

Integrating Transportation and Land Use Planning through Regional Visioning and Scenario Planning: Five Case Studies

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EXECUTIVE SUMMARY

A community's character, quality, and development potential are shaped dramatically by the transportation system that moves its people and goods and provides access to jobs, services, and recreation. Transportation is of vital importance to energy consumption, land use, economic development, the environment, and quality of life, but also is affected by these key regional issues through a complex system of interactions. Like the transportation system itself, transportation planning involves a web of connections among multiple modes, agencies, organizations, and government jurisdictions.

Many metropolitan planning organizations (MPOs) are taking a more holistic approach to long-range transportation planning in order to better reflect the close linkage of transportation to land use, economic development, the environment, and other regional activities. Current approaches center on better integrating land use and transportation planning by engaging the public, municipal officials, and key stakeholders in community visioning exercises. Increasingly, such initiatives are using scenario planning as a tool to aid citizens in formulating future outcomes and evaluating the tradeoffs necessary to meet their goals and objectives.

This paper presents several case studies of metropolitan areas that have used regional visioning initiatives as a means of integrating long-range transportation and land use planning. Projects in Portland, Oregon; the Greater Wasatch Area of Utah; Charlottesville, Virginia; Sacramento, California; and Oregon's Southern Willamette Valley are described, focusing on the public engagement process, scenario development and evaluation, and implementation through long-range transportation plans and other actions. The paper concludes with an analysis of common features and limitations of this approach, and the extent to which it may be transferable to Chittenden County, Vermont. Appendix A provides a policy and planning context and Appendix B gives additional background on scenario planning and its use in community visioning projects.

The five case studies share several common elements:

- Projects arose from compelling reasons to change past practices.
- Projects require effective, visionary leadership.
- Project sponsorship is broad-based and inclusive.
- Project processes centered on public engagement and scenario development.
- Transportation plans support the long-term regional vision.

The case studies also reveal that such initiatives face challenges and limitations:

- Scenario planning lengthens the planning process.
- Public involvement requires public information and education.
- Most projects assume growth.
- Implementing a vision is harder than developing a vision.
- MPOs are still negotiating their role in the larger regional planning process.
- The long-term effectiveness of this approach is not yet known.

POLICY CONTEXT

Long-range transportation planning has seen significant changes in the past 15 years. The three most recent major federal transportation bills—the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, the Transportation Equity Act for the 21st Century (TEA-21) of 1998, and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005—emphasize increased public involvement, collaboration among agencies and governments, and consideration of other activities affected by transportation (see Appendix A for further discussion).

In response to the new requirements, the Federal Highway Administration (FHWA) has developed guidelines that call for a holistic approach to transportation planning centered on public engagement and community visioning. The FHWA is also actively promoting scenario planning as “an enhancement of, not a replacement for, the traditional transportation planning process.”¹

Scenario planning is a strategic planning tool designed to develop a set of equally plausible, internally consistent, potential outcomes (see Appendix B for an in-depth discussion of scenario planning and its application to transportation and land use planning). As historically practiced, scenario planning does not seek to develop an absolute prediction or forecast, but instead to (1) identify the major drivers affecting the future—the key underlying forces operating in a region to shape its development and growth, and (2) create stories about the future that highlight cause-and-effect relationships between the underlying forces. Because of its focus on underlying forces and interactive causes and effects, the FHWA believes scenario planning can help citizens and government officials better understand the close linkage of transportation to land use, economic development, the environment, and other regional drivers.

Beginning in the mid-1990s, many regional governments, planning councils, MPOs, and public advocacy groups nationwide began conducting long-term visioning projects to guide land use and transportation planning (Table 1). Several such projects have used scenario-planning techniques.

¹ Federal Highway Administration (2005). “About This Site.” Scenario Planning Website, Federal Highway Administration, Washington, D.C. Retrieved from <http://www.fhwa.dot.gov/planning/scenplan/about.htm> on May 7, 2006.

Table 1. Selected regional visioning/scenario planning projects in the U.S.²

Project	Lead Organization	Adoption Date	Website
LUTRAQ (Portland, OR)	1000 Friends of Oregon (non-profit)	1992-1997	friends.org/resources/lutraq.html
Portland Metro 2040 Framework	Portland Metro (MPO)	1995	www.metro-region.org
Vision 2020	Puget Sound Regional Council (MPO)	1995	www.psrc.org/projects/vision
MetroVision 2020	Denver Regional Council of Governments (MPO)	1997	www.drcog.org
Valley Vision 2025 (Phoenix, AZ)	Maricopa Association of Governments (MPO)	2000	www.mag.maricopa.gov/archive/vv2025
Destination 2030	Puget Sound Regional Council (MPO)	2001	www.psrc.org/projects/mtp
Baltimore Vision 2030	Baltimore Regional Transportation Board (MPO)	2002	www.baltometro.org
Jefferson Area Eastern Planning Initiative	Thomas Jefferson Planning District Commission	2002	www.tjpd.com/community/epi.asp
The Metropolis Plan	Chicago Metropolis 2020 (non-profit)	2003	www.chicagometropolis2020.org
Regional Visioning Project (Cumberland, TN)	Cumberland Region Tomorrow (non-profit)	2003	www.cumberlandregiontomorrow.org
Envision Central Texas Vision	Envision Central Texas (non-profit)	2004	www.envisioncentraltexas.org
Idaho's Transportation Future	Idaho Transportation Department	2004	www.idahofuturetravel.info
Sacramento Blueprint	Sacramento Area Council of Governments (MPO); Valley Vision (non-profit)	2004	www.sacregionblueprint.org
Regional Development Framework 2030 (Twin Cities)	Metropolitan Council (MPO)	2004	www.metrocouncil.org
Southern California Compass	Southern California Association of Governments (MPO)	2004	www.socalcompass.org
Atlanta Envision 6	Atlanta Regional Commission (MPO)	underway	www.atlreg.com
Wasatch Choices 2040	Envision Utah (non-profit)	underway	www.envisionutah.org
Region 2050 (Southern Willamette Valley)	Lane County Council of Governments (MPO)	underway	www.region2050.org

² Surface Transportation Policy Project (2003). "Regional Visioning Projects in California and Nationwide." Surface Transportation Policy Project, Washington, D.C. Retrieved from <http://www.transact.org/report.asp?id=231> on June 4, 2006; and Federal Highway Administration (2006). "Noteworthy Practices and Innovative Uses." FHWA Scenario Planning website. Retrieved from <http://www.fhwa.dot.gov/planning/scenplan/practices.htm> on June 4, 2006.

CASE STUDIES OF INNOVATIVE TRANSPORTATION PLANNING

The following case studies describe how regional visioning projects and scenario-planning techniques have been used in long-range land use and metropolitan transportation planning. Case studies were identified based on the following criteria:

- Use of a longer-term (50-year as compared to 20- or 25-year) planning horizon
- Use of regional visioning and/or scenario planning initiatives
- Integration of transportation and land use planning
- Strong public involvement process:
 - Inclusive—multiple methods of outreach to the entire community
 - Interactive—public directly engaged in developing and evaluating options
 - Substantive—public can affect key decision points throughout the process

Additional factors in case selection included recognition as innovative or exemplary projects by transportation or planning organizations, and metropolitan area size and characteristics comparable to Chittenden County, Vermont.

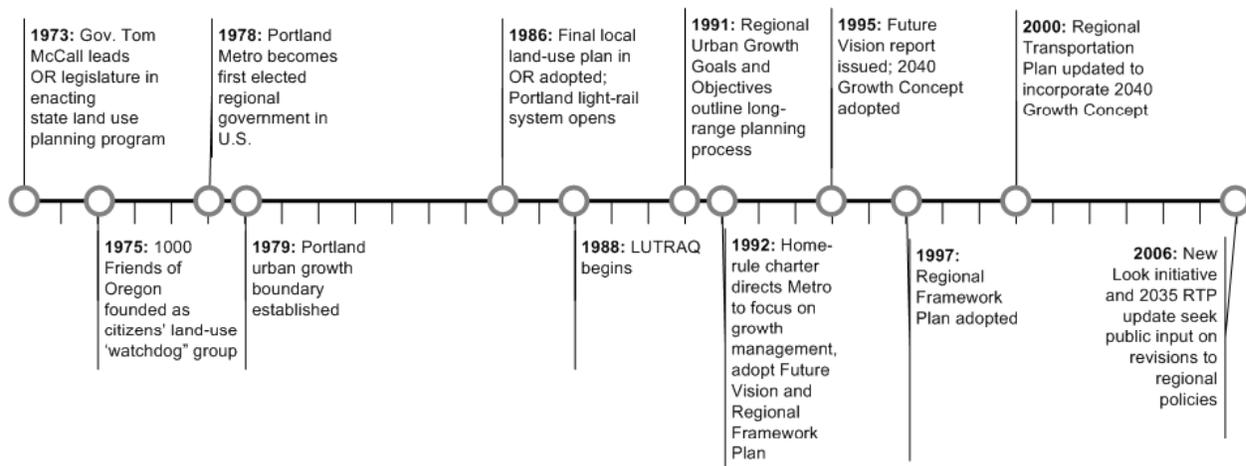
Cases were identified and researched through the academic literature, especially Transportation Research Board and Federal Highway Administration publications, as well as project websites and online publications.

Each case study identifies outcomes of the visioning process (e.g., long-term transportation plan, comprehensive plan, vision document, etc.) and how the public's vision is implemented.

Portland, Oregon: Region 2040 and LUTRAQ

Portland, Oregon is widely considered the most progressive metropolitan area in the nation in terms of comprehensive regional planning, growth management, and integrated land use and transportation policies. This case study focuses on the period from 1988 to 2004, in which Portland Metro, the area’s regional government, developed a future vision, growth scenario, and long-term transportation plan for the region. These efforts are best understood, however, in the context of an evolving policy framework that emphasizes protection of natural resources and agricultural lands, beginning with Oregon’s passage of statewide land-use planning legislation over 30 years ago. Figure 1 provides a timeline of major transportation and land use planning milestones affecting the Portland metropolitan area.

