available, non-technical and low-cost materials such as cardboard, markers, and paper to design community spaces based on what they want in their community. Developed by Ginny Graves at CUBE ([HTTP://WWW.CUBEKC.ORG](http://www.cubekc.org)).

### Photomontages

Photomontages are a means to visually see how changes in a community might actually look and function. Digital photos of actual places, such as a city street, are altered to reflect how additions of street trees, mixed retail and residential, signage, and other features would change the look and function of a place. Developers: Dover and Kohl ([HTTP://WWW.DOVERKOHL.COM](http://www.doverkohl.com)), Duany Plater-Zyberk and Company ([HTTP://WWW.DPZ.COM](http://www.dpz.com)), Urban Advantage ([HTTP://WWW.STEVEPRICE.COM](http://www.steveprice.com)), and Winston Associates ([HTTP://WWW.WINSTONASSOCIATES.COM](http://www.winstonassociates.com)).

### Visual Preference Surveys

These surveys promote public feedback on planning and design alternatives in communities.

Using graphic images participants express their preferences either in person or electronically.

#### Interactive Visioning Surveys

([HTTP://WWW.LRK.COM/HOMEPLANS](http://www.lrk.com/homeplans)), developed by Looney Ricks Kiss (LRK) of Princeton, New Jersey.

#### Visual Preference Surveys

([HTTP://WWW.ANAVISION.COM](http://www.anavision.com)), developed by Tony Nelessen.

## Impact Analysis and Economic Forecasting

### CommunityViz™

CommunityViz™ is an integrative tool that allows the public and planners alike to experience their community in 3D, determine impacts of possible future planning, and assess public policies related to planning options. CommunityViz™ was developed by the Orton Family Foundation ForeSite Consulting, MultiGen Paradigm, Green Mountain Consulting, PriceWaterCooper, and the Environmental Simulation Center. [HTTP://WWW.COMMUNITYVIZ.COM](http://www.communityviz.com)

### INDEX® Planning Support System

INDEX® is an interactive GIS-based planning support system that measures existing conditions, evaluates alternative plans, and supports implementation of adopted plans. INDEX® supports the many stages of community planning and development — benchmark measurements of existing conditions, design and visualization of alternative planning scenarios, analysis and scoring of indicator performance, and comparison and ranking of alternatives. Once plans are adopted, INDEX® supports implementation by evaluating the consistency of development proposals against plan goals. [HTTP://WWW.CRIT.COM](http://www.crit.com)

## PLACE<sup>3</sup>S

PLACE<sup>3</sup>S is an urban planning method and GIS tool that helps communities to understand how their growth and development decisions can contribute to improved sustainability. Its name is an acronym for PLAnning for Community Energy, Economic, and Environmental Sustainability. PLACE<sup>3</sup>S integrates public participation, planning, design, and quantitative measurement into a diverse partner-based planning process for both regional and neighborhood-scale assessments. It is being developed in the public sector by Parsons Brinckerhoff and Fregonese Calthorpe Associates, with funding from the California Energy Commission and U.S. DOE. [HTTP://WWW.ENERGY.CA.GOV/PLACES](http://www.energy.ca.gov/places)

## Web-Based Tools

### U.S. Housing and Urban Development's EGIS

The enterprise geographic information system (EGIS) is an internet-based mapping resource provided by the U.S. Department of Housing and Urban Development (HUD) in partnership with Environmental Systems Research Institute, Inc. (ESRI). EGIS provides users with easy access to mapping tools and HUD data to support housing and community development programs at the state, county, city, and neighborhood levels. The program allows users to create personalized maps of their community, add data to the maps, and create thematic maps based on criteria and data that the user specifies.

[HTTP://HUD.ESRI.COM/EGIS](http://hud.esri.com/egis)

### Web-Based Calculators

These web-based calculators help people reduce activities that effect the environment by calculating air pollution, greenhouse emissions, and other resource impacts.

Airhead, a project of the Center for Neighborhood Technology: [HTTP://WWW.AIRHEAD.ORG](http://www.airhead.org)

ICLEI Commuter Calculator:

[HTTP://WWW.ICLEI.ORG/GAMES/COMCALC.HTM](http://www.iclei.org/games/comcalc.htm)

## GIS

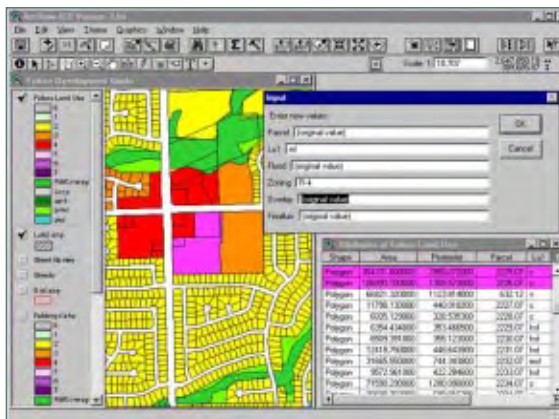
Geographic Information Systems (GIS) is a mapping software that provides data visualization, query, analysis, and integration capabilities along with the ability to create and edit geographic data. A GIS analysis could be done on the sustainability of development over time, thereby identifying the environmental impacts, infrastructure, and economic thresholds of a place.

### ArcView GIS

This is the most widely use software package. It organizes spatial information and data in an integrative, organized, and easily retrievable manner. ESRI: [HTTP://WWW.ESRI.COM](http://www.esri.com)

### ArcIMS

The GIS system is also accessible in a web-based environment, called ArcIMS. Residents of a community can, for instance, look at spatial information about their neighborhood simply by clicking into this interactive web interface and uncover specific planning information about their place. [HTTP://WWW.ESRI.COM](http://www.esri.com)



ARCView. Image: Environmental Simulation Center

## 3D Animation

Animation tools create realistic 3D environments that can be pre-recorded and played back to an audience. These can be used to illustrate what a new plan might look like.

### AutoDesk VIZ

AutoDesk VIZ creates highly detailed and realistic 3D models for animations. It can present design alternatives from predefined views and pre-recorded walk-throughs but no real-time interaction. [HTTP://USA.AUTODESK.COM](http://usa.autodesk.com)

## 3D Real-Time

### 3D Real-time

More like a Video Game, real-time software enables a fully interactive, three-dimensional environment, allowing users to walk or fly to any location in the 3D model. Though it can be relatively realistic using photographs, a real-time model is typically less detailed than a 3D model created from animation tools.

### Creator

A 3D modeler, optimized for real-time, makes the models photo-real through the use of textures (actual photographs of the place).

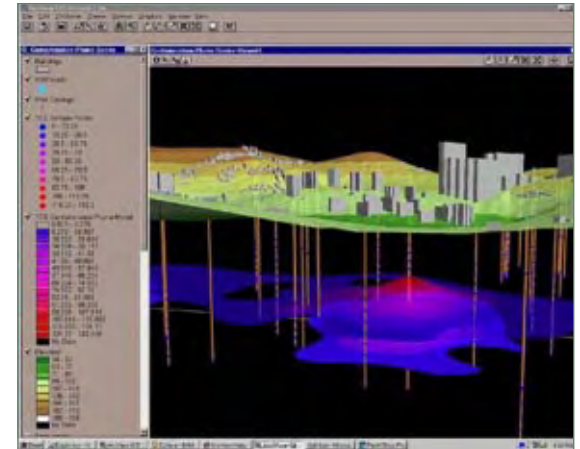
[HTTP://WWW.MULTIGEN.COM](http://www.multigen.com)

### VIO

This software allows the user to experience and save the 3D model and design alternatives from any vantage and in real time.

[HTTP://WWW.MULTIGEN.COM](http://www.multigen.com) or

[HTTP://WWW.ITSPATIAL.COM](http://www.itspatial.com)



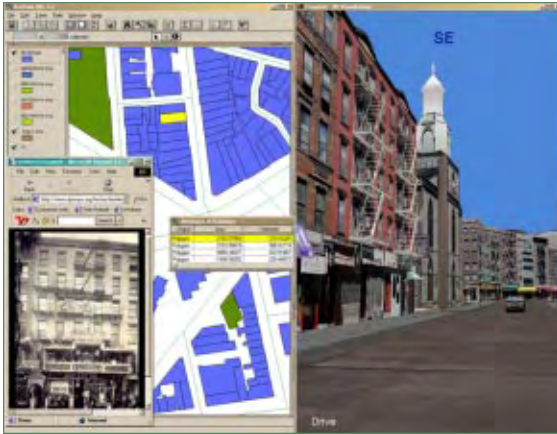
3D Analyst. Image: Environmental Simulation Center

## 3D GIS

3D GIS software combines the power of 3D realtime simulation, GIS software, and database software to create a 2D/3D interface that integrates words, numbers, and images used to measure or represent impact. A user can start in the GIS mapping environment to query or analyze the impacts of development in a historic district and then immediately experience these impacts visually in 3D.

### 3D Analyst

This creates a 3D massing model of a place directly from GIS information for analysis in both 2D and 3D. There is currently no dynamic real-time link, however. [HTTP://WWW.ESRI.COM](http://www.esri.com)



Creator VIO-GIS. Image: Environmental Simulation Center

### SiteBuilder

Sitebuilder is an ideal tool for quickly generating a 3D model of a place from GIS data. Though not as realistic as Creator/VIO, it allows for very quick visualizations of place using a photorealistic kit of parts. [HTTP://WWW.MULTIGEN.COM](http://www.multigen.com)

### Creator/VIO-GIS

This is a multi-dimensional tool that links 3D real-time capabilities to ArcView GIS. Information can be queried from either environment. Photo-real models are created in the Creator software and viewed with VIO-GIS and ArcView together. [HTTP://WWW.ITSPATIAL.COM](http://www.itspatial.com)

### CommunityViz

CommunityViz™ is a suite of software planning tools that have an impact analysis piece, a 3D real-time viewer, and a policy simulator as part of a complete planning analysis package. [HTTP://WWW.COMMUNITYVIZ.ORG](http://www.communityviz.org)

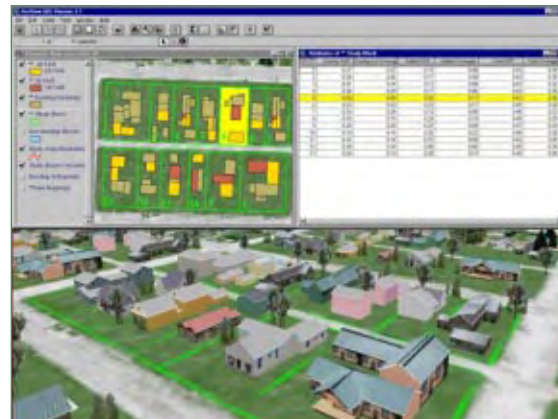
## Process Tools

### Florida House Institute Sustainable Development Toolkit

The FHI Sustainable Development Toolkit ([HTTP://WWW.I4SD.ORG/TOOLKIT.HTM](http://www.i4sd.org/toolkit.htm)) is a set of collaborative processes to support vision-based planning and community development that have resulted from FHI's work in communities. The processes work in conjunction with GIS and place-based planning and decision support tools to aid communities in developing and implementing consensus-driven sustainable development.