Figure 1: Major milestones in Portland land-use and transportation planning



LUTRAQ

In 1988, the public interest group 1000 Friends of Oregon formed a project called Making the Land Use, Transportation, Air Quality Connection (LUTRAQ) to oppose the Western Bypass, a “beltline” highway proposed by the Oregon Department of Transportation (ODOT) that would skirt to the west of Portland. Although LUTRAQ achieved this primary goal, its more lasting legacy was to change the methods and underlying assumptions of long-range metropolitan transportation planning. Due in large part to LUTRAQ’s efforts, “linking land use and transportation became a new ethic in the Portland area.”³

LUTRAQ

Major Funders:
Energy Foundation, Environmental Protection Agency, Federal Highway Administration, Surdna Foundation, and others

Awards/Recognition:
American Planning Association, Environmental Protection Agency

Contact:
www.friends.org/resources/lutraq.html

³ Kloster, T. (2005). “Smart Transportation in Portland, Oregon.” Smart Growth and Transportation: Issues and Lessons Learned. Baltimore, MD, September 8-10, 2002. Conference Proceedings 32, Transportation Research Board, Washington, D.C., p. 109.

With funding from public and private sources, LUTRAQ engaged consultants and planners to develop its own alternative to the Bypass and conduct its own alternatives analysis. LUTRAQ appears to have been the first alternatives analysis to integrate land use patterns, transportation system improvements, and market strategies, expanding the scope of a typical ‘transportation alternative.’ LUTRAQ did not assume that development patterns would continue according to recent trends, or that highway construction was the only way to provide mobility and reduce congestion.

Instead, LUTRAQ developed an alternative centered on transit-oriented development; investment in light rail, bus, and bicycle/pedestrian facilities in addition to road improvements; and market-based strategies such as daily parking charges. The group also developed improved computer models and forecasting tools for measuring land use and transportation interactions that were adopted by Metro, and issued 11 technical reports on topics from travel demand strategies to urban design.⁴ The LUTRAQ alternative was one of five options reviewed by ODOT in its environmental impact statement for the Western Bypass. ODOT’s analysis confirmed LUTRAQ’s findings that its alternative was “equal or superior to the Bypass in virtually every category.”⁵

Region 2040 Planning Process

Meanwhile, in 1992, Portland Metro began a project called Region 2040 to develop a 50-year growth vision for the region. Despite statewide land-use laws, sprawl development was consuming land within the urban growth boundary, and with population expected to increase by nearly 50% over the next 25 years, there was a sense that local and regional planning had to change.⁶

The home-rule charter of 1992 gave Metro several key responsibilities. Most important, it gave Metro authority over local land-use planning for issues of “regional significance,” giving the regional government unique powers over local zoning and development codes. In addition, the charter required Metro to adopt a “Future Vision” statement that reflected community values on which the growth plan and a coordinated set of regional policies, the “Regional Framework Plan,” would be based. Metro surveyed the public to ascertain which aspects of life in the region

Portland Metropolitan Area
Population: 1.3 million (2000)
Area: 462.8 square miles
Jurisdictions: 24 cities in portions of three counties
MPO: Portland Metro (www.metro-region.org)
2040 Funding: Metro; Multnomah, Clackamas, and Washington counties; Tri-Met (the regional transit agency); Portland General Electric
Awards/Recognition: 2001 Association of Metropolitan Planning Organizations (AMPO) award for overall achievement

⁴ 1000 Friends of Oregon (1997). “Making the Connections: A summary of the LUTRAQ project.” Vol. 7.

⁵ 1000 Friends of Oregon (n.d.). “Making the Land Use, Transportation, Air Quality Connection (LUTRAQ)—Freeways or Communities: It’s Your Choice.” Adapted from a speech by Keith Bartholomew, Staff Attorney/LUTRAQ Project Director, p. 3.

⁶ Metro (2000). “The Nature of 2040: The region’s 50-year plan for managing growth.” Portland, OR.

citizens valued most. These values, along with baseline conditions and continuing public input, were used to develop four growth scenarios: Base case, Growing out, Growing up, and Neighboring cities. Each scenario's effects on land consumption, travel times and distances, open spaces, air quality, and various urban landscapes were modeled.⁷

An extensive public involvement process supported the development and evaluation of the scenarios, including television, radio, and print advertisements; a free video available at Blockbuster stores; an information and comment hotline; presentations to municipalities and civic groups; newsletters; open houses, workshops, and fora; and a survey on specific growth management strategies. Metro mailed a questionnaire and informational brochure presenting the four scenarios to over 500,000 households and received 17,000 responses with 12,000 written comments.⁸

Based on public input, Metro developed what would become the Region 2040 Growth Concept, a preferred scenario that combined the most favored features of the various options. The Growth Concept concentrates development on centers and corridors, and, for the area west of Portland, is nearly identical to the LUTRAQ alternative. The Growth Concept was presented to the public for comment and adopted by the Metro Council in 1995.

Implementation through the Regional Transportation Plan

The 2040 Growth Concept strongly links land use and urban form to transportation. The Concept plans for development through 10 types of urban forms. The success of each type, however, depends on accessibility through specific transportation services. For example, "station communities" will cluster residential, commercial, and civic functions within a few miles of a light-rail transit connection, whereas industrial areas' access will center on rail and highways. In addition, "Goal 12" of Oregon's Statewide Planning Goals and Guidelines requires that the transportation plan "conform with local and regional comprehensive land use plans."⁹ Therefore, transportation planners in Portland have "a very specific responsibility: to design the transportation system in a manner that will bring about the land use futures to which transportation is seen in a subordinate, supportive role."¹⁰ The Regional Transportation Plan (RTP) therefore must plan for a transportation system that implements the land use plan by serving the transportation needs of the various urban forms and development types.

The 2004 RTP thus uses the 2040 Growth Concept as the basis for its vision and land-use assumptions. No alternative land use patterns were tested or evaluated. Instead, the 2004 RTP uses a process of balancing desired improvements with fiscal constraints to develop alternative systems that meet regulatory requirements.

⁷ Metro (2000).

⁸ Metro (2000).

⁹ National Cooperative Highway Research Program (NCHRP) Report 404 (1998). "Innovative Practices for Multimodal Transportation Planning for Freight and Passengers." Transportation Research Board, Washington, D.C., p. 23.

¹⁰ NCHRP, p. 23.

First, the plan describes a “preferred system” that would include all elements required to fully implement the 2040 Growth Concept (820 projects). The plan then presents a financial analysis showing that projected revenues will be inadequate to fund the preferred system, and outlines a more limited “financially constrained” system that meets federal requirements. The plan finds that the financially constrained system, however, would not meet the region’s 20-year transportation needs, resulting in unacceptable levels of congestion and impairing the region’s ability to implement the 2040 Growth Concept. Finally, the plan proposes a “priority system”—a middle ground that contains all the elements of the financially constrained system plus crucial elements of the preferred system to support the 2040 Growth Concept (over 650 projects and \$8 billion). The priority system also serves as a statement of compliance with Oregon’s Transportation Planning Rule. The RTP proposes methods of raising additional revenues to fund the priority system.

Projects in the preferred and priority systems that are not included in the financially constrained system (and therefore are not eligible for federal funds) are “intended to guide local transportation plans and land use actions.”¹¹ They may serve as “placeholder” projects that need more development before being included in future financially constrained plans, or they may be funded through other sources.

The 2004 RTP also outlines detailed requirements for implementing the RTP through city and county comprehensive plans. The RTP uses several regulatory policies aimed at increasing non-automobile travel:

- **Street design and connectivity standards**—“zoning for streets”¹²
- **Land use-based level of service policy**—the basis for determining whether the RTP “defines an adequate transportation system to serve planned land uses”¹³
- **Targets for reducing single-occupant vehicle travel**—“the key regional measure for assessing transportation system improvements” in highest density areas¹⁴

Outcomes

In general, Portland’s efforts in promoting mixed-use, higher-density, transit-oriented development and increasing street connectivity are meeting with success, although the market’s response to the new regulatory environment has been somewhat delayed.¹⁵ Metro reported on its progress toward achieving the 2040 Growth Concept in 2003.¹⁶ Highlights of that report are as follows:

¹¹ Metro (2004). “2004 Regional Transportation Plan.” Portland, OR, p. vii.

¹² Kloster, p. 109.

¹³ Metro (2004), p. 1-30.

¹⁴ Metro (2004), p. 6-19.

¹⁵ Porter, C., ten Siethoff, B., and Smith, V. (2005). “Impacts of Comprehensive Planning and Smart Growth Initiatives on Transportation: Case Studies of Five Regions.” Transportation Research Record: Journal of the Transportation Research Board, No. 1902, Transportation Research Board, Washington, D.C.

¹⁶ Metro (2003). “The Portland Region: How are we doing? Highlights of the region’s land-use and transportation performance measures.” Portland, OR.

- Overall, the density of existing neighborhoods has not changed
- New residential development has become more compact
- Congestion continues to be a problem
- Freeway volumes are rising, mostly due to population increase
- Vehicle miles traveled (VMT) per capita has stabilized and begun to decline
- Public transit ridership is growing faster (49%) than population (24%) and total VMT (35%)
- The region faces a mounting investment shortfall, spending \$635 million per year with 70% going toward system preservation and maintenance

Analysis and Lessons Learned

Portland's comprehensive planning program is the result of several factors. First, a strong public environmental ethic and commitment to preserving open space and agricultural land has supported its strong growth management policies.¹⁷ The second factor is time. Portland's progress has been incremental, through additive policy, planning, and investment decisions. The 2004 RPT describes itself as "the culmination of a nearly 25-year evolution from a mostly road-oriented plan to a more multi-modal one, ultimately mixing land-use and transportation objectives in a truly integrated fashion."¹⁸

Finally, Portland's efforts are coordinated and comprehensive, thanks to its unique state and regional policy framework. Policies called for by state plans are included in regional and local plans and implemented through regional and local project development. Metro's status as a directly elected regional government with responsibility for comprehensive land use, transportation, and other municipal planning, combined with its authority over local land-use regulations, gives it unique powers to plan regionally and implement locally. Commitments to higher-density, transit-oriented developments that encourage alternative travel modes are made through a comprehensive set of tools such as zoning regulations, light-rail investments, street design, bicycle and pedestrian improvements, and parking ratios.

¹⁷ National Highway Cooperative Research Board Report 541 (2005). "Consideration of Environmental Factors in Transportation Systems Planning." Transportation Research Board, Washington, D.C.