### CoVision WebCouncil

Council™ and WebCouncil™ ([HTTP://WWW.COVISION.COM](http://www.covision.com)) are two tools that can enhance community participation in the decision making process. Council™ is a facilitated process supported by “meetingware” technology, including laptop computers and voter keypads, to get feedback and ideas from large groups. The computers are networked together using wireless technology maximizing mobility and reducing setup time.



CommunityViz. Image: Environmental Simulation Center

### MeetingWorks

MeetingWorks is a groupware product that includes tools for electronic brainstorming, idea organization, ranking, voting, cross-impact analysis, and multiple criteria (weighted factors) analysis. Individuals can respond to questions and become aware of their whole group's perspective. Everyone in the group can express their ideas to the rest of the group either anonymously or by identifying themselves so in the end everyone feels heard. Typically used by large corporations, the tool also works well for communities.

[HTTP://WWW.MEETINGWORKS.COM](http://www.meetingworks.com)

## Predictive Modeling

### Transims

The TRansportation ANalysis SIMulation System (TRANSIMS) is a set of new transportation and air quality analysis and forecasting procedures that will support transportation planners, engineers, decision makers, and others who must address environmental pollution, energy consumption, traffic congestion, land use planning, traffic safety, intelligent vehicle efficiencies, and the transportation infrastructure effect on the quality of life, productivity, and economy. [HTTP://TRANSIMS.TSASA.LANL.GOV](http://transims.tsasa.lanl.gov)

### UrbanSim

Designed to assist communities in integrating their land use, transportation, and environmental planning efforts, UrbanSim is a simulation system that models the real estate development process and the locations of households and jobs based on scenarios of transportation, land use, and environmental policies. It is meant to support a community visioning process by allowing communities to explore the potential consequences of alternative policy scenarios. [HTTP://WWW.URBANSIM.ORG](http://www.urbansim.org)



Photo: CONCERN, Inc.

## Placemaking in Action: Selected Scenarios

*“Growth modeling is one of the most advanced ways to demonstrate sprawl, enabling officials to show not just how their community has changed over the years but how it will change in the future. A computer model is used to input characteristics, and the model can extend the data out for decades to show how the landscape is likely to change. The model can work for growth policy as a whole, or for individual policy decisions, such as whether to put a hospital at a particular intersection. . .”*

— Anya Sostek, ‘Bringing Sprawl to Life,’  
*Governing*, December 2001  
([HTTP://GOVERNING.COM](http://governing.com))

Many processes and tools are being used around the country to address community challenges that require innovative thinking, design, and decision-making. Getting involved, working together, and creating new approaches collectively strengthens the outcomes and can achieve multiple benefits simultaneously.

In this section we have selected some generic situations that are likely to provide challenges to communities — large and small brownfields redevelopment, neighborhood revitalization, waterfront planning, and public participation processes for community redevelopment. Emphasis is on new approaches to old problems that reflect the **values**, such as citizen-based participatory democracy, consensus, and collaboration, as well as **principles** of community-based placemaking, such as performance-based planning created by a community vision and judged by community-developed local indicators.

Some scenarios are hypothetical, and others build on existing projects. Each scenario includes a proposed action plan, selected tools, and case studies of places where some of the tools have been used. Other resources can be found in the Appendix.

# Selected Scenarios With Analysis

## Brownfields Redevelopment

Brownfields are properties that are underutilized land that may also be abandoned and/or contaminated. Developers, investors, and financial institutions concerned about liability issues may turn to the development of 'greenfields' in undeveloped areas instead, thereby increasing sprawl and reducing the availability of open space and farmland.

In recent years new legislation has been passed at both the federal and local levels to encourage redevelopment of brownfields in developed areas. Redevelopment of these properties can benefit neighborhoods by creating employment, businesses, housing, recreational facilities, community centers, revenue, improved public and environmental health, and aesthetic improvements. Therefore it is essential that community members, especially those in low-income neighborhoods, participate in the revitalization process of these properties.



Wall mural depicting renovated brownfield site on the Anacostia River, Washington, D.C.  
Photo: CONCERN, Inc.

**Proposed Action Plan:** The significant planning processes and applications identified here include asset mapping, visualizing the future (a 3D model of the site in context), impact analysis (analyzing the high costs of clean-up of sites), and community resource tools (resource center). Values also have to be defined to serve as the foundation for this planning process. In this case, values may focus on the participatory process and the alignment of short-term goals with long-term consequences as the local community explores together the short- and long-term effects of such redevelopment.

**Tools:** In identifying brownfield properties and involving the local community in the design process of redeveloping brownfields, planners may want to explore the use of both GIS tools (Geographic Information Systems) and 3D real-time simulation.

- **ArcView GIS:** Planners can use ArcView to look at a series of comparative maps with color-coded layers to identify the brownfields most feasible for redevelopment. GIS-generated maps and charts can help communities spatially visualize the adjacencies of existing land-uses, environmental hazards, and transportation access of such sites.
- **Realtime Simulation using Sitebuilder or Creator/Vega:** By creating a 3D computer model of these sites in context, the community will be able to better understand the experiential and design implications of the various redevelopment alternatives. An interactive, photo-real model allows local residents to recognize their place and how redevelopment may affect where they shop, how they walk to work or school, and where they find recreation. Analyzing these questions in a community workshop setting using 3-D realtime simulation helps participants make

more informed decisions about redevelopment, thereby involving them in the design discussion.

**Case Studies:** In the Baltimore region, visioning workshops were held using both GIS tools and Real-time 3D simulation to involve residents in the process of how brownfield sites may be redeveloped over time. For a more descriptive narrative and images on this project, see *Case Study: Baltimore Region* on page 34.

Page 24 features an image of an interactive, queryable GIS map of a New York City Housing Authority Project in which residents were able to locate their comments on real places in a public workshop. This process was created by the Environmental Simulation Center ([HTTP://WWW.SIMCENTER.ORG](http://www.simcenter.org)) and allowed positive and negative comments from a variety of stakeholders to be documented categorically, quantified, and presented clearly on a site map.

## Neighborhood Planning: Neighborhood Action Program

In the Neighborhood Action program in Washington, DC, neighborhoods were grouped into 39 clusters in eight wards. Over the last two years, community members, businesses, and local government officials came together in an open and inclusive process in each of these clusters to voice their views, develop a shared vision, and to create their own Strategic Neighborhood Action Plans [SNAPs]. The DC Office of Planning is responsible for the implementation and for linking the neighborhood priorities expressed in those plans to shape the city's strategic plan and budgeting process.

When priority projects such as those highlighted in the SNAPs are closely coordinated among the diverse city agencies responsible for their implementation, the delivery of municipal services can be enhanced. For this reason, representatives from all the agencies meet on a regular basis to address persistent problems and to develop solutions that have multiple benefits for the community, the environment, and the economy.



**Proposed Action Plan:** The significant planning processes and applications identified here include asset mapping (documenting neighborhood assets by residents) and community process tools (interactive discussions using mapping tools that can quantify and categorize issues). Values also have to be defined to serve as the foundation for this planning process. In this case, values may focus on the participatory process, consensus and collaboration, and place-oriented studies. The inclusion of the representative groups of stakeholders, residents, business owners, and politicians of a neighborhood is critical to ensure democratic values in the process.

**Tools:** In identifying key issues across neighborhoods and empowering local community members, planners may want to explore the use of both GIS tools (Geographic Information Systems) and 3D real-time simulation.

● **ArcView GIS:** Planners can use ArcView GIS to document and quantify the range of input from stakeholders of a community. Rather than filling out a survey or having residents provide anecdotal comments, an electronic map of the neighborhood can be used by people to specifically locate their issues on the site and categorize them. Upon review, planners from different departments (i.e. transportation, housing, etc.) can immediately see areas that need improvement (according to residents) and query the survey maps to respond directly to those comments that apply to the specific department (see GIS map above).



Interactive, queryable GIS map of a New York City Housing Authority Project. Image: Environmental Simulation Center

● **Realtime Simulation using Sitebuilder or Creator/Vega:** By creating a 3D computer model of these sites in context, the community will be able to better understand the experiential and design implications of the various redevelopment alternatives. An interactive, photo-real model will allow local residents to recognize their place and how redevelopment may affect how and where they shop, how they walk to work or school, and where they find recreation. These questions can be raised and potentially answered in a community workshop setting with residents using the 3D environment to make more informed decisions about redevelopment, thereby involving them in the design discussion.



## Waterfront Planning: Anacostia Waterfront Initiative (AWI)

Formed in 2000, the Anacostia Waterfront Initiative in Washington, DC is an unprecedented collaboration of local government, numerous Federal agencies, and community members to develop a coordinated plan for areas adjacent to the Anacostia River that will benefit both residents and the city. Both the neighborhoods and the river itself have been long neglected. This ambitious and innovative effort is designed to harmonize and coordinate the activities of many different agencies to align with the priorities expressed by residents in a series of community meetings that took place over an 18-month period.

Coordinated by the DC Office of Planning, the General Services Administration, and the National Park Service, this historic undertaking has engaged hundreds of people in envisioning possibilities for the environmental, social, and economic revitalization of contiguous neighborhoods along the river. The first tangible project, the design and development of the Riverwalk and Trail along the Anacostia River, began in spring of 2002, and will connect all the communities along the river and provide new recreational facilities for local residents. [HTTP://WWW.PLANNING.DC.GOV/PROJECT/WATERFRONT/INDEX.SHTM](http://www.planning.dc.gov/project/waterfront/index.shtm)



Naval District Washington, located at the historic Washington Navy Yard next to the Anacostia River in the District of Columbia, adopted Low Impact Development (LID) to decrease its impact on the Anacostia river. Photo: CONCERN, Inc.

**Proposed Action Plan:** The significant planning processes and applications identified here include asset mapping (documenting neighborhood priorities by residents), community process tools (interactive discussions using 3D visualization), and visualizing the future (looking at different development possibilities along the waterfront).