¹⁸ Metro (2003), p. i.

Greater Wasatch Area, Utah: Envision Utah

Envision Utah is a non-profit, bipartisan public/private partnership of over 130 government, business, civic, religious, media, community, and environmental leaders. The partnership formed in 1997 to develop a growth strategy for the Greater Wasatch Area, a 100-mile-long corridor along the Great Salt Lake and the Wasatch Mountain range that is home to approximately 80% of Utah's population. The population in the Greater Wasatch Area is projected to increase by about 1 million people between 1995 and 2020, with children and grandchildren of current residents representing most of the increase.¹⁹ The Greater Wasatch Area includes Utah's largest cities, Salt Lake City and Provo, and 10 counties, 90 municipalities, 157 special service districts, two MPOs, the Utah Transit Authority, and the Utah Department of Transportation.²⁰

The Planning Process

Envision Utah's first major project was to develop a Quality Growth Strategy for the region. The two-year planning process featured intensive public engagement in a scenario-planning effort:

1997

- Values Survey—A polling consultant conducted a community values survey.²¹
- Baseline Scenario—A model based on current trends showed major impacts on development patterns, VMT, air pollution, and water consumption by 2020.²²

1998

- Community Workshops—Over 2,000 citizens attended 25 workshops, giving their opinions and input on transportation needs, where they wanted growth to occur, and what lands they wanted conserved.²³

Greater Wasatch Area

Population:

1.86 million (2000)

Area:

Approximately 2,300 square miles
Urbanized area: 389 square miles

Jurisdictions:

10 counties, 90 municipalities, 157 special service districts

MPOs:

Wasatch Front Regional Council
(www.wfrc.org)
Mountainland Association of Governments (www.mountainland.org)

Envision Utah Funding:

Governor's Office of Planning and Budget (\$2 million in-kind), private donations (over \$5.6 million cash), \$950,000 federal appropriations

Awards/Recognition:

American Society of Landscape Architects, Congress of New Urbanism, Environmental Protection Agency, FHWA, American Planning Association 2002 Daniel Burnham Award

Contact:

www.envisionutah.org

¹⁹ Osborne, S. (2001 May). "Utah Has a Change of Heart." *Planning*, 20-23.

²⁰ Grow, R. (2002). "Whose Future Is It, Anyway? The Essential Public Process." *Smart Growth and Transportation: Issues and Lessons Learned*. September 8-10, 2002, Baltimore, MD. Conference Proceedings 32, Transportation Research Board, Washington, D.C.

²¹ Envision Utah (n.d.). "Envision Utah Process: 1997 Values Research, Whirlin Worldwide." Retrieved from <http://www.envisionutah.org/process-values.phtml> on May 7, 2006.

²² Osborne (2001).

²³ Osborne (2001).

Participants were divided into small groups, and used maps and “density chips” to determine how the region should accommodate future population increases.²⁴

- Scenario Development—A team of 15 planners and consultants developed four scenarios based on technical expertise and the public’s desires.²⁵ Population remained constant as housing types, transportation improvements, and development patterns were varied. Scenarios were also designed to have approximately the same cost, and incorporating public input was a challenge, according to John Lobb, a planner with the Salt Lake City MPO who worked on the scenario development team. Staff compiled the input from the community workshops by specific potential elements of a scenario (e.g., a proposed highway), which planners used as a general guide to devising the scenarios. “When our opinions and the public’s didn’t match, it prompted discussion,” said Lobb.

In addition, according to Lobb, fiscal constraints were placed on the scenarios: they were all designed to cost approximately the same amount, and to fit within the fiscal constraints of the MPO’s long-range transportation plan. As a result, any transportation projects already planned were included in every scenario by default. This approach constrained scenario development by pre-allocating significant funds and removing many contentious projects from public debate.

1999

- Scenario Evaluation— The public evaluated the scenarios and their predicted impacts based on computer model results. Envision Utah distributed educational fliers and surveys in over 570,000 newspapers and held 50 public workshops. A radio, television, and print media campaign featured the governor and other civic leaders encouraging participation. Over 17,000 surveys were returned, and again, approximately 2,000 people attended workshops.²⁶
- Develop Quality Growth Strategy—Based on the community survey results, which favored the two scenarios that featured infill, redevelopment, and transit-oriented design, planners developed a preferred scenario, and engaged the public in developing implementation strategies.²⁷ Fifty town meetings (over 500 participants) and three regional workshops (over 800 participants) were held to discuss potential strategies.²⁸

2000

- Present Quality Growth Strategy—Planners presented the completed Quality Growth Strategy to the public, along with technical modeling results showing the

²⁴ Grow; Lobb, J. (2006). Former forecasting manager for the Wasatch Front Regional Council (Salt Lake City MPO). Personal communication via telephone. May 4, 2006.

²⁵ Lobb (2006), Osborne (2001).

²⁶ Envision Utah (n.d.). “Envision Utah Process: Public Survey.” Retrieved from <http://www.envisionutah.org/process-survey.phtml> on May 7, 2006.

²⁷ Grow.

²⁸ Envision Utah (n.d.). “Envision Utah Process: Development of Quality Growth Strategy.” Retrieved from <http://www.envisionutah.org/process-development.phtml> on May 7, 2006.

strategy's impact on key indicators. The public awareness campaign included press tours, radio and television advertisements, a newspaper survey of 363,500 households, and presentations to each of the region's local government officials.²⁹

Outcomes and Implementation

Envision Utah's Quality Growth Strategy process produced several outcomes, including the Quality Growth Strategy itself, a vision document containing six regional goals and 32 implementation strategies. Given Utah's political climate, which strongly values local control and individual property rights, implementation is centered on coordinated, market-driven, voluntary strategies adopted by local cities and towns incrementally, over time. Envision Utah assists local municipalities in implementing the Quality Growth Strategy through a continuing effort that involves community design workshops, demonstration projects, a "toolbox" of resources, technical assistance, and an awards program. Public involvement continues to be a major focus. Envision Utah sees its work as a continual process—not limited to a single project—of engaging the public in planning its future.³⁰

The efforts of Envision Utah also resulted in increased transit spending in the Wasatch Front Regional Council (WFRC)'s Long Range Transportation Plan: 2030, which was adopted in December 2001 and updated in 2003. Because the Quality Growth Strategy is not binding on local land use plans, the 2030 Plan is instead based on "individual city and county land use assumptions."^{31,32} The 2030 Plan analyzes five transportation alternatives based on different combinations of funding possibilities for highways and transit. The fifth alternative, which combines the least amount of highway funding with the most transit funding, was developed later in the process in response to stakeholder and public input. At the recommendation of its policy advisory committee, WFRC adopted alternative 4 as the basis for the 2030 Plan. Alternative 4 calls for \$9.7 million in highway projects funded by gas tax increases and state general funds, and accelerates transit projects by increasing funding from \$2.2 million to \$6.9 million through increases in local sales tax and "joint development/community participation."

According to Envision Utah, the draft 2030 Plan was criticized for its emphasis on highway investment over transit. Envision Utah became involved in the process, working with local officials who were also WFRC members and a consortium of businesses to lobby the WFRC to add more transit to the Plan. Envision Utah now has a seat on the

²⁹ Envision Utah (n.d.) "Development of Quality Growth Strategy"; Envision Utah. (n.d.). "Envision Utah Process: Community Presentations." Retrieved from <http://www.envisionutah.org/process-community.phtml> on May 7, 2006.

³⁰ Grow.

³¹ Wasatch Front Regional Council (2003). "Wasatch Front Urban Area Long Range Transportation Plan Update: 2004-2030." Wasatch Front Regional Council, Salt Lake City, UT, p. 22.

³² Like all MPOs, the Wasatch Front Regional Council has a specific federal mandate and a Board comprised of local municipal officials—a different mission and structure than that of Envision Utah. According to Lobb, the MPO did not feel comfortable simply using Envision Utah's scenario planning process as its alternatives analysis for the long-range transportation plan—instead, "there needed to be a clear separation" between the two processes.

WRFC's Regional Council in order to better facilitate implementing the Quality Growth Strategy through transportation planning.³³

Analysis and Lessons Learned

Envision Utah and the local officials and community leaders cooperating with its effort agree that several factors have been crucial to its success. First is inclusiveness. Envision Utah formed a broad-based coalition, seeking dialogue, input, and participation from all interests, especially those potentially opposed or resistant to the process. Second, Envision Utah respected local control and designed its efforts to work within the region's existing political framework. Third, it was informed by an understanding of the community's values, making Envision Utah's communication more effective and giving the project direct relevancy to citizens and policymakers.

Finally, it engaged the public. Although many people who attended public workshops were community leaders, local officials, advocates, and other 'usual suspects,' Envision Utah's outreach efforts reached many ordinary citizens and opened the issues of land use, transportation, and regional planning to public debate.³⁴ The public involvement effort used multiple methods for outreach and input (surveys, media, community meetings); engaged citizens at several points in the process; and was inclusive and transparent.³⁵ The direct, interactive engagement gave citizens a greater understanding of regional growth issues and how such activities are truly inter-related. As Envision Utah's founder Robert Grow puts it, "choices come in packages, and we believed that if we gave the public real choices, they would make good decisions...nothing forced people to come up against the constraints we were facing like going through the process themselves to become a citizen planner."

The scenarios themselves, however, were more limited than the broad view of such tools taken in the literature. With population held constant, a certain level of growth was assumed. Envision Utah did not broach the questions of whether the region wanted population growth, or how much, or whether underlying forces could result in a different population future.

³³ Envision Utah (n.d.). "The History of Envision Utah."

³⁴ Lobb also believes that the status of Envision Utah as a separate, non-governmental organization allowed it to sponsor debate on issues such as land use (the purview of local governments) more easily and in a more inclusive fashion than the MPO could have done.

³⁵ Grow.

Charlottesville, Virginia: Jefferson Area Eastern Planning Initiative

Faced with the second-highest population growth in Virginia and increasing traffic congestion, the Thomas Jefferson Planning District Commission (TJPDC), which includes the Charlottesville-Albemarle MPO, found that transportation solutions focused on new highway construction would be unacceptable to the public, which feared damage to the region's environmental, historical, and rural landscape. Furthermore, regional and state planning models were inadequate to develop and evaluate non-highway alternatives. With funding from the FHWA's Transportation & Community & System Preservation Program (TCSP), the TJPDC launched the Eastern Planning Initiative (EPI), a two-year effort to develop a 50-year vision and a more integrated land-use and transportation model that could be used readily by planners to engage the public at the local and regional level.