**Tools:** This process employed the traditional charrette approach and graphics to gather comments and ideas from the public which were then translated by professional planners, architects, and engineers into schematics. In turn these were presented back to the public for further analysis and review. This is one effort that could have benefited from the beginning of the design process

with 3D visualization technologies such as Sitebuilder or CommunityViz, Box City, and other community-design and decision-making tools that can help residents and professionals alike view alternatives together in real time.

- **Realtime Simulation using Sitebuilder, CommunityViz, or Creator/Vega:** A 3D real-time computer model will allow the community to better understand the experiential and design implications of the various redevelopment alternatives. An interactive, photo-real model will allow local residents to recognize their place and how redevelopment may affect how the waterfront may best be developed. Recreational facilities, for instance,

could be modeled within the context of the area, and viewed in real-time during public discussions. CommunityViz and SiteBuilder allows for a less visually specific model, but can quantify some general impacts from the different alternatives. Creator/Vega, however, can create a more realistic, specific model.

**Case Studies:** In the Santa Fe Region, Consensus building/visioning workshops were held using a Real-time 3D simulation to involve residents in the process of how different regional planning approaches and a mix of uses might occur over time. For a more descriptive narrative and images on this project, see *Case Study: Santa Fe, NM* on page 32.

## The Westside Neighborhood Transformation

Many urban areas have neighborhoods that are underserved — where residents experience high levels of unemployment, live in deteriorating housing, face daily crime threats, and lack opportunity for a more livable community. Such was the case in the Westside neighborhood in Chattanooga, Tennessee, where residents, in six short years, took control of their future. Its transformation serves as an inspiration and model using ‘community assets’ as the tools for change.

In this case, a community asset, the local school, prompted the community to organize when it risked losing it in the early 1990s. Many of the residents who were on public assistance managed to raise \$5000 through a bake sale within the community and partnered with other organizations and businesses to raise additional funds to save the school. Residents came together to create a shared vision of safe streets, health care, education, jobs, and recreation. They brought their vision to the City Council, which gave the school to the community. Soon residents formed the Westside Community Development Community and reopened the school as the Community, Family, and Entrepreneurial Resource Center. Former welfare mothers now own businesses, job training provides ‘up and out’ opportunities for residents, new businesses are flourishing, and there are expanded opportunities for youth and seniors.

Community members identified what was important to them — people and places that were assets — and developed strategic public/private partnerships to implement their vision to transform their neighborhood into a healthy, livable community.

**Proposed Action Plan:** The significant planning processes and applications identified here include asset mapping (documenting neighborhood priorities by residents), community process tools (interactive discussions using 3D visualization), and visualizing the future (looking at different development possibilities in the blighted neighborhoods).

**Tools:** For Asset-Based Community Development, some low-tech tools may be applied here, including ([HTTP://WWW.NWU.EDU/IPR/ABCD/ABCDTOOLS.HTML](http://www.nwu.edu/IPR/ABCD/ABCDTOOLS.HTML)), and HUD e-maps ([HTTP://WWW.HUD.GOV/EMAPS](http://www.hud.gov/emaps)), 3D real-time

● **Realtime Simulation using Creator/Vega:** A 3D real-time model of a revitalized corridor, backed by economic impact studies, could foster community development that leverages neighborhood assets. Different design alternatives in context for the neighborhood could engage residents and business owners in a public workshop, thereby highlighting community issues and goals. By showing the visualizing potential improvements and buying power, the model could also attract new economic investment to the area.

**Case Studies:** In Houston, TX, consensus building exercises were facilitated by an interactive 3D model to determine neighborhood vision for the corridor and attract investment to the corridor. For a more descriptive narrative and images on this project, see *Case Study: City of Houston, TX* on page 33.

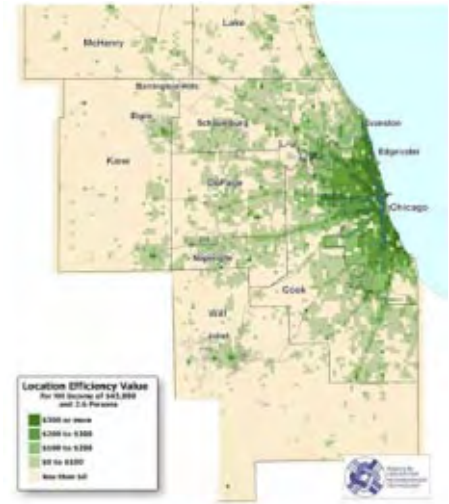


Chattanooga's electric shuttle.  
Photo: CONCERN, Inc.

# Affordable Housing

Providing affordable housing options for middle- and low-income families is high on the list of concerns in most communities around the country. What makes housing affordable is more than the initial cost of the home. High-quality, long-lasting building materials and energy-efficient heating, cooling, lighting, and appliances are critical to keeping a home affordable over the long term.

The location of housing — its proximity to jobs, childcare, stores, and services, and whether or not these are accessible by car, transit, or walking — also has a significant impact on overall cost of living and therefore affordability. For example, convenient access to transit and/or living in close proximity to jobs and services influences a variety of factors: whether or not a family needs to own multiple cars, how much resources are spent on vehicle usage, and how much time is spent traveling from place to place. Land use planning tools, which look at spatial proximity to jobs and transportation networks and assist in the design of pedestrian-friendly communities, can help reduce the cost of living and make housing more affordable.



*Chicago's Location Efficient Mortgage (LEM) program helps people buy homes near transit. Image: Center for Neighborhood Technology*

**Proposed Action Plan:** Affordable housing projects need to take into consideration both the construction of the house and the project's location. Transit-oriented development, mixed-use and mixed-income housing are important strategies that help make affordable housing more viable over the long run.

**Tools:** Building design tools that look at energy efficiency and water efficiency, along with visualization, asset mapping, transportation planning, and GIS impact analysis tools, can all assist in the process. Impact analysis and scenarios analysis tools can help communities understand the value of diversified housing strategies and reduce NIMBYism around affordable housing.

- **Energy10:** Builders can analyze the energy savings enjoyed through the use of different building materials and heating and ventilation systems and see how buildings perform in different climates.
- **INDEX PlanBuilder:** Planners can quantify the impact of pedestrian-oriented and transit-oriented design on various indicators, including vehicles miles traveled and air quality.
- **Location Efficient Mortgages (LEM):** Policy makers, planners, and financial institutions can better understand the value of transit services and proximity to transit in reducing transportation costs for families.

**Case Studies:** Chicago was one of the first cities in the country to have access to location-efficient mortgages (LEM). The above image shows how location efficiency dramatically improves affordability in regions with transit.

[HTTP://LOCATIONEFFICIENCY.COM](http://LOCATIONEFFICIENCY.COM)

Colorado has set up an E-Star program for housing. For homes with high E-Star ratings, homebuyers can qualify more easily for below-market-rate Energy Efficiency Mortgages (EEM) than for conventional mortgages. [HTTP://WWW.ESTAR.COM](http://WWW.ESTAR.COM)

# Selected Applications of Tools

## Citizen Summits

In 1999 and 2001 Mayor Anthony Williams and his administration held two city-wide strategic planning exercises to set priorities for the city of Washington, DC, based on citizen-established preferences. More than 3000 participants attended the first meeting where they sat at tables of ten with a trained volunteer facilitator and a wireless computer. In the morning citizens were asked to give comments about a draft city-wide strategic plan and in the afternoon they regrouped by neighborhoods to discuss local priorities.

The meetings were facilitated by **AmericaSpeaks** ([HTTP://WWW.AMERICASPEAKS.ORG](http://www.americaspeaks.org)), a not-for-profit pioneer in large-scale civic engagement, in collaboration with **CoVision** using their proprietary **Council** groupware and a wireless keypad system provided by **Option Finders**. All the information was collected on the computers in “realtime” by volunteer recorders. Each participant was given a keypad to respond to questions from the facilitator. This technology allows everyone to immediately see the responses from all participants such as demographic information (age, gender, race, and education level), what ward they are from, and which issues are of greatest importance to them (education, health, jobs, and so forth). Both technologies allow participants to get a sense of the thinking of the entire group and to see where their perspectives fit within the thinking of the larger group.

One of the most important aspects psychologically is that despite the large number of people in the room, every voice is “heard” and each comment recorded for immediate feedback by the meeting coordinators and for longer-term analysis by the Mayor’s administration to help guide the strategic planning process. For example, at the follow-up meeting two months later, each neighborhood table received printed comments from the previous meeting, validating the transparency of the process. In the next draft of the city-wide plan, specific emphasis was placed on the changes, both programmatic and budgetary, that were a direct result of the Summit process.



Citizen summits. Photo: CoVision



Option Finders keypad.

Photo: Ken Snyder

### Tools:

- **CoVision's Council™** — groupware and fast feedback for large meetings.  
[HTTP://WWW.COVISION.COM/NEWYORK/INDEX.HTM](http://www.covision.com/newyork/index.htm)
- **Option Finders** — wireless keypad system.  
[HTTP://WWW.OPTIONFINDERS.COM](http://www.optionfinders.com)
- **AmericaSpeaks** — public participation process.  
[HTTP://WWW.AMERICASPEAKS.ORG](http://www.americaspeaks.org)

## Listening to the City

On July 20, 2002, more than 4500 participants from diverse backgrounds came together at the Jacob Javits Center in New York City to discuss the future of the World Trade Center site and memorial. This event, *Listening to the City*, is a project of the Civic Alliance to Build Downtown New York, a large coalition of groups formed after September 11, 2001. It was organized and facilitated by AmericaSpeaks. The format for this event, similar to that of the Citizens Summits in Washington, DC, combined the intimacy of shared, respectful conversations at the small tables with the impact of seeing the collective response of all participants to questions asked by the facilitator.

Seated at tables of eleven with a volunteer facilitator and recorder, participants held conversations orchestrated by AmericaSpeaks. Results of instant computerized polling regarding preferences, priorities, hopes, and concerns were reported back in seconds on huge screens throughout the convention hall. This 21st-century town meeting was an expression of democracy in action. When the participants were asked if they had learned something new and had changed their views as an outcome of their dialogues, around 75% answered affirmatively.

While many remained skeptical about whether their views would influence future outcomes, roughly 80% reported that they were very satisfied or satisfied with their experience at the event. This demonstrated that cutting-edge technology that is inclusive and immediate, combined with outreach to diverse constituencies and small table discussions that respect different perspectives, appear to meet the needs of the citizen and decision-maker alike, combining the best of the traditional town meeting with the digital age. For those unable to attend there was a comment period and an opportunity for an additional 1000 persons to participate in a small group online dialogue.

Key decision-makers committed to being present for the entire day so that they could hear firsthand the views of all the participants. They included representatives from the Port Authority of New York and New Jersey (the owners of the property), the Lower Manhattan Development Authority, and city and state representatives. The results of the forum were shared with them and with the general public. The report is available online at [HTTP://WWW.WEBLAB.ORG/LTC/LTC\\_REPORT.PDF](http://www.weblab.org/LTC/LTC_REPORT.PDF)



Listening to the City,  
July 2002.  
Photos: Ken Snyder

### Tools:

- **CoVision's Council™** — groupware and fast feedback for large meetings.  
[HTTP://WWW.COVISION.COM/NEWYORK/INDEX.HTM](http://www.covision.com/newyork/index.htm)
- **AmericaSpeaks** — public participation process.  
[HTTP://WWW.AMERICASPEAKS.ORG](http://www.americaspeaks.org)

## Regional Land Use and Transportation

Growth issues in metropolitan areas such as the Greater Washington Region pose numerous challenges to public officials, planners, and residents alike, but because these issues are complex and multi-sectoral, they may also offer an opportunity for innovative solutions. Quality of life considerations, such as traffic congestion, long commutes, loss of green space and tree canopy, air pollution, and the deleterious effects of sprawl on the health of the Chesapeake Bay, call for new approaches. As the region grows it can benefit from guiding new development toward existing urban areas to make the best use of existing infrastructure, to provide vibrant communities with diverse services, and to preserve open space and farmland in the rural areas.

Developers, planners, investors, businesses, and residents have different perspectives and expectations when development occurs. Residents that have had plans imposed on them in the past or who have participated in planning processes that were not implemented may likely be skeptical about being engaged in a design process, for example, for a new transit development project in Washington, DC or its environs.

Language is also an issue. Words such as “density” may conjure up visions of more traffic, crowding, stormwater runoff, gentrification, or other undesirable outcomes as it did with the proposed development around the Tenleytown Metro Station in Northwest DC. Good communication and open processes with early visible results are key to building trust and healthy outcomes.

Visualization tools, such as those being used in the Bay Area in California, that can illustrate alternative futures using local data will help participants make informed choices about how their neighborhoods will evolve.

### Tools:

- **PLACE<sup>3</sup>S** — Planning for Community Energy, Economic and Environment Sustainability  
[HTTP://WWW.ENERGY.CA.GOV/PLACES](http://www.energy.ca.gov/places)
- **Envision Utah**  
[HTTP://WWW.ENVISIONUTAH.ORG](http://www.envisionutah.org)
- **Urban Advantage**  
[HTTP://WWW.STEVEPRICE.COM](http://www.steveprice.com)
- **Quest**  
[HTTP://WWW.ENVISIONTOOLS.COM](http://www.envisiontools.com)

- During the next 20 years the San Francisco Bay Area is expected to grow by one million residents. To address these regional growth issues, an unusual collaborative effort has been undertaken by the Association of Bay Area Governments, Metropolitan Transportation Commission, Bay Area Air Quality Control Commission, and the National Oceanic and Atmospheric Administration’s coastal authorities.

Overseen by the Bay Area Alliance for Sustainable Development, this project addresses land use issues in a way that will simultaneously protect the environment while creating mobility and housing options. The *Bay Area Smart Growth/Regional Livability Footprint Project* has engaged thousands of residents in an open planning process and employed **PLACE<sup>3</sup>S** technologies. The initial outcome is an Alternatives Report that outlines three region-wide options.

[HTTP://WWW.ABAG.CA.GOV/PLANNING/SMARTGROWTH/](http://www.abag.ca.gov/planning/smartgrowth/)

- Similarly, the Greater Wasatch area of Utah is expected to absorb one million more residents by 2020. In 1997 a coalition of community members, business, government officials, and others formed Envision Utah ([HTTP://WWW.ENVISIONUTAH.ORG/](http://www.envisionutah.org/)) to create alternative scenarios for their community that would protect their environment, maintain a healthy economy, and provide housing and transportation options. They developed a set of principles to guide their public participation process, inventoried their assets, held public workshops, and developed four alternative scenarios that led to a strategic plan and implementation steps. More than 7000 participants became involved in 200 public meetings to comment on these scenarios. More than 800,000 questionnaires were circulated. One of the most important elements was communication back to the public about public preferences. Today Envision Utah continues to guide the implementation of this collective vision of placemaking.

## Restoring the Urban Tree Canopy

Apart from their natural beauty and the pleasure they provide, trees offer many other ecological and economic benefits to communities. By cleaning the air they improve air quality and environmental and human health. Through shade they cool the community and reduce energy use and costs. Trees also absorb water, thereby reducing stormwater runoff and promoting absorption into the ground. When tree cover is diminished, more costly stormwater infrastructure is required to drain water from paved or impervious surfaces and buildings. Studies have also demonstrated that trees improve wildlife habitat, human safety, property values, and community building.

According to American Forests, a national nonprofit organization, during the past 30 years many metropolitan areas suffered significant tree loss. Formerly known as the “City of Trees” Washington, DC, tree cover diminished by 64% between 1973 and 1997. To help residents and policymakers alike understand changes over time and to calculate benefits of re-greening their communities, American Forests developed the software program **CITYgreen 5.0**. For example, in a study of 12 watersheds in Salem, Oregon — where the tree cover is 17% — it calculated that the city could save \$17.5 million in stormwater storage costs alone if it augmented the cover to 25%. ([HTTP://WWW.AMERICANFORESTS.ORG](http://www.americanforests.org))

With the support of the U.S. Department of Agriculture’s Forest Service and the Casey Trees Endowment Fund, American Forests collected data on the Washington, DC metropolitan area’s green infrastructure, or all the green areas that provide free ecosystem services noted above such as cleaning the air and water, cooling communities, and increasing the livability of a community. Planners, community members, developers, engineers, and others can partner together to use this geographic information system-based software to model options for greening communities to document anticipated benefits and promote cost-savings. With the documentation this tools produces, it can lead, as it has in the Nation’s Capital, to a new community Re-Tree DC effort that began in the spring of 2002 with training local residents in identifying and evaluating the state of the city’s trees through a Tree Inventory. ([HTTP://WWW.CASEYTREES.ORG](http://www.caseytrees.org))



Washington Cathedral, Washington, DC.  
Photo: CONCERN, Inc.

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### Tools:

- CityGreen 5.0. [HTTP://WWW.AMERICANFORESTS.ORG](http://www.americanforests.org)

# Selected Place-Based Case Studies

## Santa Fe, New Mexico

*Master Planning Initiative (August 2000 to April 2001)*

Client: City of Santa Fe  
Consultants: ESC, ACP ([HTTP://WWW.SIMCENTER.ORG](http://www.simcenter.org))  
Services: Urban design and planning three alternatives, 3D visualization, GIS, Conduct Public workshops  
Tools: ArcView GIS; Realtime simulation: MPI's Creator (modeling); Vega (animation)  
Application: Regional visioning, sprawl scenario, redevelopment, new development

The ESC collaborated with ACP Planning and Visioning to develop alternative growth scenarios and a vision plan for the southwest area of Santa Fe — an area that has been developing with a scale and character at odds with the rest of the community. The vision process involved workshops with stakeholders and focus groups developing land use and design alternatives for the three prototypical development patterns that prevailed within the study area. The steps included were: identifying desirable patterns of local development from the study area and Old Santa Fe, translating those patterns into development “building blocks” that respond to particular design issues, and applying those building blocks to each prototypical area.

The building blocks were modeled in 3D, quantified in terms of impacts, and presented at workshops where the

stakeholders could vote on their comfort-level on a particular design issue. This process ultimately produced ten development principles, which, along with the building blocks, were place-specific

and responsive to Santa Fe, and could be adapted over time in a variety of situations.

By integrating GIS analysis, urban design, and 3D visualizations in all phases of the public participation process, the project team was able to help the community reach consensus on development principles that support higher-density neighborhood centers, mitigating the detrimental impacts of sprawl. The city of Santa Fe is actively using these principles to develop a new land-use plan for the area and to evaluate proposed developments. Once the new land-use plan is approved, the principles will be codified into formal design guidelines and zoning regulations.



*Image: Environmental Simulation Center*

# City of Houston

Client: City of Houston  
Consultants: ESC ([HTTP://WWW.SIMCENTER.ORG](http://www.simcenter.org))  
Services: Urban design and planning three alternatives, 3D visualization, GIS, Conduct Public workshops  
Tools: ArcView GIS; Realtime simulation: MPI's Creator (modeling); Vega (animation)  
Application: Urban Design Guidelines, Visioning, Marketing Inner City

Through a HUD grant, the ESC worked with the City of Houston Department of Planning to conduct a series of design workshops for Houston's Near Northside neighborhood. Using 3D computer simulations, this visioning process helped to define the community's future planning objectives for its commercial corridor.

The ESC prepared and conducted an interactive design workshop geared toward reaching consensus on the neighborhood's identity. The workshop focused on design objectives (Concentrating Activities, Connecting Activities, and Compatible Activities) culled from a set of narratives that community members were asked to write based on their daily life experiences. A 3D computer model of the commercial corridor created by the ESC was used to simulate development scenarios based on business-as-usual development patterns, and alternative development/site planning patterns based on the design objectives. Comparative sets of 3D images taken from the model effectively facilitated discussions

on a number of issues such as scale, parking, safety, walkability, convenience, pedestrian-friendly experience, and impacts to the adjacent residential area. Most importantly, the workshops highlighted the compatibility between light-rail and a pedestrian friendly environment.

With ESC's support, the defined identity, design objectives, and imagery used in the workshop have been incorporated into urban design guidelines and performance standards for future development in Houston's Near Northside neighborhood.

*Image: Environmental Simulation Center*

*The visuals itself will help greatly in presenting this information to businesses, etc. You can really see the potential of the corridors through the visual models. I thought the information presented was simple and clear and focused tightly on the message.*

— Nicole Miller, City of Houston resident



# Baltimore Region

## Vision 2030

Client: Baltimore Metropolitan Council  
Consultants: ESC, ACP ([HTTP://WWW.SIMCENTER.ORG](http://www.simcenter.org))  
Services: Urban design and planning three alternatives, 3D visualization, GIS, Conduct Public workshops  
Tools: ArcView GIS; Realtime simulation: MPI's Creator (modeling); Vega (animation)  
Application: Regional visioning; sprawl scenario, redevelopment, new development.