The Planning Process

The EPI was staffed by a project team from the TJPDC and the MPO, and was guided by a Citizens Advisory Committee, a 42-member, appointed council of planners, advocates for transportation-dependent populations, social service providers, businesspeople, artists, and environmentalists.³⁶ One hundred and fifty people attended four public workshops held over the two-year project.³⁷

The EPI used an interactive scenario planning process supported by computer modeling to establish a vision for growth in the region. First, planners defined 17 community types or "elements" existing in the region. Each community element was limited to a "pedestrian scale" of ½-mile diameter, assuming that ¼ mile is the maximum distance people will walk to access jobs, services, or activities. The EPI then solicited community input through public meetings and a community survey of 1,200 households to learn what people liked and disliked about each type of existing neighborhood. The public verified that the CorPlan model³⁸ illustrated the existing elements accurately, and provided

Charlottesville Metropolitan Area

Population:

175,000 (2000)

Area:

1,600 square miles

Jurisdictions:

5 counties

MPO:

Charlottesville-Albemarle Metropolitan Planning Organization (www.tjpd.org)

Eastern Planning Initiative Funding:

\$762,210 total cost; \$517,920 from a 3-year FHWA TCSP grant and \$244,200 in staff time and resources from the Charlottesville-Albemarle MPO and the Thomas Jefferson Planning District Commission

Awards/Recognition

2003 AMPO National Award for Outstanding Achievement in Metropolitan Transportation Planning (UnJam 2025)

³⁶ Federal Highway Administration (2005). "Resources: Land Use and Transportation Modeling Tools - CorPlan Model, Charlottesville, VA." Federal Highway Administration, Washington, D.C. Retrieved from <http://www.fhwa.dot.gov/tcsp/corplan.html> on May 20, 2006.

³⁷ Thomas Jefferson Planning District Commission (n.d.). "Jefferson Area Eastern Planning Initiative: Building Livable Communities." Retrieved from <http://www.tjpd.org/community/epi.asp> on May 20, 2006.

³⁸ The CorPlan model calculates land development potential by estimating land use, infrastructure, and socioeconomic characteristics of a given development type, using a Microsoft Excel spreadsheet linked to

suggestions for improving the elements. Planners and the public also considered how each element supported the region's Sustainability Accords, a set of 15 guiding principles developed in 1998 that "create an agenda on which the community can agree."³⁹ The Accords are simple ("conserve energy") but are supported by goals, objectives, measurable indicators, and benchmarks.

Next, planners enhanced the community elements based on public input and developed assumptions for modeling the land use, infrastructure, and socioeconomic characteristics of each element. Each element also was illustrated by a photograph and plan graphic to provide a visual representation to the public.

The EPI project team held a second round of interactive public workshops to combine the community elements into various scenarios. Each community element was represented as a color-coded "dot" and assigned points based on its density and design. Citizens had to arrange the dots on a map in a way that would both meet the region's goals and support broad themes identified earlier in the planning process. Each theme was named after an old television show (e.g., the "Green Acres" theme promoted a rural lifestyle).⁴⁰

Planners then used the CorPlan model to translate the community input into three scenarios: dispersed, town centers, and urban core. The model estimated the "land development potential" of the region based on the community element assigned to each subarea, generating socioeconomic, infrastructure, and land use outputs that showed impacts on land use, transportation, and other criteria from the Sustainability Accords.

The dispersed scenario resulted in \$1 billion of highway construction and improvement projects, increased VMT, and increased congestion over the 50-year period. The town centers scenario predicted \$500 million in transit and road improvements, and decreased VMT and congestion dramatically. Results for all indicators under the urban core scenario were further improved, although not as dramatically, but the public nonetheless preferred the town centers scenario. TJPDC Executive Director Harrison Rue believes it may have something to do with semantics—"nobody really likes the words 'urban core'."⁴¹ Also, with only three scenarios, consensus often gravitates toward the middle—the "Goldilocks" option—regardless of whether it best meets the region's needs.⁴²

ARCview geographic information system software for land use data. Potentials can be recalculated quickly by reassigning the development types to the land area.

³⁹ Thomas Jefferson Planning District Commission. "The 1998 Sustainability Accords." Retrieved from <http://www.tjpd.org/home/sustainability.asp> on June 4, 2006.

⁴⁰ Twaddle, H. and Sinclair, C. (2003). "How the CorPlan Model Was Used to Develop a Community Vision for Charlottesville, Virginia, and Surrounding Area—an Integrated Land Use and Transportation Modeling Effort." Transportation Research E-Circular, No. E-C054. Third National Community Impact Assessment Conference, Community Impact Assessment in the 21st Century: Making Connections and Building Relationships. Madison, WI, August 19-22, 2002. Transportation Research Board, Washington, D.C.

⁴¹ Rue, H.B. (2005). "Recent Transportation and Land Use Planning Experiences in Charlottesville, Virginia. Smart Growth and Transportation: Issues and Lessons Learned." Baltimore, MD, September 8-10, 2002. Conference Proceedings 32, Transportation Research Board, Washington, D.C.

⁴² Bartholomew, K. (2005). "Integrating Land Use Issues into Transportation Planning: Scenario Planning. Summary Report." Federal Highway Administration, Washington, D.C.

Outcomes and Implementation

The EPI produced several outcomes. First, the process established a set of design principles to guide future development based on historical settlement patterns. Second, the CorPlan model was refined and tested as a tool for engaging the public directly in land use and transportation scenario planning. Third, the model showed that changing land use patterns, not transportation investment, is the key to real change in important regional indicators. “We could spend another \$0.5 billion on transit and get a bunch more reduction, but the big savings was in where and how you build the towns,” said Rue. The model also showed that improving connections in the local street network was important to reducing congestion levels. Finally, the region established a vision for future growth clustered around traditional centers and major transportation corridors, supported by well-connected streets and an expanded transit system.⁴³

The results of the EPI are being implemented at the local level through county comprehensive plans and zoning ordinances. At the regional level, the Charlottesville-Albemarle MPO used the results of the EPI to inform its regional long-range transportation plan, the United Jefferson Area Mobility Plan (UnJam 2025). UnJam combines for the first time the Charlottesville-Albemarle Regional Transportation Plan with the TJPD’s Rural Area Transportation Long-Range Plan.

UnJam seeks to improve intra-regional connections, improve mobility, and promote livable communities through transportation choices. Specifically, the plan calls for a more connected roadway system and local street grid, increased transit service, and better design of intersections, corridors, and pedestrian and bicycle facilities. The plan deviates from past long-term plans in the “unprecedented funding levels for bike, pedestrian, transit, and traffic calming projects.”⁴⁴ UnJam also encourages greater use of public and private partnerships to finance transportation improvements, particularly street connections between new developments.

Analysis and Lessons Learned

The FHWA’s case-study analysis of the EPI produced several key findings:

- Citizens had a better-than-expected vision of what they wanted for their region
- Support for transit-oriented development was surprising
- The 50-year planning horizon allowed broader and more creative thinking
- The greatest challenge lies not in developing a vision, but in implementing that vision (a conclusion echoed by Executive Director Rue).

The FHWA also found that the CorPlan model’s use of visualizations, reliance on existing data sets, and use of common language and software tools made it effective in involving the public and aiding planners. Noted limitations of CorPlan include its indirect method of estimating transportation, environmental, and economic information and lack of a public cost element.

⁴³ Features similar to those of Portland’s Region 2040 Growth Concept.

⁴⁴ Thomas Jefferson Planning District Commission (n.d.). “United Jefferson Area Mobility Plan—UnJAM 2025.” Retrieved from <http://www.tjpd.org/transportation/unjam.asp> on May 20, 2006.

Sacramento, California: Blueprint

The Sacramento region's Blueprint project has won numerous awards for its effective and interactive public engagement, advanced modeling tools, and integration of land use and transportation planning. Blueprint is a 50-year visioning project sponsored by the Sacramento Area Council of Governments (SACOG) and Valley Vision, a non-profit, non-partisan "action tank" of community leaders.

The major drivers for Blueprint were population growth (1.7 million more people expected by 2050), and the realization that despite planned transportation investments to the tune of \$22 billion over 23 years, unacceptable levels of air quality and congestion would persist and worsen.⁴⁵ Planners concluded that, "something different had to be done."⁴⁶

The Planning Process

The Blueprint Project was launched in the summer of 2002 with the mission of developing scenarios and models to support regional and local decision-making. City and county participation was voluntary, but every jurisdiction chose to be involved.

Blueprint's first step was to develop a long-term Base Case scenario that projected air pollution, traffic congestion, VMT, and new lands developed for housing based on local plans and GIS data, assuming current development patterns and transportation planning continued. The Base Case was presented at a Regional Forum where citizens overwhelmingly rejected the Base Case scenario, using electronic clickers to register their input.

Blueprint then began an extensive public engagement process that involved more than 5,000 participants in developing alternative scenarios for growth.⁴⁷ Citizens participated

Sacramento Metropolitan Area

Population:

1.95 million (2000)

Area:

Approximately 6,190 square miles

Jurisdictions:

6 counties, 24 cities

MPO:

Sacramento Area Council of Governments (www.sacog.org)

Major Blueprint Funders:

SACOG, Valley Vision, Sacramento Metropolitan Development, California State Treasurer's Office, Caltrans, Bringing Regional Issues for Discussion and Group Effort (BRIDGE), Urban Land Institute, Great Valley Center, James Irvine Foundation, and KVIE6, among others

Awards/Recognition:

2003 Harvard Kennedy School of Government "Top 50" program for Innovations in American Government; 2004 FHWA/Federal Transit Administration Transportation Planning Excellence Award; 2004 American Institute of Architects California Chapter Presidential Citation; 2004 Environmental Protection Agency National Award for Smart Growth Achievement; 2004 AMPO National Award for Outstanding Achievement

Contact:

www.sacregionblueprint.org
www.valleyvision.org

⁴⁵ Association of Metropolitan Planning Organizations (2005). "AMPO Awards: 2004 Award Winners." Retrieved from <http://www.ampo.org/awards/2004awards.html> on May 21, 2006.

⁴⁶ McKeever, N. (2005). "Effect of Land Use Choices on Transportation Fuel Demand." California Energy Commission Staff Report, CEC-600-2005-019, p. 4.

directly in the scenario development process by working in groups of seven to 10 people led by a facilitator running PLAC³E software on a laptop computer with wireless Internet access. Participants adjusted development patterns for case-study sites in real time, and compared their effects on transportation, air quality, economic, and other factors.⁴⁸ After 30 workshops, citizens had developed approximately 250 neighborhood scenarios for 60 sites.⁴⁹ Planners summarized the neighborhood plans into countywide scenarios that were evaluated by the public at seven county workshops.

Finally, planners aggregated the countywide results into three additional regional scenarios, which were presented at a second Regional Forum attended by 1,400 people. Again, citizens were divided into small groups at 172 tables, and voted both by table and by individual for the plan they preferred for their local area and for the region. Scenario C, with the second-highest housing densities and growth in “inner ring” areas, was the winner by table, whereas Scenario D, which had the highest densities and called for growth in “core” areas, was favored by individuals. After the Forum, SACOG surveyed 1,300 residents by phone to gather additional input on growth and development issues. The final result was a Preferred Blueprint Alternative that was discussed at a Regional Summit of city and county officials and ultimately adopted by SACOG in December 2004.⁵⁰

Outcomes and Implementation

Blueprint produced seven guiding principles for growth and development and maps of a preferred growth scenario for each of the six counties and the entire region that “should be interpreted and used as a concept-level illustration of the growth principles.”⁵¹ Blueprint will be implemented through local, county, and regional plans. The cities of Roseville and Sacramento and the county of Sacramento have already updated planning documents to include Blueprint principles, and other jurisdictions are looking for similar opportunities.⁵² SACOG’s efforts to facilitate planning and projects consistent with Blueprint include a Community Design Program, which provides funding and incentives; technical assistance to local governments; a toolbox of best practices for planning and development; an awards program to recognize successful Blueprint implementation projects; and a benchmarking system that tracks indicators and measures progress towards Blueprint’s objectives.⁵³ SACOG is also holding community workshops to

⁴⁷ Sacramento Region Blueprint (2005). “Preferred Blueprint Alternative. Special Report.”

⁴⁸ Federal Highway Administration (2006). “2004 Public Involvement, Education & Outreach Award Winner: Sacramento Region Blueprint.” Retrieved from <http://www.fhwa.dot.gov/planning/tpea/pubinvolv.htm> on May 21, 2006.

⁴⁹ Sacramento Region Blueprint (n.d.). “Frequently Asked Questions.” Retrieved from <http://www.sacregionblueprint.org/sacregionblueprint/faq/faq.cfm> on May 21, 2006.

⁵⁰ Sacramento Region Blueprint (n.d.). “Preferred Blueprint Alternative.”

⁵¹ Sacramento Region Blueprint (n.d.). “The Project: Preferred Scenario.” Retrieved from http://www.sacregionblueprint.org/sacregionblueprint/the_project/discussion_draft_preferred_scenario.cfm on May 21, 2006.

⁵² Sacramento Area Council of Governments (2006). “Elected Officials Direct Blueprint-Style Metropolitan Transportation Plan.” Retrieved from <http://www.sacog.org/mtp/2030/mediacenter/pressreleases/2006/01/MTP%20Elected%20Officials%20Press%20Release.pdf> on May 21, 2006.

⁵³ Sacramento Region Blueprint (n.d.). “Preferred Blueprint Alternative.”

present the Blueprint alternative and educate local planners about how to apply its design principles.

SACOG is using Blueprint as a foundation for the 2030 Metropolitan Transportation Plan (MTP), “the first MTP for the Sacramento region to pro-actively link land use and transportation needs.”⁵⁴ SACOG is developing a new land use allocation for the 2030 MTP update based on Blueprint. Using fixed assumptions of land use patterns and population, employment, and housing growth, the MTP will evaluate three alternative transportation scenarios that compare emphases on longer-, medium-, and shorter-distance travel.⁵⁵

⁵⁴ Sacramento Area Council of Regional Governments (n.d.). “Metropolitan Transportation Plan (MTP).” Retrieved from <http://www.sacog.org/mtp/> on May 21, 2006.

⁵⁵ Sacramento Area Council of Regional Governments (n.d.). “Metropolitan Transportation Plan 2030.” Retrieved from <http://www.sacog.org/mtp/pdf/MTP2030/01-Brochure.pdf> on May 21, 2006.

Eugene/Southern Willamette Valley, Oregon: Region 2050

Like Charlottesville, Virginia, and the Champlain Valley of Vermont, Oregon's Southern Willamette Valley supports a metropolitan area, state university, suburbs, and small towns amid rural agricultural lands, forests, and mountains. The Lane County Council of Governments (LCOG) is the region's MPO. In 1999, LCOG's local governments adopted resolutions to develop a 50-year regional growth strategy. Region 2050, as the project is known, is overseen by a Regional Policy Advisory Board comprised of appointed local officials, a Lane Transit District Board member, and a member of the Governor's staff.⁵⁶ Participation in Region 2050 by local governments is voluntary.

A key driver of Region 2050 is the power and flexibility it gives the region's local governments under Oregon planning laws. For example, Oregon requires that counties adopt 20-year population projections. In the absence of a regional plan for growth, such projections would be based on current trends. Region 2050's proponents tout the project as an opportunity for municipalities to control their destiny, both as individual cities and as a region, including how much population growth they will plan to support. In Oregon, such targets have implications for urban growth boundaries, urban reserves, and public facility planning. By combining forces, the Valley's smaller cities have been able to conduct more sophisticated planning for these requirements and to plan more effectively for activities with regional and inter-jurisdictional implications than they could have alone. In addition, the regional strategy appears to give local government more flexibility in complying with Oregon's growth management laws. If a regional strategy that meets the intent of the state's planning rules exists, it, rather than the state's administrative rules, becomes the basis for developing regional solutions.⁵⁷

The Planning Process

Region 2050 is using scenario planning to understand and assess alternative approaches to regional growth. In this case, scenarios were developed primarily by experts and then

<p style="text-align: center;">Southern Willamette Valley</p> <p>Population: 297,811 (2000)</p> <p>Area: 1,152 square miles</p> <p>Jurisdictions: 9 municipalities and rural, unincorporated communities of Lane County</p> <p>MPO: Lane Council of Governments (www.lcog.org)</p> <p>Region 2050 Costs: \$800,000 total cost, including \$210,000 of LCOG time and resources</p> <p>Region 2050 Funding: Local governments, \$63,000; Utilities, \$32,500; Oregon Transportation and Growth Management Program, \$133,000; Oregon Department of Land Conservation and Development, \$230,000; Oregon Economic & Community Development Dept., \$75,000; EPA, \$53,000</p> <p>Contact: www.region2050.org</p>
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⁵⁶ Region 2050 (n.d.). "What is Region 2050?" Retrieved from <http://www.region2050.org/default.htm> on May 21, 2006.

⁵⁷ Region 2050 (2004). "Region 2050 Process." Retrieved from <http://www.region2050.org/pdf/R2050Process.pdf> on May 21, 2006.

evaluated by the public. In the first phase, experts developed seven “regional vision maps” reflecting their perspective on the following quality-of-life categories: land use, housing, economy, transportation, natural resources, community facilities and services, and education. Region 2050 staff and the Advisory Board identified common elements of the seven maps and combined them into three alternative growth scenarios: compact urban growth, satellite communities, and rural growth.⁵⁸

Region 2050 conducted a seven-month public engagement process in 2005 to gather public input on the scenarios. The “Design Your Future” process used group outreach, community meetings, and a newspaper insert and survey to gather public comments. Approximately 50 presentations and question-and-answer sessions were given to planning, civic, utility, environmental, school, and other community groups. Region 2050 also held 14 three-hour community meetings throughout the region in which 515 citizens participated. Over 170,000 copies of an educational insert and survey were distributed through local newspapers, public meeting places, and businesses; 624 people responded to the survey, which was also posted on the Region 2050 website. Citizens were asked not only about the alternative regional growth scenarios but also about their priorities for quality-of-life goals and their perspectives on growth in their local communities.⁵⁹

Outcomes and Implementation

Region 2050 is expected to result in a Regional Growth Management Strategy by June 2006. The preferred scenario likely will contain elements of all three alternative growth scenarios, and the strategy will contain a prioritized list of actions for meeting the region’s quality-of-life goals.

The mechanism for regional endorsement of the Strategy is not yet clear, however. The Policy Board plans to recommend some form of agreement to be signed by the local governments, but the Regional Strategy will not be a binding policy document. Each municipality can make its own commitment to take the actions outlined in the agreement.⁶⁰ Local adoption measures are planned to begin by January 2007.⁶¹

Analysis and Lessons Learned

The Region 2050 process is not yet complete, but several citizen comments on the process may be instructive. Some citizens questioned the assumptions of Region 2050. Instead of planning for an assumed level of population growth, they argued, the public should first be asked whether it wants to support (or “subsidize”) another 160,000 people in the region in the first place. Others commented that the public had not been adequately educated in advance of the community meetings, and therefore were unable to comment in an informed way on the complex and inter-related issues of community planning.⁶²

⁵⁸ Region 2050 (n.d.). “Alternative Growth Scenarios.” Retrieved from <http://www.region2050.org/altgrowthscenarios.html> on May 22, 2006.

⁵⁹ Lane Council of Governments (2005). “Design Your Future Citizen Involvement Report.”

⁶⁰ Region 2050 (2004).

⁶¹ Region 2050 (2004). “Frequently Asked Questions About the Region 2050 Process.” Retrieved from <http://www.region2050.org/pdf/ProcessFAQ.pdf> on May 22, 2006.

⁶² Lane Council of Governments.

CONCLUSION

These five case studies discuss projects of varying geographic areas, populations, policy frameworks, phases of completion, and sponsorship structure. Like most regional visioning projects nationwide, however, all projects developed and compared alternative scenarios for accommodating projected growth in their region over the next 50 years.