3D visualizations of different redevelopment scenarios helped citizens and public officials understand the relationships between density, land consumption, aesthetics, and a “sense of place.”

The ESC, in collaboration with the ACP Planning and Visioning, assisted the Baltimore Metropolitan Council in looking beyond issues of mobility to identify a broad regional consensus on issues such as land use and development patterns, transportation alternatives, the environment, and economic development.

The first phase of the project involved the ESC using extensive GIS analysis to identify and create maps of potential developable areas within the five counties and City of Baltimore region and to compare the available land area with the region’s projected growth needs. Planning workshops were conducted where stakeholders distributed projected development on these maps at various

densities, enabling the participants to clearly see the relationships between development pressures and open space protection, density thresholds needed to support public transportation, and regional sustainability. This enabled citizens to make more informed choices and was critical in reaching consensus on three distinct development strategies. Prototypical examples of these strategies were then modeled in an accurate, interactive, real-time 3D environment so that citizens and stakeholders would be able to visualize the impacts of each strategy in aesthetic as well as analytical terms. The simulations, visualizations, analysis, and data are all mutually accountable to each other, and were presented at 17 workshops throughout the region during the spring and summer of 2002. Initial staff and stakeholder comments have been very favorable — citing the usefulness of the 3D modeling and analysis in highlighting the impacts of regional growth, and the alternative ways in which the region could grow, in an understandable way.



Image: Environmental Simulation Center



Box City. Photo: CUBE

# Appendix

## Comprehensive List of Tools by Category

Many of the following sections are excerpted from *Tools for Community Design and Decision Making*, by Ken Snyder.

### Traditional Methods by Hand

#### Miniature Modeling

**Box City**, developed by Ginny Graves at CUBE ([HTTP://WWW.CUBEKC.ORG](http://www.cubekc.org)), is a simple technique of using basic art supplies (cardboard boxes, construction paper, markers, etc.) to create a small replica of a city block or street corridor. Because it is low-tech, people of all ages can easily engage in an exercise identifying the things they value the most in their community and things they would like to see changed. The Hackney Building Exploratory ([HTTP://WWW.BUILDINGEXPLORATORY.ORG.UK](http://www.buildingexploratory.org.uk)) in the township of Hackney (located within the greater metropolitan area of London), has used similar techniques very effectively to educate children and adults about the built environment they live in and how historical, environmental, and political issues have helped shape their community over the years. Exhibits range from high-tech computer programs developed in partnership with the Centre for Advanced Spatial Analysis (University College

London) and the Housing Corporation to illuminated models, kits, maps, games, and giant jigsaws made by professional artists working with local children and adults.

#### Photomontage

Several TCDDM participants, including Dover and Kohl ([HTTP://WWW.DOVERKOHL.COM](http://www.doverkohl.com)), Duany Plater-Zyberk and Company ([HTTP://WWW.DPZ.COM](http://www.dpz.com)), Urban Advantage ([HTTP://WWW.STEVEPRICE.COM](http://www.steveprice.com)), and Winston Associates ([HTTP://WWW.WINSTONASSOCIATES.COM](http://www.winstonassociates.com)), demonstrated the use of photomontage and computer imaging techniques to assist communities in visualization. A **photomontage** involves taking a digital image of an existing streetscape or building development and “doctoring” the image to add design features such as decorative street lights, trees, grass medians, light rail, bike lanes, and mixed-use with retail on the first floor and office space and housing above. It allows planners and interested citizens to see how an existing

streetscape might be improved or give people a better sense of the type of development they would like see occur in the future. It is particularly useful for showing incremental change, such as first adding a median, then street trees, then infill with buildings, etc. This technique can also help shift discussions away from density and more towards design and functionality.

## Visual Preference Surveys

**Interactive Visioning Surveys** ([HTTP://WWW.LRK.COM/HOMEPLANS](http://www.lrk.com/homeplans)), developed by Looney Ricks Kiss (LRK) of Princeton, New Jersey, can be disseminated throughout a community at computer terminals or on a Website to obtain widespread feedback. The kiosk-type survey asks a question and presents graphic images from which users select their preferred choice. The images can focus on aspects of streetscapes or any other design topics the local government wants input on. In Hillsborough, New Jersey, this kiosk technique enabled the town to get feedback from nearly 10 percent of its residents. The kiosk helped users visualize various street improvements (buried utility lines, wider pedestrian sidewalks, decorative lighting, etc.) and what they might look like integrated into an existing streetscape. Respondents were asked to select their overall favorite and then indicate how much they would be willing to pay in taxes to implement the design they chose.

**Visual Preference Surveys** ([HTTP://WWW.ANAVISION.COM](http://www.anavision.com)), developed by Tony Nelessen, use color slides and simulations that enable the viewer to compare, contrast, and select among images. Audience members provide feedback on each image, ranging from -10 for something they really dislike to +10 for something they'd love to see in their community. Using the previously described photomontage technique, Nelessen Associates works to eliminate biases created by things like the weather, keeping the same background sky and basic streetscape but adding those amenities they want participants to rank.

## Impact Analysis and Economic Forecasting

### CommunityViz

CommunityViz™ ([HTTP://WWW.COMMUNITYVIZ.COM](http://www.communityviz.com)) is a newly available suite of software planning tools that run on the ESRI ArcView/Spatial Analyst GIS platform. CommunityViz™ was developed by the Orton Family Foundation ForeSite Consulting, MultiGen Paradigm, Green Mountain Consulting, PriceWaterCooper, and the Environmental Simulation Center. The suite is comprised of three tools: a Scenario Constructor, which enables users to conduct impact analysis of different development options; the 3D Town Builder, which allows communities to create a replica of their community and fly through it like a flight simulator; and the Policy Simulator, which enables users to predict how people respond to different policy options using agent-based modeling techniques. One of the strengths of this suite of tools is that each is integrated with the other. This makes it possible for planners to add to new buildings within the 3-D TownBuilder, for example, and then immediately see the impacts of these choices in the Scenario Constructor. Similarly, the 3-D Town Builder can be used to show how development might look as a result of population shifts due to policy changes.

### INDEX®

INDEX® ([HTTP://WWW.CRIT.COM](http://www.crit.com)) is a GIS-based planning support system that uses indicators to measure the attributes and performance of community plans. It is marketed in both standard and custom versions to professional planners and community organizations as a support tool for three key functions in community development: 1) creating plans through issues identification, alternatives analysis, and goal-setting, 2) implementing adopted plans by evaluating proposed development consistency with official goals, and 3) achieving plans by periodically measuring cumulative progress

toward goals. At its heart is a set of stakeholder-selected indicators that numerically and spatially gauge conditions and proposals. The software's analytical scope encompasses land-use, transportation, and environmental resources, and temporally it can perform static impact or dynamic forecast analyses of up to 20 years. The spatial resolution of its indicator scoring can be set at the block, parcel, or building footprint levels.

### PLACE<sup>3</sup>S

PLACE<sup>3</sup>S, an acronym for PLANNING for Community Energy, Economic and Environmental Sustainability ([HTTP://WWW.ENERGY.CA.GOV/PLACES](http://www.energy.ca.gov/places)), is a land use and urban design method created specifically to help communities understand how their growth and development decisions can contribute to improved sustainability. PLACE<sup>3</sup>S has been developed in partnership with the California Energy Commission the U.S. Department of Energy, Parsons Brinckerhoff, Fregonese/Calthorpe, and Space Imaging Services. There are three main components to the PLACE<sup>3</sup>S approach: 1) Public participation — a fully engaged, comprehensive group of stakeholders committed to the principles of sustainability and collaborative planning; 2) Planning and design — a clear set of principles that embody a community's values and vision of what greater resource efficiency and sustainability mean to its future; and 3) Measurement — quantitative documentation of energy, economic, and environmental impacts to support informed planning choices and monitor plans as they are implemented.

### QUEST™

QUEST™ ([HTTP://WWW.ENVISIONTOOLS.COM](http://www.envisiontools.com)) was developed by the Sustainable Development Research Institute at University of British Columbia and its spin-off consulting firm, Envision Sustainability Tools Inc. QUEST™ facilitates debate and discussion among a variety of stakeholders

about regional sustainability. It allows users to actively explore different possible scenarios of the future for their region and evaluate the social, economic, and environmental consequences of each. The tool can be custom-built for any region, and used by expert and non-expert audiences alike. QUEST™ is being used on a number of projects around the world including with the Georgia Basin Futures Project ([HTTP://WWW.BASINFUTURES.NET](http://www.basinfutures.net)), which is looking at the coastal watershed that encompasses Vancouver, Victoria, and the Strait of Georgia. The goal is to further develop and improve this interactive approach to model development, public consultation, and policy development.

## What If?™

What If?™ ([HTTP://WWW.WHAT-IF-PSS.COM](http://www.what-if-pss.com)) is a GIS-based system that can be used to explore alternative community development scenarios and project future land use patterns and associated population, housing, and employment trends. It allows public officials and private citizens to examine the likely impacts of alternative policies for controlling urban growth, preserving agricultural land, or expanding public infrastructure in easy-to-understand maps and tables. It is designed to be used by non-technical people in public forums, allowing communities to use currently available GIS information to support community-based dialogue and collaborative decision-making. What If?™ can be used to conduct a land suitability analysis, project future land use demand, prepare a land use plan, and allocate this demand to suitable locations.

## Web-Based Tools

### Web-Based Calculators

**Airhead** ([HTTP://WWW.AIRHEAD.ORG](http://www.airhead.org)), a project of the Center for Neighborhood Technology, is designed to help people reduce the air pollution impacts of their daily activities. The website includes an emissions

calculator that helps identify and track the air pollution created by people's activities, and a product search that shows the relative air pollution impacts of a variety of consumer products. The **ICLEI Commuter Calculator** ([HTTP://WWW.ICLEI.ORG/GAMES/COMCALC.HTM](http://www.iclei.org/games/comcalc.htm)) helps illustrate the potential shifts in greenhouse gas emissions as a result of different commuter options.

## U.S. Department of Housing and Urban Development's EGIS

The U.S. Department of Housing and Urban Development's Enterprise Geographic Information System (EGIS) ([HTTP://HUD.ESRI.COM/EGIS](http://hud.esri.com/egis)) provides location, type, and performance of HUD-funded activities in every neighborhood across the country, as well as a selection of EPA information on brownfields, hazardous wastes, air pollution, and wastewater discharges. In addition, it is capable of conducting map analysis over an ArcIMS platform. The interactive components of EGIS will be released in phases over the next several years. As new technology and additional data sets become available, the EGIS will be upgraded and extended. At the time of this writing, the first phase of EGIS was rolled out to the public. The EGIS will contain many of the HUD data sets as well as data sets from other federal agencies, including EPA, Census, and FEMA flood plain data. Users will be able to import their own data for analysis.