‘Scenario planning’ in this context seems to lie somewhere between the traditional alternatives analysis and the strategic planning practiced by corporations and governments. The process evaluates land use scenarios of differing densities and development patterns, often combined with different transportation strategies, and—to a lesser extent—economic development and environmental policies to develop a land use vision for the region. The result is more integrated land use and transportation planning, similar to the efforts of some MPOs in using more sophisticated computer models to vary both transportation and land use inputs for their alternatives analyses.

Regional visioning processes, however, are larger in scale than most long-range transportation planning processes, involving more stakeholders and more intensive public engagement, and have a broader scope that encompasses regional quality-of-life issues, not just transportation. Most resultant ‘preferred scenarios’ envision development centered on transportation and transit corridors; although densities are higher than current trends the highest density modeled typically is not chosen, even if indicators are more favorable based on computer modeling results.

For MPOs, if the regional land use vision has been approved or adopted by local municipalities and incorporated into their land use plans, the process effectively removes an important variable from the alternatives analysis, allowing MPOs to focus on developing ‘pure’ transportation alternatives that best implement the land use vision within funding constraints.

Common themes

The five case studies also share the following common elements:

- **Projects arose from compelling reasons to change past practices.** All initiatives were driven to develop a new or improved method of long-term land use or transportation planning because of pressing regional problems. Primary drivers include traffic congestion, new highway construction/rising transportation expenditures, air quality, population pressures, lack of adequate models for integrated transportation-land use interactions, and sprawl development patterns.
- **Projects require effective, visionary leadership.** Statements by Rue, Grow, and other speakers at the Transportation Research Board’s 2002 Smart Growth and Transportation conference emphasized the importance of strong leadership. In Portland, Utah, and Maryland (which has enacted state growth management laws), a visionary governor was instrumental in leading efforts to change planning policies and support coalitions. The projects in Utah, Portland, and Sacramento had strong non-profit advocacy co-sponsorship or leadership. Non-profit

organizations can advocate change from the outside or bridge gaps as part of a partnership or coalition.

- **Project sponsorship is broad-based and inclusive.** Regional visioning requires a coordinated regional effort. Most successful projects have been conducted by broad-based coalitions, including municipal, county, and regional governments; transportation agencies and transit authorities; transportation advocates; business and community leaders; utilities; and non-profit or advocacy organizations. Some initiatives are led directly by MPOs or regional planning councils, while other communities have chosen to set up a new, stand-alone organization that can offer the right ‘umbrella’ for uniting the region’s disparate groups, interests, and perspectives.
- **Projects followed a similar process centered on public engagement and scenario evaluation.** Most projects were steered by a representative advisory committee, developed several overarching guiding principles, and created at least three alternative scenarios for the public to evaluate. All were supported by models that made important technical progress in integrating land use and transportation interactions, but more advances here is needed. Most important, all projects featured an extensive public involvement process that allowed citizens to engage at multiple stages of the visioning process and to participate directly in developing, refining, or critiquing the scenarios.
- **Transportation plans support the long-term regional vision.** In these projects, the regional visioning process has resulted in an overall land use concept for the region. The task for MPOs then becomes to support the land use vision through transportation planning, and the alternative analyses contained in the MPOs’ plans evaluate and compare the effectiveness of different transportation systems in achieving the desired land use pattern. In Portland and Utah, transportation alternatives varied by level of financial investment or funding. Sacramento is developing alternatives based on travel times. This approach ensures consistency with the region’s vision, decreases the possibility that transportation improvements will inadvertently result in land use patterns that the community does not want, and gives the community more realistic choices for its transportation system.

Challenges and limitations

Regional visioning projects are still relatively new, and the case studies also reveal that such initiatives face challenges and unresolved questions:

- **Scenario planning lengthens the planning process.** The thorough approach and extensive public involvement of this planning method are expensive and take time, but can produce significant benefits in terms of public awareness of, engagement in, and consensus on planning issues. These benefits, however, can only be achieved through a strong public engagement process that is inclusive, interactive, and meaningful.

- **Public involvement requires public information and education.** As these approaches seek both broader and deeper engagement with the public, they provide new perspectives on enduring questions and introduce new challenges: How is public input best gathered? How is a broad community vision translated into a long-range transportation plan? How are citizens engaged at the various stages of plan development, review, and adoption? How should the process integrate public desires with planners' expertise in a way that is transparent, trusted, and respects both types of input? Are citizens adequately informed to make meaningful choices on these types of complex, interrelated issues?
- **Most projects assume growth.** Classic scenario planning looks at underlying forces that drive change, and moves beyond simple trendline analysis to consider ways in which these forces could shift to produce very different outcomes. Most regional scenario planning projects, however, have assumed growth as a given, starting with population, employment, and housing forecasts and then altering the development patterns to accommodate them. Critics argue that such assumptions limit the community's ability to truly shape its future, and that this type of scenario building is nothing more than a repackaged version of business-as-usual, pro-development planning.
- **Implementing a vision is harder than developing a vision.** With the notable exception of Portland, Oregon, land use decisions nationwide are made at the local level, despite state growth management laws, regional planning councils, and county and regional governments. Implementing regional visions therefore requires a true commitment by local governments not only to the process of developing a plan, but to making the planning and zoning changes necessary to implement it. Beyond cooperative, non-binding agreements, MPOs and regional councils can provide technical support and incentives and exert some influence through the transportation plan. The projects in Utah, Eugene, and Sacramento face skepticism and reluctance from local governments who fear the loss of local authority over decision-making. Projects have sought to allay these fears through communication, dialogue, and engagement with local officials.
- **MPOs are still negotiating their role in the larger regional planning process.** Federal law requires MPOs to integrate land use into their long-range planning, but offers little specifics in how best to accomplish this. Should MPOs remain in their traditional role of building consensus among member municipalities and stakeholders? Or should they take a greater leadership role in advocating a vision? MPOs around the country are still negotiating what role they should play in these more holistic and comprehensive regional planning efforts.
- **The long-term effectiveness of this approach is not yet known.** Is scenario planning and regional visioning effective in helping communities and planning organizations meet their goals? Is this process any better than the traditional alternatives analysis in reducing congestion, improving system performance, reducing VMT, improving air quality, decreasing greenhouse-gas emissions, or

improving the health of the environment? Are individual municipalities willing to “think regionally, act locally” to implement these visions? Since most regional visioning projects were conducted in the past 10 years with 20- to 50-year horizons, definitive answers to these questions must wait. It seems clear, however, that a more holistic approach to planning that engages the public is an important step in the right direction.

Transferability to Chittenden County, Vermont

For regional visioning efforts to succeed, the area’s local municipalities must agree on three major issues:

- (1) commitment to the process of working together as a region to develop a vision,
- (2) what the process will be and how to support (fund) it, and
- (3) how the vision will be implemented.

For areas such as Chittenden County, Vermont, which have a strong tradition of local control, reaching consensus on such issues may be challenging. The following section discusses how each of these challenges might be met in Chittenden County.

- **Working/thinking regionally**—Several elements are needed, at minimum, for regional action.
 - First is a major driver, a compelling reason for communities to come together and solve problems as a region. Chittenden County does not face the population pressures that have prompted these initiatives in other parts of the country. Here, the driving issue may be sprawl or open space conservation, or the need to decrease the property tax burden by reining in infrastructure costs. The county’s communities are already working together through the Solid Waste District, Regional Planning Commission (RPC), and MPO—a more powerful motivator may be needed to sustain a new initiative on regional land use.
 - Second, the project must be sponsored by a trusted organization that is seen as inclusive and neutral. Nationwide, at least three models have worked: a standalone nonprofit created for the purpose or already existing; a regional government, MPO, or planning commission; or a partnership between the two. Dialogue with community leaders, local officials, and planners may lend a sense of which structure would work best in Chittenden County.
 - Third, the effort must be directed by a strong, visionary leader who can facilitate the communication, cooperation, and commitment needed to see the effort through. The leader must know the community well, and be respected and trusted by towns, stakeholders, and citizens.
- **Inclusive, broad-based process**—Once the political will is in place to conduct a regional visioning effort, a clear plan for the process must be in place and agreed to by the project’s sponsors.
 - Most important, the process must be open to all stakeholders, especially naysayers. It must be well-publicized and completely transparent.

- Agreement on the community's values or quality-of-life goals has been an important first step in many regional visioning efforts, and may be helpful to overcoming opposition in Vermont. In Utah, the community values survey allowed the project to build support by speaking to citizens' real concerns.⁶³ These broad, core values, goals, principles, or 'sustainability accords' can provide a common ground for action and further decision-making.
- Most projects have been supported by a mixture of federal, state, and local funds, with some also seeking private monies. Project funding in Chittenden County will depend in part on the sponsoring organization chosen and the scope of the process and public engagement. In general, the more broad-based the process (especially if a non-profit community organization is involved), the broader the funding base. As in the case of Envision Utah, a broad funding base of corporate, non-profit, and public sources can help establish widespread community support and engagement.
- Clear agreement on the objectives, scope, assumptions, and outcomes of the process is crucial. One fundamental question is whether the vision will seek to accommodate an assumed level of growth, or seek to establish a desired amount of growth.
- **Implementation**—The process' outcomes should directly relate to agreed-upon steps for implementation.
 - Local implementation will be essential in Chittenden County. Towns should agree upfront about the actions they are willing to take to implement the vision. Will action be voluntary, or does participation in the process commit towns to implementing its results? Will towns sign a non-binding agreement, as in Oregon? Can actions vary from town to town? What will be the role of the RPC and MPO in implementing the vision?

Overall, citizens and municipal leaders must be invested in the process and committed to their region's future. Nationwide, each successful project has resolved the above issues in a way that best fits the community. Although these projects have many commonalities, one size does not fit all, and community leaders have emphasized the importance of each region owning and developing its own process. Such an approach will be crucial in Chittenden County as well.

ACKNOWLEDGMENTS

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⁶³ Instead of "smart growth," seen in Utah as an elitist, East Coast term, Envision Utah used "quality growth." Since the number-one community value in Utah was supporting families, concepts such as livable communities or high quality of life were couched in those terms: streets safe for children to walk to school, communities where families could afford safe, quality housing; public transit that reduced air pollution, etc.

APPENDIX A

Policy and Planning Context

Federal Policy

The current era of transportation planning in the United States began with the Federal-Aid Highway Act of 1962, which required “consistent, comprehensive, and coordinated” transportation planning and long-range plans for urban areas. The past 15 years have brought significant changes to the transportation planning landscape with the passage of the federal Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, the Transportation Equity Act for the 21st Century (TEA-21) in 1998, and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005. These laws emphasize increased public involvement, collaboration among agencies and governments, and consideration of other activities affected by transportation. Under current federal law, metropolitan planning organizations (MPOs) must adopt a long-range transportation plan for their metropolitan region that uses a minimum 20-year planning horizon and is updated every five years.

Collaboration

In addition to collaborating with state and public transit officials and considering all transportation modes, air quality impacts, fiscal constraints, performance, equity, safety, and security, under SAFETEA-LU MPOs must now consult with “state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation,” and with “planning officials responsible for other types of planning activities affected by transportation, including planned growth, economic development, environmental protection, airport operations, and freight movement.”⁶⁴ State transportation agencies have similar consultative requirements, must cooperate with MPOs in developing the state long-range transportation plan, and must promote “consistency between transportation improvements and State and local planned growth and economic development patterns.”⁶⁵

Public involvement

Public involvement is an important component of recent federal policies, which require that MPOs and state transportation agencies develop a participation plan that provides citizens with a “reasonable opportunity to comment” on transportation plans.⁶⁶ The most recent provisions of SAFETEA-LU require the use of visualization techniques to describe plans, “convenient and accessible locations” and convenient times for public meetings, and electronic (web-based) distribution of public information.⁶⁷

⁶⁴ Federal Highway Administration (n.d.). “Fact Sheets on Highway Provisions: Metropolitan Planning.” Retrieved from <http://www.fhwa.dot.gov/safetealu/factsheets/mp.htm> on April 22, 2006.

⁶⁵ Federal Highway Administration (n.d.). “Fact Sheets on Highway Provisions: Statewide Planning.” Retrieved from <http://www.fhwa.dot.gov/safetealu/factsheets/statewide.htm> on April 22, 2006.

⁶⁶ Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. Public Law 109-59. Section 6001(a)(i)(5).

⁶⁷ Federal Highway Administration (n.d.). Fact Sheet: Statewide Planning.

A holistic approach

Given the broader scope of issues and participants involved in transportation planning, a new method of soliciting and assimilating these inputs is required. The Federal Highway Administration has therefore developed guidelines that call for a holistic approach to transportation planning centered on public engagement and community visioning:

Metropolitan transportation planning provides the information, tools, and public input needed for improving transportation system performance. Transportation planning should reflect the community's vision for its future. It should also include a comprehensive consideration of possible strategies; an evaluation process that encompasses diverse viewpoints; the collaborative participation of relevant transportation-related agencies and organizations; and an open, timely, and meaningful involvement of the public. Transportation planning requires a comprehensive, holistic look at the needs and the future of the region and its inhabitants.⁶⁸

Community or regional visioning (also referred to as “collaborative visioning”) seeks to establish what a community wants to look like in the future, asking citizens to create a picture of “an ideal future state.”⁶⁹ The process relies on public involvement and engagement in identifying goals and reaching consensus.

The FHWA is actively promoting scenario planning as “an enhancement of, not a replacement for, the traditional transportation planning process.”⁷⁰ Because of its focus on underlying forces and interactive causes and effects, the FHWA believes scenario planning can help citizens and government officials better understand the close linkage of transportation to land use, economic development, the environment, and other regional drivers.

Chittenden County Metropolitan Transportation Plan

An understanding of the current process of long-range transportation planning in Chittenden County, Vermont is useful as a basis for comparison with the case studies. This review of the long-range transportation and land use plans for Chittenden County focuses on the methods and extent of public involvement in (1) vision and goals development, (2) alternatives or plan development (how public input is incorporated), and (3) plan review, evaluation, and adoption.

Long-range transportation planning in Chittenden County is conducted by the Chittenden County Metropolitan Planning Organization (CCMPO).⁷¹ The CCMPO was established

⁶⁸ Federal Highway Administration, Federal Transit Administration (2004). “The Metropolitan Transportation Planning Process: Key Issues. A Briefing Notebook for Transportation Decisionmakers, Officials, and Staff: A Publication of the Transportation Planning Capacity Building Program.” Retrieved from <http://www.planning.dot.gov/documents/BriefingBook/BBook.htm> on April 23, 2006.

⁶⁹ Helling, A. (1998). “Collaborative visioning: Proceed with caution!” *Journal of the American Planning Association*, Vol. 64, No. 3, p. 335-50.

⁷⁰ Federal Highway Administration. (2005). “About This Site.” Scenario Planning Website, Federal Highway Administration, Washington, D.C. Retrieved from <http://www.fhwa.dot.gov/planning/scenplan/about.htm> on May 7, 2006.

⁷¹ Long-range transportation planning is conducted at the state level by VTrans.

in 1983 and was expanded to include all of the county's 18 municipalities in 1998.⁷² The CCMPO works closely with the Chittenden County Regional Planning Commission (CCRPC), which conducts regional comprehensive planning for land use and other activities.

The long-range transportation plan developed and adopted by the CCMPO is the Chittenden County Metropolitan Transportation Plan (MTP), which uses a 25-year planning perspective and is updated every 5 years. The 2025 MTP emphasizes the “all-important role land use plays in transportation decision-making,” finding that “a concentrated land use development pattern is the single most effective strategy at producing improvements in transportation system performance.”⁷³

The Planning Process

The basis of the 2025 MTP is a transportation vision and 12 regional transportation goals drafted by the CCMPO and a MTP Steering Committee comprised of over 20 federal, state, regional, and local officials; transit providers; and transportation advocates. To fulfill its federal mandate to support regional land-use plans and other planning objectives, the MTP also states that it strives to be consistent with the CCRPC's Regional Plan's goals and objectives, which cover land use, natural resources, economic development, housing, infrastructure, community facilities, energy, and public safety.

The public involvement process for the 2025 MTP included a public opinion survey, public meetings, and consultation with advisory groups. Ten public meetings held prior to the MTP's drafting sought to determine the public's desires and needs regarding transportation. Comments from the public meetings were summarized by major themes in the 2025 MTP. CCMPO also conducted a public opinion survey to assess quantitatively the public's priorities for investment in the transportation system. The MTP's transportation vision and goals were vetted through the public involvement process, but the MTP does not indicate whether or how the vision and goals were revised as a result.

Following these public outreach efforts, the CCMPO developed and evaluated several rounds of transportation alternatives using a five-step modeling process. Like the traditional “four-step model,” the Chittenden County Transportation Model predicts trip generation, trip distribution, modal choice, and network assignment based on forecast population, housing, and employment trends. The CCMPO's model, however, uses land use pattern as an additional input.

The 2025 MTP alternatives analysis iteratively refined 10 initial alternatives based on combinations of two land use patterns (“concentrated” and “trend”) and five transportation system improvements to five “hybrid” alternatives and finally to two “refined” alternatives. The alternatives were evaluated using qualitative feedback from the Steering Committee and performance measures of efficiency, highway performance,

⁷² Chittenden County Metropolitan Planning Organization (2003). “Guide to Transportation Planning in Chittenden County.” 2nd edition.

⁷³ Chittenden County Metropolitan Planning Organization (2005). “2025 Chittenden County Metropolitan Transportation Plan.” p. 1, 41.

air quality, and multimodal possibilities. Following the Steering Committee’s discussion of the refined alternatives, the “CCMPO Board made key decisions” on which elements to include in the MTP’s “Preferred Alternative,” which was based on the land use plan set out in the Chittenden County Regional Plan.⁷⁴

Although the MTP Steering Committee was involved throughout the process of alternatives development and evaluation, the general public’s next opportunity to participate directly in the MTP process was to comment on the draft MTP. The draft MTP was also reviewed and commented upon by the Steering Committee, CCMPO member jurisdictions, and the CCMPO Board.

Outcomes and implementation

The 2025 MTP emphasizes the strong effects of land use patterns on transportation performance, but does not consider the inverse role that transportation may play in producing desired land use patterns. The MTP encourages member municipalities to plan for concentrating development at growth centers. For its part, the MPO plans to develop criteria for a project prioritization system to include factors that support the regional land use plan, multimodal options and connectivity, safety, and regional significance, and to consider giving priority to transportation projects that promote compact development. The MPO also is investing in the Land Use Allocation Module (LUAM) component of its transportation model that will enhance integrated land use and transportation planning by allocating housing and employment growth based on both the transportation system and land use plans.

⁷⁴ The land use section of the Chittenden County Regional Plan divides Chittenden County into five planning areas (metropolitan, transitional, village, rural, and special use), each with unique characteristics of scope, scale, and mix of uses. Citing state requirements that “planning decisions shall be made at the most local level,” the Regional Plan uses local municipal plans as the basis of its land use plan. The planning areas were developed by reviewing the local zoning ordinances of each member municipality “to determine their desired degree of development” (Chittenden County Regional Plan, Ch. 3, p. 14). Thus, the Regional Plan effectively ratifies local municipal plans, but also outlines goals and encourages specific types of use and development for the five planning areas. There appears to have been no consideration of alternative development scenarios, or how other drivers could affect regional land use patterns.

APPENDIX B

Scenario Planning as a Tool for Community Visioning and Transportation Planning

Scenario planning is a strategic planning tool designed to develop a set of equally plausible, internally consistent, potential outcomes. It does not seek to develop an absolute prediction or forecast. Most methods of scenario planning seek to (1) identify the major drivers affecting the future—the key underlying forces operating in a region to shape its development and growth, and (2) develop stories or narratives about the future that highlight cause-and-effect relationships between the underlying forces.