## GIS

GIS stands for Geographic Information Systems. It is a place-based mapping software that provides "data visualization, query, analysis, and integration capabilities along with the ability to create and edit geographic data." GIS is widely used in city governments across the country. Using digital mapping capabilities, tabular information, and other data gathered about a community, local assets such as historic sites can be identified and

easily managed on a two-dimensional digital map.

With multiple layers of information that can be turned on and off, these assets, for instance, could then be shown and queried on the same map with neighborhood demographics or potential growth patterns. By visualizing a combination of different spatial information, proposed site alterations could be easily identified, located, queried, and managed in the context of the existing conditions. Beyond asset mapping, a GIS analysis could be done on the sustainability of development over time, thereby identifying the environmental impacts, infrastructure, and economic thresholds of a place.

## ArcView GIS

The most widely used GIS software package for planning applications in local government is ArcView GIS™, developed and sold by a company called ESRI.

- ArcView runs on standard desktop PCs and has become a GIS standard for planners as well as other professionals requiring spatial information and data in an easily accessible, retrievable, and organized way.
- Using customizable tables and diagrams, a range of information to manage historical buildings, for example, can be created to query specific building information or look at patterns/relationships in a region. Planning information is categorized and organized into a database and linked to a GIS environment to understand and query spatial relationships.

[HTTP://WWW.ESRI.COM](http://www.esri.com)

## ArcIMS

The GIS system is also accessible in a web-based environment, called ArcIMS. Residents of a community can, for example, look at spatial information about their neighborhood simply by clicking into this interactive web interface and uncover specific planning information about their place.

[HTTP://WWW.ESRI.COM](http://www.esri.com)

## 3D Animation

Much like watching television, an animation tool, such as 3D Animation/Modelling by AutoDesk, plays back a prerecorded walk-through of a place to an audience, who has no control where he/she is going in the model environment. Such a model is often highly realistic and detailed (like what you would see in animated features) and requires a lot of pre-processing time from the computer. Therefore, the viewpoints and paths of movement in the playback have to be pre-determined and pre-rendered (pre-processed) on the computer before it can be played back. Animation software typically come in one package where tools for 3D modeling and effects creation are combined with a playback tool.

### AutoDesk VIZ

(formerly 3D Studio Viz)

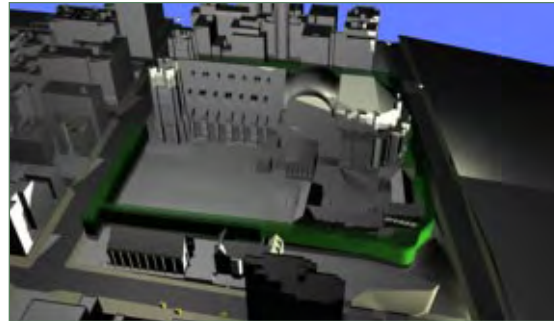
AutoDesk VIZ is a 3D animation software.

- Create highly detailed and realistic 3D models for animations.
- Visualize design alternatives from predefined views and pre-recorded paths/walk-throughs but no real-time interaction.
- Show lighting and shadow impacts.
- Visualize Photorealistic or Massing studies in context.

[HTTP://USA.AUTODESK.COM](http://usa.autodesk.com)

## 3D Realtime

More like a video game, real-time software, such as VIO by ITSpatial, enables a fully interactive, three-dimensional environment, allowing an audience/user to walk or fly to any location in the 3D model. Though still relatively realistic using photographs, a real-time model is typically less detailed than a 3D model created from animation tools. Furthermore, unlike animation software, real-time tools can be dynamically linked to a GIS database in a workshop setting. A realtime 3D



AutoDesk VIZ. Image: Environmental Simulation Center

environment is typically divided into two tools: 1) the 3D real-time modeler that allows a user to build/create the environment, and 2) the 3D runtime or viewer which is the game engine that allows a user to fly, walk, and query the environment in real-time.

### Creator

A 3D modeler that is optimized for real-time interaction. It runs on a desktop PC and requires a reasonable amount of training. Adobe Photoshop and a digital camera are also needed to make the 3D models photo-realistic.

- Create real-time 3D massing models using simple geometry.
- Make the models photo-real through the use of textures (actual photographs of the place).

[HTTP://WWW.MULTIGEN.COM](http://www.multigen.com)

### VIO (3D runtime or viewer)

- Experience the 3D model from any vantage point.
- Switch design alternatives in real-time.
- See photo-realistic or massing studies in context.
- Save predefined viewpoints anywhere in the model and bring them up.

- Save pre-recorded paths/walk-throughs and play them back.

[HTTP://WWW.MULTIGEN.COM](http://www.multigen.com) or

[HTTP://WWW.ITSPATIAL.COM](http://www.itspatial.com)

## 3D GIS

3D GIS software combines the power of 3D realtime simulation, GIS software, and database software to create a 2D/3D interface that integrates words, numbers, and images used to measure or represent impact. The different 3D GIS packages currently available (3D Analyst by ESRI, VIO-GIS by Itspatial, Sitebuilder by MultiGen-Paradigm, CommunityViz by the Orton Family Foundation) offer different levels of communication and dynamic links between the 2D GIS and the 3D real-time environments. A user can start in the GIS mapping environment to query or analyze the impacts of development in a historic district and then immediately experience these impacts visually in 3D. Similarly, the user can begin in the 3D and select buildings, which immediately trigger the 2D GIS to show information, such as construction type, zoning classification, historic designation, owner, etc., about the selected buildings. Rather than using the GIS and the 3D software separately, these 3D GIS



VIO. Image: Environmental Simulation Center

packages offer more direct communication between them for a more cohesive study or analysis.

## 3D Analyst

A complementary tool to ArcView GIS that creates a 3D massing model of a place directly from GIS information for analysis in both 2D and 3D. There is, however, no dynamic real-time link currently.

- Creates a 3D terrain model from geographic information
- Creates 3D massing models of buildings directly from GIS data.
- Allows zooming and panning capabilities in the interactive viewer but no real-time flight or walk-through interaction, and no real-time link to GIS database.

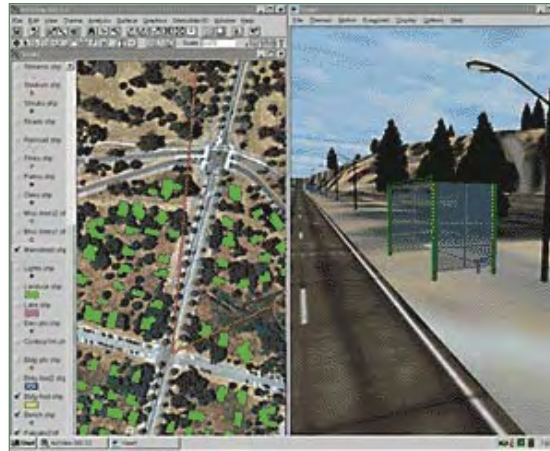
[HTTP://WWW.ESRI.COM](http://www.esri.com)

## SiteBuilder

Sitebuilder can quickly generate a 3D model of a place from GIS data. Though not as realistic as Creator and VIO, it allows for very quick visualizations of place using a photorealistic kit of parts.

- Allows rapid generation of terrain, buildings, trees, and streetscape using a tool that translates 2D features in GIS to 3D objects in the real-time environment from a generic model library of 3D models.
- Allows you to fly or walk through the 3D environment in real-time.
- A separate modeling tool (MultiGen's Creator-Lite/Model Builder) allows you to create custom models with custom photographs that represent the place more accurately.

[HTTP://WWW.MULTIGEN.COM](http://www.multigen.com)



SiteBuilder. Image: Environmental Simulation Center

## Creator/VIO-GIS

A multi-dimensional tool that links 3D real-time capabilities to ArcView GIS. Information can be queried from either environment. Photo-real models are created in the Creator software and viewed with VIO-GIS and ArcView together. The system runs on standard desktop PCs.

- Experience the 3D model from any vantage point.
- Switch design alternatives in real-time.
- See photo-realistic or massing studies in context.
- Save predefined viewpoints and pre-recorded walk-throughs and play them back.
- Allows selection of buildings in 3D with a corresponding selection in 2D. A selection in 2D first will also trigger the 3D.

[HTTP://WWW.ITSPATIAL.COM](http://www.itspatial.com)

## CommunityViz

CommunityViz™ is a suite of software planning tools that has an impact analysis piece, a 3D real-time viewer, and a policy simulator as part of a complete planning analysis package.

- 3D real-time walk- and fly-throughs.
- GIS analysis allowing user to analyze the impacts of proposed changes to the environment in a moment in time.
- Simulate changes in the environment over time, based on proposed policy decisions about a place.

[HTTP://WWW.COMMUNITYVIZ.ORG](http://www.communityviz.org)

## Process Tools

### Florida Housing Institute Sustainable Development Toolkit

The FHI Sustainable Development Toolkit ([HTTP://WWW.FHISD.ORG/TOOLKIT.HTM](http://www.fhisd.org/toolkit.htm)) is a set of collaborative processes to support vision-based planning and community development that have resulted from our work in communities. These processes work in conjunction with GIS and place-based planning and decision support tools to aid communities in developing and implementing consensus-driven sustainable development.

The FHI Toolkit is an inclusive, comprehensive, and proactive process supporting collaborative, interdisciplinary, design-based strategies. It cultivates civic values, an ongoing dialogue about a community's shared vision for the future, and provides continuity to the public process. It generates new capacity to deal with complex local and regional issues. The tools fall into three basic categories:

#### Getting Started

- Creating a Comprehensive Stakeholder Group
- Doing an Inventory of the Present State — Natural, Built, Economic, and Social
- Creating the Vision
- Developing Indicators

### Building Capacity and Creating the Workplace

- Creating Centers for Civic Learning and Community Design
- Using GIS and Place-Based Planning and Decision Support Tools

### Implementing Over the Long Term

- Discovery and Design Charrettes
- Sustainable Design Elements for Real Estate Development
- Sustainable Urban-Rural Enterprise

### CoVision MeetingWorks WebCouncil

Council™ and WebCouncil™ ([HTTP://WWW.COVISION.COM](http://www.covision.com)) are two tools that can enhance community participation in the decision-making process. Council™ is a facilitated process supported by “meetingware” technology including laptop computers and voter keypads to get feedback and ideas from large groups. The computers are networked together using wireless technology, maximizing mobility and reducing setup time.