History and Definition

Scenario planning's roots lie in military and business applications. Bartholomew cites ancient Chinese and Roman texts in which generals describe the need to consider multiple ways in which a battle could unfold in order to remain flexible and adaptable against an unpredictable foe. According to Bartholomew, businesses began using scenario planning in the 1960s and 1970s as part of their strategic planning initiatives.⁷⁵ The most well-known case is of Royal Dutch Shell, which began using scenario planning in the late '60s after finding that its forecasting techniques were yielding increasingly inaccurate predictions. To factor more uncertainty into its planning, Shell developed several scenarios, one of which closely resembled the conditions that eventually were realized in the oil crisis of 1973-1974. As a result, Shell was able both to recognize the indicators of a global oil shortage and to react far more swiftly than its competitors.⁷⁶

Various processes and methods of modern scenario planning exist, but most have two common features. First, scenario planners identify the major drivers affecting the future—the key underlying forces operating in a region to shape its development and growth. In the context of regional planning, such drivers typically include society, technology, the economy, politics, and the environment.⁷⁷ According to Zegras and colleagues, these drivers must be both important and uncertain. Second, scenario planning creates not just outcomes, but stories that describe how a future situation could unfold. Storytelling establishes cause-and-effect relationships between the underlying forces, allowing planners to develop “a range of possible futures” that could feasibly evolve under the right circumstances.⁷⁸ According to Avin and Dembner, the advantage of the story-based scenario approach is that it avoids simple comparisons between “good” and “bad” outcomes such as “the typical ‘compact versus sprawl’ alternatives that are commonly generated and ‘tested.’” If all scenarios are plausible, then each deserves serious consideration and analysis, prompting a more thoughtful dialogue about the future.

⁷⁵ Bartholomew.

⁷⁶ Zegras, C., Sussman, J., and Conklin, C. (2004, March). “Scenario Planning for Strategic Regional Transportation Planning,” *Journal of Urban Planning & Development*, 2.

⁷⁷ Avin, U.P. and Dembner, J.I. (2001, November). “Getting Scenario-Building Right.” *Planning*, 22-27.

⁷⁸ Zegras et al.

Comparison with Alternatives Analysis

Scenario planning is not unlike the method of alternatives analysis currently used for long-range transportation planning. Alternatives analysis arose from the Bureau of Public Roads' (now the Federal Highway Administration) guidelines for implementing the Federal-Aid Highway Act of 1962 that advised regions to develop and evaluate a number of alternative transportation networks.⁷⁹ Creating a set of alternative actions and evaluating their potential effects became a mainstay of public planning practices, especially after the process was included in the National Environmental Policy Act of 1970.⁸⁰

As traditionally practiced, transportation alternatives analyses develop a set of assumptions about the future, typically based on extrapolations of current demographic, housing, and employment trends. Various combinations of transportation construction, maintenance, and system improvement projects are developed as alternatives, which are then modeled based on the assumptions and evaluated using transportation system performance criteria.

Alternatives analysis differs from scenario planning in several ways, however. First, alternatives are developed using forecast indicators (e.g., number and location of jobs) as opposed to underlying trends (e.g., the strength of the employment market). They do not typically take an integrated, systems-based approach that accounts for cause-and-effect interactions. For example, land use patterns usually have been considered fixed, rather than as a variable both affecting and affected by transportation systems, although this is changing with the advent of more sophisticated modeling techniques.⁸¹ In addition, the alternatives are differentiated by internal characteristics (of the transportation project or system) rather than by external forces such as land use patterns or economic trends.⁸² In other words, alternatives compare variations on the same fundamental outcome, whereas scenarios compare a set of completely different outcomes.

Practice and application in long-range transportation and land use planning

The FHWA recommends that the first step of a scenario-planning process should be to identify the community's "quality of life values" as a foundation for scenario development. The FHWA then outlines six steps for scenario planning:

- (1) Research the driving forces—identify major forces of change
- (2) Determine patterns of interaction—how the forces relate to one another
- (3) Create scenarios—clear stories with recognizable features
- (4) Analyze the implications—present scenarios visually
- (5) Evaluate scenarios—measurable indicators promote understanding and debate
- (6) Monitor indicators—be aware of real growth patterns and adapt as needed

⁷⁹ Weiner, E. (1997). "Urban Transportation Planning In the United States: An Historical Overview." 5th Edition. DOT-T-97-24. U.S. Department of Transportation, Washington D.C. Retrieved from <http://tmip.fhwa.dot.gov/clearinghouse/docs/utp/ch4.stm> on May 6, 2006.

⁸⁰ Bartholomew.

⁸¹ Bartholomew.

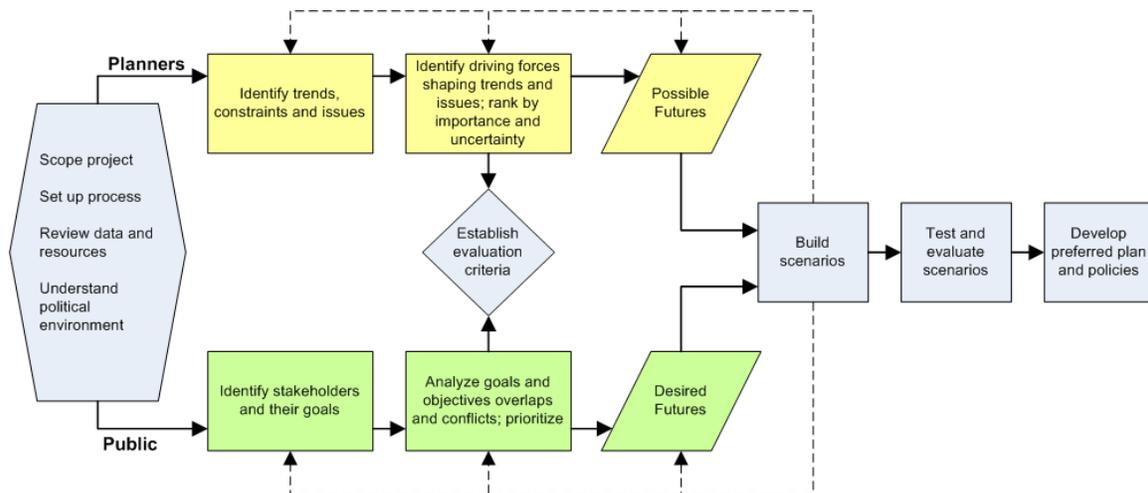
⁸² Zegras et al.

Although the FHWA calls for public involvement prior to the scenario-planning process and at steps (4), (5), and (6), it is unclear about how to best integrate public input into what was designed as a strategic planning exercise.

Avin and Dembner describe how scenario planning in a community-visioning context can incorporate both the *desired* outcomes of the community as well as the *possible* outcomes developed by planners. This approach requires several modifications to the “classic” scenario planning process as practiced by corporate strategic planners.

Avin and Dembner outline a model wherein community visioning and scenario planning proceed on parallel paths, with citizens identifying and prioritizing their goals, and planners identifying and prioritizing driving forces (Figure 2). Scenarios are developed based on both the underlying forces and the community’s goals. The scenarios are then modeled and tested using a common, agreed-upon set of performance indicators or criteria. Citizens can then reassess their goals in the context of the new information provided by model results, and make informed tradeoffs that result in a preferred vision. The assumption is that “stakeholders will modify their beliefs and behavior when they are shown an analysis of the outcomes of their particular, cherished futures.”⁸³ Even if complete consensus is not reached, the process usually clarifies key decision-points and choices.⁸⁴

Figure 2. Scenario planning in a community visioning process (adapted from Avin and Dembner)



In 2003-2004, Bartholomew conducted a survey of land use-transportation projects across the country to ascertain to what extent these projects incorporated scenario-planning techniques. Did they develop “true” scenarios that told a story driven by underlying forces, or were they merely renamed “alternatives?” To what extent did the scenarios combine the desired outcomes of the community with the possible outcomes identified by planners? Is it significant whether the sponsoring organization is an MPO or a non-profit advocacy group?

⁸³ Avin and Dembner.
⁸⁴ Avin and Dembner, Bartholomew.

The survey responses included community or regional visioning initiatives as well as smaller projects such as corridor studies. Interestingly, 73 of 153 survey responses did not meet Bartholomew's threshold criteria to determine whether a project in fact used scenario planning (whether land-use assumptions were fixed or varied among scenarios, and whether the project evaluated more than one scenario or alternative). These findings seem to indicate that there is considerable variation among land use and transportation planners' understanding and definition of the term "scenario planning."

Bartholomew's analysis of the remaining 80 projects produced the following conclusions:

- The use of scenario planning has been increasingly steadily since the late 1980s, and seems to be more prevalent in states that have enacted growth management legislation (e.g., the West Coast and the Chesapeake Bay area);
- Scenario planning projects are conducted primarily because of concerns about land use patterns or urban form, including sprawl's effects on transportation systems and the environment;
- MPOs (as compared to local governments, non-profits, or regional councils) are the organizational type most likely to sponsor scenario planning projects;
- Non-profit sponsorship may be moving from an advocacy role to a partnership role of bridging gaps and playing "political icebreaker";
- Only 20% of the projects used four scenarios—the number the literature suggests is adequate to allow for rich strategic divergence but small enough not to confuse citizens;
- Six types of scenarios were prevalent: baseline (based on recent land use development trends); cluster (nodal density increases), compact (uniform density increases), infill/redevelopment (of a central city), corridor (growth along transportation routes), and sprawl (dispersed, fringe, or highway-oriented development);
- The two variables differentiating most scenarios were location of growth and density of growth;
- Many transportation models used were not robust or sensitive enough to model land use-transportation interactions in a meaningful way, hampering the effectiveness of the process;
- Only 28% of projects involved citizens in scenario development, and only 39% of projects that produced a preferred scenario included citizens in that process, although projects since 2000 were more likely to report interactive public engagement;

- The projects' outcomes ranged from inter-jurisdictional agreements to official land-use projections for long-range transportation plans, although 18% of projects reported no future actions would be taken.

Bartholomew's findings make clear that there is substantial distance between scenario planning as described by Avin and Dembner and scenario planning as practiced in the context of community visioning and transportation and land use planning. More sophisticated and sensitive modeling tools are needed to allow planners to produce indicators that fully realize the scenarios they develop. Marshall and Grady point to land use density, diversity, and design; auto availability; lifestyle-based trip generation; and modal choice based on urban form as additional variables that can improve four-step models.⁸⁵ Also, the level, nature, and timing of citizen involvement in these projects vary widely. Public participation is most appropriate at four stages: pre-scenario visioning and scenario development, evaluation, and selection, but not all projects involve citizens at all of these milestones. Similarly, methods of involvement range from traditional information public meetings to interactive design charrettes in which citizens develop scenarios using visualization software or maps.

⁸⁵ Marshall, N. and Grady, B. (2005). "Travel Demand Modeling for Regional Visioning and Scenario Analysis." *Transportation Research Record: Journal of the Transportation Research Board*, No. 1921, Transportation Research Board, Washington, D.C., 44-52.