## Predictive Modeling

### TRANSIMS

The TRansportation ANalysis SIMulation System (TRANSIMS) ([HTTP://TRANSIMS.TSASA.LANL.GOV](http://TRANSIMS.TSASA.LANL.GOV)) is a set of new transportation and air quality analysis and forecasting procedures developed to meet the Clean Air Act, the Intermodal Surface Transportation Efficiency Act, Transportation Equity Act for the 21st Century, and other regulations. It consists of mutually supporting simulations, models, and databases that employ advanced computational and analytical techniques to create an integrated regional transportation system analysis environment. The integrated results from the detailed simulations will support transportation planners, engineers, decision-makers, and others who must address environmental pollution, energy

consumption, traffic congestion, land-use planning, traffic safety, intelligent vehicle efficiencies, and the transportation infrastructure effect on the quality of life, productivity, and economy.

### UrbanSim

Designed to assist communities in integrating their land use, transportation, and environmental planning efforts, UrbanSim is a simulation system that models the real estate development process and the locations of households and jobs based on scenarios of transportation, land use, and environmental policies. It is meant to support a community visioning process by allowing communities to explore the potential consequences of alternative policy scenarios such as light rail or highway expansion, and the use of land use plans and urban growth boundaries to guide development. UrbanSim can evaluate the consequences of land use and transportation policy scenarios at a high degree of detail, subdividing a metropolitan area using a 150-meter grid to represent real estate development and prices, and household and business locations. This detail supports analysis of non-motorized transportation and neighborhood-scale design issues, in addition to regional consequences of major land use and transportation policies. The National Science Foundation and state and metropolitan agencies have funded its development, and it is now operational in several major metropolitan areas and states including Hawaii, Oregon, Utah, and Washington. The UrbanSim system is available from the Internet ([HTTP://WWW.URBANSIM.ORG](http://www.urbansim.org)), and has been developed as an Open Source project, meaning that the software and its source code is free and available for modification and redistribution. Current development is on data integration tools to facilitate transfer of the model to other locations, a web-based interface for community participation, and evaluation and visualization tools to assess and communicate results.

## Other Tools

### ENERGY 10: A Design Tool for Small Buildings

ENERGY-10 software integrates day-lighting, passive solar heating, and low-energy cooling strategies with energy-efficient envelope design and mechanical equipment, allowing detailed simulation and performance analysis. It is designed to evaluate energy-efficient features in the very early stages of the architectural design process. Ideal building types include schools, libraries, offices, and residential buildings less than 10,000 square feet. Developed by the National Renewal Energy Laboratory, both the software and training are available from the Sustainable Buildings Industry Council. [HTTP://WWW.SBICOUNCIL.ORG/ENTEN/INDEX.HTML](http://www.sbicouncil.org/ENTEN/INDEX.HTML)

### Location Efficient Mortgage Program

The Location Efficient Mortgage (LEM) is an innovative mortgage product that takes advantage of the hidden asset of transit density in urban neighborhoods to encourage homeownership and promote increased transit ridership. The program, developed by Center for Neighborhood Technology (CNT), the Natural Resources Defense Council, and the Surface Transportation Policy Project, uses GIS analysis to identify homes with easy access to transit. With a LEM mortgage, lenders are allowed to recognize the savings made by a household whose primary means of transportation is public transit rather than the private automobile. Thus lenders can “stretch” their standard debt-to-income ratio, ensuring that more low- and moderate-income families, first-time homeowners, and dedicated transit users can obtain mortgages, or larger mortgages for which they would otherwise qualify. Fannie Mae, the nation’s largest supplier of homeownership capital, is sponsoring the underwriting of LEM mortgages. [HTTP://WWW.LOCATIONEFFICIENCY.COM](http://www.locationefficiency.com)

# Resources

**Planning Support Systems**, Richard K. Brail and Richard E. Klosterman, Editors. 2001, ESRI, Redlands, CA.

*Tools for Community Design and Decision Making*, by Ken Snyder, pages 99–120, from **Planning Support Systems in Practice**, Stan Geertman (University of Utrecht) and John Stillwell (University of Leeds), Editors. 2003, Springer Verlag, Heidelberg.

AmericaSpeaks

[HTTP://WWW.AMERICASPEAKS.ORG](http://www.americaspeaks.org)

Anavision

[HTTP://WWW.ANAVISION.COM](http://www.anavision.com)

Association of Bay Area Governments

[HTTP://WWW.ABAG.ORG](http://www.abag.org)

Association of Bay Area Governments — GIS

[HTTP://GIS.ABAG.CA.GOV/WEBSITE/WELCOME.HTML](http://gis.abag.ca.gov/website/welcome.html)

Autodesk

[HTTP://USA.AUTODESK.COM](http://usa.autodesk.com)

Building Exploratory

[HTTP://WWW.BUILDINGEXPLORATORY.ORG.UK](http://www.buildingexploratory.org.uk)

Center for Neighborhood Technology — Airhead

[HTTP://WWW.AIRHEAD.ORG](http://www.airhead.org)

City of Houston

[HTTP://WWW.CITYOFHOUSTON.GOV](http://www.cityofhouston.gov)

CommunityViz

[HTTP://WWW.COMMUNITYVIZ.COM](http://www.communityviz.com)

CoVision

[HTTP://WWW.COVISION.COM](http://www.covision.com)

CoVision — Listening to the City

[HTTP://WWW.COVISION.COM/NEWYORK/INDEX.HTM](http://www.covision.com/newyork/index.htm)

Creating Quality Places: Successful Communities by Design

[HTTP://WWW.QUALITYPLACES.MARC.ORG/5\\_TOOLS.CFM](http://www.qualityplaces.marc.org/5_tools.cfm)

Criterion

[HTTP://WWW.CRIT.COM](http://www.crit.com)

CUBE — Center for Understanding the Built Environment

[HTTP://WWW.CUBEKC.ORG](http://www.cubekc.org)

D.C. Office of Planning

[HTTP://WWW.PLANNING.DC.GOV/PROJECT/WATERFRONT/INDEX.SHTM](http://www.planning.dc.gov/project/waterfront/index.shtm)

Dover Kohl

[HTTP://WWW.DOVERKOHL.COM](http://www.doverkohl.com)

Duany Plater-Zybert & Co.

[HTTP://WWW.DPZ.COM](http://www.dpz.com)

ENERGY10

[HTTP://WWW.SBICOUNCIL.ORG/EN/EN/INDEX.HTML](http://www.sbicouncil.org/ent/en/index.html)

Environmental Simulation Center

[HTTP://WWW.SIMCENTER.ORG](http://www.simcenter.org)

Envision

[HTTP://WWW.ENVISIONUTAH.ORG](http://www.envisionutah.org)

ESRI

[HTTP://WWW.ESRI.COM](http://www.esri.com)

Florida House Institute for Sustainable Development

[HTTP://WWW.I4SD.ORG/COMTOOLS.HTM](http://www.i4sd.org/comtools.htm)

[HTTP://WWW.I4SD.ORG/TOOLKIT.HTM](http://www.i4sd.org/toolkit.htm)

INDEX®

[HTTP://WWW.CRIT.COM](http://www.crit.com)

International Council for Local Environment Initiatives

[HTTP://WWW.ICLEI.ORG/GAMES/COMCALC.HTM](http://www.iclel.org/games/comcalc.htm)

Itspatial

[HTTP://WWW.ITSPATIAL.COM](http://www.itspatial.com)

Location Efficient Mortgage Program

[HTTP://WWW.LOCATIONEFFICIENCY.COM](http://www.locationefficiency.com)

Looney Ricks Kiss

[HTTP://WWW.LRK.COM/HOMEPLANS](http://www.lrk.com/homeplans)

National Center for Appropriate Technology

[HTTP://WWW.NCAT.ORG/COMTOOL/](http://www.ncat.org/comtool/)

Northwest University — ABCD Tools

[HTTP://WWW.NWU.EDU/IPR/ABCD/ABCDTOOLS.HTML](http://www.nwu.edu/ipr/abcd/abcdtools.html)

Option Finders

[HTTP://WWW.OPTIONFINDERS.COM](http://www.optionfinders.com)

PlaceMatters.com

[HTTP://WWW.PLACEMATTERS.COM](http://www.placematters.com)

PLACE<sup>3</sup>S

[HTTP://WWW.ENERGY.CA.GOV/PLACES](http://www.energy.ca.gov/places)

QUEST™

[HTTP://WWW.ENVISIONTOOLS.COM](http://www.envisiontools.com)

Sherry Arnstein — “A Ladder of Citizen Participation”

[HTTP://WWW.PARTNERSHIPS.ORG.UK/PART/ARN.HTM](http://www.partnerships.org.uk/part/arn.htm)

Smart Growth Network

[HTTP://WWW.SMARTGROWTH.ORG](http://www.smartgrowth.org)

Sustainable Communities Network

[HTTP://WWW.SUSTAINABLE.ORG](http://www.sustainable.org)

The Transportation Analysis Simulation System

[HTTP://TRANSIMS.TSASA.LANL.GOV](http://transims.tsasa.lanl.gov)

Urban Advantage: Envisioning Smart Growth

[HTTP://WWW.STEVEPRICE.COM](http://www.steveprice.com)

Urbansim.org

[HTTP://WWW.URBANSIM.ORG](http://www.urbansim.org)

U.S. Department of Energy — Smart Communities Network

[HTTP://WWW.SUSTAINABLE.DOE.GOV/TOOLKIT/TCDDM/HOME2.HTM](http://www.sustainable.doe.gov/toolkit/tcddm/home2.htm)

U.S. Department of Housing & Urban Development

[HTTP://WWW.HUD.GOV/EMAPS](http://www.hud.gov/emaps)

U.S. Department of Housing & Urban Development's Enterprise Geographic Information System (EGIS)

[HTTP://HUD.ESRI.COM/EGIS](http://hud.esri.com/egis)

Web Lab

[HTTP://WWW.WEBLAB.ORG/SGD](http://www.weblab.org/sgd)

What If?™

[HTTP://WWW.WHAT-IF-PSS.COM](http://www.what-if-pss.com)

Winston Associates

[HTTP://WWW.WINSTONASSOCIATES.COM](http://www.winstonassociates.com)

## GIS on the Web

C&S Companies

[HTTP://WWW.CSEENGINEERS.COM/GIS/ERIEEA/VIEWER.HTM](http://www.cseengineers.com/gis/erieea/viewer.htm)

Richland County Geographic Information Systems

[HTTP://WWW.RICHLANDMAPS.COM/RCGEO.HTML](http://www.richlandmaps.com/rcgeo.html)

## 3D and 3D GIS Software Companies

CommunityViz

[HTTP://WWW.COMMUNITYVIZ.ORG](http://www.communityviz.org)

ESRI

[HTTP://WWW.ESRI.COM](http://www.esri.com)

Itspatial

[HTTP://WWW.ITSPATIAL.COM](http://www.itspatial.com)

Multigen-Paradigm

[HTTP://WWW.MULTIGEN.COM](http://www.multigen.com)

# Glossary

- 3D Massing:** This concept refers to a 3D model on the computer that simply shows the volume of a building or a set of buildings. Photo-real imagery and detail is left out because it may not be the focus of the study.
- Adaptive reuse:** An approach to reusing buildings to serve new functions.
- Animation:** A passive 3D environment in which a sequence of frames from a 3D model of place is recorded/rendered and played back to an audience/user. It is a passive experience for the user, much like watching television.
- Biodiversity:** Numbers and types of animal and plant species around the planet.
- Bio-filtration:** The natural water filtration provided by vegetation.
- Brownfields:** Contaminated, underutilized sites in urban, suburban, and rural areas.
- Capacity building:** Developing the skills and knowledge in institutions, communities, and businesses.
- Charrette:** Multidisciplinary brainstorming design process involving all stakeholders.
- Closed loop:** A system in which outputs from one process are used in other processes to reduce or eliminate waste.
- Collaboration:** A process in which people work together in partnerships, alliances, and networks.
- Community assets:** Places, people, and institutions that local residents value.
- Community-based decision-making tools:** Tools that help citizens, planners, and public officials develop alternative scenarios for the future.
- Community indicators:** Economic, environmental, and social metrics developed locally to document and assess what is happening.
- Community-based development:** Planning that involves community members.
- Context-based:** See *Place-based*.
- Decision Support System:** Using a variety of information and visualization tools, stakeholders can make more informed decisions by seeing comprehensively the many impacts and implications of a policy or plan.
- Deconstruction:** A means of taking structures apart for reuse.
- Density:** The average number of residents, households, or buildings in a given area.
- Dialogue:** A communications tool used to help people think together.
- Eco-industrial development (EID):** Industrial and commercial siting in which the waste products (energy, heat, and water) of one feeds another.
- Ecological footprint:** A calculator tool to assess the impact on ecosystems by an individual, household, institution, or business.
- Ecosystems approach:** Viewing a community as an interconnected whole similar to an ecosystem.
- Edible landscapes:** Green spaces that grow edible produce that all the species of the community can enjoy.

<b>Environmental justice:</b>	Fair and just treatment regardless of race, color, or income.	<b>Multi-modal transportation:</b>	A mix of transit (metro, bus, train, and light rail), walking, and biking options.
<b>Equity:</b>	Fairness (see Environmental Justice).	<b>Open space:</b>	Farmland, parkland, and forests.
<b>Farmland preservation:</b>	Preservation of productive farmland and its environs.	<b>Pedestrian-friendly:</b>	Design that promotes ease and safety of walking.
<b>Governance:</b>	Open, transparent, and inclusive governing processes.	<b>Photomontage:</b>	The manipulation of still images of a real place that are edited on the computer to show proposed development or physical changes to an environment.
<b>Graphics Card:</b>	This piece of hardware drives the rendering capabilities of a computer. A powerful graphics card with a lot of texture memory is essential to using 3D realtime visualization software on PCs.	<b>Photo-textured Model:</b>	This concept refers to a 3D model that literally shows the details of a building or landscaping or streetscape photo-realistically. In other words, photographs (referred to as textures) of actual buildings are literally pasted onto the 3D computer model.
<b>Green building:</b>	The design, siting, sourcing, and construction of buildings that makes efficient use of raw materials and natural resources, protects the environment, and promotes sustainable communities.	<b>Place-based:</b>	The process of planning within the context or framework of the specific conditions of a place. Rather than using generic examples or solutions, planners or stakeholders would make a planning decision or develop a planning scenario that responds to the specific conditions and needs of the place and its inhabitants/users.
<b>Green infrastructure:</b>	The network of open space and other natural areas that are life-sustaining.	<b>Place-based planning:</b>	A public planning process designed to maintain, restore, and develop aspects of a particular place.
<b>Green roofs:</b>	Vegetated roofs.	<b>Public/private partnerships:</b>	Collaborations between the private sector and public agencies.
<b>Greenways:</b>	Open spaces that are linked to form corridors for wildlife and recreation.	<b>Quality of life:</b>	A balance of environmental, equity, and economic aspects in a community.
<b>Groundwater:</b>	Water located under the surface of the earth in spaces such as sand, rocks, and aquifers.	<b>Rain gardens:</b>	Native plant garden designed to retain water and limit runoff.
<b>Infill development:</b>	Development in underutilized areas in existing communities.	<b>Real-time:</b>	A dynamic 3D visualization environment in which a user can interact with a 3D model on the computer, walking or flying through the virtual space freely and at a rendering frame rate equivalent to live action.
<b>Interdisciplinary:</b>	A process of working across professional fields.		
<b>Location efficient mortgages:</b>	An incentive tool to encourage urban dwelling near transit.		
<b>Low impact development (LID):</b>	Ecological, site-specific practices designed to reduce runoff and enhance water quality and the environment.		
<b>Massing:</b>	See 3D Massing		
<b>Mixed use:</b>	Co-locating businesses, residential units, and transit in close proximity.		

- Rendering time:** An animation term that refers to the frame rate required to visualize a scene or a series of scenes. Rendering time is measured in “frames per second.”
- Renewable energy:** Energy from the sun, wind, water, and earth that does not deplete natural resources but is renewable.
- Smart Growth:** Development that serves the community, the environment, and the economy.
- Social capital:** The invisible relationships and skills within a community that keep it strong and vibrant.
- Stakeholders:** All those involved in the outcomes of decision-making.
- Still imagery:** Photographs of a place or a snapshot of a 2D map/3D computer model of a place. They can be stitched together as a ‘photomontage’ or placed on a website for easy access to concepts produced from a computer model.
- Sustainable communities:** Communities that are socially just, environmentally healthy, and economically vital.
- Sustainability:** A process of continuous improvement that involves everyone in creating a future that works for all.
- Systems thinking:** Processes of making the connections between all the elements so that multiple benefits accrue.
- Tools for community-based decision-making:** Diverse tools that singly and/or in combination engage stakeholders in open processes to create more livable communities.
- Traffic calming:** Techniques designed to slow, direct, and contain traffic flow.
- Transit:** Public mobility such as buses, trains, metros, and light rail.
- Transit-oriented development:** Development specifically sited around transit stops to increase mixed use.
- Visioning:** The process of bring diverse members of a community together to envision a desirable future.
- Visual Preference Survey:** This process refers to a series of photographs representing different scenarios of physical planning as preferences or choices that a community would choose from. (choosing from three alternatives — photos of three different densities along urban corridors)
- Visual pollution:** Structures within a community that detract from its appeal, such as billboards and utility lines.
- Walkable communities:** Neighborhoods designed to promote walking.
- Watershed:** The entire water system that drains into a major body of water, such as the Chesapeake Bay.
- Windows-based:** A characteristic of software that is platform/operating system dependent. ArcView GIS and CommunityViz are examples of visualization and analysis software that is Windows-based.

# User Feedback Form/Contact Us

**Placemaking: tools for community action** is intended to assist individuals, organizations, and agencies learn about and make use of a range of resources that will assist them in collectively creating the future they envision and desire for their neighborhoods, communities, and regions. Your feedback is important to us. Please let us know what you think about this guide, its ease of use, and how it can be improved. Use the space below to list your comments and suggestions. You may send us your comments by mail, fax, or email.

**Mail** your comment form to:

Placemaking: Tools for Community Action  
c/o CONCERN, Inc.  
1794 Columbia Road, NW  
Washington, DC 20009

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**Fax** your comment form to:

202.387.3378

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**Email** your comment form to:

[INFO@PLACEMAKINGTOOLS.ORG](mailto:INFO@PLACEMAKINGTOOLS.ORG)

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**For more information**

email: [INFO@PLACEMAKINGTOOLS.ORG](mailto:INFO@PLACEMAKINGTOOLS.ORG)

web: [HTTP://WWW.PLACEMATTERS.COM](http://WWW.PLACEMATTERS.COM)

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## About the Authors

**CONCERN, Inc.** Founded in 1970, CONCERN is a national nonprofit environmental education organization with a focus on sustainable communities. Through its **Sustainable Communities Program**, CONCERN seeks to increase public understanding of and participation in initiatives that are environmentally sound, economically vital, and socially just. It disseminates examples of successful initiatives, offers numerous resources and guidelines for action, serves as a clearinghouse for information, and collaborates with others to carry out its programs. It facilitates the exchange of information on sustainability and smart growth through the Sustainable Communities Network website ([HTTP://WWW.SUSTAINABLE.ORG](http://www.sustainable.org)) and the Smart Growth Network website ([HTTP://WWW.SMARTGROWTH.ORG](http://www.smartgrowth.org)).

**Environmental Simulation Center.** At the Environmental Simulation Center (ESC), revolutionary techniques promise to change the way our cities, towns, and rural areas are planned, designed, and developed. Visualizing the future through simulation techniques is one of the most powerful tools for making informed design and planning decisions. The ESC's professional staff of architects and planners has broad experience in architecture, urban design, zoning regulations, historic preservation, and computer simulation technology. We are committed to integrating urban design and planning with technologies that extend the capabilities of citizens and decision-makers in a participatory planning process.

At the ESC, this dynamic process is used to inform every step of a design as it evolves. By integrating words, numbers, and images in an information-rich, virtual reality environment, the design, scope, and physical impact of proposed projects can be assessed in real-time, as if they were actually built. In a technologically mediated, design-workshop setting, the ESC works with clients to interactively plan and design alternatives, formulate and test strategies, and develop implementation techniques. This unique approach to design enables open and informed decision-making, and therefore can be instrumental in helping a community reach consensus. The ESC promotes the idea that independent, objective, and verifiable information can make complex issues comprehensible to both the general public and design professionals. This allows all parties to participate equally in the decision-making process, and enhances the level of public debate in the planning and design of the built environment. For more information visit [HTTP://WWW.SIMCENTER.ORG](http://www.simcenter.org).